Plan Supplement

Dunn County Multi-Hazard Mitigation Plan 2026-2036

Draft – 5/6/26

WCWRPC
WEST CENTRAL WISCONSIN
REGIONAL PLANNING COMMISSION

DUNN COUNTY MULTI-HAZARD MITIGATION PLAN SUPPLEMENT

This *Mitigation Plan Supplement* is a supporting document containing additional data and analysis of the hazard threats facing the County, capabilities to mitigate these threats, and supplementary information regarding the *Mitigation Plan* update. For purposes of meeting FEMA mitigation planning requirements, the main Mitigation Plan document and this supplement, together, constitute Dunn 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 this Supplement are identified as Supplement #s (e.g., Supplement 1.C.).

MITIGATION PLAN SUPPLEMENT
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SUPPLEMENT I.
COMMUNITY PROFILE

A. NATURAL FEATURES AND ENVIRONMENT

The ecological landscape of Dunn County is almost entirely western coulees and ridges with trace amounts of western prairie to the west. The climate is more consistent with southern Wisconsin than neighboring counties and is considered a favorable climate for agricultural purposes. The DNR provides a full summary of the Western Coulees and Ridges, including its topographic and climatic features, in a report titled "Ecological Landscapes of Wisconsin".

i. Watersheds

A watershed is an area of land that drains or "sheds" its water to a lake, river, stream, or wetland. Some watersheds encompass several hundred square miles and multiple counties, while others may be small, covering only a few square miles that drain into a lake. This is important to understand since the effects of natural and man-made activities in one area can have a direct impact on other areas. For example, run-off from heavy rainfall upstream in a watershed will eventually reach the downstream part of the watershed.

Surface waters in Dunn County fall within two major drainage systems. Surface waters in the northern two-thirds of the County lie within the Red Cedar subbasin. The southern-third of the County, outside of the Red Cedar River, is part of the Lower Chippewa River subbasin. **Figure 1** shows the locations of the watersheds within Dunn County at the ten-digit hydrologic unit code (HUC) level.

ii. Surface Waters, Floodplains, and Wetlands

Figure 2 delineates the County's surface waters, floodplains, and wetlands. The surface waters in Dunn County have a total surface area of approximately 6,522 acres or 10.2 square miles. Tainter Lake in the Town of Tainter is the largest waterbody in the County at 1,752 acres. Lake Menomin is another water body of considerable size at 1,405 acres. A couple of dams along the Red Cedar River maintain reservoirs for hydro-electric power generation. These reservoirs, lakes, and the rivers themselves are recreational resources for Dunn County.

Wetland areas within the watersheds can affect the water levels of rivers and creeks flowing through Dunn County. Wetlands are defined by the State Statute as "an area where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic (water-loving) vegetation and which has soils indicative of wet conditions." Wetlands may be seasonal or permanent and are commonly referred to as swamps, marshes, or bogs. Wetland areas can have an important natural mitigation role given their capacity to store and filter pollutants, replenish groundwater supplies, store floodwaters, and maintain stream flows.

One sensitive land feature that most residents are aware of is the floodplain, which is the flood-prone land adjacent to water bodies. Floodplains can be desirable development areas due to the proximity to lakes, rivers, and streams, but pose problems by possibly putting residents and property at risk. Altering the floodplain landscape by filling or building levees, structures, or other hardscape (e.g., parking lots) can exacerbate flooding conditions. The filling of wetlands in flood prone areas has also been proven to increase the likelihood of flooding. Development in floodplains can also affect the environmental quality of the waterway.

Figure 1. Dunn County Watersheds

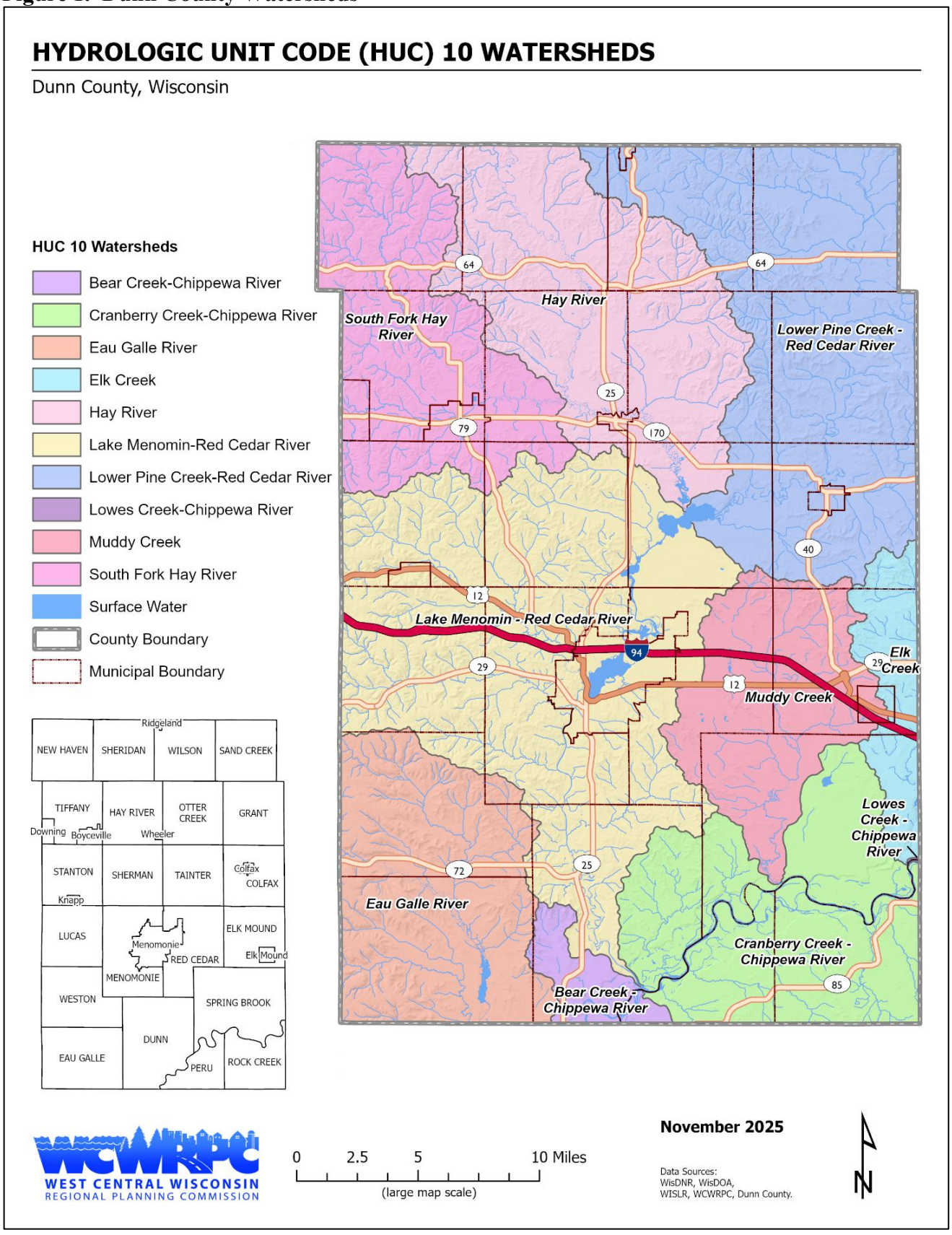
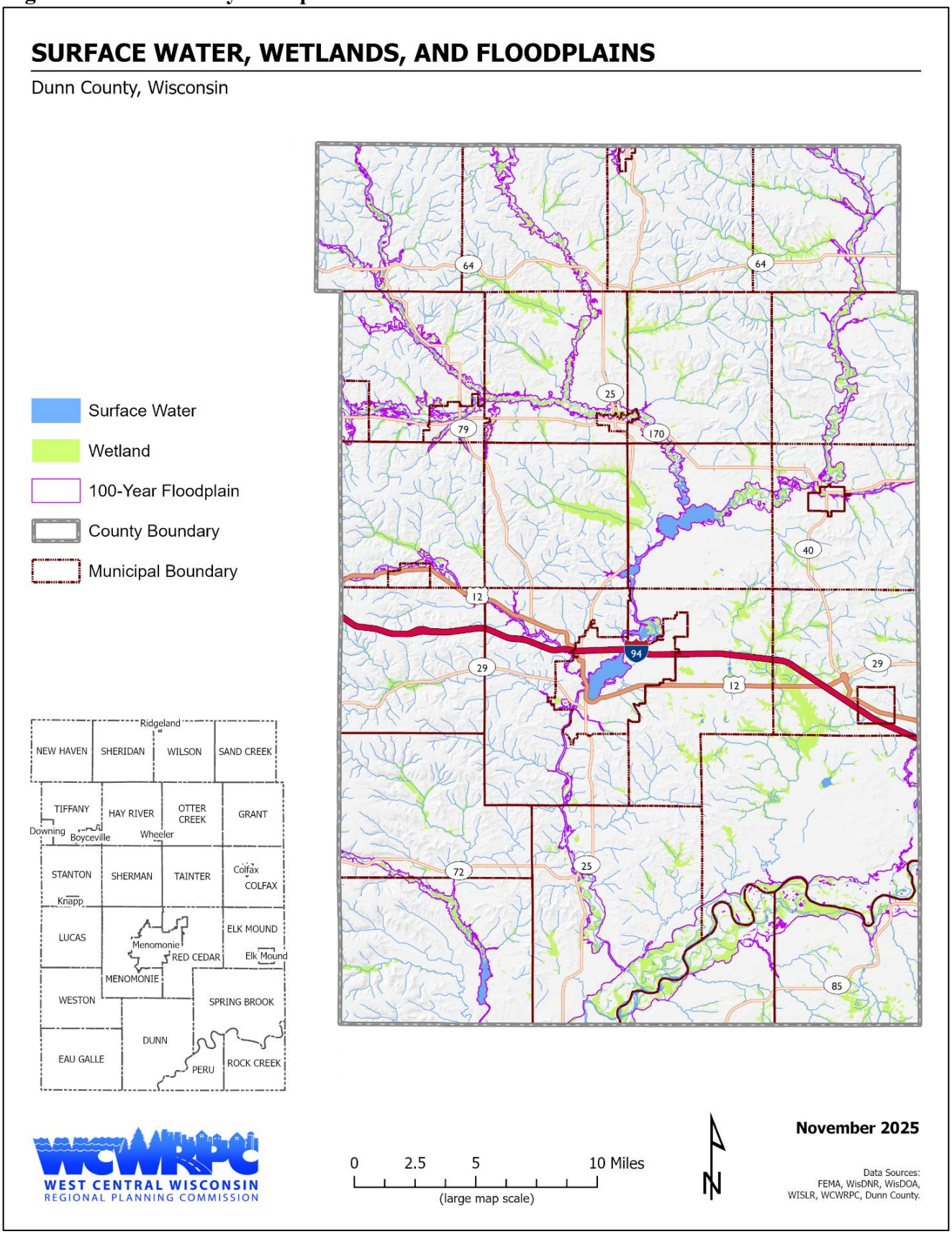


Figure 2. Dunn County Floodplains & Wetlands



To better protect the residents throughout the state, and to minimize the loss of property, the State of Wisconsin, under Wisconsin Statute 87.30(1), requires counties, cities, and villages to adopt and enforce floodplain zoning. In addition, Wisconsin Administrative Code NR116, Floodplain Management Program, has been promulgated for the protection of property and public investments from the effects of flooding. The floodplain and flood-hazard areas within the County associated with these water bodies are discussed in greater detail within Section III.C.v. of the main plan document.

iii. General Climate

The National Oceanic and Atmospheric Administration (NOAA) classifies Dunn County as having a humid continental climate. Severe winters, no dry season, and warm summers are the main characteristics. The average monthly temperature ranges from 14 degrees Fahrenheit in January to 71 degrees Fahrenheit in July. Annual precipitation averages 34 inches, with the majority falling in May-August. Annual snowfall averages 40.9 inches, with the majority occurring between January and March (1991-2020). Dunn County is susceptible to a range of natural hazards, including flooding. A description of these natural hazards, along with historical trends and current risks, is included in Section III.C. of the main plan document.

iv. General Land Cover

Historically, Dunn County's landscape was dominated by a range of vegetation that included various types of oak trees and openings, pine, and brush. USGS provides annual land cover maps. **Figure 3 in the main plan document** shows the landscape of Dunn County in 2023 was dominated by agriculture and deciduous forests. **Table 1** provides the acreage and percentage of each land cover type. Approximately 51.3% of the County was agricultural land cover and 37.1% was forest or forested wetlands. Developed areas comprise roughly 7% of land area. This reflects the rural character within Dunn County, where the highly developed areas within and around the City of Menomonie are contrasted by forested and agricultural areas throughout the remainder of the County.

Table 1. Dunn County Land Cover

Land Cover Type	Acres	Percent
Open Water	5,693.08	1.03%
Developed. Open Space	26,546.79	4.80%
Developed, Low Intensity	9,588.98	1.73%
Developed, Medium Intensity	2,951.84	0.53%
Developed, High Intensity	700.32	0.13%
Barren Land (Rock/Sand/Clay)	533.30	0.10%
Deciduous Forest	151,333.00	27.37%
Evergreen Forest	5,653.49	1.02%
Mixed Forest	11,640.13	2.11%
Shrub/Scrub	2,223.50	0.40%
Grassland/Herbaceous	3,201.59	0.58%
Pasture/Hay	49,599.98	8.97%
Cultivated Crops	233,816.50	42.30%
Woody Wetlands	36,478.93	6.60%
Emergent Herbaceous Wetlands	12,855.51	2.33%

B. Demographic and Economic Profile

i. Population and Housing

Table 2. Dunn County Housing Unit & Population Change • 1980 to 2020

Year	Number of Housing Units	Numerical Change	Percent Change	Population	Numerical Change	Percent Change
1980	11,886	3,061	34.7	34,314	5,323	18.4
1990	13,252	1,366	11.5	35,909	1,595	4.6
2000	15,277	2,025	15.3	39,858	3,949	11.0
2010	17,964	2,687	17.6	43,857	3,999	10.0
2020	18,693	729	4.1	45,440	1,583	3.6

Source: 1980, 1990, 2000, 2010, & 2020 Census

Table 3. Dunn County Demographics

Municipality	Census 2010	Census 2020	% Change 2010-2020	Proj. 2050	Per Capita Income	% Persons Below Poverty Line	Median Age	*Economic Disadvantaged Rural Cmty
Towns								
Colfax	1,186	1,230	3.7	1,250	36,879	2.93	42.6	
Dunn	1,524	1,473	-3.3	1,261	35,388	10.64	41.8	
Eau Galle	757	765	1.1	714	38,153	3	42.5	
Elk Mound	1,792	1,897	5.9	2,228	40,230	2.55	42.3	
Grant	385	395	2.6	323	42,726	2.68	42.3	
Hay River	558	627	12.4	714	33,463	2.61	49.6	Yes
Lucas	764	698	-8.6	561	43,256	4.31	41.3	
Menomonie	3,366	3,415	1.5	3,167	41,842	0.81	37.7	
New Haven	677	673	-0.6	647	35,076	7.5	44.8	
Otter Creek	501	498	-0.6	640	40,158	12.61	38.1	
Peru	242	233	-3.7	221	31,569	6.1	44	Yes
Red Cedar	2,086	2,359	13.1	2,800	45,764	7.05	42.1	
Rock Creek	1,000	1,003	0.3	908	39,912	1.46	35.8	
Sand Creek	570	603	5.8	599	33,492	24.17	46.9	Yes
Sheridan	454	460	1.3	469	38,901	5.83	40.6	
Sherman	849	922	8.6	1,200	60,228	2.99	48.7	
Spring Brook	1,558	1,687	8.3	1,813	40,021	11.72	42.9	
Stanton	791	758	-4.2	675	38,996	7.33	40.2	
Tainter	2,319	2,643	14.0	2,812	46,849	6.9	41.3	
Tiffany	618	617	-0.2	587	37,450	5.17	51.1	
Weston	594	574	-3.4	467	38,079	4.16	47.8	
Wilson	531	504	-5.1	438	37,005	2.26	47.1	
Subtotal:	**23,122**	**24,034**	**3.9**	**24,494**				
Villages								
Boyceville	1,086	1,100	1.3	953	38,130	16.14	40.8	
Colfax	1,158	1,182	2.1	1,112	35,964	13.8	40	
Downing	265	234	-11.7	162	29,164	4	41	Yes
Elk Mound	878	985	12.2	942	29,846	11.93	32.1	Yes
Knapp	463	478	3.2	501	31,643	15.87	43.8	Yes
Ridgeland	273	258	-5.5	226	25,273	20.07	46.8	Yes
Wheeler	348	326	-6.3	274	28,604	13.36	41	Yes
Subtotal:	**4,471**	**4,563**	**2.1**	**4,170**				
Cities								
Menomonie	16,264	16,843	3.6	13,811	30,159	18.35	25.3	
Subtotal:	**16,264**	**16,843**	**3.6**	**13,811**				
Dunn County	**43,857**	**45,440**	**3.6**	**42,475**	**36,207**	**10.7**	**35.8**	

Sources: 2010 & 2020 US Census, 2019-2023 American Community Surveys (5-year estimates). Projections by ESRI.
**Economic disadvantaged rural community is defined by population 3,000 or less and average per capita income no more than 80% of national per capita income ($34,631) based on US Census Data.*

Table 4. Dunn County Housing Conditions

Municipality	1 Unit Detached	1 Unit Attached	2 Units	3 to 9	10 to 19	20 or more	Mobile Home	Seasonal, Occasional, Rec Use
Towns								
Colfax	352	-	17	-	-	-	31	0
Dunn	489	7	-	9	12	-	138	0
Eau Galle	308	-	13	-	-	-	6	21
Elk Mound	495	75	26	6	-	-	72	15
Grant	164	4	-	-	-	-	6	5
Hay River	218	-	15	-	-	-	57	15
Lucas	328	-	-	-	-	-	39	14
Menomonie	1,086	8	-	-	-	-	165	0
New Haven	231	-	7	1	-	-	43	13
Otter Creek	176	2	-	-	-	-	61	21
Peru	115	-	-	-	-	-	12	1
Red Cedar	696	48	26	6	-	-	16	22
Rock Creek	362	3	8	6	-	-	32	6
Sand Creek	239	-	-	-	9	-	4	7
Sheridan	225	1	-	-	-	-	20	24
Sherman	351	17	15	-	-	-	18	16
Spring Brook	633	22	11	-	-	-	35	11
Stanton	277	-	3	-	-	-	34	9
Tainter	989	78	55	-	35	-	98	96
Tiffany	221	7	-	-	-	-	38	6
Weston	230	5	9	-	-	-	23	0
Wilson	169	-	-	-	-	-	31	13
Subtotal:	**8,354**	**277**	**205**	**28**	**56**	**-**	**979**	**315**
Villages								
Boyceville	415	60	25	40	26	-	52	0
Colfax	301	9	16	200	32	-	98	11
Downing	91	-	-	3	-	-	11	6
Elk Mound	160	25	65	43	19	29	46	0
Knapp	138	12	9	27	39	-	69	5
Ridgeland	101	-	17	13	10	9	11	0
Wheeler	77	6	1	7	-	-	35	0
Subtotal:	**1,283**	**112**	**133**	**333**	**126**	**38**	**322**	**22**
Cities								
Menomonie	2,680	325	384	1,578	610	694	295	8
Subtotal:	**2,680**	**325**	**384**	**1,578**	**610**	**694**	**295**	**8**
Dunn County	**12,317**	**714**	**722**	**1,939**	**792**	**732**	**1,596**	**345**

Sources: 2019-2023 American Community Survey (5-year estimates).

Table 5. Dunn County Assisted Living and Nursing Home Facilities

Municipality	Assisted Living Facilities						Licensed Nursing Homes	
	Adult Family Home Care		Community-Based Residential		Residential Care Apartment Complex			
	Facilities	Capacity	Facilities	Capacity	Facilities	Capacity	Facilities	Capacity
TOWNS								
Colfax	-	-	-	-	-	-	-	-
Dunn	-	-	1	15	-	-	-	-
Eau Galle	-	-	-	-	-	-	-	-
Elk Mound	2	8	1	8	-	-	-	-
Grant	-	-	-	-	-	-	-	-
Hay River	-	-	-	-	-	-	-	-
Lucas	1	4	-	-	-	-	-	-
Menomonie	-	-	-	-	-	-	-	-
New Haven	-	-	-	-	-	-	-	-
Otter Creek	-	-	-	-	-	-	-	-
Peru	-	-	-	-	-	-	-	-
Red Cedar	2	8	-	-	-	-	-	-
Rock Creek	-	-	-	-	-	-	-	-
Sand Creek	-	-	-	-	-	-	-	-
Sheridan	-	-	-	-	-	-	-	-
Sherman	1	4	-	-	-	-	-	-
Spring Brook	-	-	-	-	-	-	-	-
Stanton	-	-	-	-	-	-	-	-
Tainter	1	4	-	-	-	-	-	-
Tiffany	-	-	-	-	-	-	-	-
Weston	1	4	-	-	-	-	-	-
Wilson	-	-	-	-	-	-	-	-
Subtotal:	**8**	**32**	**2**	**23**	**-**	**-**	**-**	**-**
VILLAGES								
Boyceville	4	16	1	8	-	-	-	-
Colfax	-	-	1	58	1	14	-	-
Downing	-	-	-	-	-	-	-	-
Elk Mound	-	-	-	-	-	-	-	-
Knapp	-	-	-	-	-	-	-	-
Ridgeland	-	-	-	-	-	-	-	-
Wheeler	-	-	-	-	-	-	-	-
Subtotal:	**4**	**16**	**2**	**66**	**1**	**14**	**-**	**-**
CITIES								
Menomonie	7	27	7	105	2	81	4	174
Subtotal:	**7**	**27**	**7**	**105**	**2**	**81**	**4**	**174**
Dunn County	**19**	**75**	**11**	**194**	**3**	**95**	**4**	**174**

Source: Assisted Living and Licensed Nursing Home data is from directories provided by the Wisconsin Department of Health Services.

Figure 3. Dunn County Population Change by Census Tract

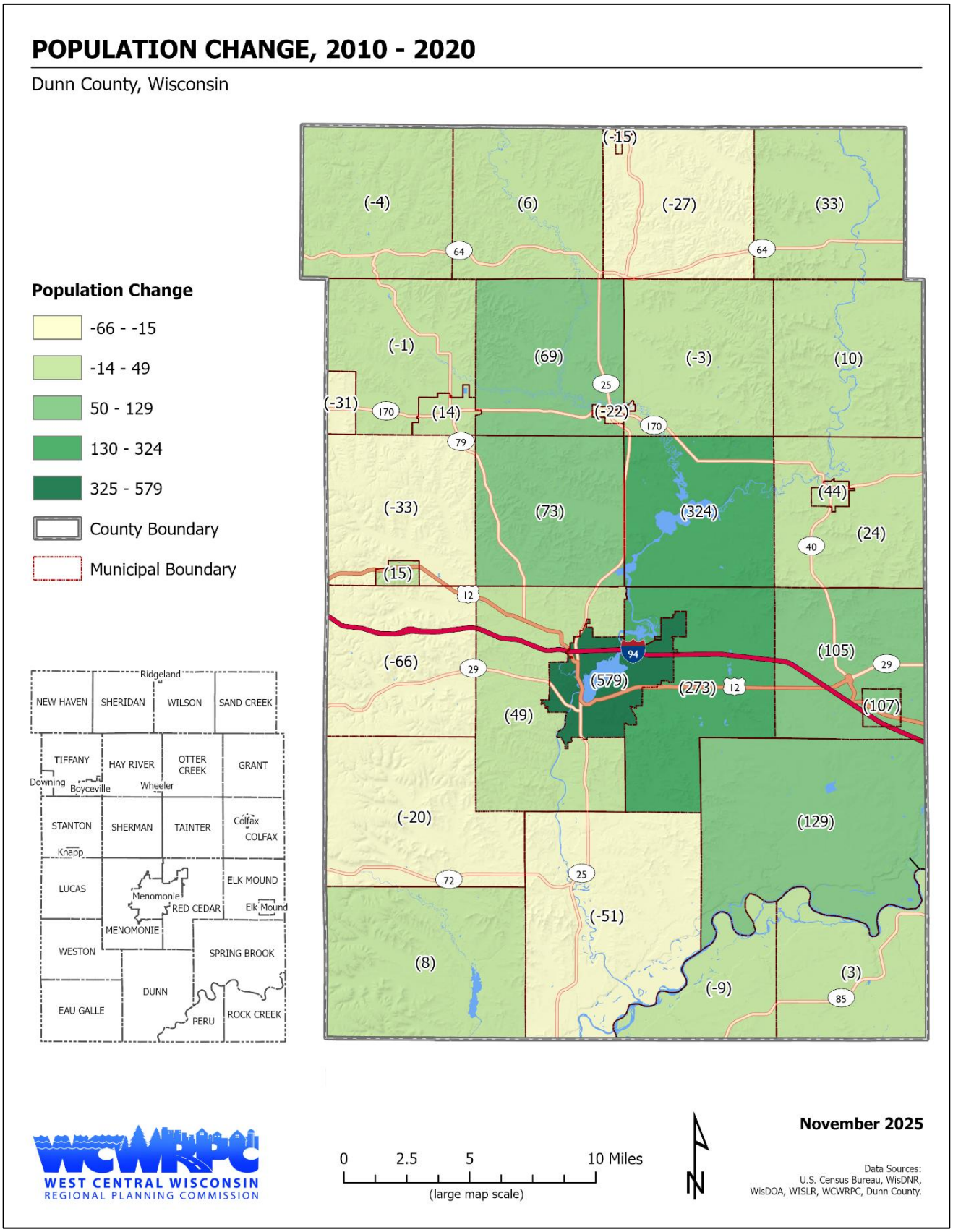
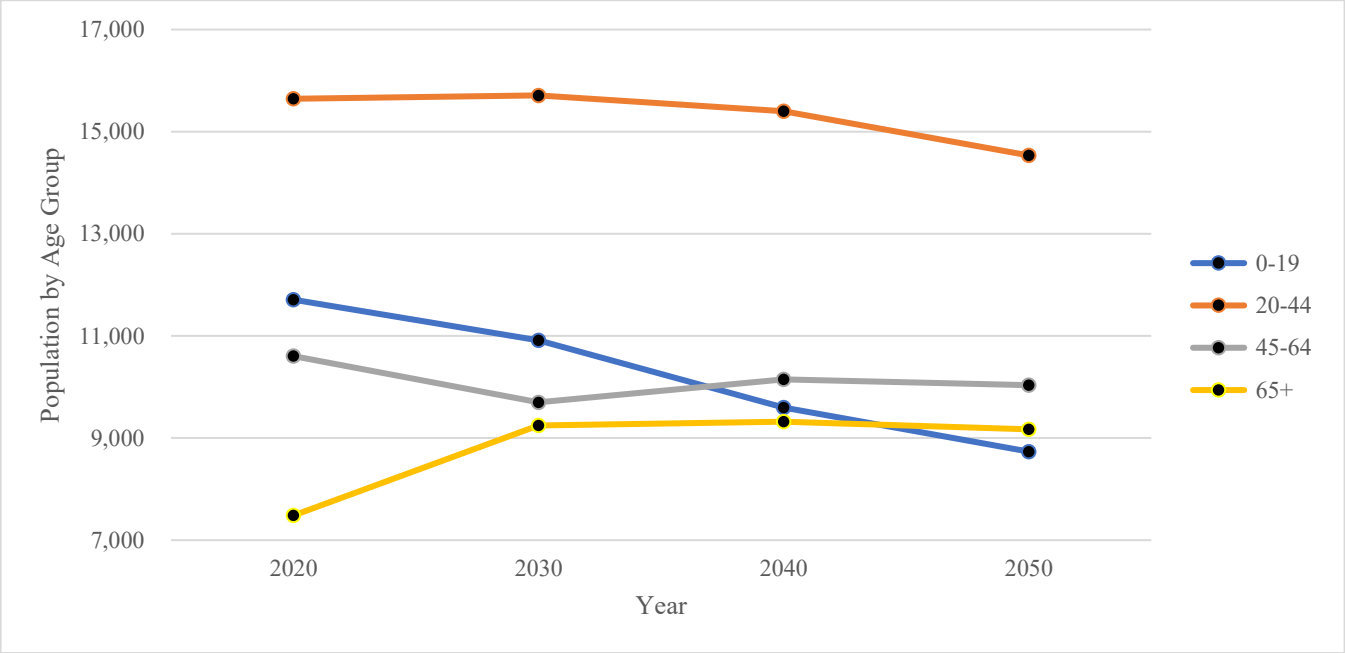


Figure 4. Dunn County Age Group Projections • 2020 to 2050



Source: Wisconsin Department of Administration, Population Projections (2024)

ii. Economic Overview

The economy of a county is an important determining factor driving land use and development as well as hazard vulnerabilities and community resiliency.

- The infographic on the following page provides an overview of Dunn County's economy. The County has low unemployment and strong trade and manufacturing sectors.
- Educational attainment is evenly distributed across high school, some college, and degree holders.
- Employment in the County is predominantly white-collar jobs. Overall, net worth and household income is high and well above national averages ($204,032 and $74,365 respectively).
- **Table 6** summarizes Dunn County's employment by primary industry sector. In 2024, the County had over 1,100 payrolled business locations and almost 18,000 jobs.
- Manufacturing is the County's largest employment sector with 3,387 jobs (18.9% of all jobs). Government is the second highest employment sector (16.1%).
- The Administrative and Support, Professional Services, and Extraction sectors all saw decreases exceeding 25% of their 2014 employment numbers. Despite these losses, the County increased its employment by almost 1,500 jobs, or 9.0%, between 2014 and 2024.

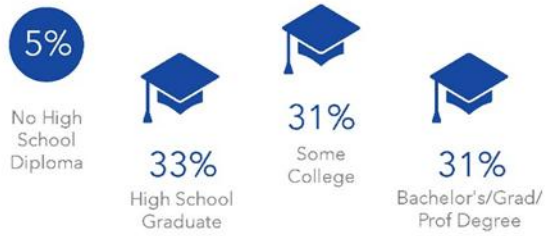
Economic Profile

Dunn County, WI

Geography: County

SALES (2023)

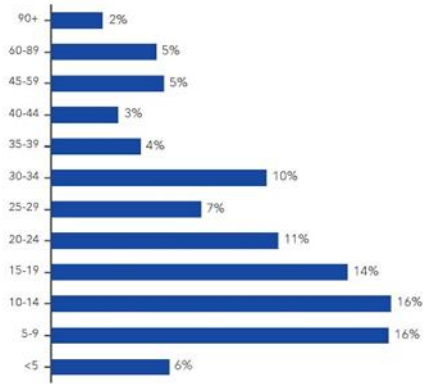
EDUCATION



EMPLOYMENT

Economic Overview

COMMUTE TIMES (minutes)



INTERNET ACCESS (2023)

96%
Have Internet Accces at Home

92%
Broadband or High Speed Connection at Home

97%
Used Internet Last 30 Days

INCOME

$74,365
Median Household Income

$36,667
Per Capita Income

$204,032
Median Net Worth

Source: This infographic contains data provided by Esri (2025, 2030), Esri-Data Axle (2025), ACS (2019-2023), Esri-MRI-Simmons (2025).

Table 6. Dunn County Establishments & Employment By Industry Sector

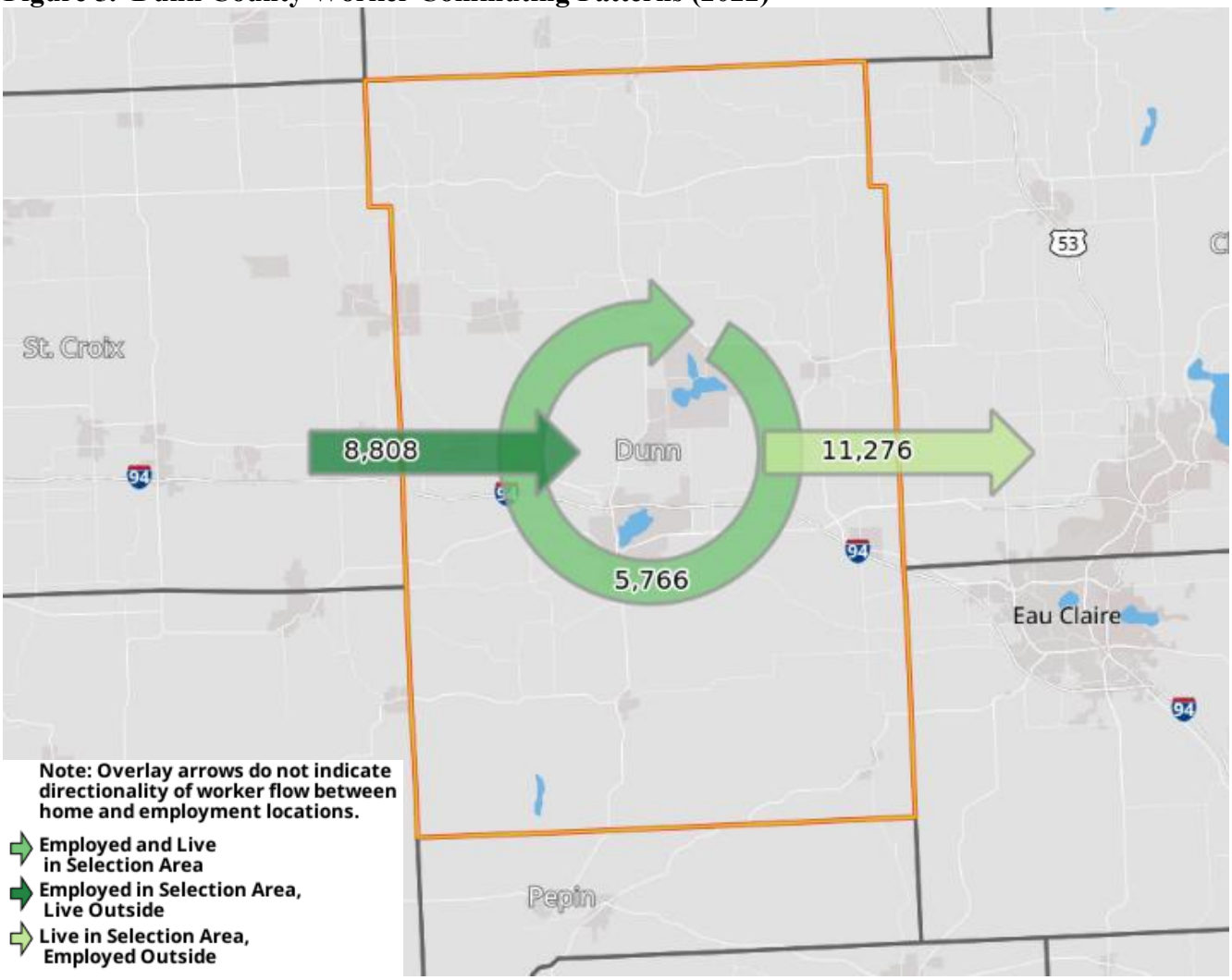
Industry Sector (2-digit NAICS)	2023 Payrolled Business Locations	2014 Jobs	2024 Jobs	2014 - 2024 % Change	Competitive Effect
Manufacturing	65	2,726	3,387	24%	532
Government	102	3,124	2,900	(7%)	(428)
Retail Trade	116	1,699	2,217	31%	503
Health Care and Social Assistance	218	2,505	2,205	(12%)	(904)
Transportation and Warehousing	52	1,272	1,976	55%	74
Accommodation and Food Services	94	1,275	1,355	6%	(79)
Wholesale Trade	59	623	827	33%	173
Construction	108	570	821	44%	62
Agriculture, Forestry, Fishing and Hunting	44	384	455	19%	64
Finance and Insurance	52	423	442	5%	(30)
Administrative and Support and Waste Management and Remediation Services	36	715	360	(50%)	(401)
Professional, Scientific, and Technical Services	76	497	344	(31%)	(298)
Other Services (except Public Administration)	58	251	206	(18%)	(70)
Arts, Entertainment, and Recreation	26	151	181	20%	(7)
Real Estate and Rental and Leasing	27	91	110	21%	3
Utilities	3	52	55	7%	(0)
Information	5	64	41	(36%)	(27)
Management of Companies and Enterprises	6	26	38	47%	7
Mining, Quarrying, and Oil and Gas Extraction	2	39	28	(28%)	1
Educational Services	4	0	17	Insf. Data	17
Unclassified Industry	0	0	0	0%	0
Totals	1,151	16,487	17,966	9%	(809)

Source: Lightcast, largely based on Bureau of Labor Statistics data

Generally, the data above represents payrolled businesses paying Federal unemployment insurance. Smaller businesses and sole proprietor enterprises, including many smaller farms, are underestimated in such data.

As shown in **Figure 5**, Dunn County's workforce is very mobile, often with significant commuting distances that can be impacted by severe weather or the disruption of community lifelines. According to the U.S. Census Bureau, 5,766 County residents had their primary job within Dunn County in 2022, while 11,276 residents commuted outside the County. An additional 8,808 workers lived outside Dunn County but commuted in for their primary job.

Figure 5. Dunn County Worker Commuting Patterns (2022)



Source: U.S. Census Bureau. OnTheMap.

The United Way has developed a financial hardship measure that identifies the number of households that are not considered to be in poverty by federal standards, but still struggle financially to secure basic needs. This measure is called ALICE – or Asset Limited, Income Constrained, Employed – threshold. The threshold is determined by the cost of basic living expenses and is calculated for each county. The United Way groups households within a given county into three categories: poverty households, ALICE households (which are above the poverty level, but below the ALICE threshold), and above ALICE households. Between 2010 and 2023, Dunn County has seen the percentage of households under the federal poverty level decline, from 14.7% to 11.7%. During this same period, the above ALICE households also declined, from 66.3% to 63.3%. The percentage of ALICE households has increased from 19.1% in 2010 to 25.0% in 2023. The overall increase in the number of financially constrained households presents a challenge for hazard mitigation, as these households have less capacity to prepare for and recover from hazardous events.

iii. Agricultural Overview

The hazard threats discussed later in this plan can impact parts or all of Dunn County's agricultural base and economy. In 2022, Dunn County had 1,209 farms and over 372,774 acres used for farm-based activities. While the overall number of farms has declined since the last census in 2017, the total farmland acreage has increased.

The County is one of the top 10 producers of grains in the state and ranks among the top 20 in all livestock products as well. On the following two pages is the Dunn County summary from the 2022 U.S. Census of Agriculture, which provides an overview of agriculture in the County.

While agricultural sales are a small percentage of the County's economy, the indirect impact of agriculture in Dunn County is significant. According to UW-Extension's *Agriculture Impact Report for Dunn County* (2019), the County has the 7th largest grain industry in the state, with annual production exceeding $82.1 million dollars. Milk, cattle, and vegetables account for another $107.6 million. In addition to direct outputs, farming in the County has several indirect and induced impacts:

- Agricultural helps support 3,781 jobs.
- The overall economic impact of agricultural production and processing in the County exceeds $989 million.
- Farms pay $15.7 million in sales, property, and income taxes annually. This figure does not include all property taxes paid to local schools.

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 (e.g., Bovine Spongiform Encephalopathy, or "mad cow disease"). Large-scale impacts to crops or livestock from a hazard can also have devastating impacts on the local economy, related industries (e.g., food processing), and local 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. In short, an agricultural and farming sector that is less vulnerable to the impacts of disaster events will greatly contribute to Dunn County's resiliency overall.

2022 CENSUS OF AGRICULTURE *County Profile*

Dunn County
Wisconsin

Total and Per Farm Overview, 2022 and change since 2017

	2022	% change since 2017
Number of farms	1,209	-6
Land in farms (acres)	372,774	+7
Average size of farm (acres)	308	+14
Total	($)	
Market value of products sold	381,326,000	+79
Government payments	3,253,000	+75
Farm-related income	9,712,000	-23
Total farm production expenses	287,533,000	+62
Net cash farm income	106,758,000	+116
Per farm average	($)	
Market value of products sold	315,406	+91
Government payments [a]	11,661	+236
Farm-related income [a]	13,737	-3
Total farm production expenses	237,827	+72
Net cash farm income	88,303	+130

2 Percent of state agriculture sales

Share of Sales by Type (%)

Crops	44
Livestock, poultry, and products	56

Land in Farms by Use (acres)

Cropland	260,795
Pastureland	14,741
Woodland	71,457
Other	25,781

Acres irrigated: 51,998
14% of land in farms

Land Use Practices (% of farms)

No till	30
Reduced till	26
Intensive till	15
Cover crop	17

Farms by Value of Sales

	Number	Percent of Total [b]
Less than $2,500	367	30
$2,500 to $4,999	103	9
$5,000 to $9,999	117	10
$10,000 to $24,999	144	12
$25,000 to $49,999	94	8
$50,000 to $99,999	88	7
$100,000 or more	296	24

Farms by Size

	Number	Percent of Total [b]
1 to 9 acres	92	8
10 to 49 acres	314	26
50 to 179 acres	385	32
180 to 499 acres	247	20
500 to 999 acres	79	7
1,000+ acres	92	8

USDA United States Department of Agriculture
National Agricultural Statistics Service
www.nass.usda.gov/AgCensus

Dunn County
Wisconsin, 2022
Page 2

2022 CENSUS OF AGRICULTURE *County Profile*

Market Value of Agricultural Products Sold

	Sales ($1,000)	Rank in State [c]	Counties Producing Item	Rank in U.S. [c]	Counties Producing Item
Total	**381,326**	**17**	**72**	**343**	**3,078**
Crops	**167,578**	**10**	**72**	**488**	**3,074**
Grains, oilseeds, dry beans, dry peas	145,975	7	72	421	2,917
Tobacco	-	-	5	-	267
Cotton and cottonseed	-	-	-	-	647
Vegetables, melons, potatoes, sweet potatoes	8,192	14	72	304	2,831
Fruits, tree nuts, berries	(D)	58	71	(D)	2,711
Nursery, greenhouse, floriculture, sod	1,179	44	71	899	2,660
Cultivated Christmas trees, short rotation woody crops	(D)	(D)	67	(D)	1,274
Other crops and hay	11,627	9	71	297	3,035
Livestock, poultry, and products	**213,747**	**19**	**72**	**312**	**3,076**
Poultry and eggs	8,797	15	71	623	3,027
Cattle and calves	36,865	16	71	490	3,047
Milk from cows	164,649	16	66	74	1,770
Hogs and pigs	2,301	12	68	550	2,814
Sheep, goats, wool, mohair, milk	598	19	68	327	2,967
Horses, ponies, mules, burros, donkeys	278	20	65	912	2,907
Aquaculture	(D)	(D)	53	(D)	1,190
Other animals and animal products	(D)	(D)	71	(D)	2,909

Producers [d]	**2,111**
Sex	
Male	1,345
Female	766
Age	
<35	156
35 – 64	1,196
65 and older	759
Race	
American Indian/Alaska Native	-
Asian	14
Black or African American	-
Native Hawaiian/Pacific Islander	-
White	2,095
More than one race	2
Other characteristics	
Hispanic, Latino, Spanish origin	20
With military service	128
New and beginning farmers	565

Percent of farms that:

Have internet access	**85**
Farm organically	**1**
Sell directly to consumers	**8**
Hire farm labor	**22**
Are family farms	**97**

Top Crops in Acres [e]

Corn for grain	96,715
Soybeans for beans	75,593
Forage (hay/haylage), all	42,919
Corn for silage/greenchop	18,298
Dry edible beans	(D)

Livestock Inventory (Dec 31, 2022)

Broilers and other meat-type chickens	1,363
Cattle and calves	67,781
Goats	1,496
Hogs and pigs	6,501
Horses and ponies	1,127
Layers	22,835
Pullets	249
Sheep and lambs	1,669
Turkeys	(D)

[a] Average per farm receiving. [b] May not add to 100% due to rounding. [c] Among counties whose rank can be displayed. [d] Data collected for a maximum of four producers per farm. [e] Crop commodity names may be shortened; see full names at www.nass.usda.gov/go/cropnames.pdf. [f] Position below the line does not indicate rank. (D) Withheld to avoid disclosing data for individual operations. (NA) Not available. (Z) Less than half of the unit shown. (-) Represents zero.

C. Fire & First Responder Service Areas

Figure 6. Dunn County Fire Districts

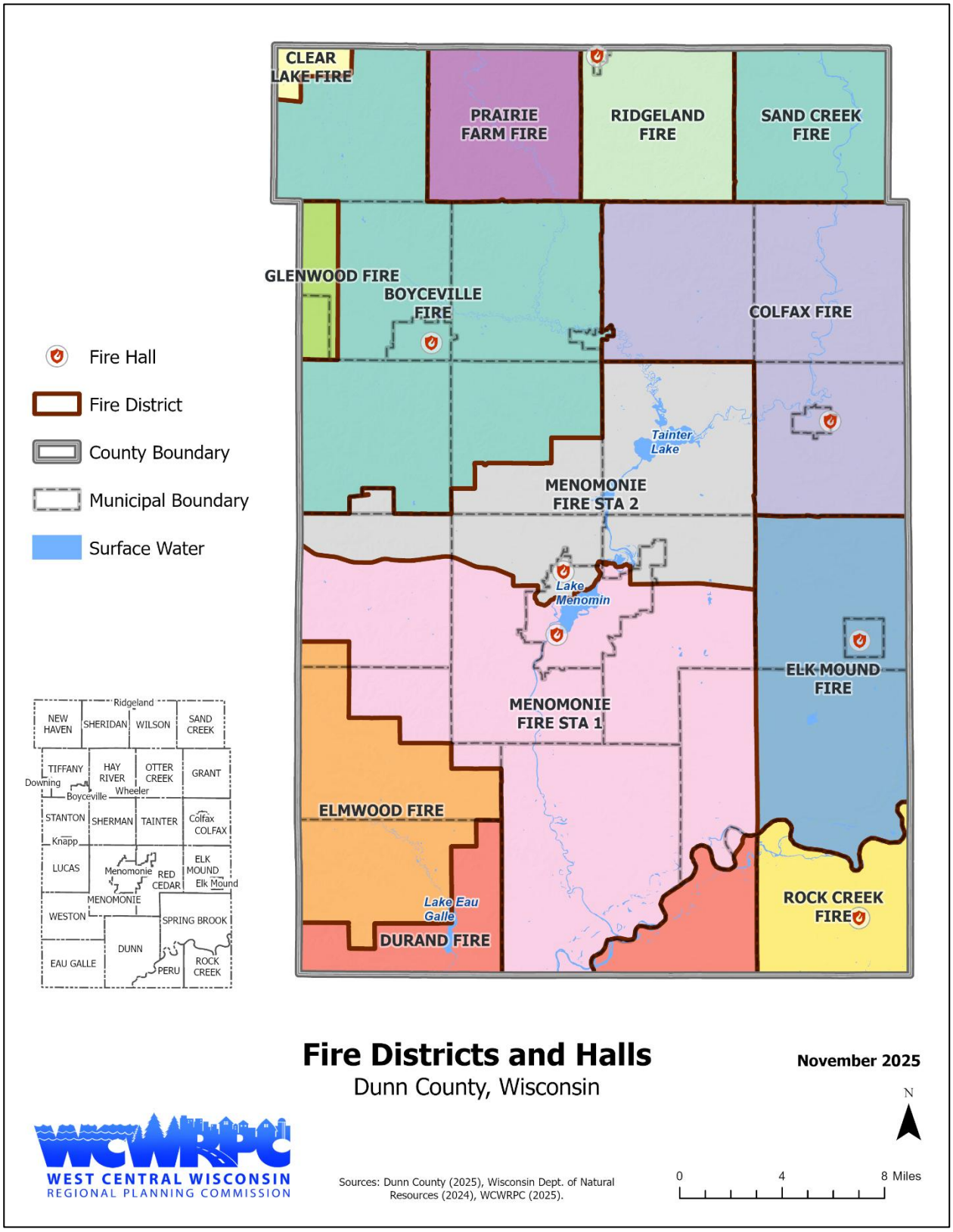
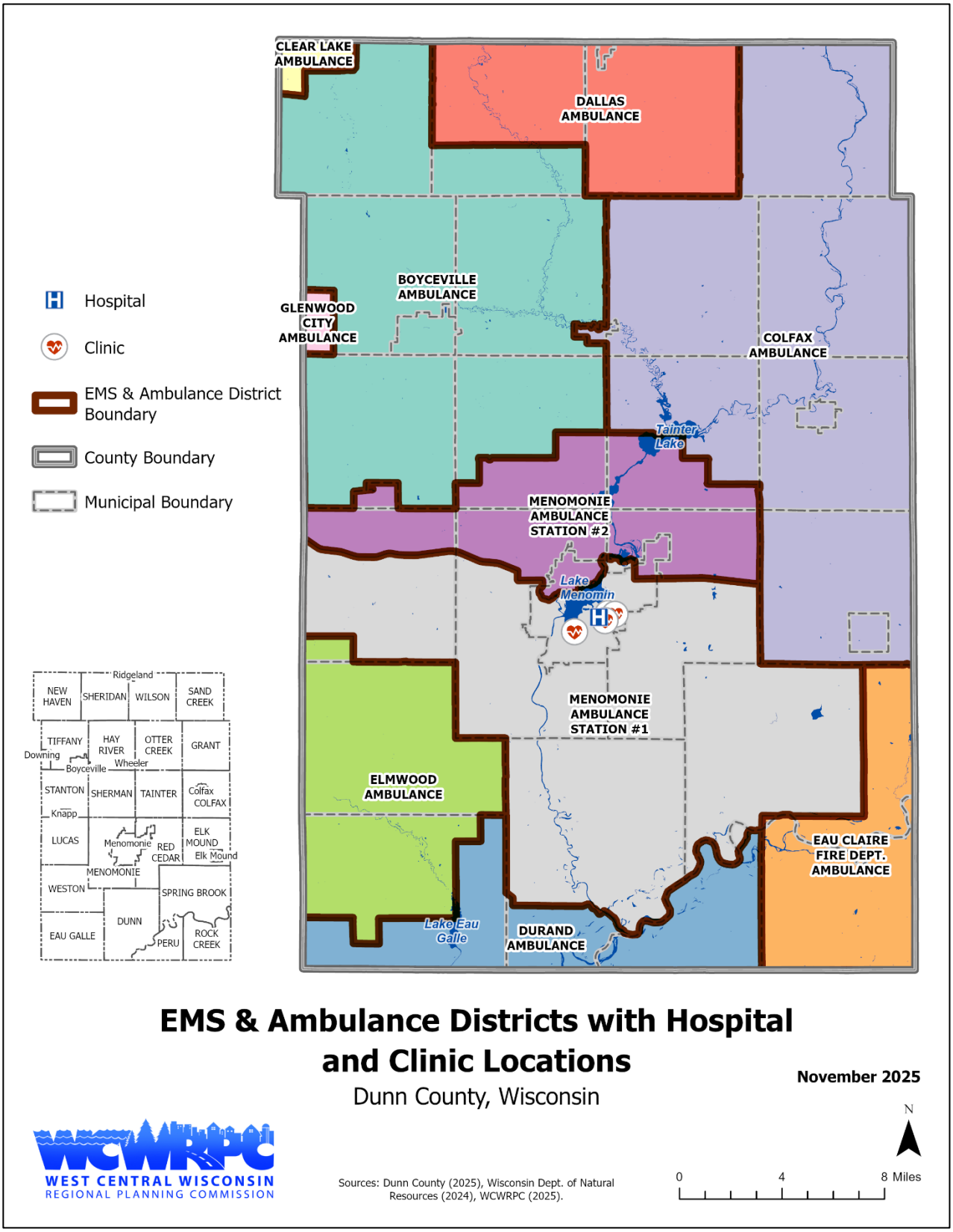


Figure 7. Dunn County EMS/First Responder Service Areas



D. TRANSPORTATION SYSTEMS

Transportation is one of the community lifelines, and roads and rail lines are frequently mentioned in various sections of this plan due to related vulnerabilities (e.g., winter storms, HazMat spills). Providing an uninterrupted transportation network is critical to Dunn County. As **Figure 8** shows, residents and goods often travel significant distances for services, critical facilities, and employment.

The County's size and road miles can be a challenge for road crews and emergency personnel during and after a hazard event (e.g., snow removal, downed trees, culvert washouts). Dunn County maintains over 854 miles of county trunk highway, reflecting the largely rural nature of much of the County. The 303 miles of highways with State jurisdiction reflect Dunn County's location as an important transportation crossroads in west central Wisconsin. The remaining 2,293 miles of roads in the County are owned by the towns, cities, and villages. The County has a relatively high number of bridges (199), of which 47 are owned by Towns, 55 are owned by the County, and 91 owned by the State of Wisconsin.

Interstate 94, U.S. Highway 12, and five State highways, or portions thereof, in Dunn County are designated as long-truck routes. Traffic volumes on the Interstate system average between 31,900 to 38,300 daily trips in the urban area. On the USH 12 bypass, traffic volumes exceed 20,000 daily trips in some areas.

Rail service in the County is operated by either Union Pacific or Wisconsin Central, a subsidiary of Canadian National. The Canadian National rail line runs east-west, roughly following much of STH 170 through the northcentral region of the County. The Union Pacific rail line parallels USH 12 and I94, running east-west for much of the County. Interest in a passenger rail service to the Twin Cities continues to grow.

Dunn County has two public airports: one in the City of Menomonie, and one in the Village of Boyceville. The Menomonie Municipal Airport is a medium air carrier/cargo facility with commercial passenger flights, while the Boyceville Municipal Airport is a small general aviation facility with commercial passenger flights.

Recreational transportation systems in the County have been increasing, and include the Red Cedar River State Trail, bicycle trails and routes within Menomonie and southeastern portion of the County, as well as ATV trails and routes in rural areas.

Public transit service in the County includes Dunn County Transit which serves the City of Menomonie, including UW-Stout's campus, a regional intercity bus service, and specialized transit services for adults with disabilities and those over the age of 60 without access to other alternatives.

Figure 8. Dunn County Transportation System

E. HISTORICAL RESOURCES

Historic structures, sites, and districts are sometimes targeted for hazard mitigation strategies due to their unique, often irreplaceable, social value. According to the National Register of Historic Places[1], Dunn County has a total of seven historic properties and one historic district which received Federal or State historic landmark designation. All but two historic structures are located within the City of Menomonie. **Table 7** lists the formally recognized locations of the places of historic significance within Dunn County.

Table 7. Dunn County Historic Properties

#	Historic Site	Address	City	Listed
1	Broadway at Crescent (Louis Smith Tainter House)	320 Broadway Street	Menomonie	1974
2	Upper Wakanda Park Mound Group	Restricted	Menomonie	1999
3	Mabel Tainter Memorial Building	205 Main Street	Menomonie	1974
4	Colfax Municipal Building	613 Main Street	Colfax	2004
5	Evergreen Cemetery	North end of Shorewood Drive	Menomonie	2006
6	Downsville Lodge No. 196 I.O.O.F.	E4541 County Road C	Dunn (town)	2017
7	Menomonie Omaha Depot	700 4th Street W	Menomonie	2018
8	Menomonie Downtown Historic District	District	Menomonie	1986

The above list includes downtown historic districts within the City of Menomonie, which encompasses thirty-three buildings.

The list above is not inclusive of all sites of historic and cultural significance, however. Additional structures undoubtedly qualify as National Register candidates. As previously mentioned, the Wisconsin Architecture & History Inventory (AHI) identifies 749 buildings, structures, or objects in Dunn County which illustrate Wisconsin's unique history. A detailed assessment of the vulnerability of each of these sites to hazard events is not currently available. Such sites are quite varied and include churches, cemeteries, homes, and barns, as well as archeological sites.

Most of these historic buildings are very well constructed, and they continue to serve as an important role in recognizing Dunn County's past. As will be discussed later in the hazard vulnerability assessment of this Plan, these structures are generally not any more vulnerable to hazard risks (e.g., tornado, winter storms) than more recent construction. The historic properties of Dunn County will be further considered during the vulnerability assessment of critical facilities as each hazard type is analyzed, but no unique vulnerability or specific mitigation action for a historic structure was identified during the planning effort.

[1] National Register of Historic Places database. November 7, 2025.

SUPPLEMENT 2.
ADDITIONAL HAZARD ASSESSMENT INFORMATION

A. DESCRIPTION OF HAZARDS OF NO SIGNIFICANT RISK

There are very few or no NOAA records of the following natural hazard events occurring in Dunn County, or the local impacts were very low when events have occurred. In order to meet the comprehensive requirements for developing an all hazards mitigation plan, these other hazards are identified and described below. It is important to note that these hazard events may still pose some threat to the community, but they were considered by the Steering Committee to either have a minimal chance of occurring, pose a minimal widespread vulnerability to residents or communities, or offer very limited mitigation options.

Landslides & Land Subsidence

The term **landslide** includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on a steep slope is the primary reason for a landslide, there can be other contributing factors. Erosion by surface waters or excess weight from rain, snow or man-made structures may stress weak slopes to failure. Slope material that becomes saturated with water may develop a debris flow or mudflow.

Figure 9. Landslide Hazards in Wisconsin

source: U.S. Geologic Service. Landslide Overview Map of the Conterminous United States. <http://landslides.usgs.gov/html_files/landslides/nationalmap/national.html>.

Past glacial activity has created some topography in Dunn County that is scenic, but may also be sensitive to development in some areas. The USGS *Landslide Overview Map of the Conterminous United States*[2] (excerpt for Wisconsin in **Figure 9**) identifies no large-scale landslide risks for the Dunn County area.

Areas of steep slopes do exist in Dunn County. Definitions of steep slopes can vary, though slopes of greater than 12% are generally considered to be steep for which erosion control and stabilization best management practices are advised. Development upon slopes of 20% or greater should be avoided if possible. Based on the National Resources Conservation Service (NRCS) Soil Survey for Dunn County, there are 236,112 acres that potentially have a slope of 13 percent or greater, representing 36.6 percent of the total land base. Of this, 124,267 acres (22.5 percent) have slopes of 21 percent or greater and .3 percent have a slope of 25 percent or greater. The highest concentrations of steep slopes can be found in the north and western portions of the County, though steep slopes are not limited to these areas. As 2024 landslide susceptibility analysis by the U.S. Geological Survey found that as much of 45.8% of Dunn County is potentially susceptible to landslides due to topography.

While steeper areas exist, the area's soils pose more of a gradual erosion risk, rather than the sudden, large-scale movement of ground associated with the conventional definition of a landslide hazards. Land disturbances upon

[2] U.S. Geological Survey. Landslide Overview Map of the Conterminous United States. <http://landslides.usgs.gov/html_files/landslides/nationalmap/national.html>

steep slopes can increase the risk of landslide. Wildfire events in areas of steep slope or along waterways can also create landslide risks.

Land subsidence is an event in which a portion of the land surface collapses or settles. Common locations of subsidence are in areas having karst topography or in areas in which large quantities of groundwater have been withdrawn. Unlike St. Croix County to the west, Dunn County does not have large areas of karst topography that could lead to land subsidence. There are no records of substantial damage or injury from large landslides or land subsidence within Dunn County.

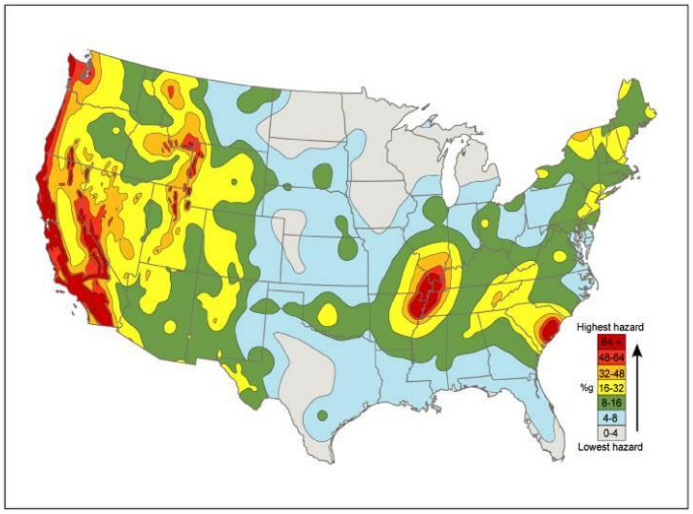
A greater concern for Dunn County has been river or stream bank erosion. Areas of the County have experienced erosion or washouts along shorelines that have been exacerbated by riverine flood events. The County received FEMA Hazard Mitigation Grant Program funding in 2012 for a revetment project to protect a home from bank erosion. And since the 2020 Plan, the Village of Colfax completed a project to protect wastewater treatment infrastructure from bank erosion concerns along the Red Cedar River. Local communities tend to view these threats as more of a flooding concern rather than a large-scale landslide threat, so they are discussed further in this Plan as part of the flood assessment.

Overall, in the context of all hazards facing Dunn County, the probability (likelihood) and vulnerability (potential losses) of a serious landslide event was rated by the Steering Committee as very low.

Earthquakes

According to the U.S. Geological Survey, there have been 19 earthquake events in Wisconsin, with none noted for west-central Wisconsin. Where readings are available, these events were relatively small, most being 3.0-3.8 on the Richter Scale in size and the largest being an intensity of 5, which may be strong enough to crack some plaster, but not cause serious damage. Due to the lack of recent events, some geologists question whether many of these events were true earthquakes, but rather quarry collapses, blasts, etc.

Figure 10. U.S. Geological Survey Earthquake Hazard-Shaking Map



source: U.S. Geological Survey. Earthquake Hazard in the Heart of the Homeland. <http://pubs.usgs.gov/fs/fs-131-02/CUShazard.html>.

The nearest active earthquake fault outside of Wisconsin is the New Madrid Fault which has a seismic zone that stretches from northeast Arkansas to southern Illinois.

As **Figure 10** shows, the Dunn County area falls within the lowest earthquake hazard-shaking area, with the different colors representing the levels of horizontal shaking that have a 1-in-50 chance of being exceeded in a 50-year period. Similarly, Dunn County falls within a 0%g peak ground acceleration (PGA) zone as shown on the USGS PGA values map for the United States with a 10 percent chance of being exceeded over 50 years; Dunn County is a non-affected area.[3]

University of Wisconsin-River Falls students and geologists have studied an ancient major fault line which is located approximately 2 miles south of Hudson and extends north towards Willow River State Park and west

[3] U.S. Geologic Service. Peak Acceleration (%g) with 10% Probability of Exceedance in 50 Years. map. <http://geohazards.cr.usgs.gov/eq/pubmaps/US.pga.050.map.gif> November 1996.

towards Hastings, MN. Called the Hastings Fault, it has characteristics similar to the New Madrid Fault; but there has been no evidence of any motion on the Hastings Fault for the last 400 million years. While an earthquake along the Hastings Fault could be catastrophic, geologists estimate that no significant effects on this fault will likely occur within the next few millions years. As such, the earthquake threat to Dunn County is considered very low.

Fog

Fog is low-level moisture that can reduce visibility. It can occur in isolated low-lying areas or be a widespread event that can cover several counties. In general, fog is often hazardous when the visibility is reduced to 1/4 mile or less. Thick fog reduces visibility, creating a hazard to motorists as well as to air traffic. Airports may close because of heavy fog. The intensity and duration of fog varies with the location and type of fog. Generally, strong winds tend to prevent fog formation. In Dunn County, dense fog occurs infrequently and is typically a short-term weather event lasting only for portions of a day. The NCDC database has one Dunn County record for dense fog from November 2007, which included much of west-central Wisconsin; visibilities of one-quarter of a mile or less were commonplace across the region, from the late evening hours on the 19th, to the mid-morning hours on the 20th.

Coastal Hazards (Hurricanes, Tsunamis, Tidalwaves, Waterspouts, etc.)

Coastal hazards can cause increases in tidal elevations (storm surges), high winds, and erosion caused by tropical cyclones (such as hurricanes) or the sudden displacement of water (such as tsunamis from earthquakes). Dunn County is located in the upper Midwest, approximately 1,000 miles from the Atlantic Ocean, 1,200 miles from the Gulf to the south and 2,000 miles from the Pacific Ocean. Dunn County also has no large inland lakes within its boundaries. Such coastal hazards have no direct impact on Dunn County, and only occasionally indirectly impact the county in the form of thunderstorms, which are discussed separately. There have been reported instances of waterspouts in the region, but these are not unique coastal hazards within the region, but are primarily being associated with tornados. For example, the 1899 New Richmond tornado was reported as a waterspout as it passed over Lake St. Croix.

B. HAZARDS ADDRESSED IN OTHER PLANS

The two hazards described in this sub-section pose a significant risk for Dunn County. The Steering Committee desired to bring attention to these hazards by their inclusion here, but decided not to include a full risk and vulnerability assessment within this Plan update for one or more of the following reasons:

- Most are not typically included in a county-level mitigation plan.
- Most are largely addressed through other intensive planning and preparedness efforts for which Dunn County Emergency Management does not have a lead role. Instead of duplicating and repeating these planning activities within this Mitigation Plan, this sub-section recognizes that these risks exist and refers to other existing plans and programming to mitigate these risks.
- For nuclear plant accident, the probability and likely impacts for Dunn County are relatively low.

This approach does not diminish the importance or the efforts to prepare for these other risks.

i. COMMUNICABLE DISEASE

Definitions

For purposes of this sub-section, the focus is on biological diseases that are a potential threat to humans and are infectious and communicable. **Infectious diseases** are illnesses caused by germs (such as bacteria, viruses, and fungi) that enter the body, multiply, and can cause an infection, though not all infectious diseases are contagious (or communicable). According to the Federal Center for Disease Control, a **communicable disease** is an illness caused by an infectious agent or its toxins that occurs through the direct or indirect transmission of the infectious agent or its products from an infected individual or via an animal, vector or the inanimate environment to a susceptible animal or human host. A **novel disease, virus, or virus strain** is a disease that hasn't been found in humans or a geographic region in the past. **Zoonotic diseases** are diseases that are spread between people and animals. An **epidemic** occurs when a disease affects a greater number of people than usual. A **pandemic** is a global disease epidemic.

Infectious Disease Probability, Vulnerability, and Capabilities

The 2025 Health Vulnerability Assessment (HVA) completed by the Northwest Wisconsin Healthcare Emergency Readiness Coalition (NWW-HERC) provides valuable regional expert insights into infectious disease risks for Dunn County and the larger area:

	Emerging Infectious Disease (Global)	Emerging Infectious Disease (Local/Regional)
Probability of Future Occurrence		
Probability	High; 4+ events/30years	High; 4+ events/30years
Potential Impacts/Vulnerabilities		
Human/Population	High; >10% pop injured or dead	High; >10% pop injured or dead
Healthcare Services	High; >10% of services impacted	High; >10% of services impacted
Community Impact	High; >10% affected	High; >10% affected
Public Health Services	High; >10% of services impacted	High; >10% of services impacted
Property	not applicable	not applicable
Business	High; >10% affected	High; >10% affected

Capabilities/Capacity of Region/State to Manage the Events *(Note: Respondents generally felt that they were locally better prepared to manage vs. region/state).*		
Mitigation	Moderate	Moderate
Preparedness	Moderate	Moderate
Response	Limited or None	Moderate
Recovery	Moderate	Moderate

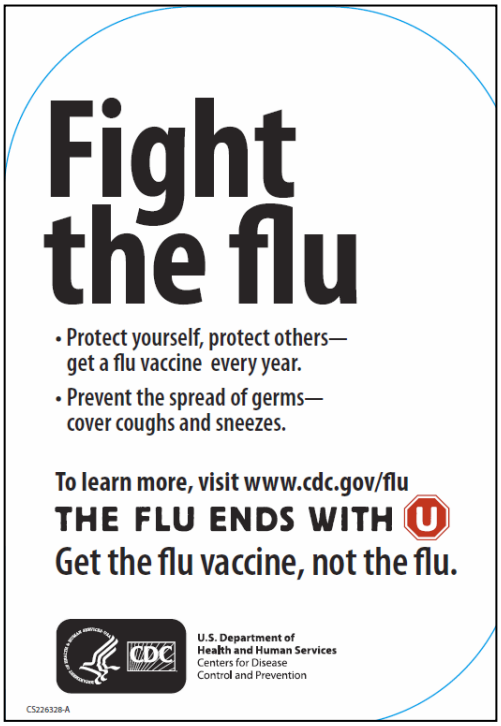
Overall, the 2025 NWW-HERC HVA assessed global and local/regional outbreaks nearly equal in terms of probability, potential impacts, and mitigation. Of the 51 different hazard types in the HVA, the NWW-HERC-participating public health officials rated global infectious disease outbreaks as the fourth highest hazard threat facing our region, tied with extreme cold.

Notable Events

An **influenza pandemic (or pandemic flu)** occurs when a new influenza virus emerges for which there is little or no immunity in the human population, begins to cause serious illness, and then easily spreads person-to-person worldwide. The potential risk of transmission, vulnerabilities, and impacts can vary widely by type of virus and availability of vaccines. Viruses can also mutate and increase in deadliness and spread more easily.

Historically, the 20th century saw three large pandemics of influenza impacting the United States:

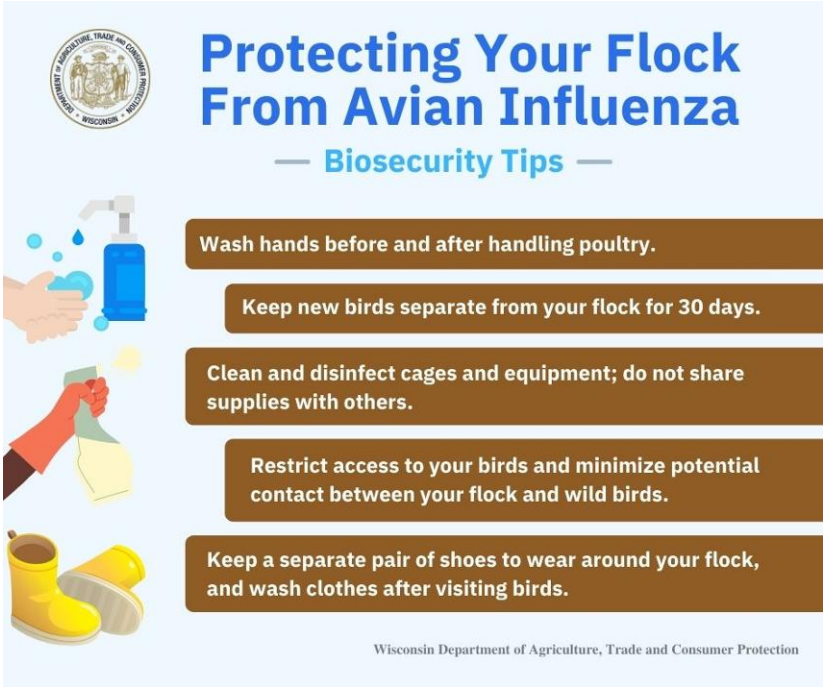
- 1918 influenza pandemic caused at least 675,000 U.S. deaths and up to 50 million deaths worldwide.
- 1957 influenza pandemic caused at least 70,000 U.S. deaths and 1-2 million deaths worldwide.
- 1968 influenza pandemic caused about 34,000 U.S. deaths and 700,000 deaths worldwide.



Beginning in 2009, there was significantly increased attention to pandemic flu at the state and regional level due to **zoonotic diseases** capable of being transmitted between animals and humans. **Swine Flu (H1N1)** was declared a pandemic by the World Health Organization (WHO) in June 2009 and resulted in about 17,000 deaths worldwide before the pandemic was declared over in August 2010. During the H1N1 outbreak from April 2009 through March 2010, an estimated 43-88 million H1N1 cases and 192,000-398,000 H1N1-related hospitalizations were estimated to have occurred in the United States according to the Center for Disease Control (CDC).[4] The CDC further estimated that 8,720 to 18,050 H1N1-related deaths occurred during the same timeframe. H1N1 continues to spread and there is some concern about the long-term effectiveness of current vaccines. During the 2010-2011 influenza season, five cases of Novel Influenza A viruses were reported in the United States, including one in Wisconsin and two in Minnesota; all patients fully recovered from their illness.

[4] U.S. Center for Disease Control. CDC Estimates of 2009 H1N1 Influence Cases, Hospitalizations, and Deaths in the United States, April 2009-March 13, 2010. http://www.cdc.gov/h1n1flu/estimates/April_March_13.htm

More recently, a **highly pathogenic avian influenza outbreak (H5N2)** struck the United States in April 2015. More broadly, H5N2 is a subtype of avian flu (i.e., influenza A(H5)) distinctly different than H1N1. In nearby Barron County, 650,000 turkeys were euthanized as a result. A milder, low pathogenic strain of H5N2 would occur in March 2017 requiring quarantine and monitoring of poultry operations in the region. An outbreak of a different highly pathogenic strain called EA H5N1 would hit domestic flocks and wild birds throughout much of North America in 2021-2022, including poultry in the region. The outbreak would lull for about a year before hitting the region's poultry producers especially hard; the seasonal re-emergence was partially attributed to migrating waterfowl. Barron County again was hit especially hard. As of December 2023, over 70,000 turkeys in Barron County were depopulated and strong biosecurity measures were advised. Producers in other counties in the region were also impacted. The U.S. Department of Agriculture reported a decline in avian flu cases among wild birds in 2023, offering a glimmer of hope to the poultry industry which has lost 76.9 million birds since 2022.[5] For Dunn County, the relative threat is lower than some other counties in the region with larger numbers of poultry producers.



In March 2024, avian flu was confirmed as spreading to dairy cattle and several human cases were reported. As of March 2026, there have been 71 reported cases of A(H5) bird flu in the United States, including two deaths; there is no known person-to-person spread. According to the CDC, since 2024 in the United States:

- A(H5) has been detected in 541 wild bird flocks and is believed to be in wild birds worldwide.
- A(H5) has been detected in 508 commercial poultry flocks, including 6 in Wisconsin and 51 in Minnesota.
- A(H5) has been detected in 1,088 dairy herd, including 1 in Wisconsin; 733 were in California.
- Wisconsin has had one human A(H5) case confirmed associated with a poultry worker.

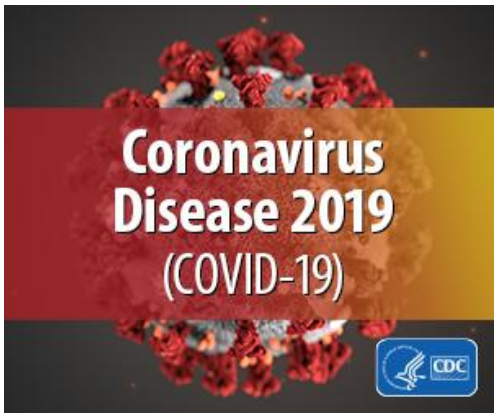
As of March 2026, the CDC considered Avian Flu to be a low public health risk but is actively monitoring individuals with animal exposure. The H5N1 virus usually does not infect people, though there is no human immunity, and no commercial vaccine is available. One study showed that it is possible for avian flu viruses (and bacteria like Salmonella) to enter groundwater from a large source of poultry fecal waste, though the risk of virus transmission from groundwater to people is not known.[6] And some avian flu variants have undergone mutations, which could impact the vulnerability to humans.

In August 2019, the CDC stated that it is impossible to predict when the next pandemic will occur or how bad a future pandemic will be, so advanced planning is needed. A great variety of mitigation and planning measures for pandemics has been undertaken over past two decades since the SARS epidemic in 2002-2003. The Avian

[5] https://www.poultryproducer.com/u-s-sees-diminishing-avian-flu-cases-in-wild-birds-a-potential-silver-lining-for-poultry-sector/

[6] Borchardt, Mark A. et. al. *Avian Influenza Virus RNA in Groundwater Wells Supplying Poultry Farms Affected by the 2015 Influenza Outbreak.* Environmental Science & Technology Letters. 2017, 4, p268-272.

Flu (H5N1, H5N2) and Swine Flu (H1N1) outbreaks have further increased awareness, cooperation, monitoring, and planning for large-scale disease or viral outbreak. But it would be less than a year later when these preparedness efforts would be truly tested.



The **coronavirus disease 2019 (COVID-19)** pandemic is a global outbreak of coronavirus – an infectious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Cases of novel coronavirus (nCoV) were first detected in China in December 2019, with the virus spreading rapidly to other countries across the world. Since January 1, 2020, there have been nearly 1.1 million deaths in the United States attributed to COVID-19. As of 3/10/23, there were over 15,100 confirmed COVID-19 cases in Dunn County and 132 deaths. In addition, according to the CDC website, up to 41% of non-hospitalized adults in the United States who have had COVID-19 also experience a wide range of ongoing respiratory, neurologic, cardiovascular, and other symptoms that can last for weeks, months, or years (a/k/a Long Covid).[7]

The COVID-19 Federal Public Health Emergency expired on May 11, 2023. And while it may seem that the pandemic has passed, the threat still exists. As of February 3, 2025, statewide average SARS-COV-2 levels in municipal wastewater sampling were very high or high among 59% of the 44 locations being monitored and Wisconsin experienced over 250 new hospitalizations during the past seven days due to COVID-19 related illness.

The COVID-19 pandemic had great (and often long-lasting) impacts on the economy, health care services, educational systems, and governmental services. During the 2026 mitigation plan update, local officials and stakeholders were asked about their experiences and lessons learned during the pandemic. Some highlights were:

- Most cities and villages stated that their operations did not significantly change, though they did temporarily practice social distancing and most did require masks during meetings for a time.
- Multiple communities found that the practice of remote or virtual meetings to be useful, once the initial technological logistics were overcome. Some communities are continuing with this option for some meetings. However, for some rural areas, poor broadband connectivity was a barrier, though this has improved considerably over the past decade.
- There was some confusion among the public and mixed messages from the Federal government, contributing to some residents and entities not taking recommended precautions. This misinformation also contributed to a deterioration of trust with public health officials and lower immunization rates.

The Center for Disease Control continues to monitor other communicable disease threats and issue related travel health notices. Mosquito-borne illnesses, such as Yellow Fever, Malaria, and the Zika virus are among the most common concerns over the past decade. **Zika virus** in particular has received increased attention due to the risk of severe birth defects and the potential to transmit the disease through sex. Mosquitoes carrying the Zika virus have been reported in a large portion of the world, including most of Mexico, Central America, South America, the Caribbean, and large parts of Africa and Southeast Asia. Cases of Zika spread by local mosquitoes were reported in Florida and Texas in 2015-2016, but there have been no reports of locally acquired Zika cases in the U.S. since 2017.

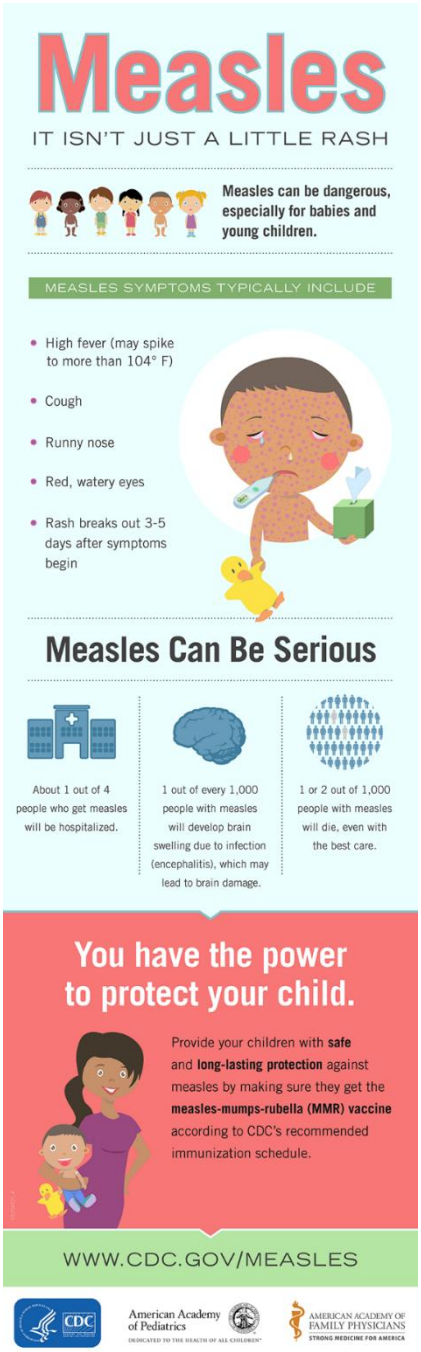
[7] https://www.cdc.gov/mmwr/volumes/72/wr/mm7232a3.htm#:~:text=Long%20COVID%20includes%20a%20wide%20range%20of%20ongoing%20respiratory%2C%20neurologic,to%2041%25%20(1).

In 2018, the Eastern Democratic Republic of the Congo experienced an outbreak of **Ebola Virus Disease** (EVD), which is the second largest outbreak since the virus was discovered in 1976. According to the CDC, 3,470 cases were confirmed with a 66% fatality rate.[8] Additional cases were reported in the Congo Republic, Uganda, and Guinea in 2020-2022. In Spring 2026, another EVD outbreak in Congo began, which has quickly spread to Uganda. EVD is a rare, but often fatal, zoonotic disease that can be spread through contact with an infected fruit bat or nonhuman primate, but can also spread from person to person through direct contact with bodily fluids. There have been no reported Ebola cases in the United States since 2014. Diagnosing EVD is difficult since symptoms require 8-10 days on average to manifest. Currently, there is no approved vaccine or treatment for EVD.

In August 2024, the World Health Organization (WHO) declared a public health emergency of international concern due to an outbreak of **mpox**. Mpox (previously called monkeypox) is a viral, zoonotic disease that can cause scarring, blindness, and other infections, but rarely leads to death. An mpox vaccine is used to help prevent infection. Mpox was first detected in humans in 1970 and is endemic to parts of Africa. There was a worldwide outbreak of mpox in 2022 with 122 counties reporting nearly 100,000 cases and 207 deaths.[9] The United States had the highest number of reported cases and death with 33,435 cases and 60 deaths. While mpox cases went down in 2023, a mpox variant is now surging in Africa; the Democratic Republic of Congo reporting more than 14,000 cases and 524 deaths since the start of 2024, which has triggered the WHO declaration.

Immunizations (or vaccinations) for more common or preventable viruses and diseases, such as **Whooping Cough (Pertussis), Polio, Diphtheria, Measles, and Mumps**, have been in the news in recent years. **From 2022-2025, there were 348-433** reported cases of Mumps in the United States each year. **Measles** was nearly eliminated in the United States in 2000, but there were 284 reported cases during 2024 with less than 10 cases reported in Wisconsin. For 2025, 2,284 Measles cases were confirmed in the U.S. and 36 in Wisconsin. And 1,362 cases have been reported for 2026 (2 in Wisconsin) in less than three months. 70% or more of these cases are in children less than 20 years in age. While these outbreaks have been growing, a highly effective vaccine exists for Measles; over 90% of those affected were believed to be unvaccinated.

In 2026, a **Hantavirus** outbreak (Andes form) occurred among cruise ship passengers. There are more than 20 different types of Hantavirus, which can cause severe respiratory symptoms. The virus is spread primarily by wild rodents, but can become airborne. The Andes form can be spread from person-to-person. According to John Hopkins Medicine website, the current risk for hantavirus infection to the United States public is extremely low.



[8] https://www.cdc.gov/ebola/outbreaks/index.html

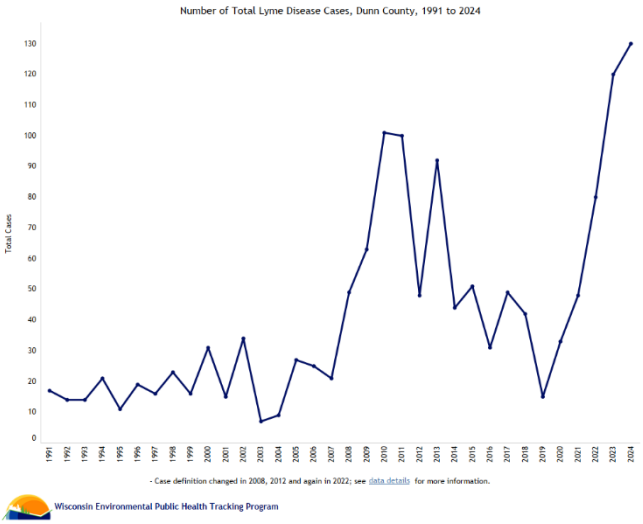
[9] https://www.cdc.gov/poxvirus/mpox/response/2022/index.html

Some members of the public choose to delay, skip, or reject vaccinations for themselves and/or their family. But avoiding vaccinations puts family members, friends, and the community at risk. According to the Wisconsin Department of Health Services, 63.3% of two-year old residents in Dunn County in 2025 were immunized, which hasn't changed significantly since 2013.[10] This percentage is slightly lower than Wisconsin overall. The County's early childhood immunization rate has been decreasing from a high of 78.2% in 2013.

Some Public Health offices in the region have also been seeing increased cases of **Tuberculosis (TB)**, **Hepatitis B & C,** and **Sexually Transmitted Diseases (STDs)**; there is currently no vaccine for Hep C and many of the most common STDs.

Overall, local public health agencies and medical providers have been able to handle smaller (less than four month) disease outbreaks well. COVID-19 was a greater challenge due to the length of the "severe phase" of the outbreak and changing information during the early phases of the outbreak. Incident Command System (ICS) approaches are not well suited for lengthy, multi-year disease outbreaks.

Concerns related to **tick-borne diseases**, such as **Lyme (Borrelia)** and **Babesiosis**, were also mentioned a number of times during the planning process. Though Lyme disease is native to Wisconsin, the number of reported cases have increased dramatically over the past three decades, with 6,469 cases reported in in 2024, the highest on record. In 2024, there were 130 cases reported for Dunn. It is believed that many cases of Lyme Disease are not reported. Ticks have been expanding their ranges northward as average winter temperatures have been increasing long-term.



Communicable Disease Prevention and Control

Within Dunn County, the County Public Health Department has been the primary coordinating entity on communicable disease and pandemic flu, working in conjunction with other public and private partners. Dunn County Public Health maintains a Public Health Emergency Preparedness Plan (PHEP Plan) specific to the County, which follows the covers 15 public health preparedness capabilities:

Public health preparedness capabilities. CDC identified the following 15 public health preparedness capabilities (shown in their corresponding domains) as the basis for state and local public health preparedness:

Biosurveillance
- Public Health Laboratory Testing
- Public Health Surveillance and Epidemiological Investigation

Community Resilience
- Community Preparedness
- Community Recovery

Countermeasures and Mitigation
- Medical Countermeasure Dispensing
- Medical Materiel Management and Distribution
- Non-Pharmaceutical Interventions
- Responder Safety and Health

Incident Management
- Emergency Operations Coordination

Information Management
- Emergency Public Information and Warning
- Information Sharing

Surge Management
- Fatality Management
- Mass Care
- Medical Surge
- Volunteer Management

[10] The 4:3:1:3:3:1:4 vaccination series is a comprehensive set of immunizations for children protecting against diseases like pertussis, polio, and measles

The following are some key points regarding the PHEP Plan and Public Health activities:

- The PHEP Plan serves as a core resource among local health departments and is a focal point within the NWW-HERC, which can provide mutual aid if needed. The PHEP Plan includes situational-specific components (e.g., Mass Clinic Plan, Pandemic Flu Plan) as well as general education, monitoring, and response procedures under an "all hazards approach" not specific to pandemic flu or other specific threat. Review and update of these sub-plans is an ongoing process.
- The County actively participates in the Western Wisconsin Public Health Readiness Consortium, which has provided collaborative support for creating the PHEP Plan and enhancing the capacity of the region's public health agencies to respond to all type of health emergencies, including bioterrorism, infectious disease outbreaks, and natural disasters. The Consortium also helps coordinate regional exercises and training.
- The County's PHEP Plan includes a communications plan as well as an educational component with emphasis on prevention and control (e.g., recognizing symptoms, vaccinations, and personal preparedness).
- The PHEP Plan also includes an At-Risk Populations component, including exploring strategies related to identifying and serving persons who are at greater risk during times of emergencies. At-risk populations contemplated in the plan include rural residents that may lack support during a disaster event, seniors, and persons reliant on oxygen or other medical devices.
- The PHEP Plan is periodically tested, in cooperation with partners, through drills and exercises. There is a high degree of necessary coordination between the County's Emergency Operations Plan maintained by Emergency Management and the PHEP Plan. While there is strong cooperation, additional opportunities to coordinate response plans, invite other partners to exercises, and clarify response roles and resources exist.
- In collaboration with partners such as the Red Cross and area educational institutions, Public Health is always working to develop, maintain, and exercise with a network for emergency shelters and medical/vaccination points of distribution (PODs). The POD plan is reviewed and updated annually. Public Health and Human Services departments are collaborating on reunification center planning.
- Public panic could ensue should a public health emergency occur, such as a pandemic flu outbreak. Getting the word out quickly and providing accurate information from a trusted source is critical.
- In addition to monitoring and preparing for communicable diseases, Dunn County Public Health continues to work cooperatively with County Emergency Management on general public emergency and disaster preparedness education and can be a vital partner during any such educational initiatives recommended in this Mitigation Plan update. County Public Health resources and additional educational materials are available at their webpage and at their offices.

Long-term weather patterns suggest that the area's climate is becoming warmer, which could change the seasonality of diseases as well as introduce new vectors. With warmer weather, diseases may be more abundant and some outbreaks may last longer.

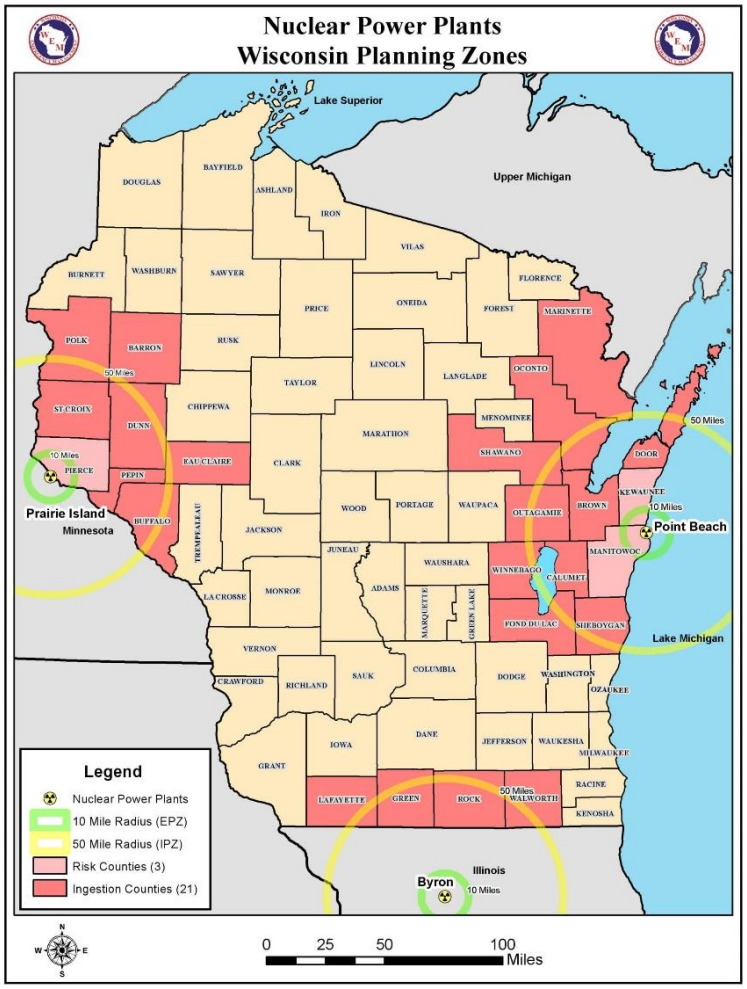
ii. NUCLEAR POWER PLANT ACCIDENT

A nuclear accident (or radiological hazard) is the uncontrolled release of a radioactive material from a fixed nuclear facility that can harm people or damage the environment.

Dunn County has no fixed nuclear power generating or nuclear-related storage facilities within its boundaries. There is no known regular transport of nuclear materials or waste through the County.

However, most of Dunn County is within the Ingestion Pathway Zone (IPZ) for the Prairie Island Nuclear Generating Plan near Red Wing, MN (see **Figure 11**). The ***Ingestion Pathway Zone*** (IPZ) (or *ingestion exposure pathway*) is the potential pathway of radioactive materials to the public through consumption of radiologically contaminated water, food crops, or dairy products. This is also known as the area within a 50-mile radius of a nuclear power plant in which people may be indirectly exposed to radiation by eating or drinking contaminated food, milk and water.

Figure 11. Wisconsin Nuclear Plant Planning Zones



Should an accidental release occur, direct radiation exposure or inhalation for persons in Dunn County is very unlikely; such exposure would largely be limited to a 10-mile radius of the facility under most, if not all, circumstances. The primary and most likely vulnerability would be the transport of radioactively contaminated crops or dairy products from areas closer to the facility to processing facilities within the IPZ.

A much less likely scenario is for the airborne contamination of soils and vegetation in Dunn County, if weather and other conditions allow. Under such circumstances, a general health advisory could be issued regarding food preparation practices or, in a worse case, a temporary agricultural hold may be placed on producers and/or processors of certain agricultural and/or food products.

If an event should occur, even if it is a site emergency not anticipated to directly impact Dunn County, misinformation and panic could ensue among the general public. In such a case, Dunn County may experience an influx of relocated residents from areas closer to the facility (e.g., St. Croix County) as well as the regional economic repercussions, especially to the agricultural sector.

A release of radiological materials from a nuclear power plant has never occurred in Wisconsin or the region. The Prairie Island Plant is highly regulated and is designed with a series of barriers and safety systems. As shown in

the Hazard Probability & Vulnerability Survey results, the plan update Steering Committee believes that nuclear accident and earthquakes have the lowest probabilities of any of the listed threats for Dunn County.

As an IPZ county, Dunn County Emergency Management participates in required exercises conducted for a possible nuclear accident at Prairie Island. County Public Health may benefit from periodically participating in exercises or related training to gain insights into likely implications and how testing from fallout will be performed.

C. TORNADOS & HIGH WINDS

The information below is supplemental to the information contained within Section III.C.i. of the *Dunn County Hazard Mitigation Plan.*

Defining the Hazard —Tornadoes & High Winds

Tornados are relatively short-lived local storms composed of an intense rotating column of air, extending from a thunderstorm cloud system. It is nearly always visible as a funnel, although its lower end does not necessarily touch the ground. Average winds in a tornado, although never accurately measured, are between 100 and 200 miles per hour; however, some tornados may have winds exceeding 300 miles per hour.

High winds can affect much larger areas than a tornado and occur for a longer period of time. More intense types of high winds are downbursts or straight-line winds. Straight-line winds are often responsible for most of the wind damage associated with a thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. However, the strong and gusty winds associated with straight-line winds blow roughly in a straight line unlike the rotating winds of a tornado.

Hazard Location

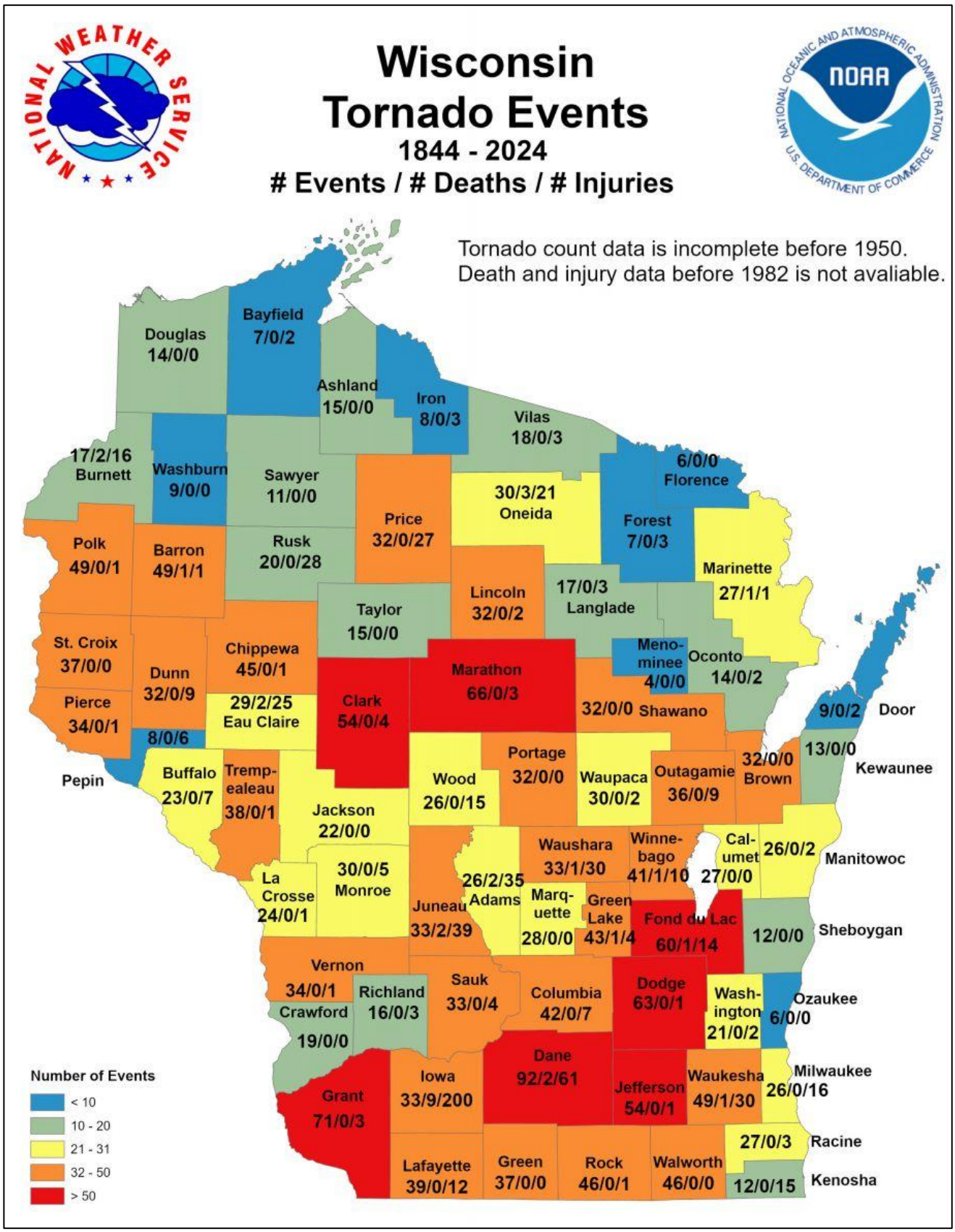
Tornadoes and high winds are capable of killing or injuring residents and damaging or destroying homes, businesses, public buildings, and infrastructure throughout Dunn County. There are no geographic boundaries or locations within Dunn County uniquely affected by tornadoes or high wind events. As shown in **Figure 12**, tornadoes and high winds occur throughout the State of Wisconsin and have no defined hazard area within Dunn County. All Dunn County jurisdictions are equally at risk of experiencing a tornado or high wind event.

Tornadoes and high winds can impact assets outside the area struck by the hazard, such as impacting the regional supply of electrical service or disrupting transportation networks. For example, these events can uproot trees and topple power lines, impacting the regional supply of electrical service to homes, businesses, and services. Roadways can also be blocked by debris, impacting regional transportation networks, and debris can accumulate in rivers or stormwater systems and contribute to washouts or flooding

Hazard Extent (Potential Intensities)

Tornadoes are generally associated with severe storm systems, which are often accompanied by high winds, hail, torrential rain, flooding, and intense lightning. High winds are discussed with tornadoes within this subsection given that high wind damage can be difficult to distinguish from tornado damage. It is not uncommon for local residents to debate whether the damage from an area storm event was the result of high, straight-line winds (as officially recorded) or a tornado. Further, tornado and thunderstorm / high wind events are very often part of the same storm cell.

Figure 12. Wisconsin Tornado Events • 1844 to 2024



Shown in **Table 8** is the Enhanced Fujita (EF) Scale, recognized as the accepted tornado magnitude measurement rating and is based on damage estimates for a 3-second wind gust. The EF scale replaced the original Fujita scale in 2006 and considers 28 different damage indicators for a more accurate indication of tornado strength.[11] The new EF scale does have higher wind speed thresholds, and a larger percentage of reported tornadoes will likely fall within the EF0 category. The destructive power of the tornado results primarily from its high wind velocities and sudden changes in pressure. Wind and pressure differentials probably account for 90 percent of tornado-caused damage.

Table 8. Tornado Magnitude Measurement Enhanced Fujita (EF) Scale

Operational EF-Scale	Wind Speed (miles per hour)	Character of Damage	Relative Frequency (percent)
EF0 (GALE)	65-85	Minor or No Damage	53.5
EF1 (WEAK)	86-110	Moderate Damage	31.6
EF2 (STRONG)	111-135	Considerable Damage	10.7
EF3 (SEVERE)	136-165	Severe Damage	3.4
EF4 (DEVASTATING)	166-200	Devastating damage	0.7
EF5 (INCREDIBLE)	Over 200	Extreme damage	<0.1

Source: National Oceanic Atmospheric Administration (NOAA)

The following types of damage could be expected for each EF-Scale tornado:

F0 Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees.

F1 Peels surface off roofs; mobile homes badly damaged or overturned; moving autos pushed off roads; attached garages may be destroyed.

F2 Roofs torn off well-constructed homes; mobile homes demolished; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.

F3 Entire stories of well-constructed homes destroyed; trains overturned; trees debarked.

F4 Well-constructed houses leveled; cars thrown and large missiles generated.

F5 Strong frame houses lifted off foundations and carried considerable distances; automobile-sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.

Table 9 provides a straight-line wind gust estimating guide with definitions that is frequently used by SkyWarn Weather Spotters, which shows the range of potential intensities of such events. Wisconsin lies along the northern edge of the nation's maximum frequency belt for tornados (known as "tornado alley") which extends northeastward from Oklahoma into Iowa and then across to Michigan and Ohio. Generally, the frequency and severity of tornado events decreases as one travels north.

[11] None of the tornadoes recorded on or before January 31, 2007, will be re-categorized from F to EF.

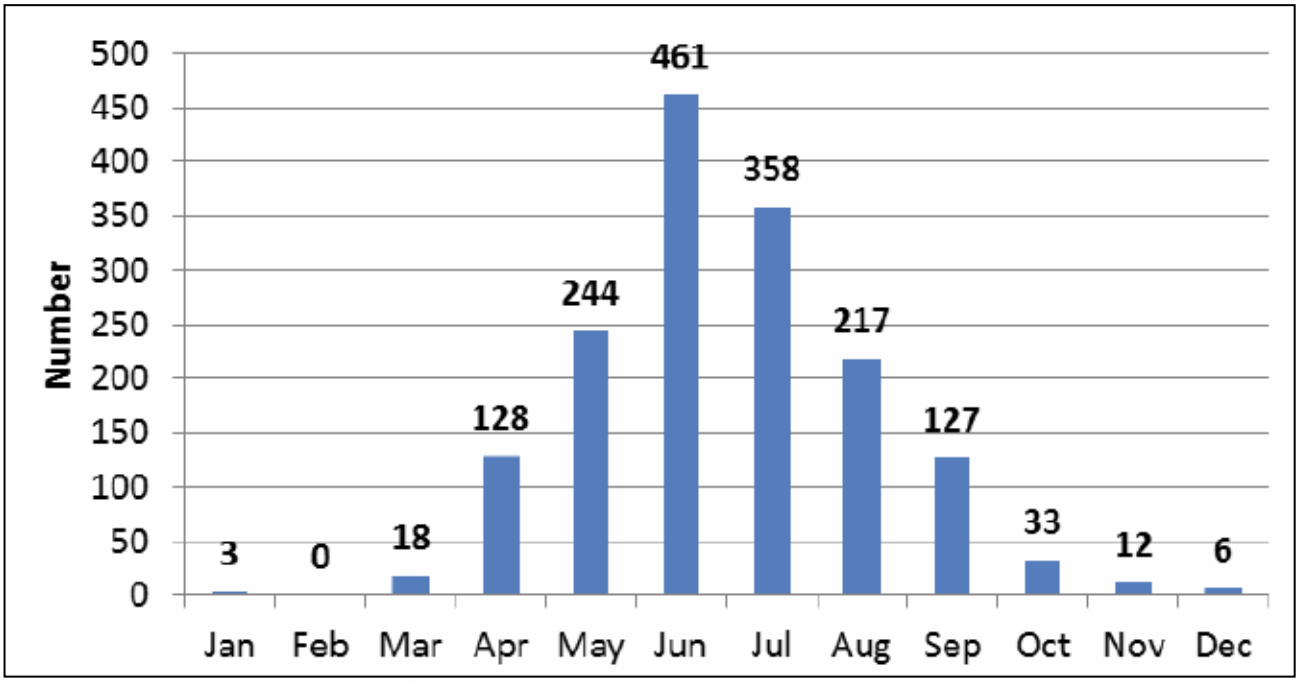
Table 9. Straight-Line Wind Gust Estimates

45-57 mph (39-49 kts)	**Non Severe** - Large trees bend; twigs, small limbs break, and a few larger dead or weak branches may break. Old/weak structures (e.g., sheds, barns) may sustain minor damage (roof, doors). Some loose shingles may be removed from houses.
58-75 mph (50-64 kts)	**Severe** - Large limbs break; shallow rooted trees pushed over. Semi-trucks overturned. More significant damage to old/weak structures. Shingles, awnings removed from houses; damage to chimneys and antennas; mobile homes, carports incur minor structural damage; large billboard signs may be toppled.
75-89 mph (65-77 kts)	**Hurricane Force** - Widespread tree damage (trees either broken or uprooted). Mobile homes may incur more significant structural damage; be pushed off foundations or overturned. Roofs may be partially peeled off industrial/commercial/warehouse buildings. Some minor roof damage to homes. Weak or open structures (e.g. farm buildings, airplane hangars) may be severely damaged.
90+ mph (78+ kts)	**Significant Severe** - Groves of trees flattened. Mobile homes severely damaged; moderate roof damage to homes. Roofs partially peeled off homes and buildings. Barns and sheds completely demolished.

Regional Trends & Events

Tornados have occurred in Wisconsin in every month except February, as shown in **Figure 13** below:

Figure 13. Wisconsin Tornado Events by Month • 1844 to 2015



source: WEM THIRA based on NWS, Milwaukee/Sullivan, 2016

Wisconsin's tornado season runs from the beginning of April through September. The most severe tornados typically occur during April, May, and June. Many tornados strike in late afternoon or early evening. However, tornados have occurred during other times of the day. Personal property damage, deaths, and injuries have and will continue to occur in Wisconsin.

The potential destructiveness of tornados remains fairly fresh in the minds of many Dunn County residents due to

two recent and substantial tornado events in the region. On June 18, 2001, an F3 tornado with a 27-mile path hit the Village of Siren approximately 40 miles to the north, resulting in three deaths, 16 injuries, 167 destroyed homes, and 280 damaged homes. More recently, 55 miles northeast of Dunn County, an F3 tornado hit the City of Ladysmith on September 2, 2002, injuring 37 and resulting in over $20 million in damage. Many long-time residents of the County and region also recall the devastating Colfax Tornado of 1958 which had a 32-mile path, caused at least 19 deaths, and resulted in severe damage.

More recently, on May 16, 2017, an EF3 tornado caused over $10.1 million in damages along an 83-mile track from southeastern Polk County then northeast into Price County. 160 homes were affected, including 40 destroyed. Six businesses were also impacted, including six turkey burns with a loss of about 25,000 birds. The tornado struck a mobile home park near Chetek resulting in one fatality and at least 25 injuries. Tornado warnings were issued with adequate time for most persons to seek shelter, though the mobile home park lacked a safe room. The devastation, limited access, number of responders, and darkness all contributed to significant challenges at the mobile home park for providing services to survivors, coordinating response efforts, and centralizing command. This event also demonstrated the importance of good volunteer and donation management and tracking.

Our region has also experienced the 9th deadliest tornado in U.S. history. On June 12, 1899, the City of New Richmond in St. Croix County had about 2,500 residents in addition to hundreds of tourists who had come to town to see the circus. At about 4:30 P.M., a heavy rain with some hail fell, driving people temporarily indoors. But after the circus ended and the rain let up, people began to head home for the day. At 6:00 P.M., the streets were full of tourists, travelers, and residents. Unknown to them, approximately 30 minutes earlier, a waterspout was seen on Lake St. Croix about 15 miles southwest of New Richmond. The tornado reached New Richmond about 6:00 P.M. with little or no warning. The Milwaukee Journal at that time estimated more than 500 structures were destroyed, most totally splintered and torn from their foundations, though another damage estimate states 230 buildings were destroyed. Official estimates determined that 117 people had been killed (114 within the city) and more than 200 injured. Twenty-six families lost more than one individual, while six reported four or more deaths in the family. Over 400 animals were also killed. More than $600,000 (over $17 million in 2018 dollars) in damage claims were made, though it was believed that many people did not file claims, moved elsewhere, or there was no one left in the household to file a claim.

D. THUNDERSTORMS, LIGHTNING, & HAIL

The information below is supplemental to the information contained within Section III.C.ii. of the *Dunn County Hazard Mitigation Plan.*

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. The National Weather Service definition of a severe thunderstorm is a thunderstorm event that produces any of the following: winds of 58 miles per hour or greater (often with gusts of 74 miles per hour or greater), hail 3/4 inch in diameter or greater, or a tornado.

The thunderheads formed may be a towering mass six miles or more across and 40,000 to 50,000 feet high. They may contain as much as 1.5 million tons of water and enormous amounts of energy that often are released in the form of high winds, excessive rains, and three violently destructive natural elements: lightning, hail, and tornadoes.[12]

[12] Tornadoes and high wind vulnerabilities (potential impacts) are discussed separately in Section III.B.ii.

A thunderstorm often lasts no more than 30 minutes, as an individual thunderstorm cell frequently moves between 30 to 50 miles per hour. Strong frontal systems, though, may spawn more than one squall line composed of many individual thunderstorm cells. These fronts can often be tracked from west to east. Because thunderstorms may occur singly, in clusters, or as a portion of large storm lines, it is possible that several thunderstorms may affect a single area in the course of a few hours.

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. According to the *Rainfall Atlas of the United States*, a 100-year rainfall event in Dunn County would produce at a single location:

3" of rain in 1 hour or less,
3.5" of rain in 3 hours or less,
4" of rain in 6 hours or less
5" of rain in twelve hours or less, or
5" of rain in 24 hours or less.

However, the above Rainfall Atlas was completed by the U.S. Weather Bureau in May 1961 is very outdated and does not represent more recent climate trends that would likely result in an increase in the rainfall thresholds (i.e., more inches of rain in a given time period to qualify as a heavy rain 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.

Thunderstorms can develop in a variety of ways, with the most common storm types are listed below:

Single-Cell Storm	Small, brief, weak storms that grow and die within an hour or so. They are typically driven by heating on a summer afternoon. Single-cell storms may produce brief heavy rain and lightning.
Multi-Cell Storm	A common, garden-variety thunderstorm in which new updrafts form along the leading edge of rain-cooled air (the gust front). Individual cells usually last 30 to 60 minutes, while the system as a whole may last for many hours. Multicell storms may produce hail, strong winds, brief tornadoes, and/or flooding.
Supercell	A long-lived (greater than 1 hour) and highly organized storm feeding off an updraft (a rising current of air) that is tilted and rotating. This rotating updraft can be present as much as 20 to 60 minutes before a tornado forms. The tornado is a very small extension of this larger rotation. Most large and violent tornadoes come from supercells.

Hazard Location

There are no geographic boundaries or locations within Dunn County uniquely affected by or from thunderstorm, heavy rain, lightning, or hail events; all Dunn County jurisdictions are equally at risk of experiencing these types of severe weather. The maps included later in this section show that lightning and hail events occur throughout the State of Wisconsin. It is notable that lightning strikes can occur up to 20 miles aways from the parent thunderstorm.

Hazard Extent (Potential Intensities)

Heavy rain intensities for 100-year rainfall events for Dunn County were previously identified in the definitions.

Lightning strike intensity can be measured in megajoules, length, or the density strikes per storm or over time. For purposes of this plan, exploring a scale for the voltage or heat of lightning strikes is largely irrelevant; any strike can cause serious damage, injury, or death. According to Vaisala's *2023 Annual Lightning Report*, Dunn County experienced 12-16 total lightning events per square kilometer per year from 2016-2022, though the density of cloud-to-ground flash is much lower at 1-2 strokes per square kilometer per year.[13]

The Tornado & Storm Research Organisation in the United Kingdom has developed the TORRO **Hailstorm Intensity Scale** in **Table 10** to evaluate and report hail storm intensity and typical damage, which is largely a function of hail diameter. The scale also considers the kinetic energy of the hail stones, which is impacted by wind speed. As the TORRO webpage[14] explains, "a fall of walnut-sized hail with little or no wind may scar fruit and sever the stems of crops but would not break vertical glass and so would be ranked H2-3. However, if accompanied by strong winds, the same hail may smash many windows in a house and dent the bodywork of a car, and so be graded an intensity as high as H5."

Table 10. TORRO Hailstorm Intensity Scale

Scale	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy (J m^{-2})	Typical Damage Impacts
H0	Hard hail	5	0-20	No damage
H1	Potentially damaging	5-15	>20	Slight general damage to plants and crops
H2	Significant	10-20	>100	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	>300	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	>500	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	>800	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60		Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	50-75		Severe roof damage, risk of serious injuries
H8	Destructive	60-90		(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

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.

[13] https://www.xweather.com/annual-lightning-report
[14] https://www.torro.org.uk/research/hail/hscale

Event History – Thunderstorm, Lightning, & Hail

Figures 14 and 15 on the following pages show that lightning and hail events occur statewide. Since 1982, Dunn County has experienced a low number of reported lightning events (8). In comparison, Dunn County has been a hotspot for hail events (110).

Figure 14. Wisconsin Lightning Events, 1982-2024

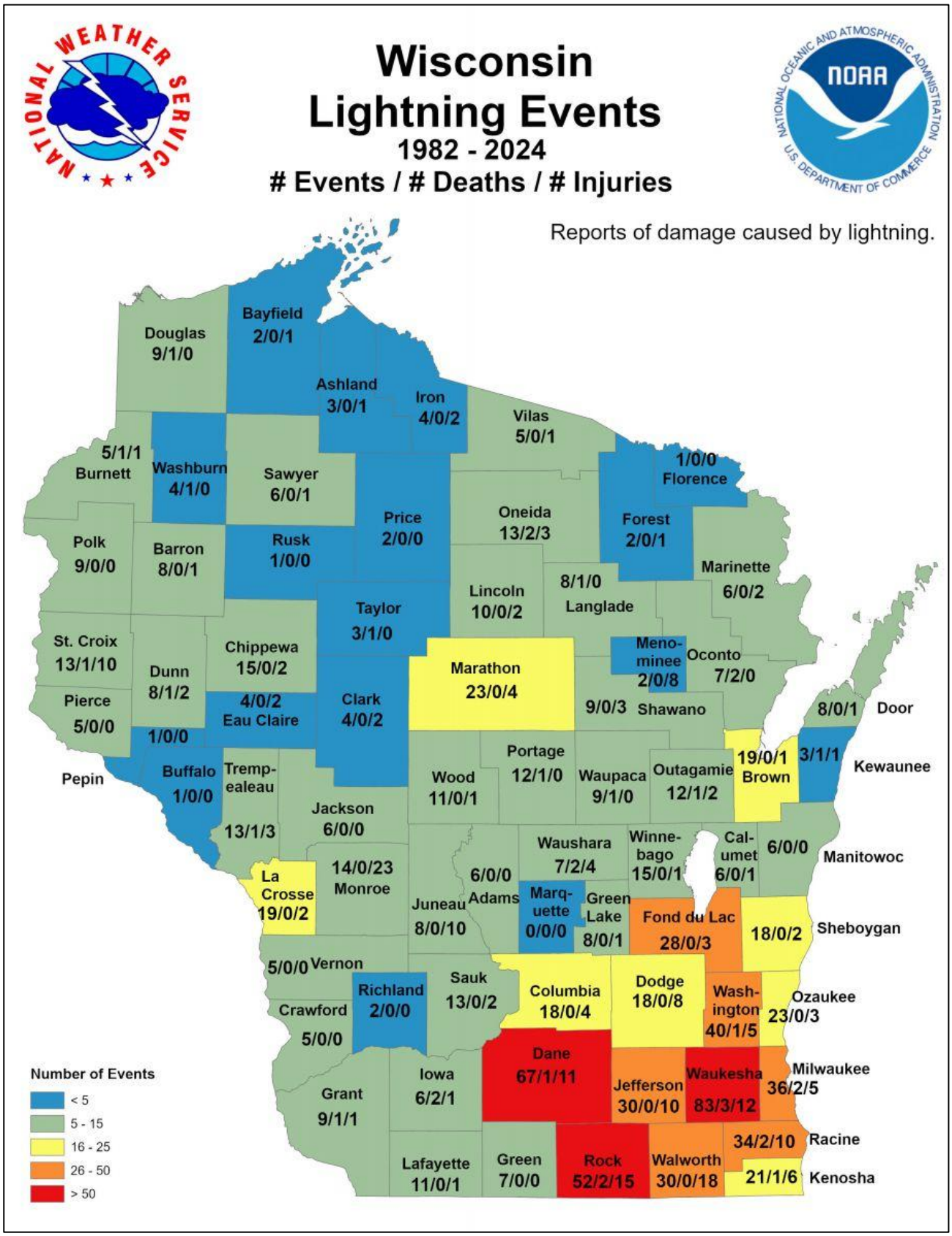
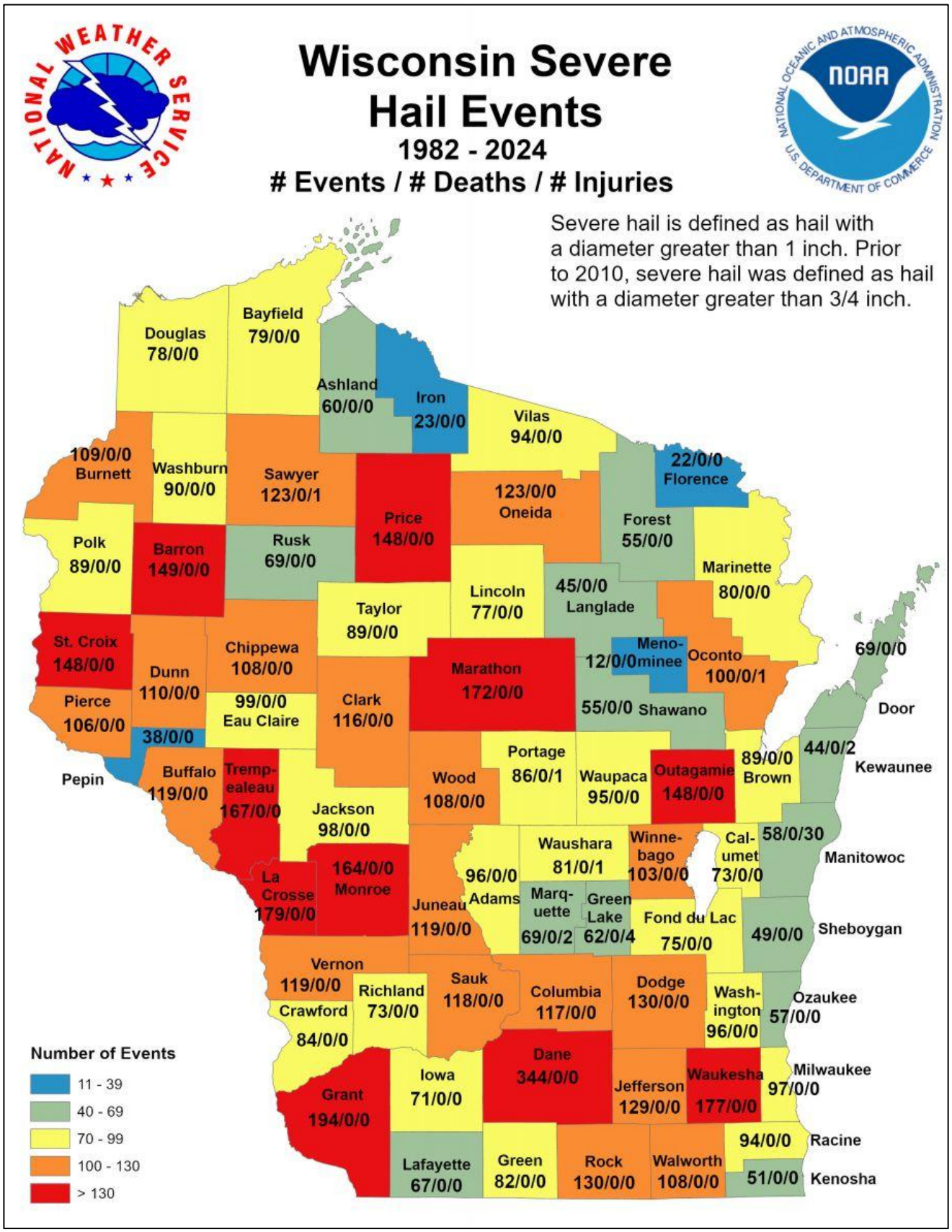


Figure 15. Wisconsin Hail Events, 1982-2024



E. WINTER STORMS & EXTREME COLD

The information below is supplemental to the information contained within Section III.C.iii. of the *Dunn County Hazard Mitigation Plan.*

Defining the Hazard —Winter Storms and Extreme Cold

The *Dunn County Hazard Mitigation Plan* defines several terms associated with winter storms and extreme cold.

Hazard Extent

The **Sperry-Piltz Ice Accumulation (SPIA) Index** in **Figure 16** provides five impact categories based on precipitation totals, temperature, wind speed and wind direction; wind is an included factor since ice accumulation on trees, utility lines, etc., is much more prone to causing damage due to the added stress of high winds. The SPIA index is used to predict and communicate the potential impacts of ice storm events, including the potential for long-term power loss.

Figure 16. Ice Storm Damage Index

ICE DAMAGE INDEX	DAMAGE AND IMPACT DESCRIPTIONS
0	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
4	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

Cold temperatures can be deadly, especially when accompanied by high winds. The combination of cold temperature and wind creates a perceived temperature known as "wind chill." When wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same, greater heat loss and a colder feeling is experienced as wind speed increases. As winds increase, heat is carried away from the body at a faster rate, driving down both the skin temperature and, eventually, the internal body temperature. Shown in **Table 11** are the calculated **wind chill temperatures** as a result of specified air temperatures and wind speed.

Table 11. Wind Chill Table (in Degrees Fahrenheit)

Temperature (°F)	Wind Speed (MPH)								
	5	10	15	20	25	30	35	40	45
30	25	21	19	17	16	15	14	13	12
25	19	15	13	11	9	8	7	6	5
20	13	9	6	4	3	1	0	-1	-2
15	7	3	0	-2	-4	-5	-7	-8	-9
10	1	-4	-7	-9	-11	-12	-14	-15	-16
5	-5	-10	-13	-15	-17	-19	-21	-22	-23
0	-11	-16	-19	-22	-24	-26	-27	-29	-30
-5	-16	-22	-26	-29	-31	-33	-34	-36	-37
-10	-22	-28	-32	-35	-37	-39	-41	-43	-44
-15	-28	-35	-39	-42	-44	-46	-48	-50	-51
-20	-34	-41	-45	-48	-51	-53	-55	-57	-58

Source: National Weather Service

The potential and intensity of winter storms and extreme cold/wind chill events is publicly shared through NOAA's weather alert systems. The table below outlines NOAA's definitions and criteria for each of the primary winter weather-related alerts.

Watch - Generally issued in the 24 to 72 hour forecast time frame when the risk of a hazardous winter weather event has increased (50 to 80% certainty that warning thresholds will be met). It is intended to provide enough lead time so those who need to set their plans in motion can do so.	Winter Storm Watch	Conditions are favorable for a winter storm event (heavy sleet, heavy snow, ice storm, heavy snow and blowing snow or a combination of events) to meet or exceed local winter storm warning criteria in the next 24 to 72 hours. Criteria for snow is 7 inches or more in 12 hours or less; or 9 inches or more in 24 hours covering at least 50 percent of the zone or encompassing most of the population. Criteria for ice is 1/2 inch or more over at least 50 percent of the zone or encompassing most of the population.
	Extreme Cold Watch	Dangerously cold air, with or without wind, is possible. Prior to October 2024, was called a Wind Chill Watch when conditions are favorable for wind chill temperatures to meet or exceed local wind chill warning criteria in the next 24 to 72 hours. Wind chill temperatures may reach or exceed -25°F.
Warning - Issued when a hazardous winter weather event is occurring, is imminent, or has a very high probability of occurrence (generally greater than 80%). A warning is used for conditions posing a threat to life or property.	Blizzard Warning	Blizzard event is imminent or expected in the next 12 to 36 hours. Sustained wind or frequent gusts greater than or equal to 35 mph will accompany falling and/or blowing snow to frequently reduce visibility to less than 1/4 mile for three or more hours.
	Ice Storm Warning	An ice storm event is expected to meet or exceed local ice storm warning criteria in the next 12 to 36 hours. Criteria for ice is 1/2 inch or more over at least 50 percent of the zone or encompassing most of the population
	Winter Storm Warning	A winter storm event (heavy sleet, heavy snow, ice storm, heavy snow and blowing snow or a combination of events) is expected to meet or exceed local winter storm warning criteria in the next 12 to 36 hours.
	Extreme Cold Warning	Dangerously cold air, with or without wind, is expected. Prior to October 2024, was called a Wind Chill Watch when wind chill temperatures are expected to meet or exceed local wind chill warning criteria in the next 12 to 36 hours. Wind chill temperatures may reach or exceed -25°F.
Advisory - Issued when a hazardous winter weather event is occurring, is imminent, or has a very high probability of occurrence (generally greater than 80%). An advisory is for less serious conditions that cause significant inconvenience and, if caution is not exercised, could lead to situations that may threaten life and/or property. NOTE: The issuance of an "Advisory" is being phased out by the National Weather Service in the near future and will be replaced with a plain language description of the possible hazardous conditions.	Winter Weather Advisory	A winter storm event (sleet, snow, freezing rain, snow and blowing snow, or a combination of events) is expected to meet or exceed local winter weather advisory criteria in the next 12 to 36 hours but stay below warning criteria.
	Cold Weather Advisory	Cold air is expected. Prior to October 2024, was called a Wind Chill Advisory when wind chill temperatures are expected to meet or exceed local wind chill advisory criteria in the next 12 to 36 hours. Wind chill temperatures may reach or exceed -15°F.

Event History – Winter Storms & Extreme Cold

Regional Trends

Most winter storm events are typically regional in nature and are not limited to a localized area or county. However, levels of snowfall or ice accumulations 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. Heavy snowfalls that produce at least six inches of accumulation occur on average about 10-12 times per winter statewide. True blizzards are rare in Wisconsin. They are more likely to occur in northwestern Wisconsin than in southern portions of the State, even though heavy snowfalls are more frequent in the southeast. However, blizzard-like conditions can exist during heavy snowstorms when gusty winds cause the severe blowing and drifting of snow. Seasonal average snowfalls in Wisconsin vary between approximately 30 inches in extreme southern parts of the State to over 100 inches in the Lake Superior snowbelt.

The following are some of the winter storm record-breaking events for Wisconsin:

Record	Location	County	Date	Magnitude
24-hour snow accumulation	Neillsville	Clark	December 27-28, 1904	26 inches
Seasonal snow accumulation	Hurley	Iron	Winter 1996-97	25.2 feet
Snowless streak	Milwaukee	Milwaukee	March 4-December 18, 2012	288 days
Coldest temperature	Couderay	Sawyer	February 4, 1996	-55° F

Both ice and sleet storms can occur at any time throughout the winter season from October into April. Early- and late-season ice and sleet storms are generally restricted to northern Wisconsin. Otherwise, the majority of these storms during the winter months occur in southern Wisconsin. In a typical winter season, there are 3 to 5 freezing rain events; and a major ice storm occurs on a frequency of about once every other year. If a half-inch of rain freezes on trees and utility wires, extensive damage can occur, especially if accompanied by high winds that compound the effects of the added weight of the ice. There are also between three to five instances of glazing (less than 1/4 inch of ice) throughout the State during a normal winter.

Significant Dunn County Events (pre-2010)

From 1971 to 2000, the mean annual snowfall for Dunn County was 41.2 inches, almost half of which occurred during the months of December and January. According to the National Weather Service, the worst snow storms in the State of Wisconsin from 1881 to 2010 that potentially included Dunn County were:

- **March 2-4, 1881** - Southern / Central - Blizzard - 2 to 4 feet of snow. Drifts to 20 feet. Milwaukee reported 28.5 inches.
- **January 15, 1887** - Southern / Central - Snowstorm - 2 feet of snow. Huge drifts.
- **December 27-28, 1904** - Southern / Central - Heavy snow/ice. 26 inches of snow at Neillsville (Clark County).
- **January 30-February 1, 1915** - Southern / Central - Heavy snow / ice – severe glazing. 10 inches of snow in Milwaukee.
- **February 12-14, 1923** - Statewide - Blizzard - Heavy snow - severe drifting.
- **February 8-10, 1936** - Statewide - Blizzard - severe drifting.
- **November 6-8, 1943** - Statewide - Heavy snow / ice - 10 to 18 inches of snow. Roads blocked for several days.

- **January 28-30, 1947** - Southern / Central - Blizzard - 10 to 27 inches. Drifts to 15 feet. Roads blocked.
- **January 22-23, 1982** - North half - Blizzard - 10 to 20 inches. Superior had 19 inches.
- **November 30 - December 2, 1985** - Statewide (except southeast corner) - Widespread snows of 10 to 18 inches. Madison had about 10 inches.
- **October 31 - November 2, 1991** - Northwest / West Central - Blizzard - "Halloween Storm" - 15 to 30 inches, 6 to 10 foot drifts. 30 inches in Burnett, Douglas, Polk, and Dunn counties.
- **January 26-27, 1996** - Statewide - Heavy snow - 6 to 18 inches. Localized amounts of 16 to 18 inches fell along a line from La Crosse to Green Bay. A death of an Elk Mound woman was tied to this event after her car became stranded in the blizzard conditions.
- **March 13-14, 1997** - West Central / Northeast - Snowstorm - 12 to 28 inches. 28 inches at Wautoma in Waushara County.
- **January 21-22, 2005** - Statewide - Blizzard (gusts to 50 mph) - 6 to 15 inches. Although winds gusted up to 50 mph in some areas and visibilities were reduced to less than 1/4 mile due to falling or blowing snow, many areas didn't experience these conditions for 3 hours or more to classify as a full blizzard. Nonetheless, heavy snow and very windy conditions created near white-out conditions especially in the south and east. The heaviest totals occurred near Lake Michigan due to additional lake effect, where some areas ended up near 15 inches.
- **March 18-19, 2005** – West-central – Winter Storm – 18 to 23 inches in a swath from southern Buffalo County to western Jackson County, with 12 to 15.6 inches in La Crosse County. The maximum of 23 inches occurred in northwestern Jackson County.
- **March 13-14, 2006** – West-central to North-central– Winter Storm – 17 to 32 inch swath from Dunn County northeast to Iron County. Thundersnow enhanced the accumulations. Very poor visibility resulted from gusty winds around 30 mph and drifting resulted in hundreds of accidents. Locals said it was the worst storm since the 1980s.
- **February 23-26, 2007** – West-central (through southern and eastern Wisconsin) – Blizzard - Two-round storm, with one overnight the 23rd to 24th, and the second round overnight the 24th into the 25th. Leftover snow accumulations continued overnight the 25th into the 26th. In counties surrounding La Crosse, 8 to 15.6 inches (Galesville) fell in round one, while round two produced 6 to 12.5 inches (Sullivan NWS office) over the southern three-fourths of the State. The leftover snow added another 1 to 4 inches, except for 6 to 14 inches from New London into Door County. Many locations totaled 20 to 25 inches for this long-duration two-punch episode from around La Crosse to Port Washington and a small part of Door County. Gusty winds generated snow drifts up to 5 to 7 feet in height.
- **December 8-9, 2009** – Nearly statewide – Winter Storm – Large area experienced 12 inches or more. Madison area had 17 to 20 inches, 15 to 17 inches in the La Crosse area, 14 to 16 inches in the Green Bay area, and 16 to 28 inches in the Lake Superior snow-belt. The greatest amount of around 28 inches occurred in the Hurley, Iron County area.

Winter-Related Accidents & Drifting in Dunn County

Drifting of snow on many of the roads of Dunn County is common during winters when snow and high winds are present, but can be a serious hazard resulting in accidents or restricting travel. For example, officials from the Town of New Haven noted that "most roads in the township can be vulnerable to drifting at different times." The Town of Dunn added that they do have roads prone to drifting and could use re-engineering of the road/right-of-way or heavier equipment to move drifts up to 10-12 feet high. The County Highway Department added that their larger, improved equipment has made it easier to keep-up with such drifting, though drifting problems are increasing in some areas due to removal of wind rows and conversion of some forested areas to croplands.

Based on County Highway Department winter storm reporting to the Wisconsin Department of Transportation, salt, sand, and other de-icing and anti-icing agents are required much more frequently. For example, during the winter 2016-2017 winter season, Dunn County reported 63.3 inches of snow from 29 snow, sleet, and freezing rainstorms that cost the County Highway Department over $1.5 million in material, equipment, and labor for State & Federal highways. Winter 2016-2017 was less severe compared to the previous five-year average, while costs were 23% higher than the five-year average during Winter 2018-2019.

The effect of winter storms on Interstate 94 travel, especially at Knapp Hill, was the most frequently mentioned concern during hazard mitigation planning meetings. This steep hill can be dangerous and impassible under poor winter conditions. For example, on April 4, 1985, a winter storm hit west-central Wisconsin which resulted in the closure of Interstate 94 in Dunn County. In total, 54 travelers were unexpectedly sheltered in Dunn County as a result of this storm. A shutdown of I-94 also would require re-routing traffic through Menomonie, which can become gridlocked. WDOT reconstruction project on Knapp Hill significantly improved winter road conditions, combined with early pre-treatment and salt applications.

Other than Interstate 94, few other areas in the County were identified during interviews and surveys as being especially dangerous or uniquely prone to the drifting of snow or ice:

- As noted previously, various town roads, especially hilltops and flat areas, are drifting and icing concerns.
- County Highways B, C, E, and H east and southeast of Menomonie have long, flat sections that are prone to drifting.
- The curve on State Highway 25 south of Downsville had been a drifting problem in the past, but a re-grading and widening project provided some improvement. The mitigation offered by these improvements have been somewhat off-set by land use changes in the area (e.g., loss of tree lines) that have increased the potential for blowing snow.

Overall, local officials report that road crews do a good job of maintaining the highways, roads, and streets in the County and intergovernmental coordination is very good.

Historically, other winter-related event impacts in Dunn County in recent history have been primarily limited to scattered, short-term power outages and a limited number of areas potentially prone to ice damming, which are discussed in the long term power outage and flooding hazard subsections, respectively. Snow melt can also result in the flooding of roadways; County Highway "B" southwest of Colfax was shutdown for a couple weeks during the 2019 snow melt. The 2014-2015 Polar Vortex and limited snow cover resulted in an uncommonly large number of water utility breaks for a number of municipalities in the County; otherwise, occasional water main and lateral breaks are not uncommon.

Winter-Related Threats to Agriculture

Winter crops are vulnerable to winter kill during periods of extreme cold without sufficient snow on the ground to help act as an insulator. Four inches of snow cover will allow up to a 20ºF difference in temperature between the soil and air, and will prevent the premature breaking of dormancy during temporary warm spells. 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. Late-spring frosts can also damage crops, especially fruit trees.

Alfalfa is especially vulnerable to winter kill, compared to other forage types. In 2002-2003, winter kill combined with drought during summer 2004 to reduce feed for cattle and create significant hardships for some Dunn County producers. At about $1,500 of additional feed per mature cow for a year and with over 51,000 head of cattle in the County, feed replacement costs can accumulate quickly. Since alfalfa is a relatively low-value crop, it is typically uninsured. These additional costs can result in less of revenue to the individual producer and can be added costs to manufacturers (e.g., dairies, grocery stores, food processing) and consumers. Late fall alfalfa or hay cuttings can further contribute to winter kill since time is not allowed for adequate re- growth of ground cover

which provides an additional insulating blanket. Periods of freezing and thawing in the spring can also contribute to frost heaving within certain types of soils, leading to additional crop damage.

While less frequent, early frosts can also severely impact agricultural crops. The most significant early frost in recent history transpired in September 1974. This severe frost event occurred on multiple nights, included much of northern and western Wisconsin, and stretched as far south as Kansas. Some counties in the region lost more than 80 percent of the soybean and corn crops. Combined with the impacts of a summer drought, the soybean and corn losses were near 100 percent in nearby Dunn, Chippewa, and Eau Claire counties. In today's dollars, the total statewide crop losses as a result of the September frost were estimated at more than $520 million. Late frosts can also be a concern for different crops. In 2010, a late frost and snow in mid-May hit western Wisconsin while apple trees were blossoming. Production at some orchards in the region decreased by thirty to fifty percent. Cherry, grape, and strawberry crops were also impacted.

More concerning, area farmers have experienced some livestock deaths due to extreme cold as well as the collapse of barns and pole structures during heavy snow loads, such as during Winter 2018-2019. A prolonged period of snow cover can also limit the ability of farmers to spread manure, which can result in manure storage capacity challenges.

F. Extreme Heat

The information below is supplemental to the information contained within Section III.C.iv. of the *Dunn County Hazard Mitigation Plan.*

Defining the Hazard - Extreme Heat

The National Weather Service issues the following heat-related announcements and advisory warnings in order of severity:

Extreme Heat Outlook Statement — Issued two to seven days in advance of when Heat Advisory or Excessive Heat Warning conditions are anticipated. Issued as a Hazardous Weather Outlook (HWO). Broadcasted on NOAA All Hazards Weather Radio and posted on NWS websites (www.weather.gov).

Heat Advisory — Issued six to 24 hours in advance of any 24-hour period in which daytime heat index (HI) values of 100 degrees or more and/or when air temperatures are expected to be 95 degrees or higher. If four consecutive days of these conditions are expected, then the Excessive Heat Warning will be issued.

Excessive Heat Watch — Issued generally 12 to 48 hours in advance of any 24-hour period in which daytime heat index (HI) values are expected to be 105 degrees or higher and nighttime HI values will be 75 degrees or higher.

Excessive Heat Warning — Issued six to 24 hours in advance of any occurrence of a 48-hour period in which daytime heat index (HI) values are expected to be 105 degrees or higher and nighttime HI values will be 75 degrees or higher.

If such conditions persist for a prolonged period of time, it is called a **heat wave**. Excessive or extreme heat is typically a slowly evolving phenomenon that can catch many people by surprise. Unlike tornados or thunderstorms that normally develop and occur more quickly and with more observable characteristics, a heat wave typically builds slowly over time. Because of this creeping effect, it is important for forecasters and officials to be constantly aware of heat and humidity conditions in order to properly warn and protect citizens.

Hazard Location

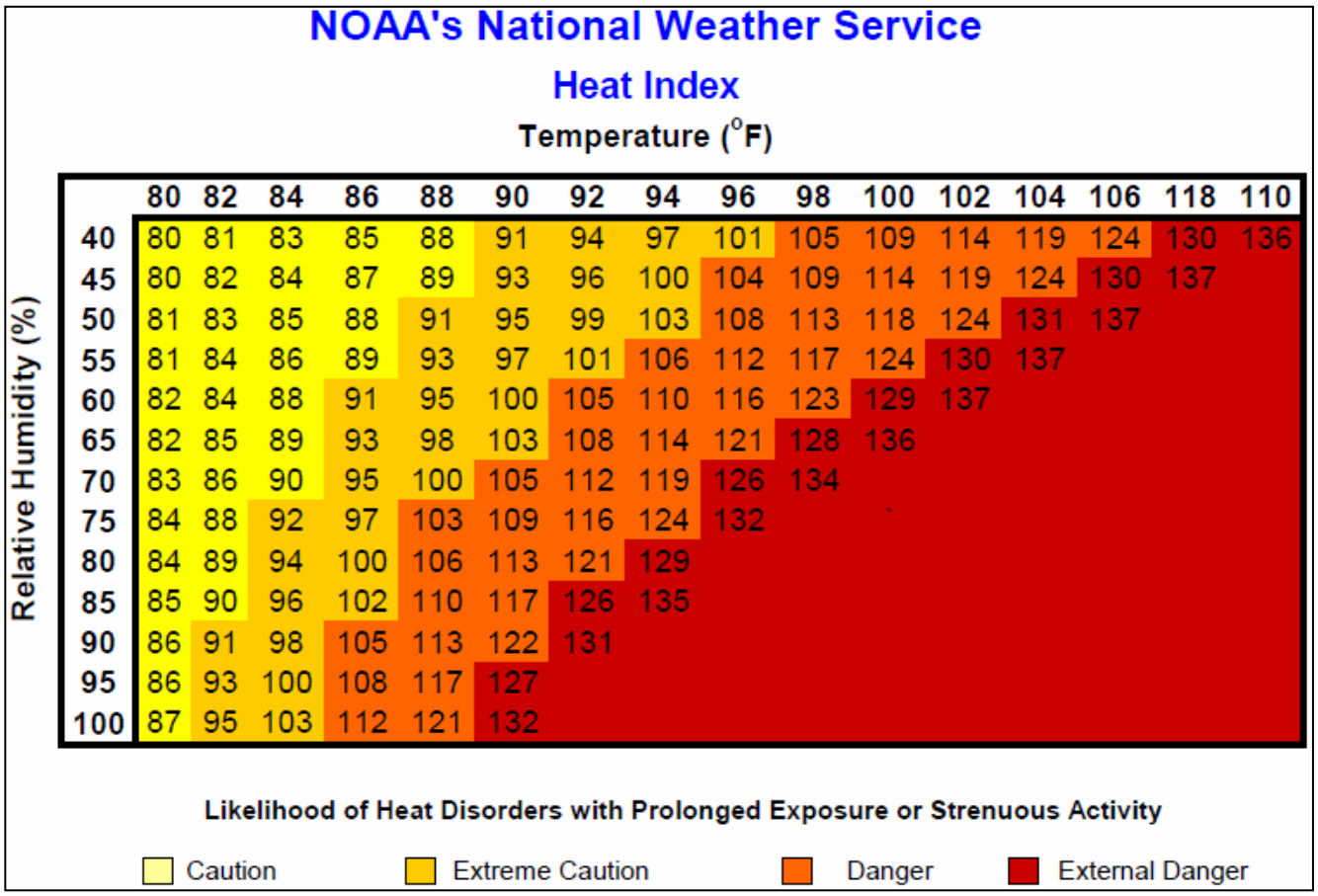
Extreme Heat is capable of causing health concerns, especially for vulnerable populations. Generally, extreme heat events are regional and will not impact assets outside of the heat event, although they will place additional pressure on medical services.

Hazard Extent (Potential Intensities)

Heat waves usually consist of high temperatures and high relative humidity. The combination of high temperatures and high relative humidity makes it difficult for the human body to dissipate heat through the skin and sweat glands. Sweating will not cool the human body unless the water is removed by evaporation. High relative humidity retards evaporation and, thus, inhibits the cooling process.

The National Weather Service (NWS) uses the heat index as a measure of the combined effects of high temperatures and high relative humidity, as shown in **Figure 28**.

Figure 28. Heat Index Table



SOURCE: NATIONAL WEATHER SERVICE

As indicated above, the heat index is a function of the actual temperature and the relative humidity. The categories in light orange, dark orange, and red indicate when the heat index values are of concern and precautions should be taken limiting sun exposure and physical activity.

Any time the temperature and humidity combine to produce a heat index that could cause health concerns for humans, the National Weather Service will issue various statements on heat conditions. For example, the NWS issues "Heat Advisories" when it expects the daytime heat index to equal or exceed 105° for 3 hours or more and

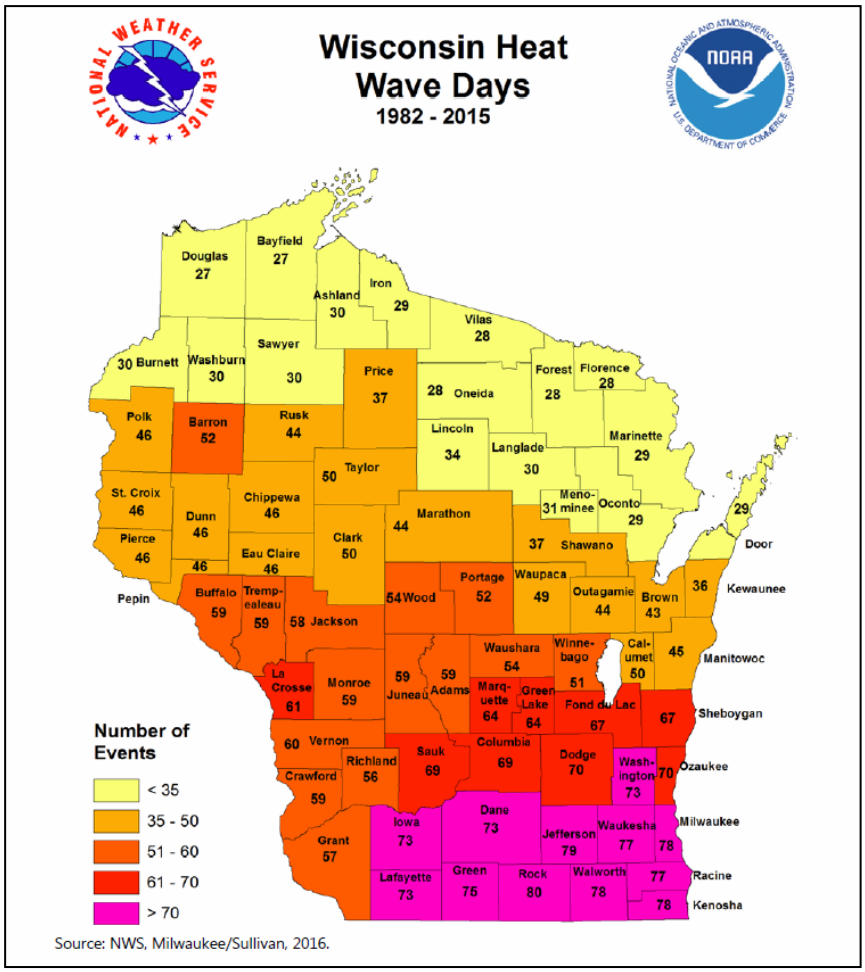
the nighttime heat index equals or exceeds 80° for any 24-hour period. The NWS issues "Excessive Heat Warnings" when it expects the daytime heat index to equal or exceed 115° for 3 hours or more and the nighttime heat index equals or exceeds 80° for any 24-hour period. The NWS may issue an "Excessive Heat Watch" 24 to 8 hours in advance of anticipated heat wave conditions.

Event History – Extreme Heat

Regional Trends

Although Wisconsin may not be thought of as a high-risk area for deadly heat waves, every year the State of Wisconsin experiences a period or series of periods in which the temperature and humidity produce a heat index which could be harmful to human health. From 1982 to 2015, there were 137 deaths directly attributed to heat in Wisconsin and 102 indirect deaths. A death is considered direct if the medical examiner ruled that heat was the primary cause of death and not just a contributing factor. Department of Health Services identified 22 heat-related deaths from 2016 to 2022 (no breakdown or direct versus indirect). In total from 1982 to 2020, 261 people have died in Wisconsin from heat-related causes. It is likely that this estimate is lower than the actual number given the difficulty of determining and tracking heat-related deaths.

The following are examples of recent heat wave events affecting Wisconsin:



- During the summer of 1995, two heat waves affected most of Wisconsin. Together, they resulted in 154 heat-related deaths and an estimated 300 to 400 heat-related illnesses. This makes the combined 1995 summer heat waves the biggest weather-related killers in Wisconsin for the past 50 years, far exceeding tornado deaths. Nationwide, the heat waves claimed 1,021 lives.
- In 1999, heat waves occurred on in multiple weeks of July. Collectively, these heat waves were directly and indirectly responsible for 21 deaths.
- Several heat waves from mid-July through early August 2001 claimed 15 fatalities across Wisconsin. Additionally, it is estimated that 300 or more individuals were treated at hospitals for heat-related conditions.
- There were an additional 21 heat-related deaths and likely hundreds of related illnesses in July 2012, with heat indices peaking in the 100º to 115º F range, especially in the southern parts of the Wisconsin.

- In July of 2016, hot temperatures and very high dew point temperatures persisted over southern Wisconsin; the area saw heat index values in the lower to mid-100s. There were 3 heat-related deaths in 2016.

Vulnerability Assessment - Extreme Heat

Assessing the Potential Vulnerability & Impacts to County Residents

Temperatures in excess of 90°F pose a risk of heat-related illness and death, especially when humidity levels exceed 35 percent. The risk is highest for individuals who are suffering from chronic illnesses and for those who are not acclimated to these conditions. Most health-related illnesses involve the elderly, especially those residing in urban areas for which temperatures can be further elevated due to the urban heat island effect. However, people on certain medications, isolated individuals who live alone and seldom leave their home, infants and young children, persons with chronic heart or lung problems, overweight people, persons with disabilities, and people who work outside are also at greater risk during extreme heat events. Research findings strongly suggest that heat index values of 90 to 105 make sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and/or physical activity. Heat index values of 105 to 130 degrees make sunstroke, heat cramps, and heat exhaustion likely with prolonged exposure and/or physical activity. Shown in **Table 12** are the potential dangers associated with heat index temperatures.

Table 12. Apparent Temperature Heat Stress Index (Dangers Associated with Heat Index Temperatures)

Category	Apparent Temperature (Heat Index - °F)	Associated Dangers
Caution	80-90°F	Exercise more fatiguing than usual.
Extreme Caution	90-105°F	Heat cramps, exhaustion possible.
Danger	105-130°F	Heat exhaustion likely; heatstroke possible.
Extreme Danger	Greater than 130°F	Heatstroke or Sunstroke imminent.

Source: National Weather Service

Heat cramps are muscle spasms from the result of a large amount of salt and water, and generally cease to be a problem after acclimatization. **Heat exhaustion** may cause dizziness, weakness, nausea, or fatigue from the depletion of body fluids, and may be accompanied by slightly to moderately elevated body temperatures. **Heatstroke** is when the body is unable to regulate and prevent a substantial rise in the body's core temperature. It is usually diagnosed when the body's temperature exceeds 105º F due to environmental temperatures. **Sunstroke** is a form of heatstroke brought about by excessive exposure to the sun. Heatstroke or sunstroke are considered medical emergencies and can be fatal. The risk of heat-related injury or death is for individuals who are suffering from chronic illnesses and for those who are not acclimated to these conditions. Most health-related illnesses involve the elderly. However, people on certain medications, isolated individuals who live alone and seldom leave their home, infants and young children, persons with chronic heart or lung problems, overweight people, persons with disabilities, homeless individuals who do not have an air conditioned place to go, and people who work outside are also at greater risk during extreme heat events. Mobile homes, campers, pole buildings, and similar construction, if not air conditioned, can also become dangerous under extreme-heat conditions.

The Building Resilience Against Climate Effects (BRACE) program in the Wisconsin Department of Health Services has compiled a heat vulnerability index map for the State based on a combination of risk factors (population density, health factors, demographic and socioeconomic factors, and the natural and built environment). **Figure 29** shows the heat vulnerability index map for Wisconsin. The vulnerability for most of Dunn County was primarily rated low with some areas rated as moderate low, likely due to lower average incomes and/or an aging population.

Any time the temperature and humidity combine to produce a heat index that could cause health concerns for humans, the National Weather Service will issue various statements on heat conditions. For example, the NWS issues "Heat Advisories" when it expects the daytime heat index to equal or exceed 105° for 3 hours or more and the nighttime heat index equals or exceeds 80° for any 24-hour period. The NWS issues "Excessive Heat Warnings" when it expects the daytime heat index to equal or exceed 115° for 3 hours or more and the nighttime heat index equals or exceeds 80° for any 24-hour period. The NWS may issue an "Excessive Heat Watch" 24 to 8 hours in advance of anticipated heat-wave conditions.

Few options are available for a community to mitigate extreme heat. Cooling shelters or centers can be activated or identified for persons without air conditioning. The Red Cross and other service agencies may become involved if a longer-term, critical event occurs which impacts large numbers of people (extended power outage during very extreme heat). Dunn County has not formally identified, designated, or opened cooling shelters in the past, though some communities have identified libraries or other community buildings as an option during normal hours of operation, if needed. Opportunities exist to consider such agreements with partner organizations in conjunction with Great Rivers 2-1-1.

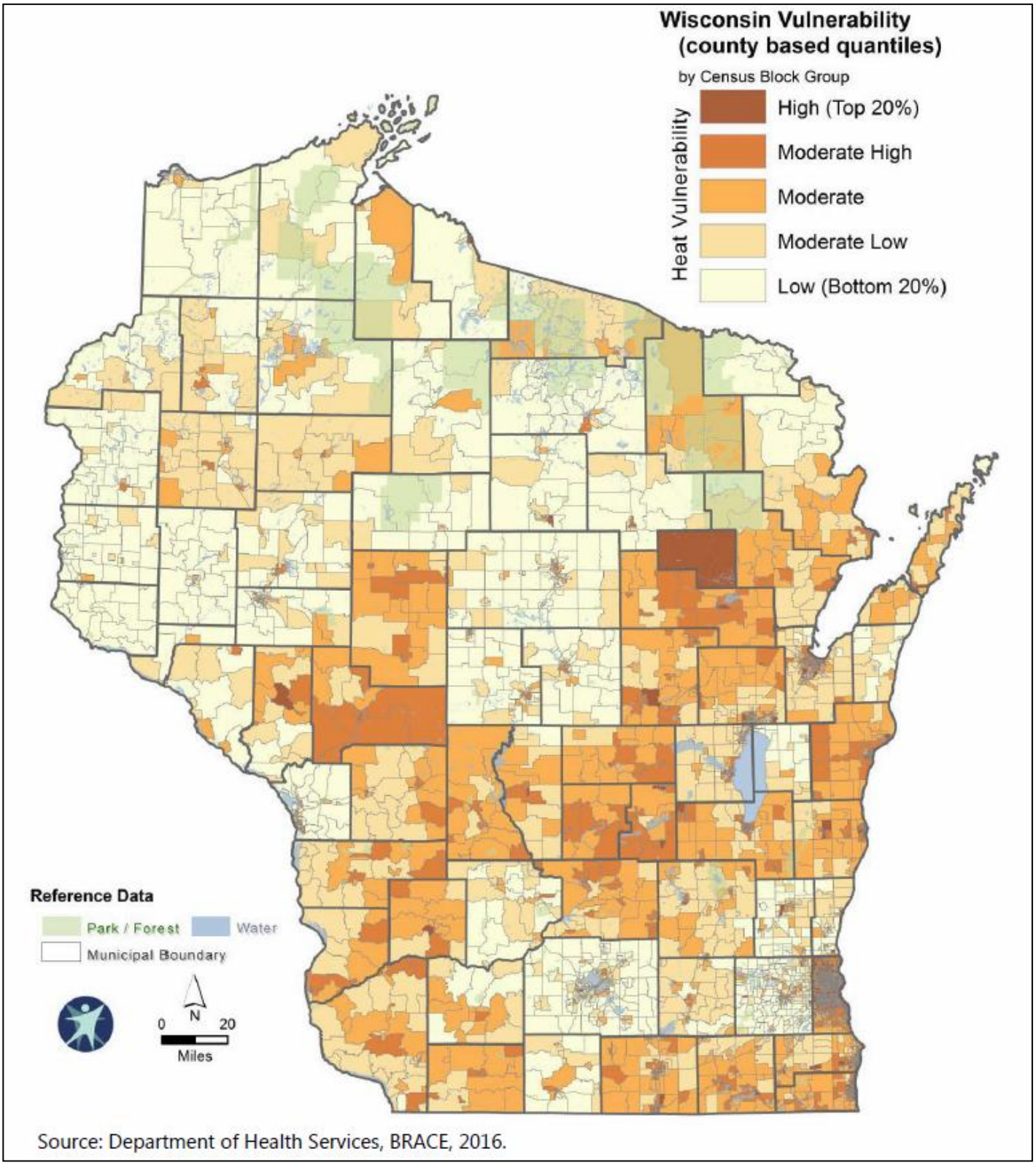
In the region, most efforts focus on educating the public to the risks, vulnerabilities, and how to prevent heat-related illness. Dunn County Emergency Management and Public Health offices distribute educational information via local media and social media on steps to minimize the impacts of extreme heat. Local media often provide their own news coverage and educational outreach. In addition, the Dunn County Aging and Disability Resource Center distributes educational information through its newsletter to the County's elderly; and its meal delivery personnel help maintain watch over elderly clients who might be more at-risk of succumbing to the impacts of extreme heat.

Beyond educational efforts and activating cooling shelters, other mitigation alternatives are limited. A targeted air conditioning program, such as working with local suppliers to offer rebates, could be one alternative, but would be expensive. Some communities with significant urban heat islands have attempted to increase vegetative cover, reduce hardscape, or have considered policies to change the albedo (reflectivity) of pavement, roofs, and other surfaces. The impacts of these policies are often difficult to model and prove. For areas experiencing an increase in extreme heat events, another approach is adaptation which considers the type of vegetation being planted, the reuse of water supplies, scheduling of activities, etc. See Section III.D. for additional adaptive strategies.

Extreme heat also has impacts for agriculture. 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.[15] Extreme heat within confined livestock buildings can also result in deaths, especially should power be lost. Water misting is sometimes used to keep confined livestock cool during the hottest of temperatures. 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.

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

Figure 29. Wisconsin Heat Vulnerability Index



Source: Department of Health Services, BRACE, 2016.

G. FLOODING

The information below is supplemental to the information contained within the *Dunn County Hazard Mitigation Plan.*

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.

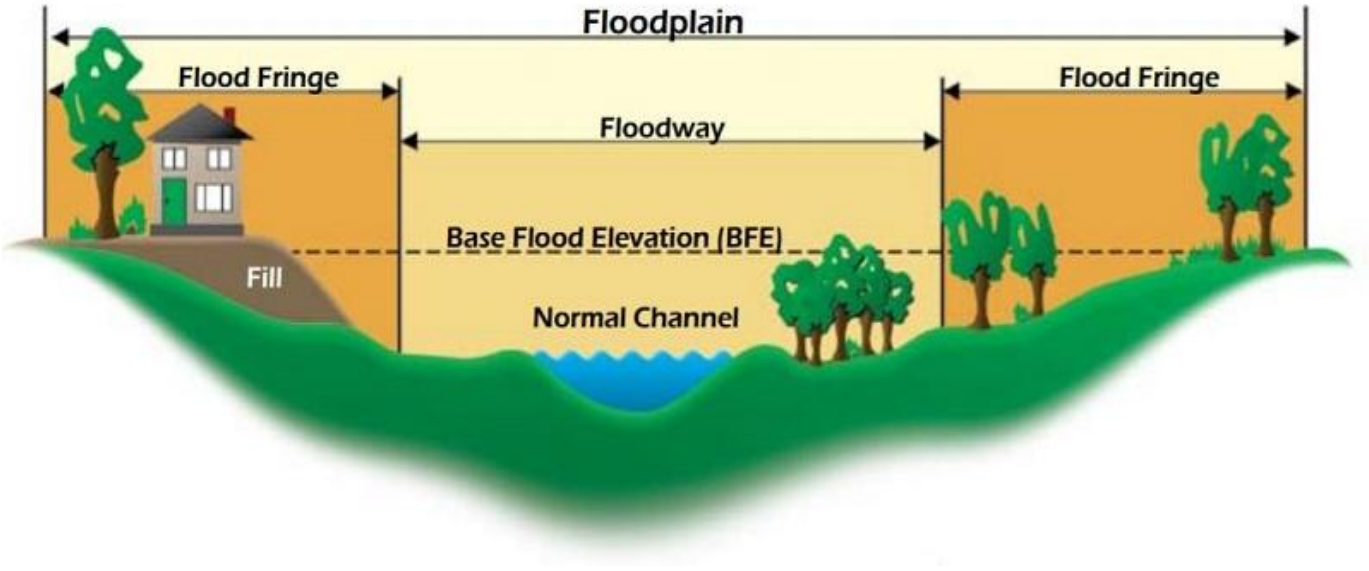
For regulatory purposes, the terms "100-year flood" and "floodplain" are commonly used. A **100-year flood**, often referred to as a **regional flood, special flood hazard area,** or **base flood**, is a flood that has a one percent chance of being equaled or exceeded in any given year. This can be misleading as a 100-year flood is not a flood that will occur once every 100 years. The 100-year flood, which is the standard used by most Federal and State agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance. Under the NFIP, the 100-year floodplain is also called the Special Flood Hazard Area (SFHA).

Key Definition

A 100-year flood has a 1% chance of being equaled or exceeded in any given year.

A **floodplain** is land which has been or may be covered by floodwater during a flood event and includes the floodway and flood fringe areas (see **Figure 23**). Often, the term "floodplain" is used inappropriately by assuming that floodplains are limited to the 100-year floodplain boundary that is used for regulatory and insurance purposes. This is not the case, and a floodplain can be identified for a 200-year flood, 500-year flood, or other such level of risk.

Figure 23. Elements of a Floodplain



Source: FEMA National Flood Insurance Program Guidebook

Floods greater than a 100-year regional flood event can and do occur. Nationwide, approximately 25 percent of all NFIP loss claims are for structures outside the 100-year floodplain. This is a surprisingly high number, since many homes or structures outside the 100-year floodplain do not have flood insurance; and flood insurance is

typically not required by lending institutions for mortgages on structures not within the 100-year floodplain. But this demonstrates that most properties are at risk of flooding to some degree.

The **floodway** is the channel of a river or stream and those portions of the floodplain adjoining the channel required to carry the regional flood discharge. Since it is associated with moving water, the floodway is the most dangerous part of the floodplain. The **flood fringe** is the portion of the floodplain outside of the floodway, which is covered by flood water during the regional flood and is generally associated with the storage of water rather than flowing water. The flood fringe is also that part of the floodplain in which development may be allowed in some communities, subject to floodplain development standards.

The **regional flood elevation** is the elevation determined to be representative of large floods known to have occurred in Wisconsin or which may be expected to occur on a particular lake, river, or stream at a frequency of one percent during any given year. The **flood protection elevation** is an elevation which is 2 feet above the regional flood elevation as defined by the Wisconsin Department of Natural Resources. Development is sometimes allowed within the flood fringe if the structure is raised above the flood protection elevation. However, development in the flood fringe can decrease important floodwater storage; hydraulic analysis is often needed to ensure that the development will not result in increased flooding in adjacent areas or farther downstream.

Flash flooding is more difficult to distinguish and can, in fact, be either riverine (overbank) or stormwater (overland) flooding. In this plan, flash flooding has been grouped with stormwater flooding due to its often unpredictable nature and the intense, rapid rise and velocity of the water levels. For prediction and warning purposes, floods are classified by the National Weather Service into two types: those that develop and crest over a period of approximately six hours or more, and those that crest more quickly. The former are referred to as "floods" and the latter as "flash floods." Like stormwater flooding, flash flooding is typically the result of intense rainfalls possibly in conjunction with already saturated soils, though very sudden snow melts can also contribute to stormwater or flash flooding.

Areas with steep slopes and narrow stream valleys are more vulnerable to stormwater and flash flooding, as the water can achieve high velocity in a short time. Developed areas with substantial impervious surfaces can further contribute to stormwater and flash flooding. Flash floods often occur in smaller watersheds, or are very localized, and are not necessarily reflected on most FEMA FIRMS. Flash flooding can also be the result of **dam failure**, which can occur from structural problems at the dam, hydrologic problems, malfunction of equipment, or human error in the monitoring or release of water. As such, dam failure can occur with little or no warning and on clear days with no rain, unlike the other types of flooding.

Event History – Flooding

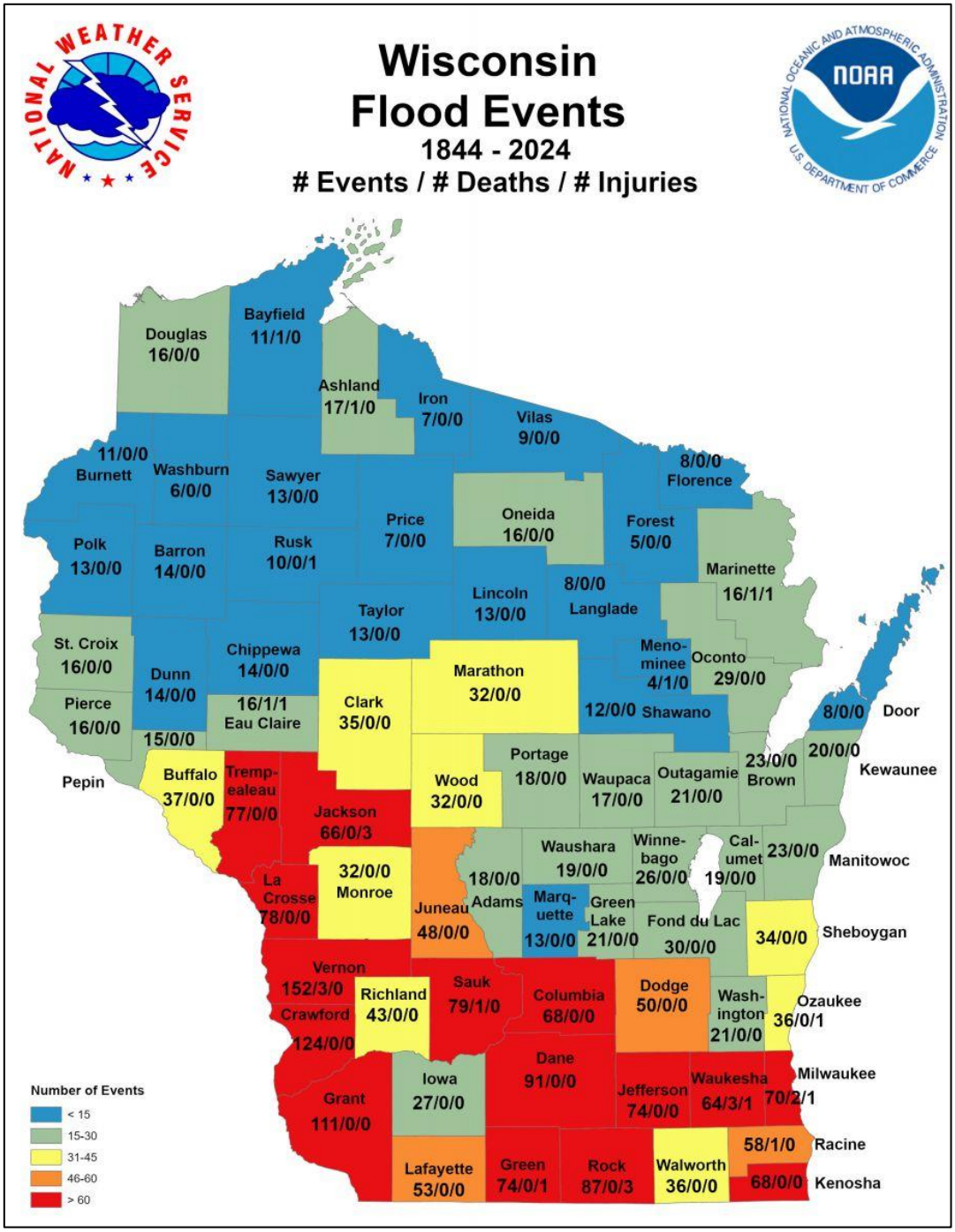
Regional Trends

Figure 24 shows the county-by-county distribution of flood events across Wisconsin for the period of 1844 to 2024. Compared to southern Wisconsin, Dunn County has had a relatively low number of severe flooding events. Hilly terrain in the Driftless Area of southwestern Wisconsin and the built-up urban areas in the south-southeast are factors that increase the chances of flooding. Even so, very few flood-related injuries and deaths have occurred.

Low-lying areas of those Wisconsin counties that border the Wisconsin and Mississippi Rivers and many nearby tributaries, including the Chippewa River, are prone to riverine flooding. As development has increased, agricultural flooding in some areas has increased as well. Shoreline development has also increased both the risk and vulnerabilities to flooding. Since the 1960s, the number of homes along northern Wisconsin lakes has increased over 216 percent. Statewide, an estimated 250,000 structures lie within 100-year floodplains.

Nationwide, floodplains have been slowly increasing in size due to increases in runoff and decreases in flood storage areas.

Figure 24. Reported Flooding Events in Wisconsin by County, 1844 to 2024



Flooding is the principal cause of damage for the far majority of Presidential Disaster Declarations in Wisconsin since 1971. From 1971 until 1993, the total flood damages in Wisconsin were estimated at $300 million. In June 1993, flooding over large areas of the State, including in Dunn County, resulted in an estimated $352 million in

damages from this single event. Even worse flooding damage was experienced in Wisconsin in June 2008 with damages estimated at roughly $763 million.

There have been very few dam failures in Wisconsin that resulted in major damages or loss of life. The June 1993 flood event included the failure of an embankment associated with the Hatfield Dam on the Black River which contributed to flooding damage downstream in the City of Black River Falls. 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 washed out and caused significant damage to a mobile home park. 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. Several of these incidents resulted in injuries and serious property damage, but no loss of life.

Significant Dunn County Events

The impacts of flooding from the 19th and early 20th centuries were often made more severe due to the logging industry's use of the rivers in the region to carry logs to sawmills, combined with the deforestation of the surrounding land. Logs, along with other debris, destroyed bridges and frequently formed jams that raised the level of the river behind them. During the mid-1800s, there were serious floods that occurred in 1839 and 1880 on the Red Cedar and Chippewa Rivers, followed by six substantial flood years between 1905 and 1967.

Serious riverine flooding on the Red Cedar River has not occurred since the late 1960's, in large part due to removal of the dam at Colfax and improvements at the two large hydroelectric dams currently managed by Xcel Energy. Though spring flooding continues to occur annually in the bottomlands of the Chippewa River, damages in these areas have also been relatively small and infrequent compared to the large floods recorded in the 19th Century and the first 70 years of the 20th Century. Also, there is a clear trend of more than one major flood event occurring in a single year, perhaps due to weather patterns and saturated ground conditions which do not have time to dry out from a previous flood event.

During the last thirty years, more intense, flash flooding associated with heavy rains has become a frequent problem with resulting road, shoulder, and culvert washouts being the primary impact. Shoreline and soil erosion have been an additional concern related to these stormwater flood events, as well as stormwater drainage issues in some communities.

Based on historical trends, a major flood event year has occurred in Dunn County every 10 to 12 years on average, most likely in the spring of the year (April through June) when snows melt, soils are saturated, and/or heavy spring rains occur. Ice damming on rivers and drainageways can further exacerbate such flood conditions. Though many of these events are described as flash floods due to heavy rains involved, they might better be described as overbank floods given the size and impacts most of these events combined with the assumption that river levels were likely already high with the spring melt in most cases. Under such conditions, substantial crop losses are experienced, local roads are closed and damaged, and damage to a large number of homes and other buildings is very possible. As will be discussed further in the flood vulnerability assessment, the most vulnerable areas to these large riverine flood events tend to be on the major rivers.

A closer review of some of the recent flood events in Dunn County provides a better understanding of the frequency, characteristics, and damages related to flooding in the County. The following is a brief synopsis of some of the major flood events in Dunn County taken from a variety of sources, including NCDC data and the *1996 Dunn County Flood Study*.

Within one year of the construction of the first lumber mill in Dunn County in 1882 at the mouth of Wilson Creek, the operation was destroyed by flooding. Widely destructive floods are recorded for Dunn County in 1839, 1880, and 1905, intensified by the deforestation of surrounding land. More significant flooding occurred in 1934, 1942, and later in the 1960's and 1970's. Dunn County was one of only six Wisconsin counties hit with five or more

flood events included in Presidential Disaster Declaration requests between 1965 and 1974. Federal disaster relief of $7,609 was received by the County as a result of the 1965 flood and $43,346 following the 1973 flood. More recently, the 1993 flood posed economic and environmental challenges.

The 1996 Flood Study included the following chart illustrating the frequency and intensity of floods on Dunn County's major rivers.

River	Peak Discharge (cubic feet/second)						SE 100	Years w/ flooding of 25-year intensity or greater
	2-year flood	5-year flood	10-year flood	25-year flood	50-year flood	100-year flood		
Red Cedar Colfax	5,730	8,750	11,100	14,500	17,400	20,600	14.2	1934, 1938, 1954, 1965, 1967
Red Cedar Menomonie	8,890	14,000	17,700	22,600	26,400	30,400	11.6	1934, 1938, 1942, 1965, 1967
Hay River Wheeler	3,200	5,630	7,530	10,200	12,400	14,800	20.4	1965, 1967, 1975
Eau Galle Spring Valley	1,429	2,430	3,110	3,920	4,500	5,040	24.8	1942, 1954, 1959, 1965
Chippewa Chippewa Falls	37,900	53,700	63,400	74,800	82,800	90,300	7.2	1897, 1905, 1920, 1941, 1943, 1967
Chippewa Durand	42,800	62,700	76,600	94,800	109,000	123,000	11.4	1884, 1954, 1967

The following summarizes major flood events in the County's history:

June 1880 – Newspaper reports described a "destructive flood" with roads washed out, bridges swept away, and considerable property destroyed due to heavy rains. Smaller creeks overflowed their banks and washed away many bridges, while the dam at Colfax was carried away with the bridge left standing with only slight damage. A new dam at Wilson's Creek described as "impregnable" was swept out. The damage to bridges and dams appears to be countywide, including damage to structures on Elk Creek, Gilbert Creek, Hay River, Sand Creek, Chippewa River, Beaver Creek, and Red Cedar River. Many mills and logging operations were damaged, including 6 million feet of logs and the shingle mill at Cedar Falls being carried away. Log jams exacerbated the flooding problems in some areas. Water in Meridean ran three to four feet deep through the streets, with most residents evacuating and the foundation of the Norwegian Church at Meridean being undermined by water and one side of the building dropped down several feet. Travel was delayed and even a circus was impacted by six inches of water in the ring and "people who had to wade through mud and water to find a seat." The flood waters were reported to be highest on record at that time, except perhaps in 1837, with great loss of grain and crops in the bottomlands.

June 1905 – The headlines of the June 9, 1905 front page of the Dunn County News reports "Red Cedar Sweeps Away Bridges, Mills, and Floods Lowlands. Acres of Farm Land Submerged. Thousands of Dollars of Stock Destroyed. Loss Will Reach Over $200,000.00." Like the June 1880 flood, the 1905 flood was due to heavy rains. The damage of the 1905 flood appeared to be greatest along the Red Cedar River and on the Chippewa River, particularly southwest of its confluence with the Red Cedar. Other parts of the county were not immune however. The Milwaukee railroad bridge in Downsville was destroyed, along with a mill and dam on the Hay River at Prairie Farm just north of the countyline in Barron County. And, again, large amount of farmland and farms in the Chippewa River bottoms were flooded, submerging many acres of corn and oats, and drowned stock of all kinds were seen floating down the river near Durand. Many residents in the bottomland areas choose to evacuate. The most dramatic loss was the collapse of the railroad bridge one mile west of Colfax, which plunged a locomotive, mail coach, and baggage car all into the river, resulting the death

of the engineer, fireman, and a Wheeler man. After the flood, a ferry was put into operation across the Red Cedar River at Menomonie until such time that a new $10,000 steel bridge could be built in place of the old one which was swept away.

April 1934 – "Half of Colfax was underwater." The 1934 flooding was primarily along the Red Cedar River and result of heavy rainfall of 12 to 14 inches combined with up to 4" of ice on the ground and melting snow. This was deemed a 100-year flood event on the Red Cedar River, with the worst damage in the Village of Colfax where the river rose 20 feet, destroyed the Main Street bridge, and washout out the hydro-electric dam and two businesses. Seventeen families in Colfax were left homeless in the "River's Bend" area, otherwise known as "Shanty Town," with as many as 100 residents in that area being evacuated by boat in the dangerous, fast-moving floodwaters. Portions of dwellings and gasoline barrels from a local service station were swept away. Flooding damage was experienced elsewhere in Dunn County as well. Three teenagers were drowned near the mouth of Popple Creek when their vehicle dropped into 20 feet of water, apparently unaware that a bridge had been washed out. Nearly every boathouse on Tainter Lake was destroyed and some cottages were flooded. Electric power was lost in many areas, including Menomonie. Livestock was drowned. Culverts, roads, and at least 62 bridges were washed-out in Dunn County. The Wilson Creek dam and railroad bridge were both also washed out. The flooding on the Hay River was estimated as a 50-year flood event, requiring many residents in Wheeler to evacuate their homes and washing out 500 feet of the Soo Line railroad a mile east of the Village. In all, more than a million dollars in damage was reported for the bridges and streets alone from the 1934 flood.

May 1938 – Heavy rains in early May caused significant stormwater flooding on many of the smaller rivers and drainageways. Damage was worst along Gilbert Creek west of Menomonie, Popple Creek, on Highway 72 near Downsville, and Big Elk Creek east of Elk Mound. Washouts caused damage to railroad bridges, resulting in temporary closures as well. Notably, soil losses were a significant concern and a contemporary news article noted that "farmers who have followed sound principles of erosion control have fared appreciably better than other farmers in the county." This was also the first test of Menomonie's new storm sewer, which faired well overall, though homes in some sections of the City without storm sewer service had six to eight inches of water in their basements as the heavy downpour proved too much for the sanitary sewer. Later in June 1938, heavy rains washed out bridges in the Colfax area, a good portion of a farm was washed down the Red Cedar at Downsville, and the Soo Line train service was suspended due to bridge washouts near Wheeler.

1942 – Three notable flood events occurred in 1942. The first event occurred over Memorial Day weekend "suddenly and without warning" due to a heavy downpour of rain, with damages to roads and bridges "almost equal to" the 1934 flood. At least three bridges were lost and at least 20 County bridges were damaged. Many corn and soybean fields were flooded. Flooding may have been most pronounced along the Eau Galle River in southwest Dunn County, but bridge washouts and property damage also occurred in Boyceville and the Town of Stanton. Tiffany Creek and the Hay River in the Boyceville area also experienced significant flooding and bridge washouts. Railroad service near Knapp was halted when two miles of track and embankment was damaged, and railroad tracks near Downing were also washed out. Some cottages along Lake Menomin could only be reached by boat. Approximately a week late, additional rain raised flood water again, washing out additional bridges, delaying train service, and flooding fields. Families on the island of Old Meridean were isolated by floodwaters and up to two feet of water was in the basements of homes in Boyceville near Tiffany Creek. Later that year in September, the third flood of 1942 occurred following heavy rains for the month. Serious flooding was reported along Wilson and Tiffany Creeks, including the Village of Boyceville, along the Eau Galle River, and along portions of the Red Cedar River. At least $200,000 in damages occurred to county and town roads, many bridges were washed out, and large areas of corn and soybeans were flattened or waterlogged. The Main Street bridge in Colfax was again partially washed out, along with the Soo Line tracks near Boyceville and damages to other railroad bridges in the County. Sanitary sewers in Menomonie also backed-up into homes and shops. On newspaper reported that nearby Spring Valley in St. Croix County experienced nearly one flood per week during the summer of 1942.

April 1965 – This was recorded as the highest Red Cedar River flood waters since 1934. News reports focused on the flooding of the Oak Point area, a peninsula on Tainter Lake. Damage to some homes in the area were avoided through sandbag dikes, built with the help of UW-Stout students. At the peak, 30,000 cubic feet of water per second was going over the NSP dam in Menomonie, which places this flood at just less than a 100-year event for the Red Cedar River. Even so, lake levels on Lake Menomin were maintained fairly constant due to flood controls at the dam. Some homes and businesses were damaged by the flooding, and, again, fifteen families were evacuated from the River's Bend area of the Village of Colfax. The wastewater treatment plant in Colfax was also flooded and access to the Village was only possible from the south and east.

April 1967 – Like the previous two or three large floods, the 1967 flooding along the Red Cedar River was described as the worst flooding since 1934 "causing extensive damage to houses, summer cottages, roads, and public property." Reported flooding was worst at Oak Point on Lower Tainter, the west side of Upper Tainter, and in the Colfax area. Again, 14 Colfax families were forced to evacuated. Flood waters were also four feet deep over the sludge beds of the Menomonie wastewater plant, and some streets were blocked near the Red Cedar Bridge over Highway 29. An estimated $25,000 in damage occurred to county roads. Concerns over the contamination of private wells in flood areas was also raised.

June 1993 – Following heavy rains, the sprawling Chippewa River flooded large portions of the Towns of Peru, Rock Creek, Dunn, and Spring Brook. Several families in the Town of Peru were evacuated near Meridean. Crop losses were the greatest damage totaling an estimated $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. All reported damages were estimated at over $1 million, including $150,000 in public damages (e.g., staff time, response), $104,000 in losses or damages to livestock/farm buildings, and $100,000 in damages to homes. The Red Cedar State Trail was also damaged, along with suffering caused to wildlife in the area. Once the flood waters receded, contamination of private wells became a significant concern. Nitrates, coliform, and triazine levels above preventive action and enforcement standards were found in substantial percentages of tested wells in flooded areas.

August 2001 – Heavy rainfall caused flash flooding across parts of Dunn County. Water was several feet deep over some State and local roads. Most local damages were to roads, shoulders, and culverts.

August 2009 – This slow moving system resulted in 5-7 inches of rain over night causing flash flooding in southern Dunn County. Several roads were washed out near Eau Galle and a mudslide occurred along County Road "C" east of Downsville.

August 2010 – This was the most serious flooding event in Dunn County since 1993, and maybe since the 1960s. Heavy rains, described as a solid sheet of water, resulted in flooding and damages over much of Dunn County with the Colfax area being especially hard hit. Up to eight inches of rain fell in a few hours. The event significantly raised awareness of local flash flooding vulnerabilities. The following public-sector costs and damages were documented from the August 2010 event:


Aug 2010 Flood Damage Town of Lucas

Dunn County Highway Dept.	$319,500
Town of Colfax	$14,087
Town of Eau Galle	$3,409
Town of Elk Mound	$12,600
Town of Lucas	$8,615
Town of Menomonie	$30,526
Town of New Haven	$18,413
Town of Red Cedar	$12,077
Town of Stanton	$38,500

Town of Tainter		$12,149
Town of Weston		$155,797
Village of Colfax		$157,007
City of Menomonie		$162,610
	total	$945,290

Spring 2019 – Early 2019 brought above normal snowfalls and very cold temperatures. With this deep snow pack on the ground, a period of warmer weather and some heavy rainfalls occurred suddenly during the last two weeks of March resulting in flooding in March and April 2019 due to rapid snow melt and ice damming across west-central Wisconsin. Within Dunn County, areal flooding occurred, especially along the smaller creeks and streams that lead into the Chippewa River. The towns of Dunn and Weston experienced some of the worst of the flooding. At least twenty homes were affected, primarily due to basement flooding, with four receiving minor damage. The 2-1-1 system received about 23 contacts from County residents seeking assistance. Flood waters also damaged many roads. The Wisconsin Department of Transportation closed County Road F and State Highway 25 in Wheeler due to flood waters, and State Highway 64 at State Highway 25. Reported damages to roads and bridges from March and April 2019 were:

Dunn County Highway Dept.		$103,860 + $231,500
Town of Dunn		$25,000 + $5,800
Town of Elk Mound		$230,000
Town of New Haven		$120,000
Town of Otter Creek		$6,000 + $10,000
Town of Red Cedar		$116,400
Town of Tiffany		$14,800
Town of Wilson		$3,400
	total	$878,560

Flood Assessment Methodology

This sub-section describes the flood assessment approach utilized in the flood assessment in Section III.C.v. of the Mitigation Plan to identify potential vulnerabilities within the 100-year floodplains of Dunn County.

Flood Assessment Data Challenges

1. Updates to G.I.S. data for individual structures has not occurred since 2023 due to lack of aerial imagery. A full-scale update will occur in 2026. Additionally, no geographic database exists which identifies the characteristics of individual improvements and structures (e.g., basements, number of stories, base flood elevation) in the county. This is largely due to municipalities being the authoritative source of this information. As a result, the flood assessment methodology uses a top-down, "birds-eye" perspective which does not account for site-specific topographic variation. A structure might appear to be located within the 100-year floodplain on a map, but could it have been landscaped or otherwise elevated above the base flood elevation.
2. Assessed values for improvements and tax records are linked to the parcel database, but are not linked to building point data. Based on orthophotography, we are able to identify which buildings may potentially be located in a 100-year floodplain, but the use and value of each individual building are not available. Since our assessment information is for the entire parcel, this becomes a problem in cases where not all of the buildings within a single parcel are within or intersect the 100-year floodplain or in case where only a portion of a building may intersect the floodplain boundary.
3. Estimated values of improvements are not available for all parcels. Tax data does not include a value of improvements for municipal buildings (e.g., town halls, fire stations), public infrastructure (e.g., wastewater treatment plants, water towers), and other non-taxable structures (e.g., churches, public housing, electric cooperatives, non-profits).

4. While LIDAR improved accuracy, local topographic variation still exists and floodplains change over time. It is important to keep in mind that a serious flood could exceed the estimated 100-year limits, as well as being impacted by other factors which may change over time, such as reduced flood storage or increased stormwater runoff.

5. Related to #4, most designated 100-year floodplain areas in Dunn County fall within Zone A which have no base flood elevations (BFEs) established, making it more difficult to determine the actual vulnerability to individual structures.

Existing Conditions

Dunn County has a large amount of river and lake shoreline and floodplain. Using available G.I.S. data, in October of 2025, there were over 4,949 parcels which lie within or intersect the 100-year floodplain. Of these, 1,989 parcels had improvements. However, the methodology described below identified 353 likely parcels with principal structures which were potentially within the floodplain. This translates to approximately 488 principal structures. Of these, 45 structures were tax exempt, so it was not possible to obtain an assessed value for their associated improvements. It is worth noting that there were 829 structures, regardless of being principal or not, which were potentially within the floodplain.

Flood Assessment Methodology

It is cost prohibitive to perform the detailed survey work of structural characteristics and attaching tax assessment data to the individual structures (versus parcel) necessary to make definitive conclusions in many cases. However, it is critical to remember that the purpose of this assessment is to identify potential flooding risks to structures during a 100-year flood event for general mitigation planning. The assessment methodology used here is sufficient to identify those structures which may be most at risk of flood damage and those areas which may be a priority for flood mitigation activities.

For the assessment of riverine and lake flooding in Dunn County the following methodology was used:

1. The D-FIRM G.I.S. shapefiles were used to identify the 100-year floodplain boundaries An example is shown by the blue and red-hashed shading on the map.

2. The G.I.S. building footprint data provided by Dunn County Land Information, was intersected with the floodplain data. This output was then converted to a point and spatially joined with the parcel data which included 2025 tax assessment data, thus providing information on municipality, assessed uses, and assessed values for those areas where parcel mapping was complete. For buildings that were categorized with general property acreage of class 3 (manufacturing), the 2024 assessed values for the improvements were leveraged as 2025 manufacturing values were not available at the time of analysis.

3. The principal structures were identified by visual inspection of both 2023 and 2020 high-resolution orthophotography provided by Dunn County Land Information overlaid with the current FEMA 100-year floodplain. Where there were successful LOMA applications removing a principal structure from the floodplain, the structures were not counted. Structures (e.g., garages, barns, boat houses) were excluded if it could be reasonably determined that they were not the principal structure on the parcel. For

commercial or manufacturing assessed properties, all structures were considered as principal being that they are all essential to the business. The values for the property were counted only once, however.

4. By overlaying the parcel and building point G.I.S. data, an estimated value of improvements for buildings potentially in the floodplain was identified. However, situations with multiple structures on a single parcel can be a challenge as noted previously. In such cases, the assessed value of all improvements was used, rather than attempting to further assign values to individual structures. In many cases, those ancillary structures on a parcel which are likely outside the 100-year floodplain boundary are still close enough to the boundary to potentially be vulnerable to flooding should a large event occur. For non-taxable parcels, improvement estimates are not available, but the structure count was noted.

   Though it has its weaknesses, this approach provides a good picture of which principal structures are most likely to be impacted by a 100-year flood in Dunn County. However, this should not be relied upon as an accurate indicator of flood depth or damages during flood events since elevation, flood depth, and assessed value for each individual structure is not currently valued. Many of the structures likely have no recent flood history and may not have a significant vulnerability to a flood event. In some case, local action (e.g., sandbagging, backflow prevention) can prevent flooding.

5. The tax assessed values for the improvements are summarized, but for additional perspective, the 2024 aggregate ratios were applied to the assessed improvement values to estimate the fair market value of the improvements. Given the volatile real estate market in recent years, the assessed values are often not representative of the fair market value.

High-Hazard and Other Dams of Concern

The following are brief assessments of the high hazard dams and other dams of concern for Dunn County, including those dams that are publicly owned, requiring action, or have significant dam shadows in Dunn County, but located outside the County. This analysis was prepared in consultation with the Wisconsin Department of Natural Resources Dam Safety Engineer assigned to Dunn County as well as Dunn County personnel. Using the State of Wisconsin dam safety database as a guide, the high hazard dams and any notable changes or concerns with the other dams of Dunn County were discussed during these consultations, including condition, schedule improvements, emergency planning, and current and potential mitigation measures.

Cedar Falls and Menomonie Dams (Xcel Energy)

The two largest dams in Dunn County are the Cedar Falls and Menomonie Dams on the Red Cedar River owned by Xcel Energy and operated for hydro-electric power production. In December 2005, Xcel replaced the flashboards at the Cedar Falls Dam which should reduce sudden drawdowns of Tainter Lakes when the boards were washed out during floods. Both dams have estimated high hazard ratings by the Wisconsin DNR.

Both dams are regulated by the Federal Energy Regulatory Commission (FERC) under the Federal Power Act, which is the primary agency responsible for issuing new licenses, monitoring compliance with existing licenses, and conducting dam safety inspections. In 1986, Congress passed the Electric Consumers Protection Act (ECPA) requiring that the FERC consider power and non-power values and interest equally, including flood management. Detailed emergency operating plans for both dams are on file at the Dunn County Emergency Management Office which describe the emergency communications and siren warning systems which are in place. Controlled drawdowns at both dams are possible to relieve stress on the dam and reduce downstream flood risks.

Dunn County Dam Inventory

Official Name	Popular Name	Owner Name (if listed)	Hazard Rating	Size	Impoundment Size (Acre Ft)	Max Storage (Acre Ft)
Cedar Falls	Tainter Lake	Xcel Energy	High	Large	1,752	38,000
Menomonie		Xcel Energy	High	Large	1,405	20,500
Knights Creek 1		Dunn County	High	Large	0	360
Knights Creek 5		Dunn County	High	Large	0	50
Eau Galle		Dunn County	Low	Large	800	2,400
Elk Creek		Elk Creek Lake District	Low	Large	46	400
Falls City		Vasey, Daniel	Low	Large	35	230
Knights Creek 4		Dunn County	Low	Large	0	540
Dnr Hwy 85		WDNR	Low	Small	12	38
Brunn		Brunn, Gregory	Low	Small	5	28
Smith, Delbert		Smith, Delbert	Low	Small	3	43
Heit, Donald		Heit, Donald	Low	Small	1	21
Weber, Delbert No. 2		Weber, Delbert	Low	Small	1	14
Boreen, Arland			Low	Small	1	13
Schlosser, Ronald M			Low	Small	1	13
Hayden		Burt, Thomas	Low	Small	1	12
Berger, Eugene	Bruce H Westhuis		Low	Small	1	10
Nelson, Kenneth			Low	Small	1	7
Weinzirl, John L		Weinzirl, John	Low	Small	1	6
Pittman, Ralph 3		Pittman, Ralph	Low	Small	1	5
Weber, Delbert No. 1		Weber, Delbert	Low	Small	1	5
Cutler, Wallace A.	Northern States Power Co.	Xcel Energy	Low	Small	1	4
Gilbertson, David		Gilbertson, David	Low	Small	1	4
Shannon, John J.		Shannon, John	Low	Small	1	4
Warner, Delton		Warner, Delton	Low	Small	1	4
Wayne, Roy		Wayne, Roy	Low	Small	1	4
Graff, Clebourne			Low	Small	1	3
Wayne, Roy		Wayne, Roy	Low	Small	1	3
Weinzirl, John L			Low	Small	1	3
Grutt, Harriet		Grutt Harriet	Low	Small	1	2
Higbie, Jerry		Higbie, Jerry	Low	Small	1	2
Sundby, Willis		Sundby, Willis	Low	Small	1	2
Lechner		Lechner, Robert	Low	Small	1	2
Gale, John		Gale, John	Low	Small	1	1
Larson, Jeffrey		Larson, Jeffery	Low	Small	1	1
Shepard, John		Shepard, John	Low	Small	1	1
Spaeth, Ronald		Spaeth, Donald	Low	Small	1	1
Webb, Gerald		Webb, Gerald	Low	Small	1	1
Huber		Huber, James	Low	Small	0	1
Chipman, Fred		Chipman, Fred	Low	Small	0	3
Norrish, Mrs. Arthur			Low	Small	0	7
Olson, Clyde			Low	Small	0	2
Bellville, Rod		Bellville, Rod	Low	Small	0	1
Grutt, Harriet		Grutt, Harriet	Low	Small	0	1
Moats, David		Moats, David	Low	Small	0	1
Weber, Mike		Weber, Mike	Low	Small	0	1
Weber, Wilfred		Weber, Wilfred	Low	Small	0	1
Drury, Wayne	Voleta Ludtke	Drury, Wayne	Low	Small	0	0
Wayne, Roy		Wayne, Roy	Low	Small	0	0
Lower	Lower	Cameron Cranberry Co.	Low	Unknown		
Rock	Rock	Rock, Jas	Low	Unknown		
Teegarden	Teegarden	Teegarden, Levy	Low	Unknown		
Vanceburg	Vanceburg	Kraft Co.	Low	Unknown		

Emergency Action Plans for these facilities are regularly reviewed and updated. These plans include contact information, responsibilities, notification systems, response procedures, and resources. Evacuation is the responsibility of local emergency services. Both dams are inspected daily Monday through Friday and remotely monitored 24/7 from the Wissota Generation Control Center.

A dam break inundation analysis for both dams is included as part of the emergency action plans. These maps distinguish both a dam failure under fair weather (e.g., sunny day failure) and the IDF (Inflow Design Flood) which is probable maximum flood under high water conditions. In most areas, the areas inundated by a potential dam failure closely follow the 100-year floodplain.

For the Cedar Falls Dam, flooding under an IDF event could be experienced in the River Ridge Subdivision along 680th Avenue in the Town of Red Cedar, in addition to some structures at the east end of 670th Avenue. These locations are approximately one mile downstream of the Cedar Falls Dam. A few additional structures near the river's edge may also be vulnerable to flooding, but most others appear to be elevated above the 100-year floodplain and IDF event levels. In less than ten minutes, water levels at the River Ridge Subdivision would rise 13.8 feet from the normal water elevation of 816.1 feet under an IDF dam failure event at the Cedar Falls Dam. Under fair weather or sunny day conditions, water elevations were estimated to rise about 1.5 feet.

An IDF event due to dam failure at the Menomonie Dam could potentially impact a greater area with larger consequences. Water levels at the Highway 29 bridge could rise 46.6 feet in approximately 10 minutes under the worst-case scenario. Such a dam failure would result in floodwater overtopping the levee and inundating much of the City's older industrial park including Cenex, Beatrice Foods, the City Street Department, and the City's wastewater treatment plant. Flood waters could also spread almost up to one mile west of the Red Cedar River in a large area generally between Gilbert Creek and Highway 29. Though the area is large in size, there has been relatively low development in the area to date, with a concentration of some at-risk buildings located along or near County Trunk Highway "P" south of Gilbert Creek. Though some additional structures further downstream may be flooded during an IDF event, most of these structures are also inside the 100-year floodplain. Under IDF conditions, the wave would arrive at the unincorporated community of Downsville in approximately 0.3 hours, still allowing relatively little time for evacuation.

When considering the Inflow Design Flood (IDF) scenario, it is important to keep in mind that this is likely a "worse case" model when river levels are likely already at flood stage. Under a fair weather dam failure, the increase in water levels are significantly less and the wave arrive time can take up to three times as long. Regardless of either scenario, the potential for dam failure at these large, highly regulated and well-maintained dams is very low and remote.

Knights Creek Dams (Dunn County)

The three relatively large Knights Creek Dam structures (Knights Creek #1, #4, & #5) are managed by the Dunn County Land & Water Conservation Department and were constructed in 1969-1970. The primary purpose of these structures is to protect the Knights Creek valley from flooding and runoff as well as for debris control, for which they have done an excellent job to date. Knights Creek #1 & #5 Dams represent Dunn County's two other high hazard dams.

Emergency action plans and dam shadow analyses have been completed for all three structures, with hydraulic shadow mapping updated since completion of the 2013 Mitigation Plan update. The plans include procedures for three different emergency levels, contact information, roles and responsibilities, and pre-scripted emergency messages. Four homes, two culverts, and the County Highway "X" bridge lie within the dam failure areas of Dams #1 and #4. Two homes, culverts on 180th Street, and County Highway "X" also lie in the shadow of Dam #5. Phone numbers for all of these homes were not listed in the plans. These are aging structures and some significant maintenance will likely be needed in the near future.

Eau Galle Dam (Dunn County)
The Eau Galle Dam is a large, low-hazard dam managed by the Dunn County Highway Department located in the southeast part of the County and impounds the approximately 350 acre Eau Galle Lake. According to the Emergency Action Plan updated in February 2002, no residences, buildings, campgrounds, or critical facilities would be impacted outside the 100-year floodplain if a sunny-day dam failure should occur which is consistent with its low-hazard dam status. The first dam at the location was built in 1855, with major rehabilitation occurring in 1981 and Dunn County making recent improvements to the gates and installing an operator's bridge in 1997. Hydro-electric power generation was resumed in 1985. This dam is experiencing seepage on one end, but it is being closely monitored and no further action is required at this time as long as an ongoing photo record is being maintained.
Further upstream on the Eau Galle River is a second Eau Galle Dam in Pierce County at the Village of Spring Valley and impounds the large George Lake/Eau Galle Reservoir. This second Eau Galle Dam is a large, high hazard dam which is owned and well-maintained by the U.S. Army Corps of Engineers. According to the dam analysis for this facility, if a dam failure should occur, the resulting flood would not exceed the 100-year floodplain by the time floodwaters would reach Dunn County.

Menomonie Levees (City of Menomonie)
According to the Wisconsin Dam Safety database, the City of Menomonie maintains four levees on the Red Cedar River along Riverside Drive, primarily to protect its wastewater treatment facility. These levees were designed by the Army Corps of Engineers to withstand a flood the magnitude of the one in 1967 and constructed in 1969. A 1988 Corps of Engineers report states that the 3,650 feet of levees was in "generally good condition", but notes that these levees were built quickly for temporary emergency flood protection measures and the Corps assumes no liability for the levees.

The levees remain in good condition and no special plans regarding the levees are under consideration, outside of continued maintenance and control of vegetative growth. The importance of these levees cannot be overstated. The levees protect a number of industries and facilities, including two extremely hazardous substances planning facilities, one of which is the City's wastewater treatment facility.

Glen Hills Dams (St. Croix County)
These dams are not shown on the map, but are very important to Dunn County. The Glen Hills Dams are located in St. Croix County and control waters running into Tiffany Creek which flows through the Villages of Downing and Boyceville. Many local officials in the area identify the Glen Hills Dams as being a primary contributor to the decrease in flooding problems along Tiffany Creek in recent years. Of these dams, the Glen Hills #10 Dam is the only dam with a high hazard rating which could potentially have significant impacts to property outside the 100-year floodplain should a failure occur, with likely flood damages occurring within the Village of Downing. According to the emergency action plans, failure at the other Glen Hills Dams would not cause a significant rise in flood stage in Dunn County; a dam failure at these other dams would be roughly equivalent to a 100-year flood event. Emergency action plans from the 1990s are on file in Dunn County Emergency Management.

St. Croix County keeps the Glen Hills dams well maintained and no structural issues for these dams were identified during the planning process, though water levels have been at or near capacity on occasion. An alarm system does provide remote monitoring of water levels at the #10 dam, which is confirmed visually by County employees and local law enforcement. The dams are inspected monthly by St. Croix County employees or more often as needed. Failure of Glen Hills Dam #10 would have the most significant impact in Dunn County. The travel time of flood waters would be relatively slow compared to those of the larger Red Cedar River dams discussed earlier. Flood waters would take 1.5 hours to reach the south end of the Village of Downing, giving official time to alert or evacuate residents in vulnerable areas, if the failure is discovered and reported in a timely fashion. Within the Village of Downing, flooding due to dam failure could be slightly larger in area than a typical 100-year flood, and possibly impacting between 40 and 50 structures in the Village with water levels rising up to 7.5

feet. Due to these risks and vulnerabilities, maintaining communication with St. Croix County regarding the Glen Hills Dams is important.

Chippewa River Dams Outside Dunn County (Xcel Energy)
Also of concern to Dunn County, but not shown on the map, are the four electric-generating dams on the Chippewa River upstream in Chippewa County owned by Xcel Energy at Holcombe, Cornell, Jim Falls, and, especially, Wissota. With 92,000 acre-feet of normal storage and 155,000 acre-feet of maximum storage, the Wissota Dam is much larger than the Cedar Falls Dam. These dams were constructed during the 20th Century. The Lake Wissota Dam, which is the closest to Dunn County, was originally a hollow "Amberson" design, and was filled with concrete around 1991. The Jim Falls Dam was refurbished and expanded in the late 1990's.

These four dams are managed primarily for electric generation. This is not a new policy change and was noted by the U.S. Army Corps of Engineers in the 1970 *Upper Mississippi River Comprehensive Basin Study*:

> "*Some change in operation of the larger upstream power reservoirs by power companies to recognize flood control needs is another possible solution [to preventing flood damage].*"

Chippewa County has expressed a desire to see improved flood control at the Wissota Dam through the installation of a system to allow for a mechanical opening of the flood gates, but this has yet to occur. Currently, the spillway gates open automatically when water levels are at least 6" above full capacity. Improved flood control would be consistent with the 1970 report as well as concerns noted in a 1977 U.S. Army Corps of Engineer study:

> *"Frequently mentioned problems relating to flooding in the area include the influence of flood stages caused by the present method of regulation of the upstream Lake Wissota Dam....The method of operation currently used at the Lake Wissota Dam involves automatic opening of all tainter gates when a certain reservoir pool elevation is reached.[16]"*

Within Dunn County, the Chippewa River bottomlands have the greatest flooding vulnerability from dam failure at the Lake Wissota Dam. A failure at the Wissota Dam would result in the start of flooding at the north end of the Chippewa River in Eau Claire County in 1 hour and 15 minutes and would peak in 6 hours and 35 minutes. It would take two additional hours for the flooding to peak in downtown City of Eau Claire. It would take 5 hours for the start of flooding 33.4 miles downstream from the Wissota Dam at Caryville in Dunn County. Floodwaters would peak at Caryville in 21 hours and 10 minutes. Within 30.5 hours, the community of Meridean would be flooded. It would be about 11 hours for flooding to start near Dunnville at the confluence of the Red Cedar River and about 45 hours for flooding to peak in that area.

This time would allow for the evacuation of downstream residents in Dunn County, though substantial damage to structures, crops, and property would likely occur. During the *1996 Dunn County Flood Study*, a number of survey respondents expressed their belief that some of the flooding in the Chippewa River bottomlands could have been reduced or avoided with better management of the upstream dams on the Chippewa River.

Dam Planning, Mitigation, and Response

For all large dams on navigable waters:

- Owners are required to ensure the safety of their dams by performing regular and frequent inspections. Chapter 31, Wis. Stats., requires owners of large dams to hire professional engineers with experience in dams to inspect their dams once every two to 10 years, depending on the hazard rating:
    - high–hazard large dams – every two years

[16] U.S. Army Corp of Engineers, Preliminary Feasibility Report Improvement for Water & Related Land Resources—Chippewa River Basin, Wisconsin, March 1977.

- significant hazard large dams – every three to four years
- low-hazard large dams – every 10 years

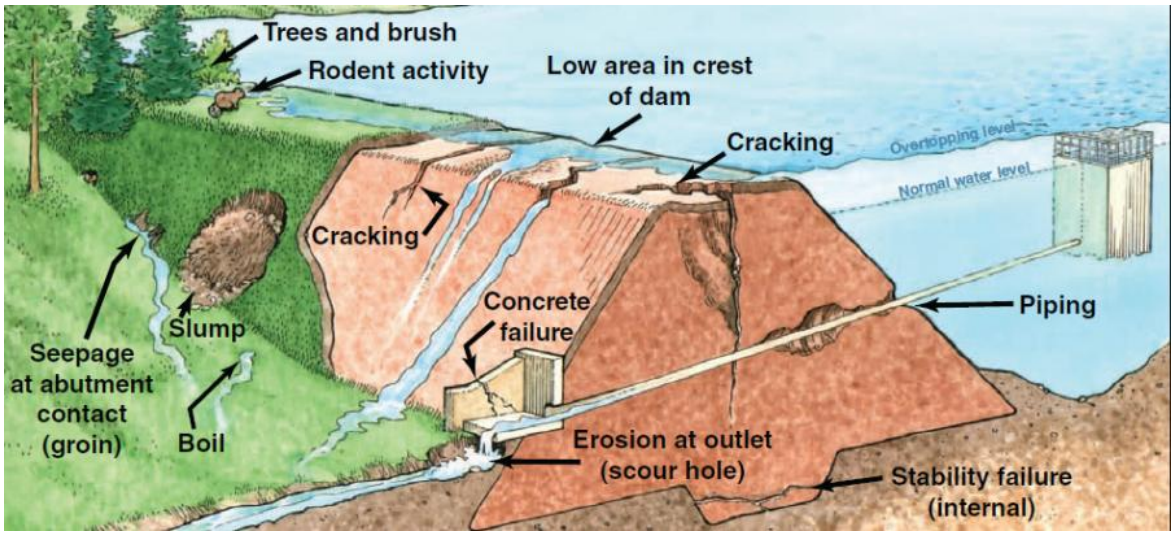
Following research and an inspection, the engineer will prepare a dam safety inspection report and supporting documentation will be prepared and sent to WDNR for review. The regional WDNR will then prepare their inspection report with findings and compliance actions with timelines. For private dams, emergency management and zoning staff from the County and/or local unit of government will work with the dam owner to obtain the dam failure analysis and take any needed action regarding dam failure zoning or emergency action planning.

- Must have a dam failure analysis that shows the hydraulic shadow and structures subject to potential flooding should a failure occur. The geographic scope of this analysis should extend downstream until the dam failure shadow converges with the 100-year floodplain. These analyses are used to determine the hazard rating largely based upon the level of development and regulatory protections in place within the dam shadow downstream. Floodplain zoning controls can then be put into place for the dam shadow; Dunn County regulates the dam shadows very similar to the 100-year floodplain. For dams without an analysis, an estimated hazard rating is given by the WDNR Dam Safety Engineer based on development and zoning controls downstream of the dam.

It is important to maintain up-to-date Emergency Action Plans (EAPs) and Inspection, Operations, & Maintenance (IOM) Plans for the large dams and the high- and significant-hazard dams. Emergency Action Plans with current contact information should be on file with County Emergency Management and the Communications Center. With the availability of LIDAR topographic data, mapping of dam shadows could be revisited for the high- and significant- hazard dams. This information can then be integrated into the County emergency notification systems and considered as part of floodplain zoning and comprehensive planning efforts. The two (2) County-owned high-hazard dams were inspected in 2025 and have updated Emergency Action Plans (EAP) in place.

Should a dam failure occur (or be imminent), law enforcement and fire department personnel would use public address systems and some door-to-door checks to evacuate persons. Local media, social media, Wireless Emergency Alerts, and the County's CodeRed system. Xcel Energy has also installed two sirens below the Lake Menomin dam near ConAgra in the City of Menomonie and at the Highway D bridge at Irvington. A third siren at the dam itself is primary intended to alert persons fishing of a possible hazard. Residents with NOAA All Hazard (weather) Radios would also be informed of the situation as asked to evacuate.

Common Types of Dam Failure Modes



source: Association of State Dam Safety Officials

H. DROUGHT

The information below is supplemental to the information contained within Section III.C.vi. of the *Dunn County Hazard Mitigation Plan.*

Defining the Hazard - Drought

Definitions related to drought can be found in the main text of the Hazard Mitigation plan.

Hazard Location

Droughts can occur in all areas throughout the State, including areas with high and low average precipitation. Healthy soils allow more water to infiltrate and retains more moisture, enabling it to effectively absorb extreme rainfalls as well as support crops during droughts. Soil texture refers to the feel of soil; soils are made up of different amounts of sand, silt, and clay. A loamy soil is one that combines all three of these types of particles.

- Sandy soils have the largest particle size, which allows water to drain quickly. This causes water to drain out faster. These soils have low water holding capacity and struggle to retain enough water for good crop growth.
- Silty soils have medium-size particles, providing better water retention than sandy soils. During drought periods, they can retain more water than sandy soils.
- Clay soils have small fine particles and a higher water holding capacity. During extreme heat, clay soils can retain moisture relatively well.

Hazard Extent (Potential Intensities)

The **Palmer Drought Severity Index (PDSI)** utilizes several factors (i.e., temperature, soil moisture, and precipitation) to calculate the magnitude of the drought conditions. The results of the algorithm range from -4 (extreme drought) to 4 (extremely moist); 0 represents normal historical conditions. The index is effective at determining drought over a period of months, but less effective over shorter timeframes. Categories of drought are as follows:

- **D0: Abnormally Dry**
  - Going into drought:
    - Short-term dryness slowing planting and growth of crops or pastures
  - Coming out of drought:
    - Some lingering water deficits
    - Pastures or crops not fully recovered
- **D1: Moderate Drought**
  - Some damage to crops and pastures
  - Streams, reservoirs, or wells low, some water shortages developing or imminent
  - Voluntary water-use restrictions requested
- **D2: Severe Drought**
  - Crop or pasture losses likely
  - Water shortages common
  - Water restrictions imposed
- **D3: Extreme Drought**
  - Major crop and pasture losses
  - Widespread water shortages or restrictions

- **D4: Exceptional Drought**
  - Exceptional and widespread crop and pasture losses
  - Shortages of water in reservoirs, streams, and wells creating water emergencies

The relative severity and geographic extent of drought impacts on crops can also be described in terms of different State and Federal designations:

- State or Governor Drought Emergency or Disaster Declaration
- USDA Secretarial Disaster Declaration
- Presidential Emergency or Disaster Declaration

The above declarations may be limited to the primary counties affected by the drought or may also include contiguous counties that are less impacted, but may also be eligible for financial assistance.

Event History - Drought

Drought is a relatively common phenomenon in Wisconsin and has occurred statewide or nearly statewide in 1895, 1910, 1939, 1948-1950, 1955-1959, 1976-77, 1987-1989, 2003, 2005, and 2006-2007, and 2012. Severe drought for Dunn County also occurred in 2009 and 2013. The drought of 1929-1934 (Dust Bowl Years) was probably the most significant in Wisconsin history, given its duration; some of areas of the State experienced drought effects until the early 1940s.

A Presidential Emergency Declaration was issued for the statewide drought in 1976-1977, during which agricultural losses in the State were estimated at over $624 million (over $2.5 billion in today's dollars) and some private wells in Dunn County dried up. Stream-flow measuring stations recorded recurrence intervals from 10 to 30 years. Federal assistance was used to help communities drill new wells and obtain new water supplies.

Some people believe the North American Drought of 1988 to be the most severe ever experienced in Wisconsin and much of the Midwest; it was 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. Heatwaves killed an estimated 5,000 people nationwide and contributed to high livestock loss. Stream-flow measuring stations indicated a drought recurrence interval of 75 to 100 years. The effects were most severe in north-central and northeastern Wisconsin. The drought occurred early in the growing season and resulted in a 30-60% crop loss with state agricultural losses estimated at $1.3 billion. 52% of the state's 81,000 farms were estimated to have had crop losses of 50% or more, with 14% of farms suffering estimated losses of 70% or more (FEMA). State and federal drought assistance programs helped Wisconsin farmers recover a portion of their losses. All Wisconsin counties were designated eligible for this drought assistance. In total, the drought in the central and eastern states between 1987 and 1989 caused an estimated $39 billion in damages (FEMA). Point wells in certain areas of western Wisconsin also dried up during the drought of 1988-1989.

Regional and Local Events

1970s-1980s Droughts

A Presidential Emergency Declaration was issued for the statewide drought in 1976, during which agricultural losses in the State were estimated at about $2.7 billion in today's dollars and some private wells in western Wisconsin dried up. Point wells in certain areas of the region also dried up during the drought of 1988-1989, and agricultural losses in the State were estimated at approximately $2.6 billion. The 1987-1989 drought not only had below-normal precipitation, but also was characterized by persistent dry air and above-normal temperatures. Heatwaves killed an estimated 5,000 people nationwide and contributed to high livestock loss. An estimated 52% of Wisconsin's 81,000 farms had crop losses of 50% or more, with 14% of farmers suffering losses of 70% of more.

2003-2013 Droughts

Until 2000, drought conditions had been impacting corn and soybean yields to some degree in the County about once in every five to seven years. However, beginning about 2003, northern Wisconsin experienced a lengthy period of drought conditions with serious impacts to agricultural producers and hydraulic levels of surface and ground waters; a number of emergency declarations were issued during this period. Water levels in the region's many seepage lakes dropped precipitously, leaving some docks dry, increasing water temperatures, and exacerbating water quality concerns. Some municipalities instituted municipal water system use restrictions during the summer months. As a result, the Governor issued State of Emergency drought declarations, which Dunn County, during five of the ten years between 2000 and 2010.

Summer 2010 brought some significant relief from the region's drought conditions, as a new record for the average statewide summer rainfall was established (18.65 inches). In June through September 2010, northwest Wisconsin experienced total monthly rainfall amounts of about two inches or more above the mean in each of these four months. Though the rainfall provided relief for agricultural crops, water levels in many surface waters remained below average and monthly rainfall amounts were still below average for six of the months of the year.

A nearly statewide drought would again impact Dunn County during the 2012 summer and fall seasons, resulting in reduced crop and alfalfa yields. As feed costs rose, some farmers were forced to sell-off some livestock. There were many reports of wells in Wisconsin running dry, and some well depths had to be increased in order to find water. The drought was generated by a large, warm blocking high pressure in the upper levels of the atmosphere that was centered over the middle of the nation in May and June. Part of this high pressure expanded north into the western Great Lakes region in July, forcing storms to stay mostly north of Wisconsin as the summer progressed. The drought started across the southern third of counties in June and steadily expanded north during July and August. Eventually, the southern two-thirds of the state was in severe (D2) to extreme (D3) drought status. The drought continued into December, thanks to a very dry November. 2013 would be another drought year for the region. The U.S. Secretary of Agriculture issued a USDA drought disaster declaration that included Dunn County.

Research from the Wisconsin Initiative on Climate Change Impacts[17] (WICCI) shows that annual precipitation in Dunn County has increased significantly since 1950. Concurrently, Dunn County's average annual temperatures for most of the County have increased 1.5ºF to 2.5ºF since 1950. WICCI has projected that Dunn County's climate will continue to become wetter overall, with more precipitation during the winter months and higher average temperatures.

2022-2024 Drought

While Dunn County was less impacted than some areas of the region, a period of drought expanded and intensified in Summer 2023, largely influenced by not only lack of precipitation, but extreme heat and evaporative demand. This drought period was very unusual since Wisconsin experienced the wettest January-April on record, followed by the 4th driest May-August, a wet October, then the 8th dried November on record. These large swings in precipitation was a challenge for crop farmers. The drought period would "break" with above average precipitation in May 2024, though near-drought conditions would return later in the year.

Vulnerability Assessment - Drought

Other Potential Drought Vulnerabilities

Drought conditions can stress forest vegetation, making it more vulnerable to certain pests and diseases, thereby increasing the potential for wildfires. Drought conditions can also dry up private wells and ponds as well as impact surface and ground water levels. Private wells dried up within Dunn County in 1976 and 1988/1989.

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

Under such circumstances, wells may need to be re-drilled at significant cost; or a farmer whose livestock relied on a pond in the past may have to install a well and pump to provide water for stock.

During the Plan update process, the potential impact of drought on groundwater and wells, especially in areas of the County where irrigation is more common, was the most frequently mentioned drought-related concern. Agricultural irrigation using high capacity wells has been increasing in the County due to recent drought events, which does have the potential to further impact groundwater levels in some areas. A high capacity well is defined as one or more wells, drillholes, or mine shafts used or to be used to withdraw water for any purpose on one property, if the total pumping or flowing capacity of all wells, drillholes, or mine shafts on one property is 70 or more gallons per minute (100,000 gallons per day) based on the pump curve at the lowest system pressure setting, or based on the highest flow rate from a flowing well or wells.

As of January 2026, the Wisconsin DNR high capacity well database show 424 active ground-water sourced high-capacity wells permitted for Dunn County, of which about 75% are used for agricultural irrigation.[18] The map on the following page shows the general distribution of high-capacity wells in the County; higher concentrations of these wells are located in the sandier soils (more drought-prone soils) of Dunn County.

As surface waters dry-up during periods of drought, shoreline areas are more vulnerable to erosion, water temperatures can change, and contaminants and nutrients become concentrated, which can further contribute to toxicity, eutrophication, and fish kills. Some of the longer-term consequences of rising temperatures and drier summers were discussed previously during the discussion on climate change, such as the loss of cold-water trout streams and further loss of surface waters through increasing evaporation.

Other Factors Influencing Losses

- Agricultural irrigation can help alleviate drought threats. As of January 2026, the Wisconsin DNR reports that there are 333 active high-capacity wells (groundwater source) that have been permitted in Dunn County for agricultural irrigation.
- As surface waters decrease during periods of drought, shoreline areas are more vulnerable to erosion, water temperatures can change, and contaminants and nutrients become concentrated which can further contribute to toxicity, eutrophication, and fish kills.
- Some of the longer-term consequences of rising temperatures and drier summers were discussed previously in Section III.C. on the possible hazard impacts of climate change, such as the loss of cold-water trout streams and further loss of surface waters through increasing evaporation.
- Encouraging agricultural best management practices has the potential to make farmland more resilient to drought. New agricultural technologies may also improve resiliency.

SOIL HEALTH AS A DROUGHT MITIGATION TOOL

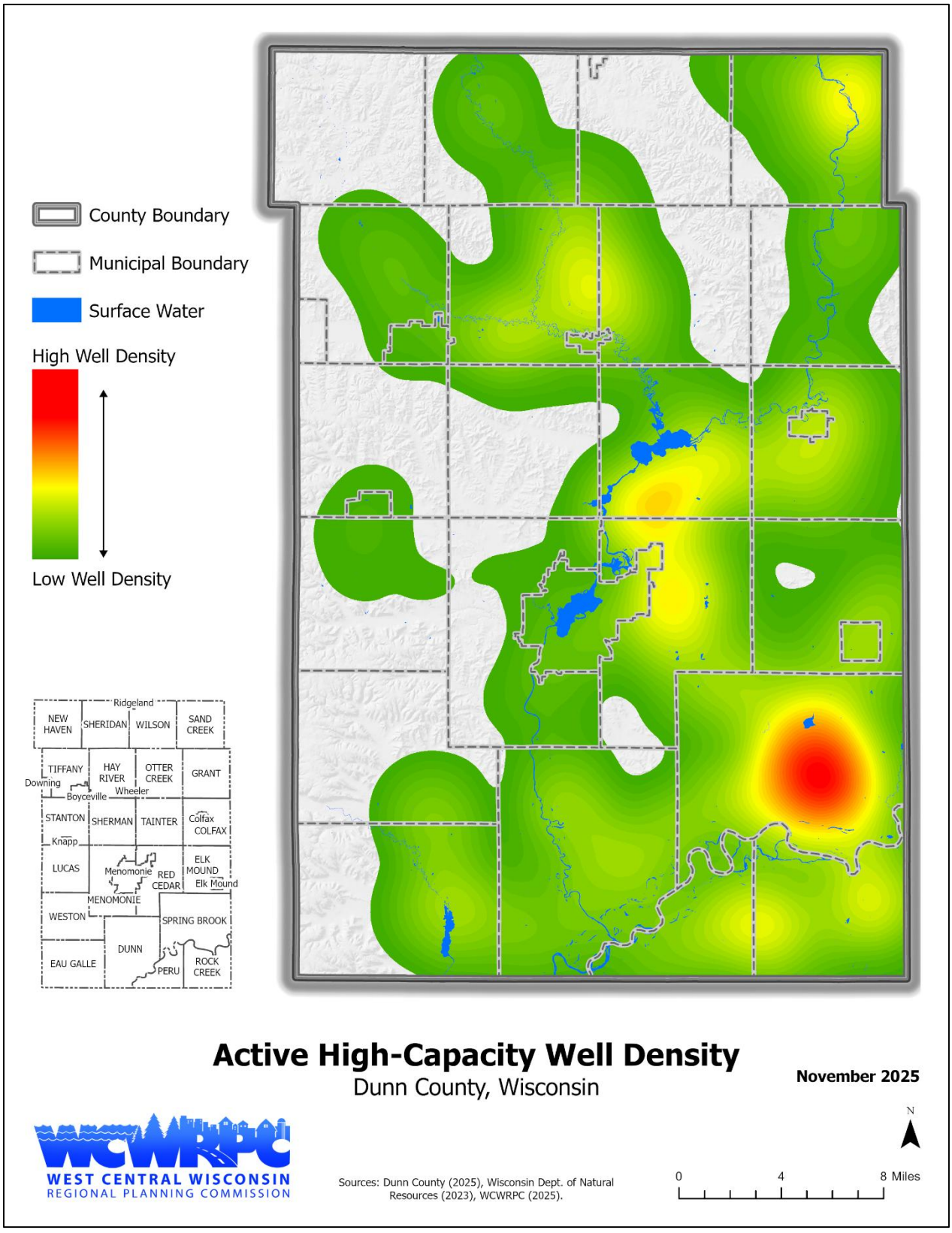
Soil health best management practices, such as cover crops and reduced tillage, can improve soil health and make cropland more resilient to drought. Good soil health allows precipitation to infiltrate, thereby increasing moisture in the soil and helping to recharge groundwater.

The conservation of Dunn County's farmland soils is important to current and future generations of farmers. Soils that are physically and biologically healthy can produce higher crop yields with fewer external inputs, which is great for the pocketbook.

Healthy soils are also important to the quality of groundwater and surface waters. As precipitation infiltrates, it naturally filters the water. The soils and nutrients stay in place, rather than run-off. Healthy soils reduce erosion, flooding, and pollutant/nutrient loading to surface waters, while increasing the recharge of the groundwater.

[18] Wisconsin Department of Natural Resources *Drinking and Groundwater Use Information System* http://dnr.wi.gov/wateruse/pub_v3_ext/source/

Figure 29. High Capacity Well General Distribution Dunn County



I. WILDFIRE

The information below is supplemental to the information contained within Section III.C.vii. of the *Dunn County Hazard Mitigation Plan.*

Defining the Hazard —Wildfire

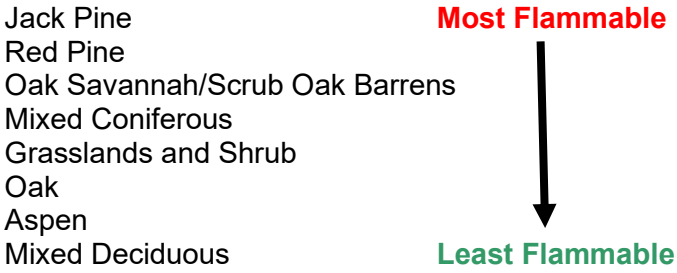
A **forest fire** is defined in Wisconsin State Statues as "an uncontrolled, wild or running fire burning in forest, marsh, field, cutover, or other lands." Any wildfire in Wisconsin, no matter what type of vegetation it is burning, is legally termed a "forest fire." As such, "wildfire" and "forest fire" are often used interchangeably within this plan.

This plan does not attempt to make great distinctions between the different types of wildfires, though more wildfire data is available for the WDNR Intensive Fire Protection area, which has a higher predominance of forest vegetation. It is not uncommon for a large wildfire to include a mix of vegetative types. Grass fires fueled by low-lying vegetation are generally more easily controlled than a wildfire in a forest area, but also will typically spread quicker. Grass fires can be the most dangerous in terms of safety due to highly variable speed, intensity, and direction. In wooded settings, access is often the biggest challenge. In areas of hardwoods, a wildfire is typically less intense, with the fire being commonly limited to leaf litter. Wildfires in coniferous forest that climb into the top of the tree canopy (crown fires) can be the most difficult to control and can produce spotting when large, burning embers are blown to areas outside of the main fire. Regardless of the fuel types, local topography and weather conditions also influence the characteristics of a wildfire.

Hazard Location

Vegetative Fuels

The geographic distribution of vegetative cover type is directly related to wildfire risk. The degree of flammability for different vegetative covers is in the general following order:



The above is highly influenced by local soil type. For example, Oak forests on silt loam soils where more moisture is retained in the soil have a lower wildfire risk compared to Scrub Oak Barrens that are typically found on sandier, excessively drained soils.

As described in Section II.B. of the main mitigation plan text, cropland and hay/pasture dominates Dunn County's landscape. Approximately 37% of Dunn County is forested and 1% is shrub and grasslands, though most woody vegetation is hardwoods. Many of the forested areas are actively managed for timber production; thus, vegetative characteristics can change from year-to-year as part of the timber growth and harvesting cycle. And this land cover data is older and does not reflect the recent development and agricultural trends, such as increased cropped land for corn production.

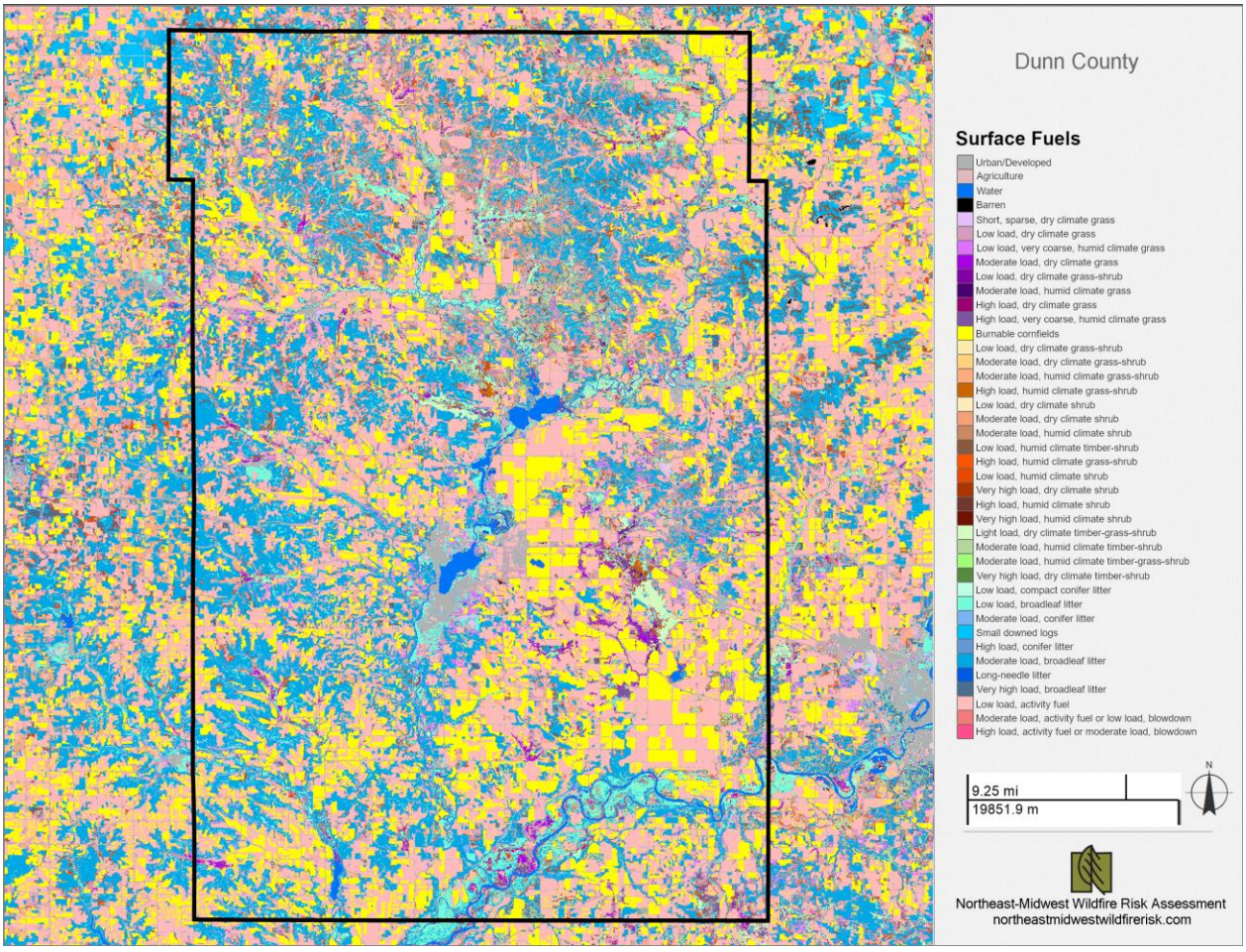
Forest health also influences the risk of wildfire ignition and can increase the difficulty of fire suppression. Tree damage from storm events, diseases, insect infestation, and exotic species can weaken plants, making them more

susceptible to storm damage, or can kill a forest stand outright. The Wisconsin Department of Natural Resources has rated large portions of Dunn County, especially in the Menomonie area, as having medium or high levels of risk for experiencing 25 percent or more tree mortality between 2009 and 2024 due to native and exotic insects and diseases.[19] Wisconsin's average annual temperature has also been increasing, with shorter winters and recent droughts,[20] which not only affects forest health, but also increases the wildfire risk.

Forests have a natural life cycle. Humans can interrupt this cycle by introducing new species or diseases, encouraging certain growth patterns, or through timber harvest practices. Characteristics such as dense stands of unmanaged pine plantation or creating large piles of slash can increase wildfire risks. Creating brush piles and allowing for the accumulation of dead plant litter in home ignition zones or along roadways also increases wildfire risks. Forest management practices can increase wildfire risks or help to mitigate the ignition or spread of wildfires.

Figure 33 provides a county-wide assessment of surface fuels for Dunn County. This map identifies the types of surface fuels, but does not indicate the likelihood of fires in these areas. Understanding fuel types and reviewing this map in tandem with others helps to prioritize areas of concern.

Figure 33. Dunn County Surface Fuels



[19] Wisconsin Department of Natural Resources. *Wisconsin Statewide Forest Assessment 2010.*
[20] Ibid.

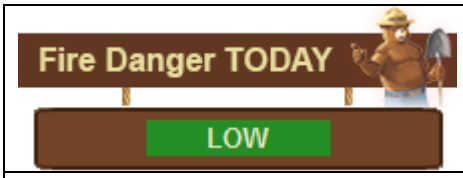
Key takeaways from the above map include:

- Agriculture (27%), moderate load, moderate load broadleaf litter (21%), and burnable cornfields (16%) are the most common surface fuel types within Dunn County.
- Concentrations of agricultural surface fuels and downed trees increase the risk of larger wildfires. This finding is reflected in several maps throughout the full report. Specifically, burnable cornfields increase the flame length, rate of spread, and heat unit per area. Fire breaks, removing fuel sources (e.g., downed trees) and other fire suppression efforts may help mitigate the ability of a wildfire to spread.

Hazard Extent (Potential Intensities)

Table 13 lists the fire danger rating classifications as defined by the U.S. Forest Service. The "Adjective Ratings" as a public information description of the relative severity of the current fire danger situation in a general area. Since 1974, five rating levels have been used to describe danger levels.[21] The Wisconsin Department of Natural Resources uses these same categories to help describe the wildfire risk throughout the State. The Extreme rating is also known as a Red Flag warning.

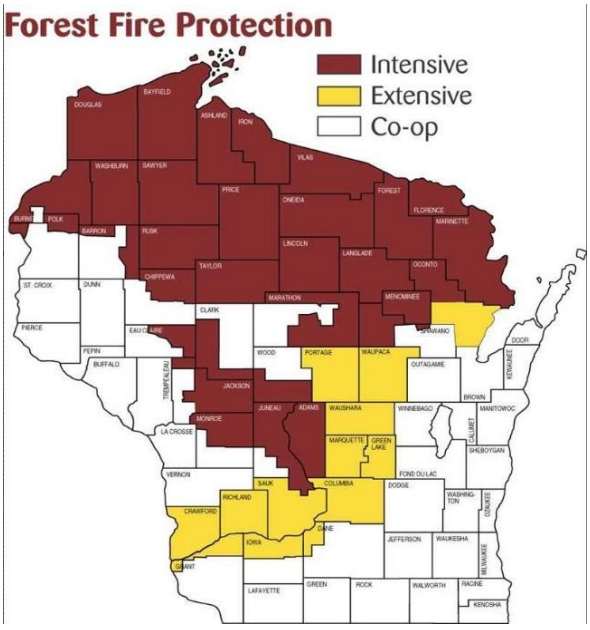
Table 13. U.S. Forest Service Fire Danger Adjective Ratings

	**Low (L, Dark Green) -** Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may bum freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.
	**Moderate (M, Light Green or Blue) -** Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
	**High (H, Yellow) -** All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.
	**Very High (VH, Orange) -** Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.
	**Extreme (E, Red) -** Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

WDNR Fire Protection Areas

[21] USDA Forest Service. *Understanding of the National Fire Danger Rating System.* https://www.fs.usda.gov/detail/r5/fire-aviation/?cid=FSEPRD604105

All of Dunn County falls within a Cooperative Fire Protection area; no parts are under Intensive Fire Protection, which is another reflection of current wildfire risk and vulnerability. These protection areas are defined as follows:



Intensive Fire Protection areas are the most heavily forested and contain the most fire hazards and risks in the State. Limited assignment of skilled personnel, specialized equipment, and facilities provide for an adequate degree of forest fire prevention, detection, and suppression efficiency and effectiveness at a minimum cost. Wisconsin Department of Natural Resources (WDNR) equipment is designed to suppress fires that are beyond the capability of the local fire department. The WDNR, by statute, takes whatever action is necessary to suppress the fires. Fire detection is provided by WDNR aircraft, and there is a strong reliance on public reporting of fires. Burning permits are required whenever the ground is not snow-covered.

Cooperative Forest Fire Protection is aid and counsel from WDNR, upon request, to the town authorities who are legally responsible for forest fire prevention, detection, and suppression activities in territory outside boundaries of established intensive fire control areas. Town chairmen, by virtue of their office, are fire wardens. Costs of forest fire prevention and suppression incurred by a town chairman, acting in his capacity as town fire warden, are paid by the town. Burning permits are issued when the town board deems it necessary.

Local fire departments play a very important role in fighting wildfires. Since the 2013 Mitigation Plan, countywide participation in the Mutual Aid Box Alarm System (MABAS) has been adopted, which may be used for deploying fire, rescue, and emergency medical services personnel if assistance from other departments is needed. Though WDNR is not part of the MABAS system, WNDR resources can also be called upon for wildfires if needed.

Local fire departments are critical partners in managing wildland fires. Dunn County fire departments are part of the Mutual Aid Box Alarm System (MABAS), which may be used for deploying fire, rescue, and emergency medical services personnel if assistance from other departments is needed. Though WDNR is not part of the MABAS system, WNDR resources can also be called upon for wildfires if needed.

Other Risk Factors

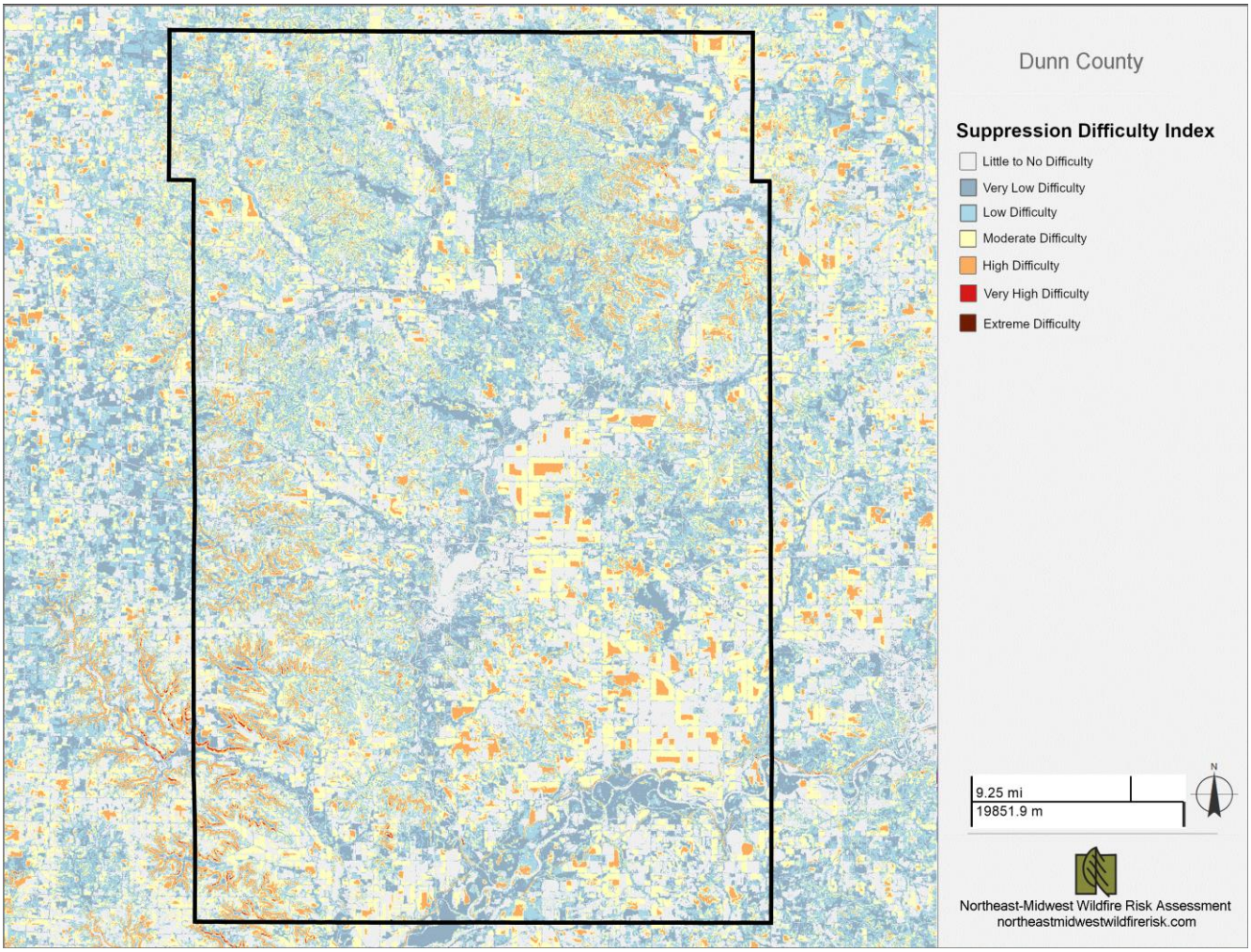
Ignition

Most wildfires are caused by humans, whether accidental or deliberate, though there has been a slight increase recently in fires caused by lightning due in part to extended dry conditions. And areas of higher population within wildlands can be expected to have a higher risk of ignition.

Suppression Difficulty Index

Wildfire Suppression Difficulty Index (SDI) is a quantitative rating of relative difficulty in performing fire control work. SDI factors in topography, fuels, expected fire behavior under severe fire weather conditions, firefighter line production rates in various fuel types, and accessibility (distance from roads/trails) to assess relative suppression difficulty.

Figure 37. Dunn County Suppression Difficulty Index



Key takeaways from the map include the following:

- Overall, most (69%) of Dunn County has a low or very low suppression difficulty.
- When reviewed against **Figure 33** (surface fuels), there is a correlation between agricultural and grassland surface fuels and suppression difficulty.
- Suppression difficulty is higher in many areas of eastern Dunn County despite some of these areas having a higher wildfire potential. While fires in some of these areas may be easier to start, and more likely to start, they may also more difficult to control.

Regional Trends & Events

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.

The most disastrous forest fire in Wisconsin history occurred on October 8, 1871, when more than 1.2 million acres were burned and the communities of Peshtigo and Brussels were obliterated. "All hell rode into town on the back of a wind" one survivor described. In about two hours' time, a swath of forest ten miles wide and 40 miles long was burned. Though overshadowed by the Great Chicago Fire of the same time period, the Peshtigo fire resulted in 1,152 people killed, 350 missing, and an estimated 3,000 people left homeless.

The April 1977 Five Mile Tower Fire, which started in northern Washburn County, burned 22 square miles at a rate of one mile every 41 minutes and destroyed 64 structures. The book "*Monster Fire at Minong—Wisconsin's Five Mile Tower Fire of 1977*" by Bill Matthias provides an excellent account of this project fire and its impacts on fire management in its aftermath.

In April 1980, more than 16,000 acres were burned and over 200 buildings were lost in the Ekdall Church and Oak Lake fires. The Ekdall Church fire originated less than 20 miles north of Polk County in the Grantsburg area. The fire started in oak scrub and timber slash, but embers then created spot fires in a nearby pine plantation. Within three hours time, the fire was consuming 1,000 to 1,600 acres an hour. Within eight hour's time, it had run nine miles and was 2.5 miles in width at its widest point.

The May 5, 2005, Cottonville wildfire began in northern Adams County; and 3,410 acres of grass, pine, and scrub oak burned quickly before the fire was contained eleven hours later. During the fire, over 100 people were evacuated. Nine year-round residences, 21 seasonal homes, and at least 60 outbuildings were completely destroyed. Lack of access (long, narrow driveways) and a lack of defensible spaces around buildings were significant contributing factors to the loss of these structures, offering important lessons to be learned.

The 2013 Germann Road fire consumed 7,499 acres and destroyed 104 structures (23 of them residences) in the Towns of Gordon and Highland in Douglas County and the Town of Barnes in Bayfield County. An estimated 350 structures were saved due to fire control efforts. The fire began around 2:45 p.m. on May 14, 2013, burning a swath nearly 10 miles long and a mile and a half wide before being declared 100 percent contained on May 15 at 9 p.m. The fire was started unintentionally from a logging crew harvesting timber on industrial timber lands.

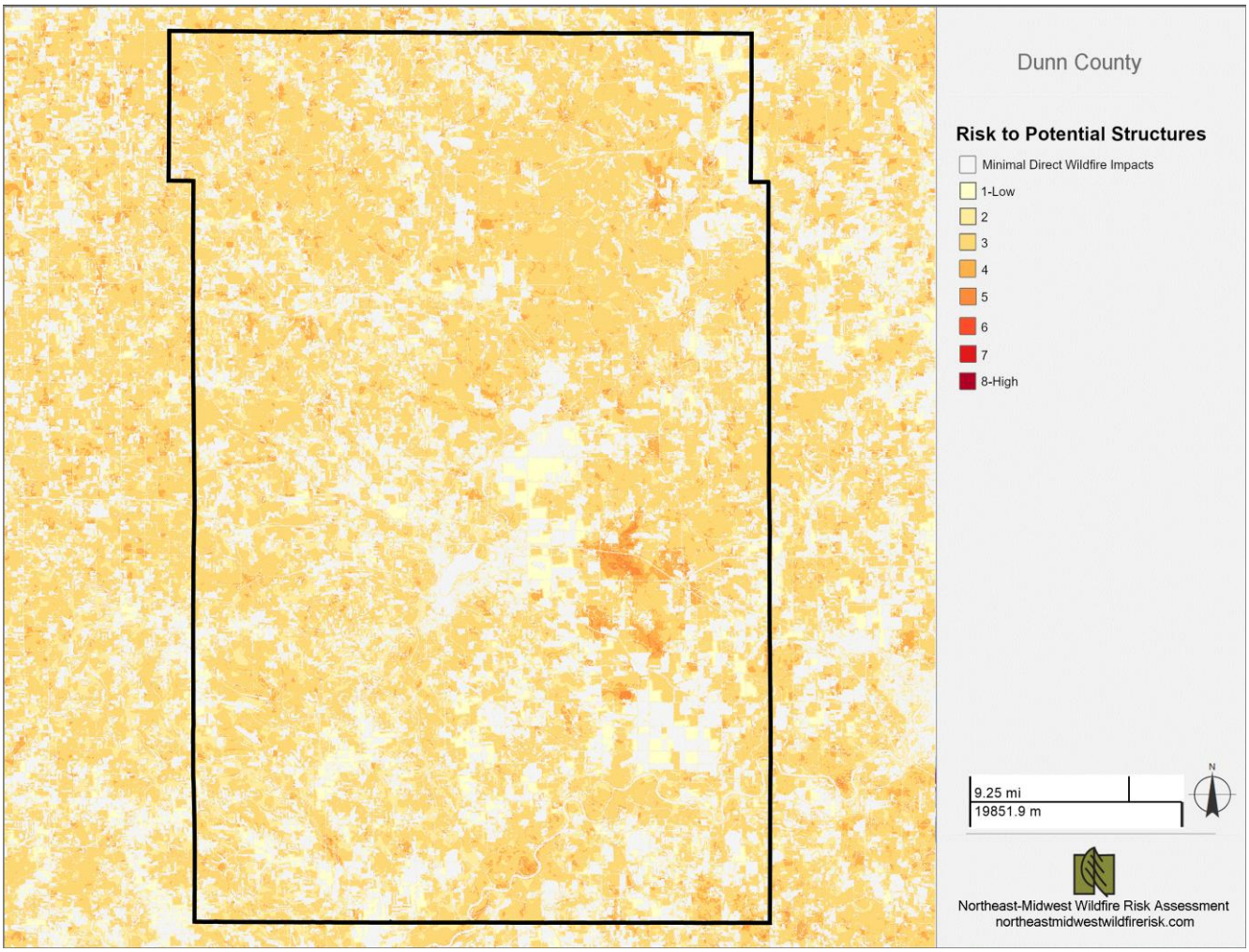
Wildfire potential is elevated during a drought. A total of 4,144 forest fires and wildfires occurred in Wisconsin during the drought year of 1976, with drought conditions continuing into 1977. Likewise, 1988 was one of the driest years on record, with a total of 3,242 fires occurring and 9,740 acres burned in Wisconsin.

Vulnerability Assessment

Vulnerability to Structures

Understanding wildfires' impact on the built environment will help the County assess where and how development should occur. As stated earlier in this section, the communities with the most reported fires have been some of the fastest growing as well. **Figure 40** identifies the expected risk to potential structures. It represents a measure that integrates wildfire likelihood and intensity with generalized consequences to a home. This map does not take existing homes into account; it is identifying the overall risk to structures.

Figure 40. Dunn County Risk to Potential Structures



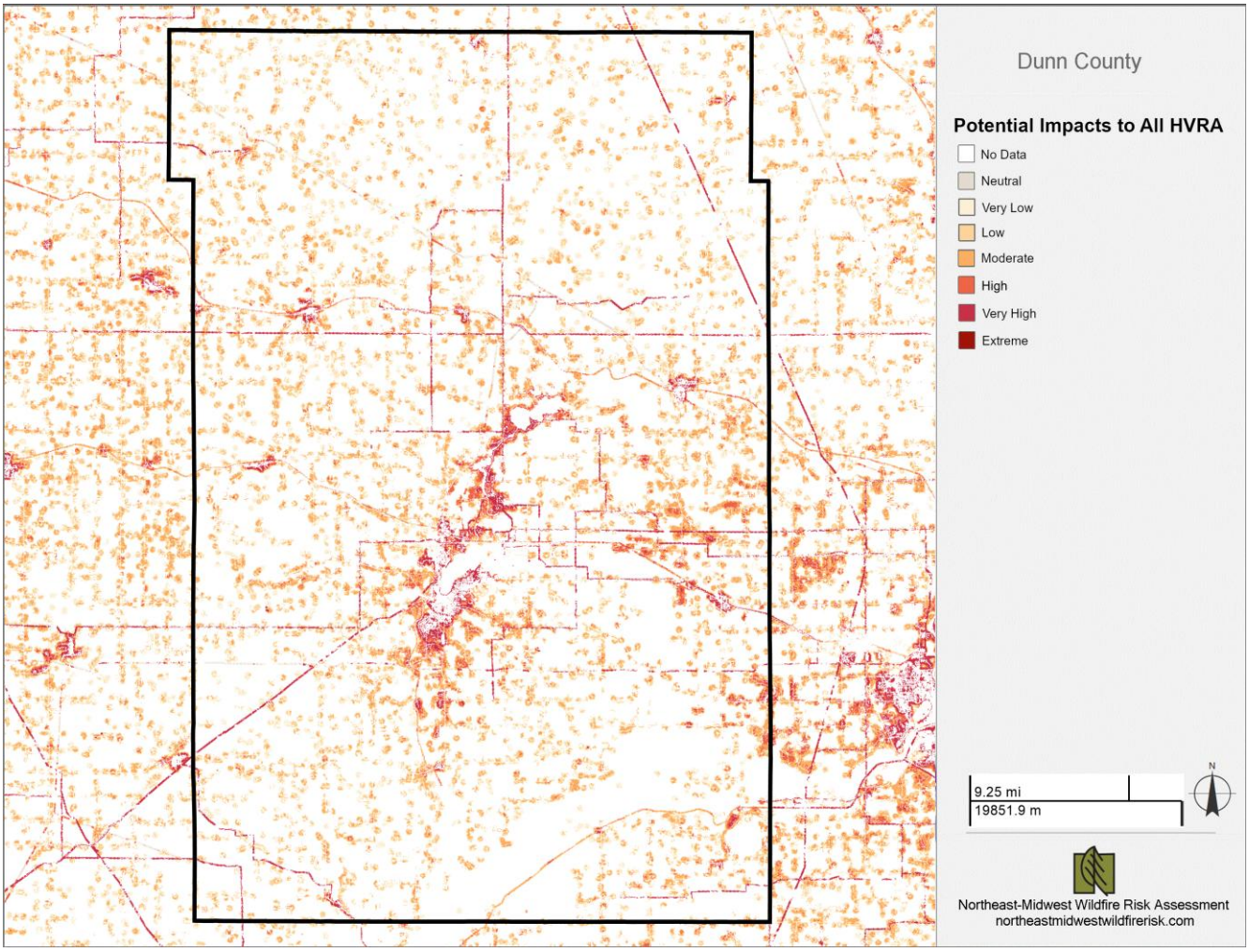
Key takeaways from the map include the following:

- The map parallels Figure 39 (burn probability). The same takeaways from that map apply here.
- No lands were rated higher than a 5. The category with the most land area was 3, incorporating 49% of the County.
- Risk is distributed across the County, reflecting the need for fire services over a large area rather than in concentrated clusters.

Potential Impacts to All Highly Valued Resources or Assets (HVRA)

The Northeast-Midwest State Foresters Alliance identifies Highly Valued Resources or Assets (HVRA). These resources and assets include three categories: people and property, infrastructure, and cultural resources. The full Wildfire Risk Assessment report provides an impact assessment for each individual category. **Figure 41** is a consolidation of the three individual assessments. This map does not indicate the likelihood of a fire in a given area. If an area is labeled "very high" the impact a wildfire would cause to HVRA in that location would be very high, though the likelihood of a fire occurring there may be very low.

Figure 41. Dunn County Potential Impacts to All HVRA



Key takeaways from the map include the following:

- Population centers rate high to extreme. This is to be expected given the density of people and property in these areas. These areas cover a very small percentage of Dunn County's acreage. Although they are dispersed throughout the County, localized fire services can address a significant amount of the above risks within relatively small service areas.
- The County's rural development pattern can be seen clearly on the map. Low-density single-family homes and farmsteads dot the entirety of the County. Despite 78% of the County being classified as having "no data" or "neutral" impact, fire services must cover a large amount of territory to protect the entire community.

J. LONG-TERM POWER LOSS

To The information below is supplemental to the information contained within Section III.C.viii. of the *Dunn County Hazard Mitigation Plan.*

Event History – Long-Term Power Outage

The risk of a long-term event is very real. For example, the March 1976 ice storm was one of the worst natural disasters to hit Wisconsin; Dunn County was not one of the 22 counties which were part of this disaster declaration. Ice accumulations of up to five inches were reported, and high winds of 60 mph made the situation worse. Up to 100,000 people were without power at the height of this storm. Serious winter or ice storms in central Wisconsin also occurred in December 1904, February 1922, February 1936, and November 1943, though data on the impacts are limited.

In **January 1998**, an ice storm hit the Montreal area and left over four million residents without power. Some areas were without power for over three weeks. The January 2009 ice storm which hit Kentucky resulted in $616 million in damages, 36 fatalities, and 700,000 customers without power at its peak; 50,000 customers were still without power after two weeks, and it took 38 days for full restoration. Ice and heavy snow in the late fall when leaves are still on the trees can exacerbate outages as trees and branches collapse under the combined weight. This was the case during the Halloween 2011 nor'easter which broke many snowfall records in the northeastern U.S. and left approximately 1.7 million customers without power.

The threat of extended power loss is not limited to large, regional, and multi-state winter storms. Smaller events can still have devastating and costly impacts on multiple counties or more localized areas, such as the **August 2007** wind storm which downed trees and power lines in the Menomonie area and left some customers within the City without power for three days.

The most serious, recent power outage event occurred in early **May 2013** when 10-16 inches of heavy, wet snow fell across western-central Wisconsin; sixteen inches was recorded for Menomonie. The heavy snow caused some power lines to sag and trees/branches fell onto lines and local roads. Approximately 60,000 customers in the larger region lost power. Crews from six other electric co-ops from around the state were called in Thursday to help out Dunn Energy Cooperative restore power to just over 5,000 outages — about half the co-op's total membership, Snow depths and hazardous travel slowed the response.

In **July 199**1, a particularly violent and widespread straight-line wind (or derecho) lasted 17 hours and stretched from South Dakota to western Pennsylvania, including parts of Wisconsin. This event caused over $100 million in damage and resulted in power loss to nearly one million customers. A similar event in May 1998 which blew through central Wisconsin resulted in at least $500 million damage and over two million people were without electrical power, some for over 10 days.

More recently, on **May 24, 2012**, straight-line winds hit the Chippewa Valley leaving nearly 6,700 Xcel customers without power. The City of Eau Claire was especially hard hit with about 5,200 residents without power; roughly 1,500 persons in the City were without power for over 24 hours. Other wind and storm events have resulted in localized power losses in the Dunn County, though the long-term loss of power exceeding 48 hours is quite rare and has been limited to a very small number of customers in recent history. The 2011 Burnett County straight-line wind left some areas without power for about a week. And in July 2016, severe thunderstorms left about 250,000 Xcel Energy customers in the Twin Cities metropolitan area without power.

Vulnerability Assessment

Other Factors Influencing Future Losses

- **Development located in forested areas with overhead lines is particularly at risk of power loss.** Some of the greatest concentrations of these at-risk areas are lake properties. These concerns are not limited to the unincorporated towns. Residential neighborhoods with older trees or built within wooded areas of cities and villages are also vulnerable to outages.
- **Forest/tree health can also influence future losses.** Trees and limbs that are affected by pests or disease, such as Emerald Ash Borer or Oak Will, have a higher susceptibility for falling on power lines during storm events.
- **Burying overhead lines is an effective mitigation action.** Electrical providers in the County have buried some electric lines in the most at-risk areas. And many of the local and municipal electric providers have a policy of moving towards all below-ground power lines through attrition and as part of annual work plans. The loss of power due to falling limbs has been further significantly mitigated through proactive, aggressive tree-trimming programs by the electric providers serving Dunn County.
- **Improper use of generators.** During the Kentucky event, carbon monoxide from improper generator use was the largest cause of death. But it must be remembered that the potential impacts for Dunn County could be much more severe—Kentucky's temperature warmed well above freezing following their ice storm. In comparison, Dunn County's average winter temperatures could prove quite deadly should power be lost and transportation systems hindered for an extended time. This is discussed more in the winter storm risk and vulnerability assessment.
- The availability of **emergency power generators** for utilities, communications, centers/shelters, emergency operations, fuel sources, and critical facilities is crucial to mitigating the potential impacts of a LTPO event. Further, demands may be high on limited fuel sources for response vehicles, electric crews, and power generators.
- **Extreme heat** is a possible growing threat given that it can directly overload transformers but also requires load management as energy use increases for cooling, irrigation, etc.
- **Preparedness efforts.** Long-term power outage (LTPO) planning has been receiving increased attention in Wisconsin during the past decades.

Not unique to Dunn County are the long-term challenges of increasing electrical demands, which could potentially be exacerbated by "climate migration" as people and industry (e.g., data centers) seek out cooler, non-coastal places to relocate.

Related Preparedness and Response Actions

In short, a long-term, widespread power outage is one of the greatest natural hazard vulnerabilities facing the Dunn County and the region. As the Kentucky experience shows, total costs in response and damages can be in the tens of millions or greater. And significant threats to life and safety exist due to downed lines, fire, improper generator use, loss of access to medical treatments, extreme cold, and loss of food and other utilities.

Cooperation, communication, and planning with power providers and critical facilities are key to preparing for and mitigating the impacts of power loss. Based on discussions with representatives from Xcel Energy, Dunn Energy Cooperative, and other area electric providers, the following should be considered:

- Involving utility providers in disaster event exercises and incident command system (ICS) training is very important. Both Xcel Energy and Dunn Energy Cooperative have adopted ICS-style emergency management structures. It is recommended that critical facilities drill their outage plans and provide the

electric provider with 24/7 contact information. Advanced notice for such trainings and workshops is required due to the time commitments involved.

- Communication between electric providers and utilities, emergency management personnel, service providers, and local communities can be vital during an LTPO event to help protect the safety of responders and residents. This includes notifying electric restoration crews of known road washouts, flooding areas, etc. For a major disaster, utilities may provide a liaison at the County Emergency Operations Center.
- Electric providers have a strong mutual aid network should it be needed, such as the Restoration of Power during an Emergency (ROPE) system for cooperatives. It is important to remember that during a large event, mutual aid support may come from communities throughout North America. Staging, logistics, tracking, and related administration for such efforts can be tremendous challenges.
- During a disaster or power outage, many electric providers, including Dunn Energy, now have smart meters that allow them to "ping meters" to help identify areas with outages, possible downed power lines, etc.
- Many utilities and electric providers, including Dunn Energy Cooperative and Xcel Energy, maintain lists of critical clients or medical accounts (e.g., oxygen) that will be given a preference for power restoration if possible. This information can assist the public sector in prioritizing the clearing of roadways from debris, etc.
- Electric providers and utilities have a key public informational role during an outage. In addition to working with media and social media, many providers, have web-based power outage maps that are close to "real time".
- It is important that emergency response and public-sector road crews understand the risks of working near downed power lines and how power is restored. Electric providers stressed the importance of regular electrical safety training and exercises with first responders and public-sector road crews.
- More public education may be needed on safety issues during a power outage, how to get information during an outage (e.g., media, social media, websites, mobile apps), and how power is restored.

For more information on power outages, the following websites of area electric providers are a great place to start:

https://www.xcelenergy.com/outages_and_emergencies

https://www.dunnenergy.com/outage-storm-center

Space Weather Events: Solar Flares and Geomagnetic Storms

Defining the Hazard

Solar flares are intense bursts of electromagnetic radiation (X-rays) that erupt from an active region of the Sun and can potentially reach Earth in less than 20 minutes. As shown in the table below, solar flare intensities are categorized based on their strength (X-ray brightness) with each progressive class on the scale 10 times the strength of the previous class. **M- and X-class solar flares have the potential to impact radio communications but are less likely to impact the electrical grid.**

Solar Flares Intensity Scale		
Scale	***Severity Descriptor***	***Effects***
X	Extreme	Can trigger radio global blackouts and transmission issues
M	Severe	Can cause brief radio blackouts at poles and minor radiation storms imposing danger to astronauts
C	Strong	C-class and smaller flares are weak and do not noticeably affect Earth, SID monitoring will only detect strongest C-class flares
B	Moderate	Too weak to affect Earth and/or be detected with SID monitoring
A	Minor	Too weak to affect Earth and/or be detected with SID monitoring

Source: X-Class: A Guide to Solar Flares (NASA, 2011), https://svs.gsfc.nasa.gov/10109

Geomagnetic Storms can disturb and compress the Earth's magnetic field. Geomagnetic storms are typically caused by high-speed solar winds and **Coronal Mass Ejections (CMEs)**, which may be triggered by a large solar flare event. **CMEs** are giant clouds of particles and magnetic fields (like a gas bubble) hurled into space that can reach Earth in15 hours to several days. **NASA utilizes the scale below categorize Geomagnetic Storms and their impacts to communications and the electrical grid.**

Category		Effect	Physical Measure	Average Frequency (1 cycle = 11 years)
Scale/Descriptor		Duration of event will influence severity of effects	K_p values* determined every 3 hours	Number of storm events when K_p level was met; (number of storm days)
G5	Extreme	**Power systems:** widespread voltage control problems and protective system problems can occur, some grid systems may experience complete collapse or blackouts. Transformers may experience damage. **Spacecraft operations:** may experience extensive surface charging, problems with orientation, uplink/downlink and tracking satellites. **Other sytems:** pipeline currents can reach hundreds of amps, HF (high frequency) radio propagation may be impossible in many areas for 1-2 days, satellite navigation may be degraded for days, low-frequency radio navigation can be out for hours, and aurora seen as low as Florida and southern Texas (typically 40° geomagnetic lat.)	Kp = 9	4 per cycle (4 days per cycle)
G4	Severe	**Power systems:** possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid. **Spacecraft operations:** may experience surface charging and tracking problems, corrections may be needed for orientation problems. **Other sytems:** induced pipeline currents affect preventive measures, HF radio propagation sporadic, satellite navigation degraded for hours, low-frequency radio navigation disrupted, and aurora has been seen as low as Alabama and northern California (typically 45° geomagnetic lat.).	Kp = 8, including a 9	100 per cycle (60 days per cycle)
G3	Strong	**Power systems:** voltage corrections may be required, false alarms triggered on some protection devices. **Spacecraft operations:** surface charging may occur on satellite components, drag may increase on low-Earth-orbit satellites, and corrections may be needed for orientation problems. **Other sytems:** intermittent satellite navigation and low-frequency radio navigation problems may occur, HF radio may be intermittent, and aurora has been seen as low as Illinois and Oregon (typically 50° geomagnetic lat.).	$K_p = 7$	200 per cycle (130 days per cycle)
G2	Moderate	**Power systems:** high-latitude power systems may experience voltage alarms, long-duration storms may cause transformer damage. **Spacecraft operations:** corrective actions to orientation may be required by ground control; possible changes in drag affect orbit predictions. **Other sytems:** HF radio propagation can fade at hjgher latitudes, and aurora has been seen as low as New York and Idaho /typically 55° geomagnetic lat.).	Kp = 6	600 per cycle (360 days per cycle)
G1	Minor	**Power systems:** weak power grid fluctuations can occur. **Spacecraft operations:** minor impact on satellite operations possible. **Other sytems:** migratory animals are affected at this and higher levels; aurora is commonly visible at high latitudes (northern Michigan & Maine).	$K_p = 5$	1700 per cycle (900 days per cycle)

Source: NOAA, https://www.swpc.noaa.gov/noaa-scales-explanation, (December 2023).

Event History

According to NOAA and NASA, the most significant and impactful space weather events are as follows:

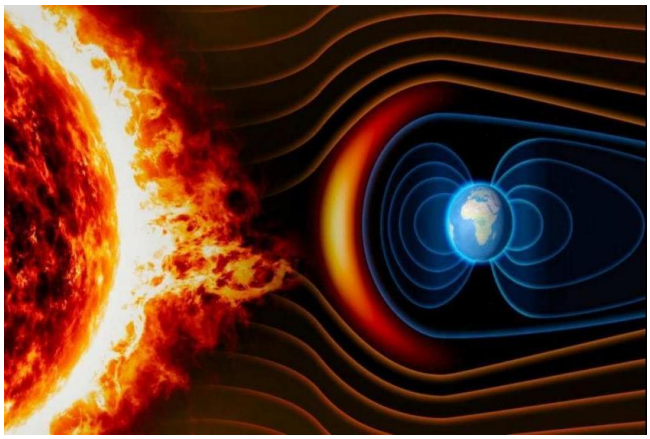
- **September 2, 1859 (The Carrington Event)** - Largest geomagnetic storm recorded impacting expanses of Europe and North America. Telegraph systems were disrupted or down entirely, equipment malfunctioned and caught fire, and aurora displays were visible as south as the Caribbean.
- **May 23, 1967** - A major solar flare produced strong X-ray and radio waves resulting in radio blackouts, global communication disruptions, and power outages.
- **August 4, 1972 -** A powerful solar flare triggered a series of solar storms and a coronal mass ejection (CME) the following day. The CME led to global radio communication and power systems disruptions, power outages in northeastern United States and Canada, and damage to several satellites.
- **March 9-11, 1989** – A CME eruption caused a severe geomagnetic storm that reached Earth four days later, leading to a sequence of power outages, satellite and radio communication disruptions, temporary satellite shutdowns, and permanent damage to electronics. Over six-million Canadians were without power for nine hours and effects were present in the upper Midwest, northeast, and mid-Atlantic regions of the United States.
- **October 28-November 4, 2003 ("Halloween Storms") –** A CME on Oct. 28 created sixth most powerful geomagnetic storm in 70 years, resulting in a 30-hour outage of the Federal Aviation System.
- **May 7-11, 2024** - Several intense solar flares and at least seven coronal mass ejections (CMEs) erupted, disrupting technology and resulting in a $500 million impact on the agricultural industry where GPS systems for tilling, irrigation, and planting are necessary.[1] The multiple CMEs created the first extreme geomagnetic storm intensity (G5) since 2003.

Hazard Probability

Solar activity typically operates within the Sun's 11-year solar cycle, with an increased potential for solar flares and geomagnetic storms when closest to the solar maximum. According to NASA and NOAA, the current solar cycle (Solar Cycle 25) began in December 2019 and reached its maximum in October 2024. However, the current cycle, Solar Cycle 25, is expected to a fairly weak cycle with similar strength to that of its former cycle. Despite some regularity with solar cycles, experts cannot make longer-term predictions when a specific flare will occur. The previous Geomagnetic Storm table provides an average frequency of storm events for each solar cycle by category (intensity). Solar flares can occur several times a day when near the solar maximum.

Hazard Vulnerabilities

Solar flares and resultant geomagnetic storms have the potential to impact various aspects of society due to dependence on the operation of satellites, aircrafts, communication networks, navigation systems, and electric power grid. Storm severities and their specific implications regarding power systems, spacecraft operations, and other systems are outlined in the previous Geomagnetic Storms table.



Preparation and Mitigation

To prevent and mitigate the effects space weather can have on our daily and essential functions, it is imperative that warning systems are utilized to provide sufficient notice to the community. A summary of local and critical facilities vulnerable to space weather events should be easily accessible. In addition, critical facilities should implement backup power and communication systems. This is especially vital for power grids and communication networks for emergency response.

K. CYBER-ATTACK

The information below is supplemental to the information contained within Section III.C.ix. of the *Dunn County Hazard Mitigation Plan.*

Defining the Hazard - Cyberattack

National Security Presidential Directive 54/Homeland Security Presidential Directive 23 (NSPD-54/HSPD23) defines **cyberspace** as the interdependent network of information technology infrastructures, and includes the Internet, telecommunications networks, computer systems, and embedded processors and controllers in critical industries. Common usage of the term also refers to the virtual environment of information and interaction between people.[22] Cyberattack is a malicious attack for a variety of potential reasons within or through cyberspace.

In most cases a cyberattack can be characterized as either being carried out for financial gain, for theft of information, or to further a social or political agenda. An attack for financial gain may directly target financial institutions such as banks or credits unions. An attack may also be directed at a specific business or organization for theft of information. Social or political agenda attacks typically try to gain access to sensitive material that can then be shared publicly to embarrass the target or other political advantage.

Hazard Location

There are no geographic boundaries or locations within Dunn County uniquely affected by cyberattacks. All Dunn County jurisdictions are equally at risk of experiencing a cyberattack event.

Hazard Extent (Potential Intensities)

Not surprisingly, the frequency of events decreases as the priority categories increase. Below is the distribution of FFY2022 Incidents reported the CISA's Threat Hunting unit:[23]

Partner	Baseline 0-29	Minimal 30-49	Low 50-59	Medium 60-74	High 75-84	Severe 85-94	Emergency 95-100	Total Tickets
Private Sector	53	46	10	4	0	0	0	**113**
State, Local, Tribal, and Territorial	22	16	9	2	0	0	0	**49**
Government Facilities	208	250	41	1	0	0	0	**500**
Totals	**283**	**312**	**60**	**7**	**0**	**0**	**0**	**662**

Event History - Cyberattack

National & State Trends

Threats to cyberspace, or cyberattacks, pose one of the most serious economic and national security challenges of the 21st Century for the United States. The December 2008 report by the Commission on Cybersecurity for the 44th Presidency states: "America's failure to protect cyberspace is one of the most urgent national security

[22] Cyberspace Policy Review, Assuring a Trusted and Resilient Information and Communications Infrastructure, U.S. White House.

[23] U.S. Cybersecurity & Infrastructure Security Agency. Theat Hunting – Fiscal Year 2023 Report to Congress. July 13, 2023.

problems facing the new administration."[24] In a 2017 survey of U.S. executives, cyberattacks was ranked as #2, misuse of technologies #3, and data fraud/theft #5 among the top global risks for doing business in the United States within the next ten years.[25] For perspective, terrorism ranked #1, natural catastrophes #6, and extreme weather events #10.

There are a growing number of cyber threat actors, such as terrorists and international criminal groups, that are targeting U.S. critical infrastructure and government. These actors have the ability to compromise, steal, change, or completely destroy information.[26] As the Director of National Intelligence (DNI) recently testified before Congress, "the growing connectivity between information systems, the Internet, and other infrastructures creates opportunities for attackers to disrupt telecommunications, electrical power, energy pipelines, refineries, financial networks, and other critical infrastructures."[27]

Some recent notable attacks include:

July 2023 – Langlade County, WI issued an emergency declaration after experiencing a catastrophic software failure due to a LockBit ransomware attack. Among the impacts, all phone lines were non-functioning and 911 calls were re-routed. The attackers also threatened to leak all stolen data. This attack shows that even smaller organizations and governments can be a target for hackers, even to large, advanced groups like LockBit.

August 2023 – Hospital Sisters Health System and Prevea Health experienced cyberattacks that caused system-wide outages, temporarily impacted hospital communications, and took weeks to fully recover from. In Spring 2024, the Ascension health care system experienced a ransomware attack with data breach.

September 2023 – Rock County, WI experienced a ransomware attack in their Human Services Department. The attack targeted email systems and managed to obtain limited data. The attacker requested $1.9 million in ransom, but no payments were made.

October 2023 – Kwik Trip identified a cyberattack on their systems, which disrupted the company's internal systems and loyalty program. This is an example of a cyberattack largely based elsewhere having regional or even worldwide implications as all Kwik Trip locations were impacted.

November 2023 – Cyberattacks impacted multiple U.S.-based water and wastewater systems through internet-accessible devices in the systems' hardware. The attack had the potential to impact energy, food, and healthcare industries as they use the same equipment, identifying a significant vulnerability to essential service providers. These municipal utilities attacks occurred across the U.S., including in smaller communities, when international hackers who exploited a certain piece of equipment to shut down remote monitoring and water pressure regulating equipment.

October 2024 – The City of Sheboygan experienced a network security breach and some data may have been exposed, though it appears that no services were impacted. As of January 2025, the City was still dealing with

[24]CSIS Commission on Cybersecurity for the 44th Presidency, Securing Cyberspace for the 44th Presidency, December 2008.

[25] World Economic Forum. http://reports.weforum.org/global-risks-2018/global-risks-of-highest-concern-for-doing-business-2018/#country/USA

[26] Director of National Intelligence, Annual Threat Assessment of the Intelligence Community for the Senate Armed Services Committee, Statement for the Record, March 10, 2009.

[27] Director of National Intelligence, Annual Threat Assessment of the Intelligence Community for the Senate Armed Services Committee, Statement for the Record, March 10, 2009.

this situation and the City's has spent over $400,000 on upgrading their cybersecurity systems. Rock County was also attacked in 2024 when perpetrators targeted employee e-mails.

January 2025 – A cloud-based software provider (PowerSchool) that is used by school districts across Wisconsin announced that it had experienced a data breach that may have exposed data about students and school staff.

Vulnerability Assessment - Cyberattack

The growing sophistication of cyberattacks could cause serious problems, such as:

- **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.[28] 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.[29] In another case, a U.S. retailer in 2007 experienced data breaches and loss of personally identifiable information that compromised 45 million credit and debit cards.[30]
- **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.[31]

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).

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

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

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

[31] 16 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.

- 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 and Mitigation

National Level of Preparedness

The Cybersecurity & Infrastructure Security Administration (CISA) has wide range of preparedness and response resources. Nearly every business or organization can fit within the Federal definition of critical infrastructure to receive their support. Two tools in particular are a great starting point with assistance through CISA's State office:

- Cyber Resilience Review - An assessment to evaluate an organization's cybersecurity resilience and practices. This can be self-administered or facilitated.
- Cybersecurity Infrastructure Survey - A 2.5-4 hour structured assessment of essential cybersecurity practices focusing on protective measures and threat scenarios, with an on-line dashboard of comparative results.

Additional resources are available through CISA's national team, but may require up to a 2-year wait, including cyberstorm exercises, phishing campaign assessment, vulnerability scanning, and remote penetration testing. CISA's "Shields Up" campaign is driven by the elevated cybersecurity risks as a result of the Ukraine conflict. CISA also has an on-line catalog of educational tools and videos. And attacks/incidents can also be reported to CISA, which shares such data with the FBI. The CISA office for the Wisconsin district is available to assist businesses with navigating through these many resources and programs.

The Department of Homeland Security National Cyber Security Division has a program called the Control Systems Security Program (CSSP), which works to reduce industrial control system risks within and across all critical infrastructure and key resource sectors by coordinating efforts among Federal, state, local, and tribal governments as well as industrial control systems owners, operators, and vendors.[32] The program coordinates activities to reduce the likelihood of a successful cyberattack and attempts to reduce the severity of impacts from a successful cyberattack against critical infrastructure control systems through risk-mitigation activities. Further, the Department of Homeland Security's United States Cyber Emergency Readiness Team (US-CERT) strives to improve the nation's cybersecurity, coordinate information sharing, and manage cyberattack risks.[33] US-CERT partners with private and public sector critical infrastructure owners and operators to enhance cybersecurity. Cyber-security assessment tools are available through US-CERT and businesses that provide critical infrastructure may be eligible for additional audit and planning support. Given that cyberattack threats are escalating, new programs and resources are continuing to become available. For example, in January 2024 the Department of Energy announced grant funding to support the research, development, and demonstration (RD&D) of next generation tools to protect clean energy delivery infrastructure from cyberattacks.

State of Wisconsin Level of Preparedness

The State of Wisconsin's Cyber Incident Annex "discusses policies, organizations, actions, and responsibilities for a coordinated, multidisciplinary, broad-based approach to prepare for, respond to, and recover from cyber-

[32] http://www.us-cert.gov/control_systems/

[33] http://www.us-cert.gov/about-us/

related incidents."[34] The Annex describes the framework for Wisconsin State Agencies to support local units of government during a cyber incident response. This support is coordinated with State and Federal agencies. Wisconsin is a home rule state and "the role of any state agency, including the Department of Military Affairs and the division, in an emergency declared under this chapter, is to assist local units of government and local law enforcement agencies in responding to a disaster or the imminent threat of a disaster."[35]

The Wisconsin Statewide Intelligence Center (Fusion Center) provides a variety of resources to businesses and organizations, including hosting the Statewide Cyber Response Team to assist businesses and organizations if they experience a cyberattack. The make-up of the Team will vary depending on the nature of the attack and type of organization and there is strong collaboration between the FBI, CISA, and Fusion Center team members. Regional-level cyber-response teams have also been established should a local government or business require support due to a significant data breach.

The State of Wisconsin Department of Administration, Division of Enterprise Technology's Office of Security also provides information to Wisconsin residents, educators, and businesses on cyber risks and ways to stay protected online.

Dunn County Government Preparedness

How an entity responds to a cyberattack can limit or increase its liabilities. Basic measures, such as keeping computer operating systems and virus/firewall software update, can go far to avoiding many threats. However, even with the best email filters, some spam and cyber threats will still get through. Employees are an integral part of a cybersecurity system and are often the last line of defense. Train employees to recognize suspicious emails, web sites, billings, and other identity theft threats. Red flags include differences in shipping, billing, and return addresses; similar (but slightly different) business names and web links; and many large orders from a new customer. If uncertain, follow-up with phone calls, web searches, etc. should be performed.

It can be valuable to have a cyber-security and response plan with a technical team and a separate executive team, with clear roles and responsibilities for each. Regular exercising of the plan will minimize stress and allow increasing focus on decisions, rather than the process and procedures. Such exercises can include a cyberattack vulnerability assessment, including evaluating employee awareness through fake phishing. An organization's cyber-security and/or continuity plans should also include how data will be backed-up off-site or in the cloud, how this data is to be recovered following an event, and whether the recovery location meet the organization's technology needs. Some industries, such as health care and utility providers, have their unique risks, data-security rules, and cyber-security and response support networks.

In short, the risk and sophistication of cyberattack continues to grow and the level of protection and preparedness among the communities and businesses in Dunn County varies significantly. Most municipalities interviewed during the Plan update process back-up their digital data off-site or "in the cloud." Cybersecurity actions, such as off-site or cloud data back-up, also mitigate risks associated with fires, tornado, flooding, equipment failure, accidental data deletion, etc.

[34] Cyber Incident Annex—State of Wisconsin, http://emergencymanagement.wi.gov/planning/WERP/Annex%20Cyber%20Terrorism%20Incident%20RD.pdf, June 30, 2010.

[35] Ibid.

Mitigation Strategies

How an entity responds to a cyberattack can limit or increase its liabilities. It can be valuable to have a cyber-response plan with a technical team and a separate executive team, with clear roles and responsibilities for each. Regular exercising of the plan will minimize stress and allow increasing focus on decisions, rather than the process and procedures.

County IT staff from across west-central Wisconsin are consistent in encouraging everyone to do the fundamentals to help strengthen cybersecurity at work and at home:

- perform regular back-up of important data
- have strong passwords and use multi-factor authentication
- educate employees and family members on phishing; consider mock phishing testing
- have good end-point protection; keep the firewall on and set virus/malware software to automatically update
- migrating to the most current version of Windows and ensure that the Windows operating system is automatically updated
- have a plan should an attack occur or data be exposed

There are additional actions and policies that can be taken to reduce cyberattack risks as discussed at April 2011, May 2017, and June 2022 Disaster Ready Chippewa Valley cyber-security workshops, such as:

- use of hardware firewalls and how web servers are managed
- use multi-factor authentication
- IDS/IPS real-time monitoring in both directions
- data and password encryption, including encrypted tunnels for transport
- password policies and procedures
- policies for the use of computer equipment, Internet, and downloading
- segregation of certain duties
- safeguarding and proper disposal of old equipment, including copiers
- safeguarding and proper disposal of paper reports
- training of staff in risks, guidelines, and security measures
- know what is covered under insurance in term of cyberattack damages and liabilities
- request assistance from law enforcement, State, and Federal government when needed
- if an employee is leaving your firm, especially if disgruntled, it is important to cut them off immediately from access to your systems in order to help prevent insider threats or the theft of intellectual property.
- if you are victim of a cyberattack, immediately contact your financial institution to monitor or request a freeze or recall of funds. Also monitor for irregularities with payroll deposits. And file a complaint with the FBI's Internet Crime Complaint Center (www.ic3.gov). If notified immediately, the FBI may be able assist with freezing funds. In certain instances, the FBI may also open an investigation.
- the FBI issues flash messages, private industry notifications, and advisories, including alerts for specific industries.

Even with the best email filters, some spam and cyber threats will still get through. Employees are an integral part of your cybersecurity system and the last line of defense. Train employees to recognize suspicious emails, web sites, billings, and other identity theft threats. Warning flags include: differences in shipping, billing, and return addresses; similar (but slightly different) business names and web links; and many large orders from new customers. If uncertain, follow-up with phone calls, web searches, etc.

Continuity planning is also important, though most local governments in Dunn County have not developed such plans. Continuity planning is the identification of strategies for the preservation and/or restoration of critical business functions during or following a disaster or other disruption of service. Not only should data be frequently backed-up off site, but organizations should consider how this data is to be recovered following an event and, should disaster strike, does the recovery location meet the organization's technology needs. Larger municipalities may need a secondary data and operations center and/or a back-up server. These systems should be tested regularly. The business continuity planning template available at the Disaster Ready Chippewa Valley website (www.disasterreadychippewavalley.org) includes a section on data protection, storage, and recovery which may be helpful. Local governments should obtain technical assistance in addressing their risks, if needed. One opportunity is the State & Local Cybersecurity Grant Program, which was established in 2021 to address cybersecurity risks and threats to information systems owned or operated by, or on behalf of, state, local, or tribal governments.

NATIONAL SECURITY AGENCY
CYBERSECURITY INFORMATION

NSA'S Top Ten Cybersecurity Mitigation Strategies

NSA's Top Ten Mitigation Strategies counter a broad range of exploitation techniques used by Advanced Persistent Threat (APT) actors. NSA's mitigations set priorities for enterprise organizations to minimize mission impact. The mitigations also build upon the NIST Cybersecurity Framework functions to manage cybersecurity risk and promote a defense-in-depth security posture. The mitigation strategies are ranked by effectiveness against known APT tactics. Additional strategies and best practices will be required to mitigate the occurrence of new tactics.

The cybersecurity functions are keyed as: **Identify, Protect, Detect, Respond, Recover**

1. Update and Upgrade Software Immediately

Identify, Protect

Apply all available software updates, automate the process to the extent possible, and use an update service provided directly from the vendor. Automation is necessary because threat actors study patches and create exploits, often soon after a patch is released. These "N-day" exploits can be as damaging as a zero-day. Vendor updates must also be authentic; updates are typically signed and delivered over protected links to assure the integrity of the content. Without rapid and thorough patch application, threat actors can operate inside a defender's patch cycle.

2. Defend Privileges and Accounts

Identify, Protect

Assign privileges based on risk exposure and as required to maintain operations. Use a Privileged Access Management (PAM) solution to automate credential management and fine-grained access control. Another way to manage privilege is through tiered administrative access in which each higher tier provides additional access, but is limited to fewer personnel. Create procedures to securely reset credentials (e.g., passwords, tokens, tickets). Privileged accounts and services must be controlled because threat actors continue to target administrator credentials to access high-value assets, and to move laterally through the network.

3. Enforce Signed Software Execution Policies

Protect, Detect

Use a modern operating system that enforces signed software execution policies for scripts, executables, device drivers, and system firmware. Maintain a list of trusted certificates to prevent and detect the use and injection of illegitimate executables. Execution policies, when used in conjunction with a secure boot capability, can assure system integrity. Application Whitelisting should be used with signed software execution policies to provide greater control. Allowing unsigned software enables threat actors to gain a foothold and establish persistence through embedded malicious code.

4. Exercise a System Recovery Plan

Identify, Respond, Recover

Create, review, and exercise a system recovery plan to ensure the restoration of data as part of a comprehensive disaster recovery strategy. The plan must protect critical data, configurations, and logs to ensure continuity of operations due to unexpected events. For additional protection, backups should be encrypted, stored offsite, offline when possible, and support complete recovery and reconstitution of systems and devices. Perform periodic testing and evaluate the backup plan. Update the plan as necessary to accommodate the ever-changing network environment. A recovery plan is a necessary mitigation for natural disasters as well as malicious threats including ransomware.

5. Actively Manage Systems and Configurations

Identify, Protect

Take inventory of network devices and software. Remove unwanted, unneeded or unexpected hardware and software from the network. Starting from a known baseline reduces the attack surface and establishes control of the operational environment. Thereafter, actively manage devices, applications, operating systems, and security configurations. Active enterprise management ensures that systems can adapt to dynamic threat environments while scaling and streamlining administrative operations.

CYBERSECURITY INFORMATION

6. Continuously Hunt for Network Intrusions

■ Detect, ■ Respond, ■ Recover

Take proactive steps to detect, contain, and remove any malicious presence within the network. Enterprise organizations should assume that a compromise has taken place and use dedicated teams to continuously seek out, contain, and remove threat actors within the network. Passive detection mechanisms, such as logs, Security Information and Event Management (SIEM) products, Endpoint Detection and Response (EDR) solutions, and other data analytic capabilities are invaluable tools to find malicious or anomalous behaviors. Active pursuits should also include hunt operations and penetration testing using well documented incident response procedures to address any discovered breaches in security. Establishing proactive steps will transition the organization beyond basic detection methods, enabling real-time threat detection and remediation using a continuous monitoring and mitigation strategy.

7. Leverage Modern Hardware Security Features

■ Identify, ■ Protect

Use hardware security features like Unified Extensible Firmware Interface (UEFI) Secure Boot, Trusted Platform Module (TPM), and hardware virtualization. Schedule older devices for a hardware refresh. Modern hardware features increase the integrity of the boot process, provide system attestation, and support features for high-risk application containment. Using a modern operating system on outdated hardware results in a reduced ability to protect the system, critical data, and user credentials from threat actors.

8. Segregate Networks Using Application-Aware Defenses

■ Protect, ■ Detect

Segregate critical networks and services. Deploy application-aware network defenses to block improperly formed traffic and restrict content, according to policy and legal authorizations. Traditional intrusion detection based on known-bad signatures is quickly decreasing in effectiveness due to encryption and obfuscation techniques. Threat actors hide malicious actions and remove data over common protocols, making the need for sophisticated, application-aware defensive mechanisms critical for modern network defenses.

9. Integrate Threat Reputation Services

■ Protect, ■ Detect

Leverage multi-sourced threat reputation services for files, DNS, URLs, IPs, and email addresses. Reputation services assist in the detection and prevention of malicious events and allow for rapid global responses to threats, a reduction of exposure from known threats, and provide access to a much larger threat analysis and tipping capability than an organization can provide on its own. Emerging threats, whether targeted or global campaigns, occur faster than most organizations can handle, resulting in poor coverage of new threats. Multi-source reputation and information sharing services can provide a more timely and effective security posture against dynamic threat actors.

10. Transition to Multi-Factor Authentication

■ Identify, ■ Protect

Prioritize protection for accounts with elevated privileges, remote access, and/or used on high value assets. Physical token-based authentication systems should be used to supplement knowledge-based factors such as passwords and PINs. Organizations should migrate away from single factor authentication, such as password-based systems, which are subject to poor user choices and susceptible to credential theft, forgery, and reuse across multiple systems.

Contact Information

Client Requirements and General Cybersecurity Inquiries
Cybersecurity Requirements Center (CRC), 410-854-4200, email: Cybersecurity_Requests@nsa.gov

L. HAZARDOUS MATERIALS SPILLS

The information below is supplemental to the information contained within Section III.C.x. of the *Dunn County Hazard Mitigation Plan.*

Defining the Hazard – Hazardous Materials Spills

Below are many of the Federal definitions related to hazardous materials.

Hazardous Materials – The National Fire Protection Association (NFPA) 704 Standard is widely used to classify hazardous materials, which it generally defines as "**a chemical or substance that is classified as a physical hazard material or a health hazard material, whether the chemical or substance is in usable or waste condition**." The United States Department of Transportation (DOT) uses the term "hazardous materials" which covers eight hazard classes, some of which have subcategories called classifications, and a ninth class covering other regulated materials (ORM). The DOT includes in its regulations hazardous substances and hazardous wastes, both of which are regulated by the Environmental Protection Agency (EPA), if their inherent properties would not otherwise be covered.

Hazardous Substances - The EPA uses the term "hazardous substance" for the chemicals which, if released into the environment above a certain amount, must be reported and, depending on the threat to the environment, Federal involvement in handling the incident can be authorized. A list of the hazardous substances is published in 40 CFR Part 302, Table 302.4.

Extremely Hazardous Substances - The EPA uses the term "extremely hazardous substance" for the chemicals which must be reported to the appropriate authorities if released above the threshold reporting quantity. Each substance has a threshold reporting quantity. The list of extremely hazardous substances is identified in Title III of Superfund Amendments and Reauthorization Act (SARA) of 1986 (40 CFR Part 355).

Toxic Chemicals - The EPA uses the term "toxic chemical" for chemicals whose total emissions or releases must be reported annually by owners and operators of certain facilities that manufacture, process, or otherwise use a listed toxic chemical. The list of toxic chemicals is identified in Title III of SARA.

Hazardous Wastes - The EPA uses the term "hazardous wastes" for chemicals that are regulated under the Resource, Conservation and Recovery Act (40 CFR Part 261.33). Hazardous wastes in transportation are regulated by the DOT (49 CFR Parts 170 - 179).

Hazardous Chemicals - The United States Occupational Safety and Health Administration (OSHA) uses the term "hazardous chemical" to denote any chemical which is a physical hazard or a health hazard. Hazardous chemicals cover a broader group of chemicals than the other chemical lists. There is no list of hazardous chemicals, but they are any substance for which OSHA requires a facility to maintain a Material Safety Data Sheet.

Hazardous Substances - OSHA uses the term "hazardous substance" in 29 CFR Part 1910.120, which resulted from Title I of SARA and covers emergency response. OSHA uses the term differently than EPA. Hazardous substances, as used by OSHA, cover every chemical regulated by both DOT and EPA. [36]

A solid waste may be a "listed hazardous waste" if it appears in one or more U.S. Environmental Protection Agency tables that list hazardous wastes. Other solid wastes are "characteristic hazardous wastes" because they exhibit any of the four hazardous-waste characteristics: corrosiveness, reactivity, toxicity, or ability to ignite. If the waste is hazardous, then it must be managed in compliance with the applicable sections of NR 600-685, Wisconsin Administrative Code (DNR Pub SW-232).

[36] Ingham County Emergency Planning Committee, Hazardous Materials Page, http://www.orcbs.msu.edu/AWARE/pamphlets/hazwaste/HazMatdef.html, as of Feb 2004.

State & Regional Events & Trends

State and regional hazardous materials spill events and trends are summarized here to provide insight into the potential risks for Dunn County. Though current data is not readily available, in the past nearly 58 percent of all spills in Wisconsin are petroleum-related; and 49 percent of all spills occur at industrial-related facilities, automotive-related facilities, or on the roadways.[37] Spills at private properties account for nearly twelve percent of all spills. More than fourteen percent of spills each year in Wisconsin are contained and/or recovered before they impact the environment. Surface water spills account for more than fifteen percent, while spills to groundwater occur more than seven percent of the time. The vast majority of reported hazardous materials incidents in Wisconsin result from the loading, unloading, and transportation of hazardous materials.

Based on 2014 and 2016 Wisconsin DNR data, Wisconsin averages almost 1,000 hazardous substance spills every year, with more populated areas experiencing more spills. About one-half of all spills in Wisconsin are petroleum-related; and about one-third of spills occur on roadways. Spills at private properties account for about 12% of all spills and commercial properties account for around another 12%. About 5-10% of spills occur at farms. About one-third of spills each year in Wisconsin are contained and/or recovered before they impact the environment. The remaining spills can impact the environment or become a public health concern through the contamination of air, soil, and water. Spills to surface water or storm sewers account for 15-20% percent, while spills to groundwater occur 5-10% of the time. A majority of reported hazardous materials incidents in Wisconsin result from the loading, unloading, and transportation of hazardous materials. [38]

State & Regional Trends – Hazardous Materials Spills on Transportation Facilities

Recent, detailed information on transportation-related Haz Mat spills was not readily available, but it is expected that past trends are continuing. From 1971 to 2016, Wisconsin had a total of 10,958 reported hazardous materials transportation incidents. This total is comprised of 10,498 highway incidents (95.8%), 266 rail incidents (2.4%), 188 air incidents (1.7%), 2 other incidents (>0.1%), and 0 water incidents (0.0%). The total cost for all reported incidents is approximately $57 million dollars. These incidents included 175 involving a crash or derailment, 68 causing or contributing to personal injury, 59 causing or contributing to an evacuation, 38 closing a major transportation arterial or facility, and seven causing or contributing to a fatality.

Source: National Transportation Safety Board Report, CHI 96 FR 010, Derailment/Hazardous Material Release, Wisconsin Central, LTD, Weyauwega, Wisconsin, August 16, 1997.

Approximately half of the above reported costs ($26.6 million) were from the 1996 Weyauwega Train Derailment. In March 1996, a train consisting of two locomotive units, 68 loaded freight cars and 13 empty freight cars derailed at Weyauwega, Wisconsin. The train included sixteen cars with hazardous materials—seven cars of liquid petroleum gas, seven cars of propane, and two cars of sodium hydroxide. A fire engulfed many of the cars themselves as well as an adjacent feed mill. About 3,155 residents were immediately evacuated, with approximately 2,300 residents evacuated for sixteen days due to the fire and leaking chemicals. Two U.S. highways were also closed as well as several county highways. Additional issues arose when numerous residents illegally began to re-enter the evacuation area to retrieve pets left behind.

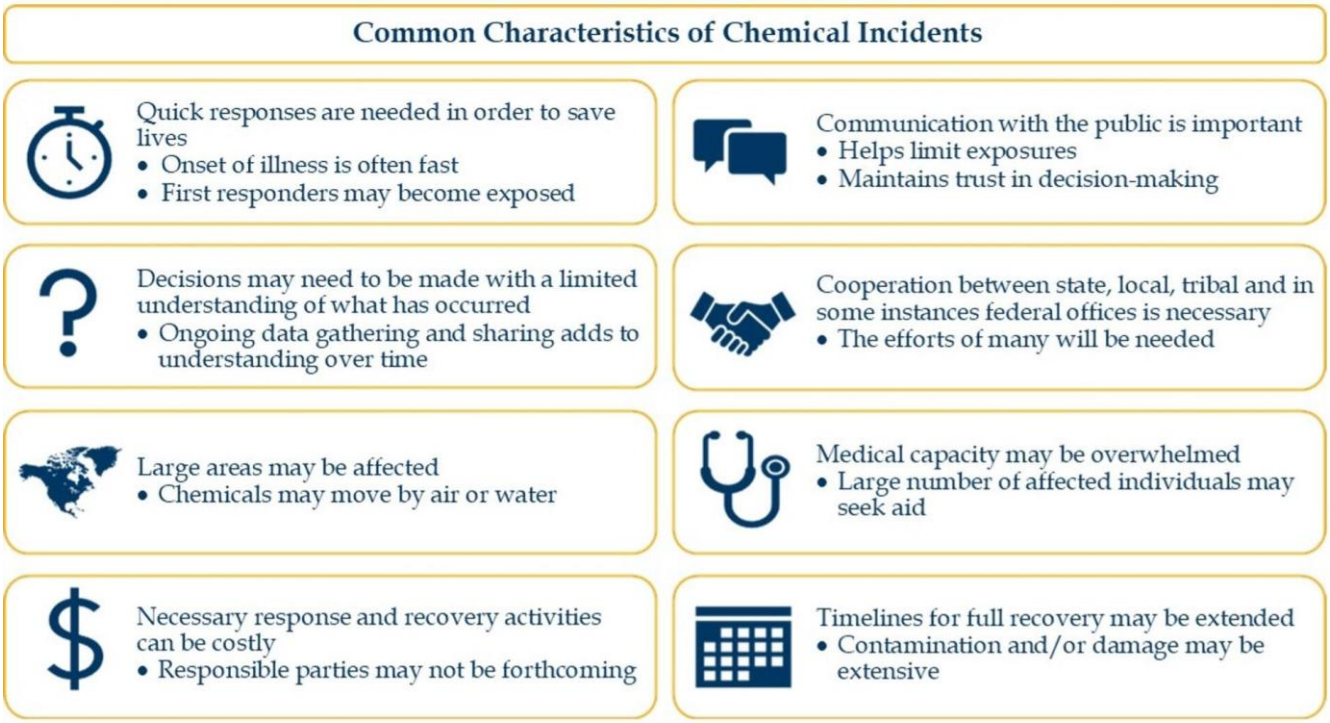
Sometimes, hazardous materials spills can be the result of natural hazard events. For instance, on June 7, 1980, a Chicago & Northwestern train derailed in Chippewa County due to a flash flood which washed out the tracks.

[37] Wisconsin Department of Natural Resources. "Hazardous Substance Spills in Wisconsin". July 2014.
[38] Wisconsin Department of Natural Resources. "Hazardous Substance Spills in Wisconsin", July 2014 and August 2016.

Three cars of #6 fuel oil were torn open, and 86,000 gallons spilled. Containment dikes were built and most of the oil was recovered.

Vulnerability Assessment

Hazardous substances and materials can have a wide variety of harmful impacts to people, property, and the environment. These substances can be in solid, liquid, gaseous, or semi-solid form, which can often be difficult to detect or contain if a release does occur. Impacts may be immediate, as in the case of fire, explosion, or physical harm to bystanders (e.g., fire, inhalation, chemical burns, radioactivity). And some impacts can be longer term, such as degraded water quality, illness among wildlife, corrosion, or increases in health problems (e.g., cancer, birth defects). The magnitude of the vulnerability zone and potential for fire or explosion also varies by substance type (e.g., gas vs. solid) and by environmental conditions (e.g., wind speeds, access to surface or groundwater, temperature). In extreme cases, contamination of buildings and soils can be at such levels as to make a property unusable or uninhabitable for lengthy periods. Evacuation of nearby residents may be needed. Recovery and clean-up costs can also vary widely depending on the type of hazardous material, amount released, and conditions at the site (e.g., soil type, temperature).



Areas of Concern

EHS and Tier Two Facilities

Tier-Two facility reports are submitted annually, by law (SARA Title III), for any facility that is required to prepare or have available a Material Safety Data Sheet (MSDS) for a hazardous chemical present at the facility. EHS (Extremely Hazardous Substances) facilities store and/or use one of over 300 chemicals with extremely toxic properties identified within Title III of SARA. In addition to the MSDS reporting requirements, EHS facilities must cooperate with Dunn County Emergency Management and the Local Emergency Planning Committee (LEPC) to develop an emergency response plan.

The MSDS must identify any hazardous chemical present at the facility at or above 10,000 pounds at any given time or for each extremely hazardous substance (EHS) at or above 500 points (or the threshold planning quality,

whichever is less) at any given time. There are a number of exemptions from these reporting requirements, including retail gas stations, hazardous wastes regulated under the Resource Conservation and Recovery Act, substances used in routine agricultural operations by the end-user, tobacco products, wood products, food products regulated by the Food & Drug Administration, and hospitals.

It is important to note that these facilities are not limited to industry, but include some public water and wastewater treatment facilities. These facilities have no known unique, inherent characteristics (e.g., location, type of construction) that make them any more vulnerable to the natural hazards covered within this Plan when compared to other facilities, and thus were not individually analyzed. However, the hazardous nature of the chemicals and substances used or stored at these locations can pose unique vulnerabilities to local residents and the environment.

Manure Storage and Animal Waste Management Facilities

A study of 300 reported manure incidents in Wisconsin showed that forty percent of manure incidents from 2005 to 2009 occurred on the main farmstead, such as the storage pit overtopping or a line break. About thirty percent of manure spills occurred during transportation between the storage facility and application site. Another thirty percent occurred during or after land application, such as movement following a rain event. The study also stated that there is increasing awareness of risks from snowmelt- and precipitation-driven runoff, which appears to have decreased manure applications on frozen soil. Forty-three percent of the incidents had a surface water impact, though manure released to road ditches was included in this category. Four percent of the incidents in this study resulted in a fish kill.

To discourage spreading in high-risk areas, the Wisconsin DNR provides maps online to landowners showing nutrient management restrictions, winter spreading risk areas, and "safe" manure stacking areas. WDNR also manages the web-based Runoff Risk Advisory Forecast that identifies the daily runoff risk by subwatershed. The Wisconsin Department of Natural Resource (WDNR) has regulatory authority related to nutrient management and water quality and operates a Spill Hotline that dispatches the local Conservation Warden should an event occur. The larger concentrated animal feeding operations are required to have a nutrient management plan and obtain State wastewater discharge permits from Wisconsin DNR prior to operation. The National Resource Conservation Service, Wisconsin Department of Agriculture, Trade, & Consumer Protection (WI DATCP), and UW-Extension provide additional education and support programs regarding nutrient and animal waste management.

Multi-County Commodity Flow Studies

During the planning process, areas and neighborhoods adjacent to the County's rail lines and major highways were the most frequently mentioned risk. In 2012, a *Multi-County Commodity Flow Study* was completed by Five Bugle Training & Consulting, LLC to attempt to provide insight into the types of hazardous materials moving through the region. This study included Chippewa, Dunn, Eau Claire, and St. Croix counties.

An update to the commodity flow study is nearing completion and included the following findings:

- Training – Fire departments reported a wide-range of training, with the most common number of dedicated

training hours being 2-6 hours, covering primarily the Awareness and Operations level.

- Equipment – Fire Departments generally carry absorbent materials and/or mats, spill kits, multi-gas meters, Tyvek suits, containment pools, and self-contained breathing apparatus (SCBAs). Some carry additional equipment. The Chippewa Falls & Eau Claire Fire Departments have the highest level of equipment given that they, together, make up the Regional Type I Response Team.
- 5-10% of commercial truck traffic was carrying hazardous materials
- 44% of observed materials during the study were not found on the Tier II report and are potentially unfamiliar to first responders.
- Approximately 17% of chemicals observed were labeled generically

The February 2024 initial draft recommended:

- Review and assess preparedness measures, including training records and response capabilities.
- Schedule a minimum of annual training appropriate to each fire department, including reviewing chemical properties and types of vehicles transporting HazMat.
- Inventory HazMat response equipment
- Collaborate to ensure that local decontamination equipment and procedures are in place.

Some local stakeholders expressed concern over the limitations of the commodity flow survey since it is a "point in time" visual analysis of placards, which offers limited information, skepticism regarding the compliance with placarding, and the limited information on what is being transported via railroads. For information regarding a specific train, an AskRail application was launched in 2014 for emergency responders to query railcar contents.

Other Factors Influencing Future Losses

Dunn County is growing. As 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.

Mitigation, preparedness, and response can decrease future losses. Strategies include maintaining or upgrading Haz Mat storage equipment and related security as well as maintaining and implementing facility, emergency response, and other Haz Mat plans, with related training and exercises. All fire departments have had some training at the operations level for hazardous materials response.

As needed, the West Central Wisconsin Regional Response Team, based in the Chippewa Falls and the Eau Claire fire departments, can be contacted for additional reconnaissance and research support. This Type I team can also be requested to respond to the most serious of spills and releases requiring the highest level of skin and respiratory protective gear. This includes all chemical, biological, or radiological emergencies requiring vapor-tight Level A gear with self-contained breathing apparatus. Additional support from the Menomonie Fire Department Type III team may also be available. For larger events, a State-level response team is available with support from a variety of agencies including Wisconsin DNR, Wisconsin Emergency Management, and even Federal support. Rail lines, utilities, and larger industries often have their own, internal Haz Mat response teams trained and equipped to various leaves.

M. ACTIVE THREATS

The information below is supplemental to the information contained within Section III.C.xi. of the *Dunn County Hazard Mitigation Plan.*

Defining the Hazard—Active Threats

The U.S. Department of Homeland Security defines **active shooter** as "a person or persons actively engaged in killing or attempting to kill people in a confined and populated area." In most cases, active shooters use a firearm, though they may be using other weapons as well (e.g., explosives, knife), and there is no pattern or method to their selection of victims.

An active shooter incident at a work site can be a type of workplace violence. According to OSHA, **workplace violence** is any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site. It ranges from threats and verbal abuse to physical assaults and, in the case of an active shooter, even homicide. It can affect and involve employees, clients, customers and visitors. An active shooter incident at an educational institution is a workplace violent event that often referred to as targeted school violence.

Targeted school violence is defined by the U.S. Department of Education as "any incident where a current student or recent former student attacked someone at his or her school with lethal means (e.g. a gun or knife); and, where the student attacker purposely chose his or her school as the location of the attack."[39] The Safe School Initiative examined incidents of "targeted violence" in school settings where the school was deliberately selected as the location for the attack and was not simply a random site of opportunity. The term "targeted violence" evolved from the Secret Service's five-year study of the behavior of individuals who have carried out, or attempted, lethal attacks on public officials or prominent individuals. For purposes of this report, targeted school violence will include any incidents of targeted violence, as described above, brought forth by anyone whether or not connected with the targeted school and may not be limited to active shooter threats.

According to the Federal Emergency Management Agency (FEMA), **Civil Disturbance** is defined as a civil unrest activity such as a demonstration, riot, or strike that disrupts a community and requires intervention to maintain public safety. Civil disturbances, like riots, interfere with the normal functioning of a community, can disrupt critical services, and require the actions of law enforcement, emergency services, and/or the military to restore peace. While the vast majority of protest is peaceful, the right of citizens to protest must be balanced against the rights of non-protesting citizens to conduct their own business. Despite the peaceful nature of most protest and civil disobedience, such events are disruptive, can be costly for local governments, and have the potential to degenerate into violence resulting in property damage, injury, and death.

According to OSHA, workplace violence typically falls into one of the following four categories. However, the perpetrator's primary purpose of workplace violence events may not be to harm large numbers of people:

Type I: Criminal Intent. The perpetrator(s) has no legitimate relationship to the business or victims, but the violence is incidental to another crime, such as robbery or terrorism. The vast majority of workplace homicides (85%) are Type I. A workplace may be at a higher risk of Type I violence if the business handles cash or drugs.

Type II: Customer/Client. The violent person(s) has a legitimate relationship with the business, such as a customer, client, patient, student, or inmate. A large portion of the Type II incidents occur in the health care and social services industry, and the victims are often patient caregivers. Less than five percent of all

[39] Combating Targeted School Violence: Inside & Outside Attackers, 2007.

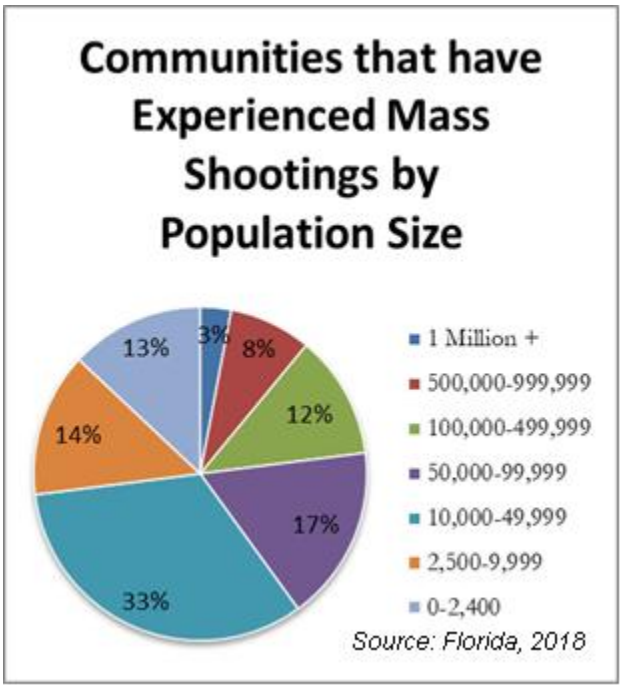
workplace homicides are Type II, though this category accounts for the majority of nonfatal workplace violence incidents.

Type III: Worker-on-Worker. The perpetrator(s) is an employee or past employee that targets another existing or past employee. Type III incidents account for approximately seven percent of all workplace homicides. An employer that is downsizing or reducing their workforce may have a heightened risk of this category.

Type IV: Personal Relationship. The perpetrator(s) usually does not have a relationship with the business but has a personal relationship with the primary intended victim(s). This category includes domestic violence in the workplace and accounts for about five percent of all workplace homicides. Prevention of this type of violence can be very difficult in workplaces that are accessible to the public during business hours, such as retail establishments. A disgruntled partner may not know where their former lover now lives, but they likely knows where he/she works.

Hazard Location

Using Stanford University's data base on Mass Shootings, Patrick Alder at the Martin Prosperity Institute analyzed demographic data of the communities where mass shootings happened from 1971 to 2016.[40] The database included 307 mass shootings in 223 places, occurring between 1971 and 2016. Alder's conclusions were that mass shootings were experienced by communities of all sizes, income levels, and racial diversities.



Although mass shootings were spread across communities of different sizes, a plurality of mass shootings, 33 percent of the total 307 mass shootings, happened in communities of 10,000 to 49,000 people. According to 2015 census data, communities of this size comprised 11.7 percent of incorporated municipal governments in the United States, or 2,281 municipal governments total. This means that 4.4 percent of municipalities of this size (101 total) have experienced a mass shooting. At the same time, 27 percent of mass shootings (83 total) took place in communities of less than 10,000 people. There are 16,470 incorporated places of this size and .5 percent have experienced mass shootings from 1971 to 2016.

Three percent of mass shootings have taken place in cities with populations of more than one million people. The cities of Chicago, Illinois, Los Angeles, California, and Phoenix Arizona have each seen five mass shootings. Killeen, Texas, with a population of 127,921 in 2010, has experienced four mass shootings, including Luby's Shooting in 1990 and the Fort Hood Shooting in 2014.

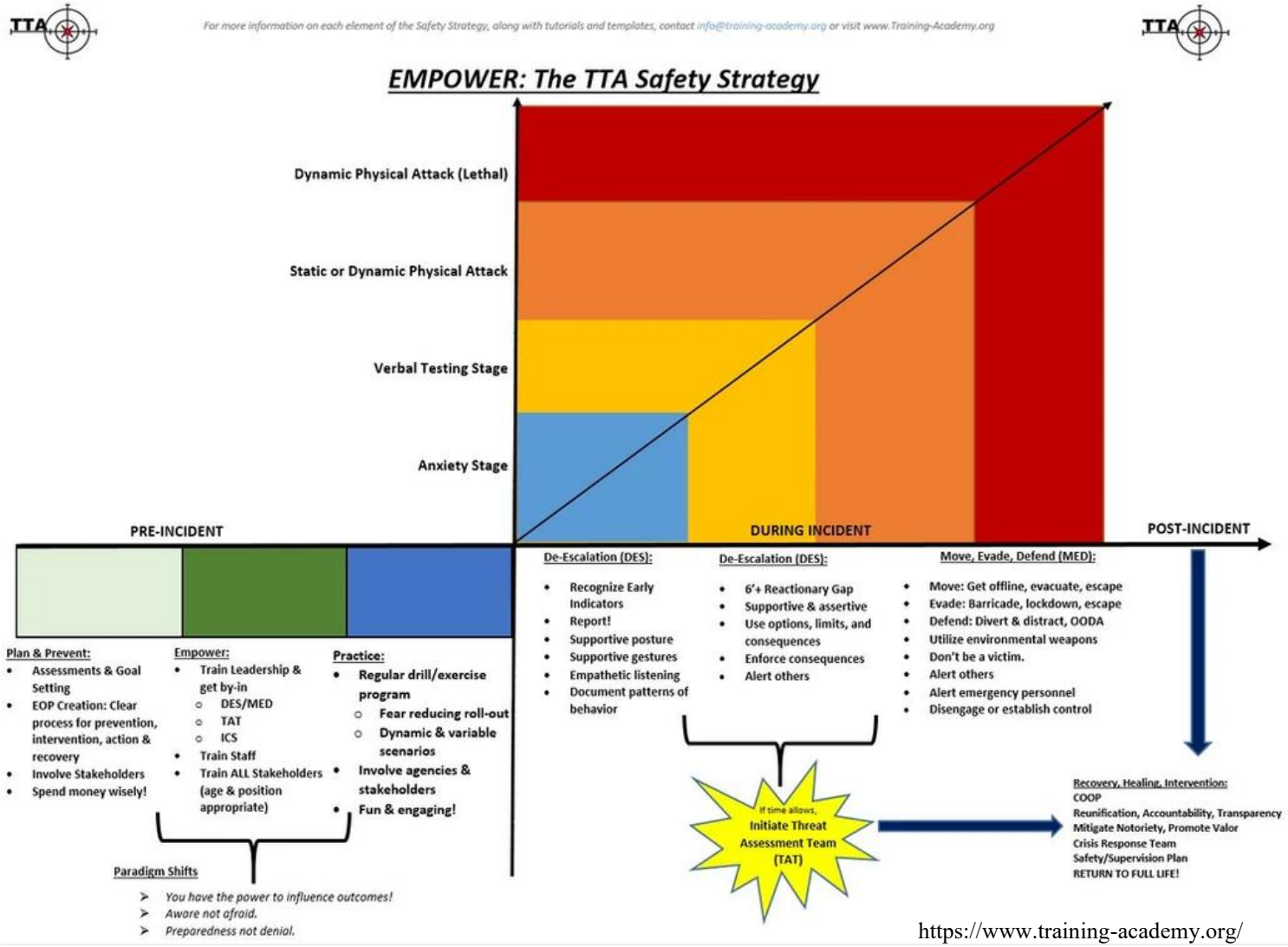
Mass shootings happen in communities across the spectrum of economic circumstances. Only six percent of mass shootings occurred in communities that had mean household incomes of less than $40,000. In general, mass shootings happened in middle class America. The mean household income for communities which had experienced mass shootings was $65,900 while the United Sates mean household income was $77,866. Seven

[40] Boone, a. (2018, March 1). *Where Do Mass Shootings Take Place?* Retrieved March 3, 2018, from City Lab: https://www.citylab.com/life/2018/03/where-do-mass-shootings-take-place/554555/

percent of mass shootings took place in communities with average household incomes of $130,000 or more. Mass shootings occurred in the least racially diverse communities in America as well as in the most racially diverse communities. However, only 24 percent of mass shootings happened in white-minority communities. 76 percent of mass shootings were experienced in communities with majority white populations.

Hazard Extent (Potential Intensities)

The intensity of active threat events are largely measured by the number of individuals impacted (i.e., killed, injured, otherwise threatened). The Tactical Training Academy, a private agency providing workplace safety training & consulting, has created the following escalation and control management matrix for evaluating the evolution of an active threat event and related actions:

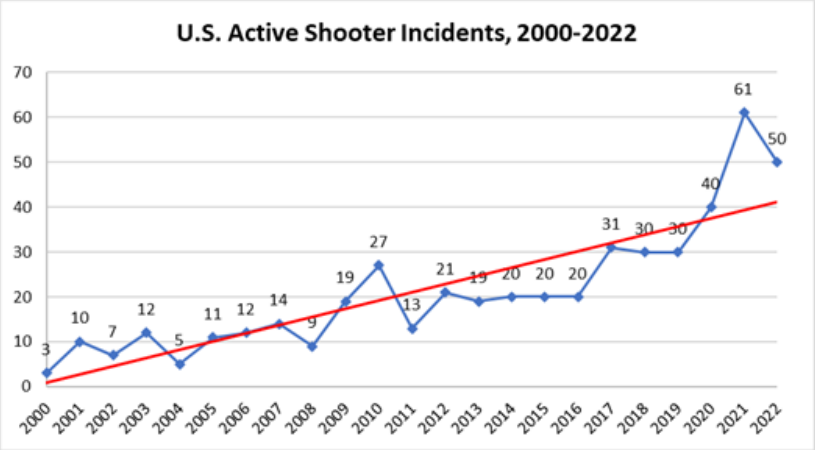


Event History - Active Threats

National Trends

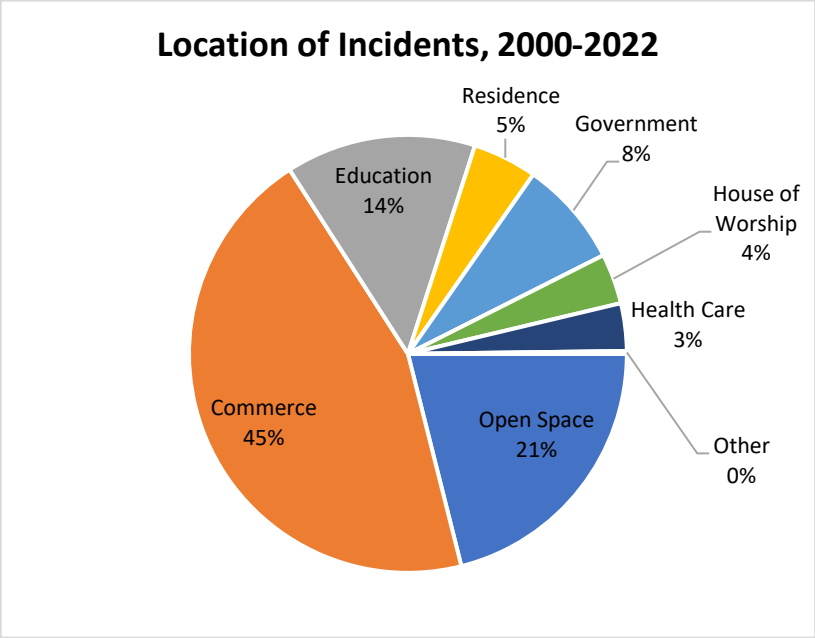
Active Shooter Trends: The Federal Bureau of Investigation identified 484 active shooter incidents in the United States between 2000 and 2022. The number of incidents will vary depending on one's definition of active shooter. For example, the FBI does not include gang or drug violence, or individuals who shoot family members in their own homes. Based on the FBI data, the frequency of active shooter events has clearly been increasing, with an average of 10 events per year from 2000 to 2009. Now almost tripled to 29 events per year from 2010 to 2022.

The largest majority of these 484 events (45%) occurred at commerce locations, such as retail stores, malls, non-profit organizations, and manufacturing plants. While not technically meeting the Federal active shooter definition of occurring in a "confined space," 102 of the incidents (21%) occurred in open spaces, such as on public roadways, in parking lots, or involving multiple locations.



Other notable facts regarding active shooter events in the United States from 2000 to 2022 are:

- While they can occur any day of the week, the largest percentage occurs on Saturdays.
- 95% of shooters are male.
- Motivation or intent can vary (e.g., close relationship, notoriety, upset at government, workplace revenue, religious affiliation, mental instability).
- Most shooters generally share one or more common characteristics that can be warning signs (e.g., depression, dramatic personality swings, makes threats, fascination with weapons).



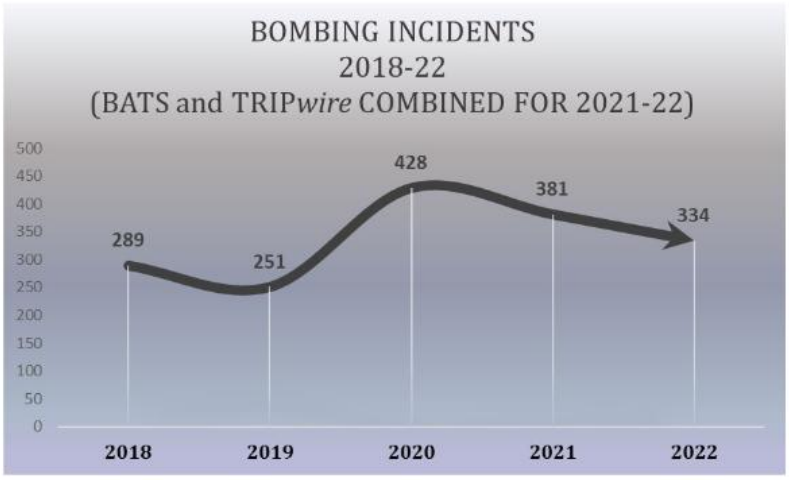
It is important to remember that very few organizations will experience an active shooter incident involving a shooting spree that wounds and kills multiple victims. However, a far greater number will experience other forms of workplace violence [e.g., threats, simple assaults (no weapon), aggravated assaults, robbery, intruder or trespassing, rape].

Explosive Incident Trends: The *2016* and *2022 Explosives Incident Report*, prepared by the United States Bomb Data Center, allows an examination of the long-term incident data reported in the *Bomb Arson Tracking System*

from 2012 to 2022.[41] Explosive incidents refer to bombings, accidental explosions ,and undetermined explosions. Additionally, the report inventories bomb recoveries, reports of suspicious packages, bomb threats, and hoaxes.

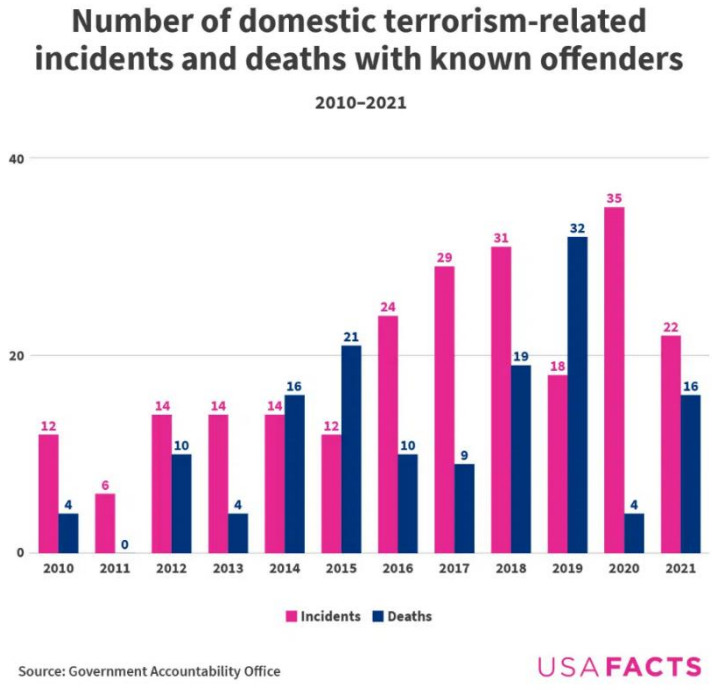
A comparison for the 2016 and 2022 *Explosive Incident Report* data yielded:

- Bombings were about one-third of all reported explosive incidents in the United States in 2022. The graph to the right from the 2022 *Explosive Incident Report* shows a spike in bombing incidents in 2020, which has been slowing increasing since then.



- Of the 2022 bombings, 50% were explosive (non-IED), 32% were IED, 4% were over-pressurized devices, and the remaining were other types or not specified.
- Only two of the 2022 bombings occurred in Wisconsin.
- Reported bomb threats more than tripled between 2020-2022 with a total combined number of 2,538 reported incidents. Assembly, education, and office/business locations were the top three targets of bomb threats during 2022. Educational institutions were, by far, the top threat target, with over half targeting high school/junior high/middle school facilities and about one-third targeting colleges or universities.
- The report did not provide injury and death data specific to bombings. From 2020-2022, there were 88 injuries and 24 fatalities reported each year on average for all explosion incidents. Of these, 7 of the injuries and 0.3 fatalities in an average year were to fire service or law enforcement personnel, while 16.7 injuries and 3 injuries a year were attributed to the suspects.

Terrorism and other Active Threats: Long-term trend data from a single governmental source on terrorism and other types of active threats is limited, and it is likely that some thwarted attacks have not been publicly announced. According to one database.[42] of 201 incidents between 2008 -2016, far-right extremists were behind 115 of the incidents (35% foiled) with nearly a third involving fatalities, while Islamist domestic terrorism resulted in 63 cases (76% foiled) and 13% involving fatalities. Left-wing ideologies, including ecoterrorism and animal rights, were relatively rare with 19 incidents. In recent years, we have also seen the growth of new threats, such as the use of a vehicle as a weapon (e.g., Berlin-December 2016, New York Times Square-May 2017, London Bridge-June 2017, Barcelona-August 2017,



[41] United Sates Bomb Data Center. *2016 and 2022 Explosives Incident Reports.*
[42] https://apps.revealnews.org/homegrown-terror/

New York-October 2017). Such data demonstrates the importance of remaining objective and alert to potential warning signs.

Prevention and Mitigation Alternatives

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. It is advisable to take an "all threats" approach rather than focusing on a single type or profile of active threat. Preparedness and mitigation activities generally fall into one of the following categories.

Education and Awareness
Education is important to recognize that Dunn County and Wisconsin are not immune to active shooter events and to increase public awareness of warning signs as well as what to expect and what do should an event occur. Without education and preparedness, initial reactions are often disbelief, denial, shock, or failure to act. It is also important for bystanders to know how to act once law enforcement arrives on the scene.

Planning and Exercises
Given that the related risks, vulnerabilities, opportunities, and regulatory requirements can vary greatly by location, most preparedness planning occurs at the business, facility, or school district level. Active shooter preparedness planning can encompass:

- preparedness actions (e.g., education, site assessment, security measures, public announcement systems, related employee assistance or mental health programming);
- incident mitigation and response planning and training (e.g., recognizing and reporting a potential threat, de-escalation and conflict resolution techniques, what do we do when the event occurs, regular exercises and training in ALICE techniques and any location-specific procedures, train-the-trainers efforts); and
- post-event actions (e.g., can be an all-hazards approach, employee/client counseling, legal team, public relations, business continuity).

Various guides and materials are available to assist with above, including materials for the general public and pertinent to most place of employment, with additional preparedness and response guides for specific types of businesses and facilities (e.g., health care, schools, retail establishments). The Disaster Ready Chippewa Valley (DRCV) website has a collection of active shooter and workplace violence guides, pamphlets, and weblinks from sources such as FEMA, OSHA, and others at: www.disasterreadychippewavalley.org

Wisconsin State Statute 118

Health and Safety Requirements for Schools

Wisconsin State Statute 118 requires that schools conduct drills in the proper method of evacuation or other appropriate action in case of a **school safety incident** at least twice a year. The public and private school safety drill shall be based on the school safety plan. A school safety plan shall be created with the active participation of appropriate parties and shall include general guidelines specifying procedures for emergency prevention and mitigation, preparedness, response, and recovery. The plan shall also specify the process for reviewing the methods for conducting drills required to comply with the plan.

The school board or governing body of the private school shall determine which persons are required to receive school safety plan training and the frequency of the training. The training shall be based upon the school district's or private school's prioritized needs, risks, and vulnerabilities. Each school board and the governing body of each private school shall review the school safety plan at least once every 3 years after the plan goes into effect.

Site Assessment, Security, and Control
Many of the above guides include ideas and recommendations for security hardening and other control measures. For example, OSHA's *Recommendations for Workplace Violence Prevention Programs for Late-Night Retail Establishments* includes security checklists and workplace control checklists (environmental, engineering, and administrative practices); this guide is available at the above link.

Employee/Client Assistance Programs and Policies
Preventing an incident is always preferred. A robust active shooter strategy for a place of business will include programming and policies regarding access or required referrals to mental health services, encouraging reporting of concerns or suspicious activity in an appropriate manner, tracking/monitoring systems, and other "pre-event" de-escalation techniques (e.g., dealing with a disgruntled client, employee firing). For schools, this includes policies and programming to discourage bullying.

Partnerships and Continued Coordination
Key to all of the above are effective partnerships and repetition. The excellent working relationships between local law enforcement and school administrative staff serve as a model for their entire community. Such training should be extended to other emergency responders, such as fire and EMS as well as any specialized roles (e.g., PIO, 9-1-1 communication, evacuation/sheltering, crowd control). It is important to nurture such relationships and create them before disaster strikes. And equally critical to response (and preventing panic) is repetition in training, exercises, and drills to ensure everyone knows their roles and how to respond.

N. Other Factors Influencing Losses

Each hazard assessment in Section III.C. discusses hazard event probabilities and, should the disaster occur, potential vulnerabilities or losses. While some factors influencing losses were previously discussed for each hazard, there following are three factors that are shared by most of the hazards of concern:

1. Population Growth, Demographic Changes, & New Development. Population growth and new development increases the exposure or vulnerability to all of the hazards (e.g., more chances of losses when a tornado strikes). For some hazards, more people or development increases the risk or probability (e.g., more potential for wildfire ignition or a haz mat spill). An aging population also increases vulnerabilities for extreme heat or power loss event. **Section II.C.** of the main plan document discusses these trends.
2. Long-Term Changes in Weather. Many of the natural hazards may increase in frequency and/or intensity due to longer-term changes in whether, but we are unable to confidently quantify the extent of these changes increase at this time. See **Section III.B.** main plan document 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, floodplain zoning enforces, burying of overhead utilities, and public education initiatives.

SUPPLEMENT 3. MITIGATION CAPABILITIES & STRATEGIES ASSESSMENT

A. CAPABILITIES ASSESSMENT TABLE

The focus of this sub-section is on existing policies and programs related to natural hazards, partnerships, and all hazard mitigation and preparedness activities. This capabilities assessment is not comprehensive and evaluates Dunn County as a whole. Each participating city, village, and educational institution completed an individualized capabilities assessment as part of their respective sub-plans that are provided in **Supplements 5 & 6**

Community Planning and Regulatory Activities				
Mitigation Action	**Yes**	**Some**	**No**	**Notes**
1. Mitigation planning has previously occurred in the County.	x			• County has previously adopted FEMA-approved mitigation plans in June 2007, March 2013, and October 2020.
2. County and communities have incorporated mitigation strategies into their comprehensive plans.	x			• Varies by community, primarily limited to floodplain management and emergency services. • The County, all cities & villages, and the majority of towns have adopted comprehensive plans, though some local plans are out of date. • County Comp Plan is currently being updated, which provided an opportunity to strengthen the relationship with the County's Hazard Mitigation Plan.
3. Construction standards mitigate natural and other hazard risks.		x		• All municipalities enforce State Uniform Dwelling & Commercial Building Codes; the County enforces for most communities. While these codes include standards appropriate for Wisconsin's weather (e.g., design wind & snow loads), State rules limit ability to include some additional mitigation-related standards.
4. Local zoning and subdivision controls mitigate natural and other hazard risks beyond floodplain zoning. (e.g., Are emergency plans or safe rooms required? Long cul-de-sacs avoided? Police or fire consulted during site plan review?)		x		• 13 towns are zoned under County general zoning. Emergency planning/mitigation can be addressed as part of conditional use permitting to extent allowed by State law. No safe rooms or emergency plans required for manufactured home parks or campgrounds. Most campgrounds likely lack such plans. • County subdivision regulations apply to unincorporated towns. Includes some road design standards. Some towns may have their own subdivision ordinances. • A formal process for consultation of police/fire during plan review not established in most cases. • See city and village subplans in Supplement 5.
5. Land information and GIS data is available to accurately delineate hazard risks.		x		• County GIS and land information coordinated through County Information Technology and the Planning & Zoning Divisions. • Countywide GIS data for individual structures (e.g., # stories, value/structure, BFEs) not available for detailed hazard assessment.
6. Improvements or updates to emergency management or services mapping are needed.			x	• No major projects or needs noted.

7. A Comprehensive Land Use Plan has been adopted to maintain healthy County Forest Lands and mitigate wildfire risks.			x	• No county forest lands.
8. Driveway regulations or other actions are used to encourage adequate design and maintenance for access by emergency vehicles.		x		• Driveways regulated by the governmental entity who owns the public roadway being connected to. County has basic standards for private roads/driveways if under county zoning, subdivision rules, or access to County highways. • A number of Fire Departments remain concerned with emergency vehicle access on some driveways due to width, height/tree canopy clearance, condition, or grades, especially in hilly, waterfront, and/or wooded areas.
9. Address signage standards have been adopted for consistency of placement, replacement with flag-style signs in towns, and standards for multiple homes on dead-end roads/drives.		x		• Chapter 23 of County Code of Ordinances establishes a uniform address signage system. Increasing use of flag style signs. General placement guidelines. No special standards for multiple homes on dead-end drives. • Since driveways are often regulated at the town level, there are no countywide policies for multiple structures on private roads and long, dead-end driveways.
10. Community wildlife protection planning or related projects have occurred.			x	• No communities of very high wildfire risk. Other than burning permits, no significant wildfire mitigation other than limited public education by Fire Depts or DNR.

Other community planning and regulatory activities or notes:

- BCEGS participation varies and many local officials were unaware of this program. As part of the 2026 Plan update, more attention on building codes and BCEGS was given, which increased awareness. However, the State of Wisconsin establishes the framework for building codes and limits some mitigation-related opportunities, since Wisconsin has not adopted the most current international code standards, which restricts local municipalities from achieving the highest BCEGS scores. It was not confirmed if Dunn County is participating in the BCEGS.
- A large variety of Federal, State, and local rules and policies are in place regarding hazardous materials planning, use, and reporting. Additional rules, policies, and plans are in place regarding surface and groundwater quality, manure management, etc.
- See Supplements 5 & 6 of city/village and educational institution mitigation activities.
- Also see flood mitigation discussed in the "flood mitigation" table below.

Flood Mitigation

Mitigation Action	Yes	Some	No	Notes
1. Floodplain ordinances have been adopted and communities are NFIP participants good standing.		x		• County floodplain and shoreland zoning applies to all unincorporated towns. County floodplain ordinance being enforced, but not updated to most recent model; planned for winter 2026. • Ridgeland, Downing, and Knapp are NFIP-sanctioned (not participating).
2. Development is strongly discouraged in 100-year floodplains and dam shadows.	x			• Local floodplain zoning and comprehensive plans discourage floodplain development. • All permit applications reviewed to determine whether proposed building sites are reasonably safe from flooding. • County regulates dam shadows/failure areas for certain higher hazard dams.
3. Stormwater management planning and regulation occurs.	x			• State rules pertaining to stormwater management and construction site erosion controls are in place, including construction site erosion control measures under the uniform dwelling code (IHLR 20-25) and WDNR rules (NR 151, NR 216) • As a federally-designated urbanized area, City of Menomonie is required to obtain a MS4 permit to reduce polluted stormwater runoff by implementing stormwater management

				programs with a variety of educational, enforcement, and best practices activities. • Various stormwater plans and regulations exist at County and local city/village/town levels. See Supplement 5 for more specific city/village actions.
4. Stormwater system improvements have been completed.	x			• Ongoing. Significant improvements have been made by County and communities, especially to culverts and drainage systems along roadways. Some of the flooding "hotspots" identified in previous mitigation plans have been addressed as discussed in the flooding assessment of Section III.C. • See Supplement 5 for the flooding-related discussions in the individual city and village subplans.
5. Flood acquisition, floodproofing, and/or flood elevation projects have been implemented.		x		• Many local parks are located in floodplain areas, but no recent flood mitigation projects identified, except for bank stabilization or revetment projects.
6. Dams offer flood control, dam shadows are mapped, and dams are in good repair.		x		• While existing dams offer some flood control, some larger dams are managed primarily for power generation. • No dam condition concerns noted. Rock Falls Dam removed, which was greatest concern in past mitigation plans. McKnight Creek area flood-control dams are aging, but inspected in 2019 and in good repair. • Daim failure maps mapped and regulated for high hazard dams, except FERC-regulated dams.
7. Flood monitoring systems are used.		x		• National Weather Service observes, predicts, and provides warnings. • No specific flood gauge needs identified, though interest in exploring opportunities to improve flood warning systems.
8. Flood emergency planning has occurred.		x		• Primarily limited to dam failure. Emergency action plans for large and high-risk dams on file at the County Emergency Management and Emergency Communications Center. • Emergency plans for County dams reviewed regularly, and updated as needed. • Very limited number of sandbags available at County and in some communities. • Dam failure exercise being planned by Xcel Energy. County Emergency Management has participated in past Xcel dam failure exercises.
9. Public education regarding flood risks and insurance has occurred.		x		• Largely limited to plan review and permitting processes for new development.
10 Communities participate in the NFIP Community Rating System.			x	• There are insufficient concentrations of floodplain structures to make CRS participation feasible; costs outweigh benefits.
11. Other special flood prevention or mitigation activities occur.		x		• None identified.
Other flood mitigation activities or notes: • See Supplement 5 for city and village mitigation activities related to flooding. • County Planning and Zoning Administrator serves NFIP Coordinator for Dunn County; not formally appointed. • The Dunn County *Land & Water Resource Management Plan* includes discussion and recommendations on the importance of soil health, erosion control, stormwater management, and other best land use management practices that can protect water quality and mitigate the impacts of severe weather and climate trends, including flooding. Increasing awareness among the agricultural community that more resiliency is needed due to increasing heavy rain events and drought.				

Other Physical Mitigation Projects

Mitigation Action	Yes	Some	No	Notes
1. Community safe rooms have been designated or constructed.		x		• See Supplements 5 & 6 for city/village, and public educational institution discussion. • Only Wheeler has formally designated public shelter constructed specifically to serve as a safe room. Some other locations used as storm shelters, but not hardened to safe room standards.
2. Power lines have been buried in some areas prone to outages.	x			• Continuing; not as part of grant-funded projects. See long-term power outage assessment in Section III.C..
3. Regular tree trimming near power lines occurs.	x			• Electric providers do a good job of regular tree trimming near power lines.
4. Snow fencing, berming, crop rows, or other efforts are used for drifting in prone areas.	x			• Some snow fencing and "berming" of snow used by County Highway Department. • Some farmers participating in the WDOT program to leave rows of standing corn along drift-prone highways; participation has been low.
5. Special traffic calming, traffic controls, and/or notifications system have been installed on highways.	x			• Some on-ramp gates and six remote monitoring cameras have been installed on I-94.
6. Emergency power generators have been obtained for critical facilities.		x		• Improving among public facilities, including new generator at County Judicial Center and Menomonie Communications Tower, but substantial needs still exist. See Supplements 5 & 6 for city/village, and public educational institution discussion.
7. Emergency fuel agreements have been executed for critical facilities.		x		• No formal inventory, but believed to be limited.
8. Convenient access to water supplies is available for fire protection.	x			• Good overall. Fire departments have convenient access to water supplies. No specific dry hydrant needs identified. • See Supplement 5 for city and village discussion.
9. Warming or cooling centers have been designated.			x	• No formal list of warming and cooling centers or related agreements exists. Opportunities to revisit MOUs and coordination with partner organizations and through 2-1-1. • Libraries and municipal buildings often identified as possible places, though most lack generators. See Supplement 5 for city and village discussion. • Interest by some villages in including such centers as part of a safe room grant project.

Other physical mitigation projects or notes:

- See Supplement 5 for a summary of city and village mitigation activities related to the above.
- The County and many municipalities maintain capital improvement or road improvement plans that incorporate mitigation projects and emergency equipment/facilities. Streets, utility, culvert, and stormwater management projects are commonly included in such plans.
- In 2025, Dunn County partnered with City of Menomonie to host a two-day Clean Sweep Program, which collects and disposes of hazardous waste for residential and small quantity commercial. Pharmaceutical drop-off available at the Sherriff's Department.
- Some schools and other critical facilities have undertaken some security hardening measures in recent years, but no comprehensive preparedness assessment available.

Emergency Operations Planning and Training

Mitigation Action	Yes	Some	No	Notes
1. The County has an Emergency Operations Plan (EOP) with annexes for various hazard events. There is strong coordination between the County's EOP and Public Health Emergency Preparedness Plan (PHEPP).	x			• County EOP is reviewed and updated regularly. Includes key roles and responsibilities. A cyber-attack annex is being added to the County EOP. • PHEPP uses a flexible, all hazards approach. Certain components of this plan are being updated. • Continuing collaboration between EOP and PHEPP. PHEPP includes a communicable disease section and is discussed at length in Supplement 2.B. • County has an active shooter plan for County facilities with regular staff training. • County Emergency Management has developed a 3-year Integrated Preparedness Plan (IPP) that incorporates components of the Mitigation Plan.
2. The cities, villages, and towns have updated EOPs or emergency policies.		x		• Varies, but improved since 2020. It is believed that most have plans, but some require updating, especially to contact info & roles. • See Supplement 5 for city and village discussion.
3. The County and municipal EOPs are regularly exercised.		x		• Regular training organized by County Emergency Management, but not all municipalities regularly test their emergency plans; many have some type of drills. • See Supplement 5 for city and village discussion.
4. The County EOC has been activated or exercised in the last 5 years.	x			• EOC has been tested as part of regular exercises and partially activated during recent storm events. • Prairie Island Nuclear Generating Station functional exercise in July 2018 included EOC activation for an EPRCA event and agricultural quarantine.
5. HazMat planning and training occurs and gear is available.	x			• County emergency response protocols in place. Regular training organized by County Emergency Management. • Menomonie Fire is Type III Response Team. Eau Claire/Chippewa is Type I Team. • Industrial facilities and hospitals doing a good job of on-site HazMat exercises and related monitoring. • Participated in recent Commodity Flow Study. See HazNat discussion in Section III.C.
6. Individuals identified in EOPs, including elected officials, have a minimal level of ICS training suggested for their roles.		x		• Minimum NIMS/ICS standards for non-emergency services encouraged in previous County EOP. Additional training required or suggested depending on role. Federal minimum standard is ICS 100,200, 700, & 800 for all response and support personnel. • Varies. Most emergency personnel and responders and many public works staff meet minimum standards. • Annual training on ICS 300 & 400 usually available in region. • More training for elected officials and P.I.O./crisis communications suggested by some interviewed
7. Other stakeholder groups participate in exercises.		x		• Increasing participation by other partners (e.g., different County departments, VOADs, health care/social services agencies, utilities), so they understand their potential roles during a disaster and strengthen their own plans, continues to be a comment received from stakeholders during the plan update.

8. The County and some municipalities have developed continuity of government plans.		x		• County has adopted a basic continuity of government plan. • Most municipalities do not have a COOP/COG plan, but most have off-site data back-up and some have other continuity components. • Disaster Ready Chippewa Valley has a basic continuity planning template that could be utilized.
9. Evacuation and access control planning has occurred.		x		• Sheltering a component of the County Emergency Operations Plan. • State of Wisconsin (WEM) has been piloting a private-sector credentialing program.
10. Debris management sites have been designated.		x		• Largely limited to woody debris. • Municipalities encouraged to thinking about as part of 2026 Plan update; see subplans for status. Sites may be available for vegetation but have not been assessed for other debris. WDNR may be able to provide guidance.
11. Emergency planning and periodic exercises are required for large festivals, fairs, and gatherings.		x		• Some basic security and emergency plans developed by individual Fairgrounds users; no exercises required. More formalized planning exists for UW-Stout functions.
12. Planning for pandemics has occurred.	x			• See communicable disease assessment in Supplement 2.B. for discussion on the Public Health Emergency Preparedness Plan.
13. Highway and public works department have adopted billing rates for equipment.	x			• County Highway Department has adopted rates or State DOT rates. • Discussed with city and villages as part of the 2026 Plan update; see sub-plans for status.
14. Policies and training have been completed for volunteer management.		x		• Basic policies and protocols are part of County Emergency Operations Plan and Public Health Emergency Preparedness Plan. • Credentialling in place. • Disaster Ready Chippewa Valley hosted a volunteer management seminar in Fall 2016.
15. Policies and training have been completed for active threats and workplace violence.	x			• County government conducts periodic active shooter training for all employees and as part of orientation for new hires. • Additional law enforcement training and response has occurred for general threats, including outreach to community organizations and businesses. • Basic security and emergency plans required by Fairgrounds users.
16. School Districts and post-secondary institutions have completed active threats training and have taken actions to mitigate risks.	x			• Varies by institution. All have had some type of training. See Supplement 6.

Other emergency operations planning and training activities and notes:

- See Supplement 5 for a discussion of city and village emergency planning and training.
- Emergency management and hazard mitigation planning is often a low priority for communities, with the exception of maintaining basic fire, police, fire responder, and ambulance services. Local emergency response plans can quickly fall out of date due to turnover of local government officials and these plans (and associated maps, resident information, etc.) may not be readily available to local officials should a disaster occur. It is also fairly common that hazard mitigation and emergency response issues are not integrated into other local planning and regulatory efforts. Education and outreach to cities, villages, and towns on emergency management issues is an ongoing effort.
- Similarly, the turnover in elected officials necessitates continued, periodic outreach to local officials on resources, public safety agencies, mitigation issues, and recent events. The communities, local emergency services, and County emergency management

personnel should be commended for their emergency planning efforts. During the 2026 Plan update, it was noted that many local officials and key staff were participating in mitigation planning for the first time and others were retiring soon.

- Continuing to improve coordination between the County's Public Health Preparedness Plan and the County Emergency Operations Plan. Both have annexes for certain types of events, including the 15 core public health standard capabilities. See communicable disease subsection in Supplement 2.B.
- County participates in Federally required training for Prairie Island Nuclear Generating Facility every eight years.
- Cyber-security preparedness has increased since 2020 Plan. County and many communities now have cyber-insurance. See cyber-security assessment in Section III.C. for a discussion on related mitigation.

Emergency Notification and Communication Systems

Mitigation Action	Yes	Some	No	Notes
1. Emergency communications in the County is centralized.	x			• The Dunn County Emergency 9-1-1 Communication Center serves all police, fire, and rescue calls countywide and enhanced 9-1-1 system is in place.
2. Gaps or weaknesses in emergency communications and equipment have been addressed.	x			• Much improved compared to when narrowbanding was originally implemented, though some gaps in service in service exist, especially for cell phones and in hilly and rural areas. Many public works departments rely on cell phones, but inconsistent in approach.
3. Outdoor storm sirens are used for notification of severe weather warnings. Any coverage, power, procedural, or educational concerns?	x			• 12 emergency alert sirens in County activated by the County 911 Communications Center. See tornado assessment in Section III.C. • Some interest in additional coverage in populated areas of unincorporated towns. See Supplement 5 of city and village siren and notification discussion. Some sirens are aging and/or lack battery back-up/emergency power • Ongoing education is important. Some of public do not understand warning sirens or expect that the sirens will be heard indoors. • Some of the public do not understand warning sirens or expect that the sirens will be heard indoors. Good information at County website.
4. NOAA All Hazard Radios or other notification equipment have been distributed.		x		• No larger-scale, formal program implemented, though some interest in NOAA radio distribution project for targeted populations. Encourage CodeRed sign-up as an alternative.
5. A reverse-911 or similar GIS-based notification system exists.	x			• County has access to agencies with IPAWS authority for emergency alerts, reducing the need for the public to participate in auto-dialer mass notification systems. • County utilizes a RAVE mass notification system.
6. Social media and the Internet is used for emergency notification and preparedness education.	x			• Helpful preparedness information and web links are available at the County Emergency Management and Public Health webpages, including a new Hazard Dashboard of historical events and current threats. • Sheriff's Department Facebook page used to share emergency notification and preparedness information.
7. An active ARES/RACES group exists in the County.	x			• Formal role in County EOP emergency communications procedures with designated areas within the County EOC.
8. The County has an active Skywarn Storm Spotters program.	x			• Hosted by County E.M. with assistance from National Weather Service and ARES/RACES.
9. Railroad bridges, crossings, and sign posts have been mapped.			x	

Other emergency notification and communications systems and notes:
- Great Rivers 2-1-1 is available as a public source of information during emergencies.

Other Educational, Outreach, and Preparedness Activities

Mitigation Action	Yes	Some	No	Notes
1. Public education occurs are part of severe weather awareness week and during other seasons.	x			• Largest outreach by County Emergency Management via press and community organizations during Tornado & Severe Weather Awareness Week in April as well as National Preparedness Month. • Additional press releases during times of elevated risk.
2. Outreach to seniors and special needs populations occurs.	x			• County ADRC works with County Emgy Mgmt to on preparedness-related outreach through the ADRC newsletters distributed monthly. A coordinated preparedness course commenced in 2025. • When clients join ADRC Nutrition Program, client intake/emgy contact info completed that can be valuable during a disaster event. • ADRC's meal sites and home-delivered meals are an excellent opportunity for outreach and communications. Meal sites can be a valuable resource during event recovery. • See Section 2.C.. for a related discussion in the context of a long-term power outage.
3. Outreach and education to area businesses occurs.		x		• Involve some industry and critical facilities in exercises, depending on the scenario. • Disaster Ready Chippewa Valley provides private-sector preparedness and continuity planning education and encourages private-public partnerships.
4. Outreach to the agricultural community occurs.	x			• Local UW-Extension staff, Farm Services Agency, NRCS, and County Land & Water Conservation work with area farmers to educate on the mitigation of various hazard threats (e.g. winter kill, drought, manure/chemical storage). • Cost sharing may be available for spill containment and conservation projects. See notes at the end of this subsection for Farm Service Agency risk management assistance programs.
5. Staff from FSA, NRCS, Co. Land Conservation, and UW-Extension meet periodically to discuss mitigation opportunities, education needs, and damage assessment procedures.		x		• Good cooperation on various agri-related topics, but no formal team established or regular meeting schedule specifically regarding emergency preparedness, mitigation, or disaster recovery. • "Team" is activated during times of disaster as needed with FSA or UW-Extension typically taking the primary lead with support from others as needed.
6. Soil health and shoreland best practices are promoted in the County to help mitigate flooding impacts.	x			• Increasing emphasis on such techniques and best practices by County, regional, and State staff with partners such as Extension and the Red Cedar Watershed Coalition. • Addressed as part of County resource conservation plan and watershed plans. • County and State rules in place regarding manure management.
7. Educational efforts related to forest management and wildfire has occurred.			x	• Not an intensive fire protection area, so public educational largely limited to burning permits.

Other educational, outreach and preparedness activities and notes:

- Educating elected officials on roles, responsibilities, and basic ICS is a challenge given turnover. Such education is not on a regular schedule. May be an opportunity to coordinate such with a regular review and, if needed, update of municipal emergency plans.
- ADRC has valuable resources during a disaster. Not only do their drivers and staff have relationships with seniors, but they also have access to meal sites with kitchens, ADA-equipped vehicles, and a large volunteer network. Including ADRC during training and exercises is an important opportunity.
- For agricultural losses, the USDA's Farmer Services Agency (FSA) offers Multi-Peril Crop Insurance and the Non-Insured Crop Disaster Assistance Program to assist with crop losses for reasons beyond a farmer's control. High crop insurance participation is required for certain USDA program eligibility, though concerns expressed over long-term sustainability of these insurance programs. On the livestock side, FSA has: (i) the Livestock Indemnity Program, which can allow for eligible producers to receive a per head payment on eligible livestock losses due to approved adverse weather events; (ii) the Emergency Livestock Assistance Program, which offers assistance with feed losses and additional feed expenses due to eligible adverse weather events; and (iii) the Livestock Forage Disaster Program, which is available in drought situations, but less commonly used in Wisconsin. Additional information on these and additional less commonly used programs are available at the FSA website.

Mutual Aid and Other Partnerships

Mitigation Action	Yes	Some	No	Notes
1. Mutual aid between local law enforcement agencies exists and meet regularly.	x			• Statewide law enforcement mutual aid.
2. Mutual aid between local fire departments and first responders exist and meet regularly.	x			• Countywide MABAS adopted. Quarterly Fire Chiefs Association meetings.
3. Mutual aid between local public works & highway departments exist and meet regularly.		x		• A variety of mutual aid exists, but most of such agreements are informal (handshake rather than written). No countywide agreements. No formal, regular countywide meetings. • See Supplement 5 for city and village discussion.
4. Public health partnerships exist.	x			• Good communication between County Public Health and County Emergency Management. • County and local medical facilities also participate in the Northwest Wisconsin Healthcare Readiness Coalition and the Western WI Public Health Readiness Consortium.
5. Public-private partnering occurs.		x		• Some businesses are represented on LEPC and participate in exercises. Excellent P3 partnering as part of Public Health Preparedness Cmte, Medical Reserve Corps, and through VOADs. • Some local businesses have participated in ICS 300 training. • Disaster Ready Chippewa Valley, a 501(c)3, is a private-public partnership championing collaboration, preparedness, and resiliency in the County. Participation by Dunn County businesses has decreased over time. • Electric cooperative provides training for Fire Depts and other educational efforts.
6. Intergovernmental preparedness and mitigation planning occurs across county lines.	x			• Regional WEM Office provides multi-county support and participates on LEPC. • Mitigation planning and other support also available through West Central Wisconsin Regional Planning Commission. • Also note partnerships in #4 above.
7. VOADS are active in the community and participate in preparedness planning and training.	x			• Very good relationships with local VOADs, including American Red Cross, Stepping Stones, and Salvation Army. • Many VOADs are experiencing decreases in volunteer pools. • Red Cross coordinates recovery shelters and is on the LEPC.

8. Support is provided to area educational institutions for preparedness planning and training.	x			• Dunn County Emergency Management, Public Health, and local municipalities have good working relationships with school districts and post-secondary institutions. • Exercises held regularly with UW-Stout. • Technical college provides required training for local emergency responders.
Other mutual aid and partnership activities and notes: • Housing authorities, community action programs, long-term care facilities, and houses of worship are important partners. • Electric cooperatives can request mutual aid assistance through ROPE (Restoration of Power in an Emergency). • Newer Federal CMS rule required additional emergency preparedness for health care providers receiving Medicare and Medicaid. Since the 2020 Plan, it is expected that all facilities are now in compliance with these requirements, but it may be valuable to review these plans with key resources to ensure that expectations are feasible. • Some local volunteer EMS and Fire Departments expressed growing concerns with the ability to attract volunteers and have a sufficient number of volunteer responders available during daytime work hours. Increasing training requirements are also making it more difficult to attract and retain volunteer responders.				

B. Progress on 2020 Mitigation Plan Recommendations

The following is a brief status update for the County-level mitigation projects requiring significant resources & high-priority actions recommended in the 2020 *Dunn County Multi-Hazard Mitigation Plan.* As discussed in the 2020 Plan, the availability of resources and changing priorities affect implementation. The 2020 strategy list was comprehensive, and there was not an expectation that all strategies would be fully addressed within five years' time. The city/village and educational institution sub-plans in **Supplement 5** and **6** reviews mitigation activities for each participating community.

2020 Plan Strategy	Progress
Flood-Related Projects & High-Priority Strategies	
Continue to monitor, study, and address riverine/lake (overbank) flooding, stormwater and flash (overland) flooding, groundwater flooding, and bank erosion hotspots in the County as identified in the flood assessment of the Hazard Mitigation Plan. Potential projects include, but are not limited to: creation/expansion of flood/stormwater storage areas, expanded flood storage through dredging, the installation or re-sizing of culverts, the creation or improvement of drainageways, bank stabilization, and other nature-based solutions, such as the protection of natural drainage and retention areas.	Improvements to roads and stormwater managements systems are continuing across the County and many hotspots identified in past plans have been addressed. Dunn County utilized FEMA grant funding in 2012 to mitigate a landslide threat. The Village of Colfax completed a more recent landslide stabilization project exacerbated by flooding that was identified as a need in the 2020 mitigation plan.
As opportunities arise, pursue hazard mitigation grant funding to acquire, relocate, or floodproof structures and properties with an overbank, overland, groundwater, or bank erosion flood history, most at risk of related flood damage, and/or following a flood event in which significant damage occurs, if the landowner agrees to participate	
Explore a grant-funded initiative to educate the public and elected officials of flood risks, flood insurance, and alternatives to mitigate stormwater runoff (e.g., soil health, erosion controls, rain gardens, low-impact development). Especially target those municipalities with the greatest assessed improvements in or near floodplain areas.	No action.
Continue to enforce County and local floodplain regulations to: discourage future floodplain development and the storage of hazardous materials in floodplains; require dry land access for new structures; limit development in dam shadows; and maintain natural flood storage areas. (High Priority)	Ongoing.

Continue to maintain dams, dam emergency operating plans, and the mapping of hydraulic shadows for large and high-hazard dams. Discourage development in the hydraulic shadows (dam failure floodplains) of dams. Encourage residents and businesses within or near dam shadows to sign-up for the Code Red emergency notification system. (High Priority)	Maintenance & planning for dams ongoing. The County regulates the hydraulic shadow of 5 dams under floodplain zoning. Many of the dam shadows are now available in GIS format. No related, targeted effort for Code Red to date.

2020 Plan Strategy	Progress
Severe Weather Projects & High-Priority Strategies	
Subject to landowner and/or community interest, pursue grant funding to make cost-sharing available for the installation of safe rooms (storm shelters) at mobile home parks, campgrounds, RV parks, recreational properties, slab-on-grade residential developments, and other areas and communities where no existing shelter alternatives exist. Explore grant funding for a safe room at the Fairgrounds/Recreation Park and other County parks. Implement an educational initiative targeting campgrounds, resorts, RV parks, and mobile home parks to encourage emergency planning, use notification systems, and consideration of potential mitigation grant funding for safe rooms.	No related grant projects or new, targeted educational efforts pursued. Continuing interest expressed during 2026 Plan update.
If funding opportunities become available, work with communities to pursue grant dollars for emergency power generators for critical facilities and emergency operations centers in Dunn County.	More generators have been installed since last plan, but not part of a coordinated grant-related effort. New generators installed at Judicial Center and Menomonie communications tower.
Continue to work with local power providers to bury overhead electrical lines in areas prone to outages due to falling trees/limbs or high winds or for service to critical facilities. For areas prone to flooding, transformers or other such power infrastructure may require floodproofing, elevating, relocation, or other flood mitigation.	Lines increasingly buried as part of new development or in areas prone to outages, but no mitigation grant-funded projects. About 45% of Dunn Energy lines are now buried compared to about 30% in 2019.
Encourage households with persons having special needs that may be uniquely at risk during a power outage or disaster (e.g., oxygen, dialysis, seniors living alone) to develop an emergency contact plan. Encourage these households to sign-up for the Code Red system and to notify their electric provider to be added to their emergency contact lists.	CodeRed is operating properly again. These topics covered as part of Emergency Management and ADRC preparedness course for seniors begun in 2025.
Support the efforts of County Land & Water Conservation staff, NRCS, and UW-Extension to promote nutrient management, soil health, irrigation well efficiency improvements, and other best practices that can help reduce flash flooding, protect groundwater, and make croplands more resilient to drought and wind erosion.	Strong multi-agency support continuing as guided by the County Land & Water Resource Management Plan and other plans.
Other Projects & High-Priority Strategies	
Work with critical infrastructure to explore opportunities to raise awareness of cyber security threats, the importance of employee education to mitigate these threats, and available resources to assist with vulnerability assessment. (High Priority)	No formal initiative organized. Emergency Management is preparing a related Emergency Operations Plan.
Continue to work with emergency response partners to improve emergency communications coverage, interoperability, and mobile equipment. (High Priority)	County continues to coordinate efforts and radio study completed in 2024. Coverage remains the primary challenge. Improvements have been made and additional upgrades planned for 2027-2028.

Subject to available funding, update the 2012 Commodity Flow Study to provide a better understanding of the types of hazardous materials being transported by highway and rail in Dunn County.	Completed. Participated in a multi-county commodity flow study completed in 2024.

C. Evaluating Mitigation Strategy Alternatives

i. Evaluating & Prioritizing the Mitigation Alternatives

The Plan Update Steering Committee identified the following criteria for the evaluation and prioritization of the mitigation alternatives:

- For the hazards being addressed:
  - Event frequency or the probability of reoccurrence
  - Protection future impacts/vulnerabilities
- Population & Demographics. Does the strategy serve an at-risk population or community need?
- Effectiveness of the strategy
- Costs vs. benefits. What will be the most cost-effective solution?
- Are resources available to implement that strategy?
- Political/social consideration, community expectations, and balancing the costs with other local priorities.

The above criteria are recommended for use by all plan participants (i.e., cities, villages, educational institutions, electric cooperatives) in the selection and prioritization of their mitigation actions.

ii. Identifying & Selecting the Mitigation Actions

Identifying and evaluating the alternatives and selecting the mitigation strategies for inclusion in this plan was a multi-step process generally described here:

#1 A comprehensive range of alternatives to meet the plan's vision and goals were considered during the planning process. A variety of alternative mitigation strategies were included in the Mitigation Toolbox in the appendix of the County's 2020 Mitigation Plan. The alternatives in FEMA's *Mitigation Idea* resource guide from January 2013 were also considered.

#2 From this comprehensive list and suggestions identified during the planning process, a range of specific mitigation actions to address the current and future hazard vulnerabilities or to strengthen mitigation capacity were identified during the key stakeholder interviews, meetings, and surveys during the plan update process.

#3 County-Level Strategies.

a. Through discussions and a survey process, the Steering Committee analyzed and prioritized the County-level strategy alternatives using the previous criteria. More specifically, each Committee member was asked:
   - Is the strategy a high priority? What timeline do you recommend?
   - Is the strategy feasible or should it be excluded from the plan?
   - Analyze the priority based on the previous criteria; consider the costs vs. benefits.

- Provide any additional suggestions, strategy wording or focus, resources, or responsibilities.

b. The results of the Steering Committee's analysis were then discussed with some key stakeholders and reviewed by the Steering Committee meeting to finalize the recommendations and priorities. The final draft strategy recommendations, as part of the overall plan were available for comment by County staff, stakeholders, and the general public.

D. Recommended County-Level Preparedness Actions

As noted in Section V.C. of the main plan document, this sub-section includes preparedness (non-mitigation) strategies that were identified during the planning process and prioritized by the Plan Update Steering Committee. **The following list of preparedness strategies is not comprehensive and, generally, does not include current plans, programs, and initiatives.** These are potential recommendations in addition to existing County plans and programs, such as the County's *Emergency Operations Plan* and the *Public Health Emergency Preparedness Plan* as well as the preparedness activities of many other public, private, and nonprofit partners.

Preparedness Strategy Alternatives	Priority
Planning	
1. Continue to update and maintain the Dunn County Continuity of Government Plan for essential services and critical business functions, including an "umbrella strategy" that ties individual departmental plans together. Evaluate the infrastructure and capacities of back-up locations from which operations would be continued if primary offices were unavailable.	High
2. Continue to regularly review and update the Dunn County Emergency Operations Plan and its annexes. Explore the creation of annexes for new or additional threats, such as cyber-attack, nuclear accident, and pipeline spill/explosion.	Med-High
3. Work with Dunn County Economic Development Corporation to encourage local businesses and organizations to create basic preparedness and continuity of operations plans, including efforts to encourage employee preparedness at home. Disaster Ready Chippewa Valley may be able to provide presentations and materials.	Med
4. Advocate for intergovernmental collaboration and regional workshops on strategies and available resources for replacing aging fire/EMS equipment, addressing volunteer department staffing challenges, and exploring shared service arrangements.	Med-High
5. County Emergency Management should continue to maintain a current status list of city, village, and town Emergency Operations Plans (EOPs) and encourage communities to practice or drill their EOPs regularly.	High
6. Encourage local officials, public works personnel, and key municipal/county staff with an emergency operations or response role as identified in local Emergency Operations Plans to have a minimum of Incident Command System (ICS) 100, 200, 700, and 800 training, with additional training for any specialized roles, such as Public Information Officer (PIO).	Med
7. Encourage local units of government and emergency response agencies to consider: (1) adopt equipment billing rates or the WDOT rates; (2) ensure that existing mutual aid agreements contain necessary language to qualify for FEMA grant reimbursement; (3) engage local fire and law enforcement during community planning and site plan review; (4) obtaining their ISO Building Code Efficiency Grading Score, and (4) adopt written mutual aid agreements for public works support and/or consider a countywide public works mutual aid agreement.	Med

8. Review the County Emergency Operations Plan for opportunities to address the needs of individuals with household pets and service animals following a major disaster or emergency as required by the 2006 PETS Act. Distribute related guidance to municipalities for incorporation into their emergency plans.	Med-Low
9. Maintain and regularly review/test the County Information Technology Disaster Recovery Plan.	Med
10. Coordinate with County Land Conservation to review County emergency plans and regulations for communications, response, and the disposal of carcasses due to a mass animal casualty event. Identify potential locations of disposal or acceptable characteristics of such locations.	Med
11. Collaborate with communities to evaluate emergency and evacuation planning, sheltering, insurance, and security requirements for festivals and larger gathering and events, including for events at the County Fairgrounds.	Med
Communications	
	Priority
1. Create pre-made templates and public messaging strategies for crisis communications by public information officer use.	Med
2. With various partners and community lifeline facilities, create a coordinated crisis communications infrastructure plan. Include an approach for large-scale public information sharing and how do different County departments fit into this approach. Conduct team training to test and strengthen the plan, including a long-term power outage scenario.	Med-High
3. Continue to strengthen emergency communications infrastructure, coverage, and interoperability, including implementing the recommendations of the 2024 Radio Study. Strive to maintain 911 Communications Center staffing so that levels are more in-line with National Emergency Number Association (NENA) standards.	High
4. Provide guidance to towns that are interested in the installation of weather/emergency warning sirens. Explore grant and fundraising options.	Med
5. Continue to engage with local ARES/RACES (ham radio operators) members during exercises and crisis communications planning, and increase familiarity among other partners with ARES/RACES roles during a disaster event.	Med
6. Strengthen emergency communications procedures with local public works and highway departments, including providing points of contact for electric providers.	Med-High
7. Encourage Dunn County residents, businesses, and organizations to enroll their cell phone numbers for the County's Code Red mass notification system. Continue to explore its capabilities, including increasing its availability to municipalities and partners for local messaging.	High
8. Work with units of government to establish a credentialling policy and system for key employees and elected officials.	Med
Education & Outreach	
	Priority
1. Increase awareness of Wisconsin 211 and incorporate into exercises.	Med
2. In collaboration with Extension, establish an educational outreach program focused hazard awareness, preparedness, and mitigation for the agricultural community.	Med

3. Continue or enhance educational efforts to the general public on hazard risks, Code Red, safe room/storm shelter availability, where to access power outage information, pet preparedness, emergency/disaster supplies kits, volunteer needs, generator safety, etc. Continued education on the severe weather warnings and sirens especially needed. Conduct outreach in conjunction with Severe Weather Awareness Month, National Preparedness Month, newsletters (e.g., ADRC, Dunn Energy), and community events.	Med-High
4. Implement an educational initiative targeting campgrounds, resorts, RV parks, and mobile home parks to encourage emergency planning, use of notification systems, and consideration of potential mitigation grant funding for safe rooms.	Med-High
5. With County Emergency Management and electric provider support, continue to utilize the ADRC newsletter and community meal sites as key tools for outreach to seniors and special needs populations on preparedness education (e.g., risks, shelter availability, warning systems, cyber-security, electric provider sign-up lists, preparedness measures).	High
6. Working with major employers, schools, and communities, increase public awareness of emergency- or disaster-related volunteer needs (e.g., firefighters, EMS, Red Cross Disaster Action Team, ADRC, shelters//center). Discuss conducting a coordinated volunteer-recruitment outreach drivers.	Med-High
7. Encourage large employers to consider becoming a member of the Wisconsin Business Emergency Operations Center (WI BEOC).	Med-Low
8. Encourage households with persons having special needs that may be uniquely at risk during a power outage or disaster (e.g., oxygen, dialysis, seniors living alone) to develop an emergency contact plan. Encourage these households to notify their electric provider so they are on a critical client/medical necessity lists.	High
9. Dunn County Emergency Management will continue to provide regular presentation(s) to the Dunn County Unit of the Towns' Association and to the city and villages on available resources, mitigation grant opportunities, and hazard event reporting. Offer elected officials training every 2-4 years on NIMS/ICS, responsibilities, reporting, lessons learned, etc.	Med-High
10. Continue to collaborate with school districts and youth organizations to engage and educate younger residents on emergency management, preparedness, and mitigation topics. Promote the use of the Student Tools for Emergency Planning (STEP) curriculum.	Med
11. Through relationship building activities and frequent, shared communications, continue to support Public Health's outreach efforts to educate community members on communicable disease risks and vaccine safety.	Med
12. Prepare a fact sheet on hazard threats and preparedness for renters, visitors, and transient populations who may not be familiar with local risks, sheltering options, sirens, and Code Red.	Med
Training & Exercises	
	Priority
1. Continue to provide incident command system (ICS) and public information officer (PIO) training opportunities for local government officials and school districts, including the relationship of such training to local emergency plans.	Med-High
2. Continue to provide training support to cities, villages, and towns on emergency action planning, emergency declarations, post-disaster procedures, and the statutory responsibilities. Rotate natural hazard and HazMat spill exercises throughout the County and involve public works personnel and partners.	Med-High

3. Conduct a robust long-term power outage exercise (or exercise series) covering key logistical and critical needs, such as road clean-up, mutual aid and lodging for ROPE crews, public messaging, impacts to communications systems, coordination with road crews (e.g., snow removal, tree/debris clean-up), oxygen-dependent populations, shelter activation, and emergency fuel/generator availability. Prepare an after-action report with strategic priorities.	Med-High
4. Continue to invite Volunteer Organizations Active in Disaster (VOADs), such as the Red Cross and Salvation Army, to be part of County emergency exercises and planning.	High
5. Continue to conduct emergency and active threats exercises for County facilities and staff. Generally, County departments seek to clarify and better understand their potential roles during different emergency or disaster events, and some have roles, resources, and skills that are valuable to response and recovery that may not have not been involved in past exercises (e.g., Planning & Zoning with HazMat, ADRC with Meals-on-Wheels). As part of active threats training, consider including an employment assistance programming component given that such exercises can be traumatic.	Med
Community Support, Mass Care, & Sheltering	
	Priority
1. Create a comprehensive inventory of all emergency shelters and similar designated sites in the County (e.g., safe rooms, heating/cooling, Red Cross overnight, reunification, medical points of distribution), including basic resources (e.g., power generators, cots, kitchen, AEDs) and operational information (e.g., agreements, availability limitations, responsibilities, contacts). Prioritize actions to address any needs and gaps. Share appropriate shelter information with municipalities, Wisconsin 2-1-1, and partners.	High
2. Update, maintain, and share emergency shelter lists, with available basic resources (e.g., power generators, cots, kitchen, AEDs) and operational information (e.g., availability limitations, responsibilities, contacts) **for warming and cooling centers**. *(see related mitigation strategies)*	High
3. Update, maintain, and share emergency shelter lists, with available basic resources (e.g., power generators, cots, kitchen, AEDs) and operational information (e.g., availability limitations, responsibilities, contacts) **for short-term and long-term shelters**.	High
4. With partners such as transit providers and ADRC, inventory and plan for emergency transportation/bussing and temporary sheltering options, especially for seniors and schools, should a large-scale evacuation be needed. Include pets and winter-time evacuation in such plans and policies. Test and refine the plan as part of a future exercise scenario and incorporate any lessons learned into the County's emergency operations plan.	Med
5. Create a volunteer management plan annex to the Emergency Operation Plan. Explore implementation of the WEAVR volunteer management system.	Med
6. Conduct an exercise(s) that incorporates the activation of a reunification center and a Multi-Agency Resource Center (MARC). Amend Emergency Operations Plans based on exercise lessons learned if needed. This could include exploring interest in creating a Community Resilience Hub.	Med-High
Other Threat-Specific Preparedness Actions	
	Priority

1. Active Threats - Encourage the creation of basic active threat response plans and the periodic drilling/update of these plans for critical facilities, group assemblies, and large businesses in the County. Conduct periodic active shooter exercises to test response plans, crowd control, situational awareness, and assess security hardening. Include all response agencies (law enforcement, fire, EMS, other) as part of these exercises so that roles and responsibilities are understood.	High
2. Active Threats - For large businesses and critical facilities with significant numbers of employees and clients, encourage the numbering of interior and exterior doors (and windows if appropriate) and provide copies of floor plans with door numbers to local emergency responders and County 9-1-1 Emergency Communications. Designate a secure, web-based storage area for such plans at the County level.	Med
3. Fuel Shortage - Assess needs, logistics, and supply chains regarding the availability of emergency fuel supply for essential services during regional fuel shortages.	Med
4. Power Outage - Assess needs, logistics, and supply chains regarding the availability of generators/alternative power supply for essential services during a long-term power outage.	High
5. HazMat - Continue Hazardous Materials Emergency Preparedness training. Encourage continued local fire department participation in HazMat incident training coordinated by Dunn County Emergency Management or local fire departments. • Regularly rotate HazMat exercises and training throughout Dunn County with a particular focus on those chemicals commonly transported by rail or highways or at fixed facilities within the local host community. • Include local industry, law enforcement, EMS, railroads, pipeline companies, Public Health, Planning & Zoning, and other response agencies in training. • Include area hospitals/clinics in exercises. Assess Chem Pack availability and needs. • Consider an exercise involving school evacuation. • Include resources for river/lake spill events. • Invite EHS facilities to give presentations on their hazardous materials, facilities, and plans at Emergency Services Association meetings.	High
6. HazMat – Work with local communities to increase public awareness and support of available "Clean Sweep" programs and other methods for the proper disposal of hazardous waste, including residential, business, agricultural, and pharmaceutical materials. Encourage State legislators to provide additional funding support for such programming.	Med-High
7. Agriculture-Related – Conduct a meeting of potential agricultural disaster assessment team members (i.e., Emergency Management, FSA, NRCS, Extension, Land Conservation) to discuss emergency procedures, plans, responsibilities, and trends. Invite participation from Public Health (e.g., how is Public Health notified if a manure spill potentially impacts a well?). Monitor agricultural threats and activate the team when needed.	Med
8. Agriculture-Related – Conduct a tabletop exercise related to animal disease and bio-security threats, including livestock quarantine, evacuation, and animal mass casualty protocols. Consider amending the County Emergency Operations Plan if needed.	Med
9. Agriculture-Related – Support the continuation of UW-Extension's spill event field days for producers and agri-business. Encourage additional winter storage capacity when appropriate. Promote the WDNR Hotline in case of equipment rollovers, failure of a storage tank valve, or failure of a wall in a manure storage lagoon.	Med

SUPPLEMENT 4.
OTHER REFERENCE INFORMATION

A. STAKEHOLDER & PUBLIC INVOLVEMENT

Sections I.B. and I.C. of the Dunn County Multi-Hazard Mitigation Plan provides a general overview of the planning process, which included the following activities to encourage community input and stakeholder involvement:

- **Steering Committee Meetings.** A wide variety of stakeholder organizations were invited to participate on the Steering Committee. See Committee participant list in Section I.B. of the main plan document.
- **Key Stakeholder Interviews.** The key stakeholder interviews obtained input from many local public and private stakeholders who are also community members. A series of key stakeholder interviews, including both public and private sectors, were performed by West Central Wisconsin Regional Planning Commission (WCWRPC) staff to further complement the issue and strategy identification process. This included inviting input from emergency managers from adjacent counties and WEM regional emergency management staff. In addition, a presentation on the 2026 Plan update was given to the Dunn County Fire Chief's Association and a brief survey distributed to encourage additional input. Additional supporting data and information were provided by: Wisconsin Department of Natural Resources (WDNR) forestry staff and the regional Dam Safety Engineer; Dunn Energy Cooperative; and various county and municipal departments. The list of these interviews is included on the following page.
- **City, Village, & Educational Institution Participation.** The engagement of the other (non-County) plan participants was discussed previously in Section I.C of the main plan document. It should be stressed that these municipal and school/university officials are community representatives who are well informed of local hazard risks and probabilities, and are well positioned to determine what mitigation actions are most appropriate and feasible for their respective communities and facilities.
- **Unincorporated Town Government Meeting and Input.** The project brochure and a brief, customized survey to each town to obtain local input on hazard "hotspots," vulnerabilities, and potential mitigation strategies. On April 27, 2026, a presentation on the planning effort was made to the Dunn County Towns Association, which yielded good discussion and questions regarding mitigation grant funding.
- **Review of Local Plans.** Local comprehensive plans, ordinances, and other documents were reviewed, discussed, and considered when available and pertinent, keeping in mind that such planning mechanisms were created with public participation. When appropriate, guidance and clarification from these other documents and plans were integrated into this document.
- **Request for Public and Community Comments**. During previous mitigation planning efforts in Dunn County, fewer individuals attended the public informational meetings on the draft plan; the costs of conducting these meetings greatly outweighed the benefits. For this plan update, a public informational press release was issued to newspapers and other media in Dunn County announcing the purpose of the plan, the availability of a web-based version of the draft plan for download, and inviting comments. Copies of the press release were also e-mailed to all cities, villages, and towns. A copy of the public informational press release is included at the end of this section.
- **Plan Adoption.** Following conditional approval of the plan by Wisconsin Emergency Management, this multi-hazard mitigation plan was adopted via resolution by the Dunn County Board and participating jurisdictions in duly called and noticed public meetings.

Dunn County Multi-Hazard Mitigation Plan
Key Stakeholder Interview List

The following constitute the key stakeholders who were interviewed and provided input during the development of the draft plan; the # of attendees does not include WCWRPC staff. Municipalities, the Steering Committee, and other stakeholders also provided additional input during the review of the draft plan strategies and plan adoption process.

Interviewee	Title/Notes	Date
Plan Update Steering Committee	Meeting #1 – 13 participants	8/26/26
Plan Update Steering Committee	Meeting #2 – 7 participants	12/4/25
Plan Update Steering Committee	Meeting #3 -	4/6/26
Plan Update Steering Committee	Meeting #4	
County Judiciary & Law Cmte	7 attendees + public	4/28/25
Village of Boyceville Meeting	2 attendees	2/24/26
Village of Colfax Meeting	3 attendees	10/28/25
Village of Downing Meeting	2 attendees	2/24/26
Village of Elk Mound Meeting	4 attendees	11/3/25
Village of Knapp Meeting	2 attendees	2/19/26
Village of Wheeler Meeting	1 attendee	10/28/25
City of Menomonie Meeting	3 attendees	11/21/25
Town's Association	every town sent a follow-up survey; presentation at WTA meeting	Dec '25 – Feb '26; 4/27/26
UW-Stout Meeting, Survey, + Correspondence	11/14 meeting + survey & correspondence on draft sub-plan	11/14/25
Public School Presentations, Surveys, & Sub-Plans	Presentations + completed sub-plans	varies
Dunn Energy Cooperative	3 attendees	12/1/25
Fire Chief's/EMS	presentation (9/18/25) & distributed survey	9/18/25
Jason Spetz	County Emergency Mgmt Coordinator	7/22/25
Melissa Gilgenbach	County Emgy Communications & Mgmt Director	12/1/25
Austin Witt	County Facilities & Parks Director	12/3/25
Dustin Binder	County Highway Commissioner	11/17/25
Chase Cummings	County Conservationist	9/17/25
Tammy Traxler	County Planning & Zoning Director	9/9/25
Tracy Fischer	County ADRC Manager	2/23/26
Paula Winter	County Human Services Director	2/13/26
Matt Poliak	Captain, Menomonie Fire Dept	4/13/26
Rich Day	County Patrol Sgt, Sheriff's Dept	4/13/26
KT Gallagher	County Public Health Director	12/12/25
Rachel Wells	County GIS Administrator	mapping support
Jacob Ricci	County Information Services Director	2/20/26

Benjamin Koch	WDNR Water/Dams Engineer	7/8/25
Mary Purvis	Dunn County ARES/RACES	On steering committee
Disaster Ready Chippewa Valley	Discussion with DRCV Board	2025
Jenny Legaspi	American Red Cross	11/25/25
Adjacent County Emgy Mgmt and WEM	Emergency Management Directors of adjacent counties were contacted for input as well as Lisa Olson-McDonald at the Regional WEM Office	8/28/25
Matt Miller	Xcel Energy Environ Analyst (Dams/Hydro)	1/14/25 email & 11/26/25 call

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July 2, 2026

PUBLIC NOTICE

PLEASE TAKE NOTICE that Dunn County Emergency Management is inviting comments and input from residents, businesses, area organizations, and communities regarding the draft *Dunn County Multi-Hazard Mitigation Plan, 2026-2031* and any needed projects to reduce or eliminate hazard risks to residents and property.

Dunn County has recently completed a draft update of the County's Multi-Hazard Mitigation Plan, which is a pre-requisite for certain FEMA grant funding. Hazard mitigation actions are essential to creating a disaster-resilient community and breaking the disaster cycle of damage, reconstruction, and repeated damage, thus saving taxpayer dollars. Example mitigation activities include community safe rooms (storm shelters), the voluntary buyout of floodprone properties, the distribution of weather radios, and burying power lines in areas prone to outages.

A copy of the draft plan is available for review at the County Emergency Management offices within the County Judicial Center (615 Stokke Parkway, Menomonie, WI) or is available for download at: https://www.wcwrpc.org/hazard-mitigation-planning

The public is invited to provide comment as the draft plan is finalized. Comments may be submitted online at: https://www.surveymonkey.com/r/DunnCoHazMit through July 25, 2026. Any questions or written comments on the draft plan may also be directed to Jason Spetz, Dunn County Emergency Management, at 715-231-2981 or j

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Jason Spetz
Dunn County Emergency Management Coordinator

cc: News Media
Public Bulletin Board/County Clerk's Office

B. INCORPORATION OF RELATED PLANS, STUDIES, & DATA

This Supplement subsection is a companion of Section VI of the main document that discusses plan coordination. The 2026 Plan update includes information and incorporates recommendations from a wide variety of sources, not limited to the following primary sources:

- Section II and Supplement 1 includes statistics from the U.S. Census Bureau, U.S. Department of Agriculture's Agricultural Census, Wisconsin Department of Revenue tax assessment data, Wisconsin Department of Administration population estimates and projections, and economic data from Lightcast (formerly EMSI). The community profile contains a mix of 2020 and more recent American Community Survey (ACS) U.S. Census data. Though slightly outdated, the 2020 data is often used since the margins of error for ACS sampling can be sizable in less populated rural areas. West Central Wisconsin Regional Planning Commission (WCWRPC) also used EMSI Community Analyst and Lightcast subscription data services for some socio-economic data.
- The 2026 Plan update considered and incorporated a variety of new or updated State and Federal data tools, including but not limited to:
    - University of Wisconsin Area Deprivation Index: https://www.neighborhoodatlas.medicine.wisc.edu/
    - National Economic Resilience Data Explorer: https://www.anl.gov/dis/nerde-economic-development-district-dashboard
    - Wisconsin Initiative on Climate Change Impacts: https://wicci.wisc.edu/
    - NOAA Climate Mapping for Resilience and Adaptation: https://resilience.climate.gov/
    - WI DHS Climate Vulnerability Indices: https://www.dhs.wisconsin.gov/climate/wihvi.htm
    - FEMA National Risk Index: https://hazards.fema.gov/nri/
- Section III.C. and Supplement 2 relies heavily on NOAA National Climatic Data Center storm event data supplemented by interviews and local newspapers. This section also includes data and maps from the *State of Wisconsin Hazard Mitigation Plan* and the *State of Wisconsin Homeland Security Council THIRA & SPR* produced by Wisconsin Emergency Management.
- Section III.C. and Supplement 2 also includes references to a large variety of data sources and studies for the specific hazard types, largely from State and Federal sources, which are identified in the respective hazard assessment sections.
- The GIS maps and GIS-based analysis found in the Plan update were largely produced by WCWRPC with geo-referenced data primarily from Dunn County and the Wisconsin Department of Natural Resources. The mapping work as part of the community profile and hazard assessment was performed using ESRI-based Geographic Information Systems, allowing greater manipulation and analysis from the use of a consistent base map. Maps included in this plan are for general planning purposes only and do not constitute legal documents or formal surveys. The community lifelines table and maps were compiled from a variety of sources; these sources are listed within the table in Section II.E.
- The County-level flood assessment methodology, completed by the Dunn County GIS program, is further detailed in Supplement 2.G.
- The previous subsection includes the list of meetings and stakeholder interviews completed during the process. These interviews frequently yielded reports and additional data that were incorporated into this Plan, such as the Electric Cooperative proving updated outage data and Public Health providing information regarding contagious disease.
- Various sections of the Plan update, including the participant sub-plans, incorporate or reference municipal & County Emergency Operations Plans, County Land & Water Conservation Plan, the County

Aging Plan, and the County Public Health Emergency Preparedness Plan as well as various annexes, mutual aid agreements, and partnerships. Threat-specific plans are frequently referenced where applicable, such as Dam Flood Emergency Action Plans and ALICE training in schools. Comprehensive plans and local regulatory policies are also referenced (e.g., floodplain zoning, stormwater management, driveway regulations). Section III.C.v. provides NFIP program participation information. The city and village sub-plans in Section VII provide similar references to community-specific planning mechanisms, including NFIP program and floodplain management status.

C. SUMMARY OF PLAN CHANGES SINCE 2020 MITIGATION PLAN

The 2026 *Dunn County Multi-Hazard Mitigation Plan* was a complete review and update of the 2020 Plan. Changes to the 2026 Plan update were also required to meet FEMA's latest mitigation planning guidance that went into effect in April 2023 and was further modified effective May 19, 2025, though the 2029 Plan met most requirements and some changes were largely semantic. This section highlights some of the major changes since the 2020 Plan by plan section, including a brief description of how the Plan Update Steering Committee reviewed and analyzed each section.

Section I. Introduction (including General Process & Approach)

- The project brochure was updated and distributed to encourage participation.
- Stakeholder and community interviews included review of the 2020 Plan recommendations.
- Town surveys were customized for each town and incorporated aspects of the 2020 Plan to encourage input.
- The previous sub-section identifies some new data sources that were not available at the time of the previous plan update.
- Like the 2020 Plan, meetings were held with each city and village. A major change in this plan was the creation of sub-plans for each city and village (Supplement 5); this makes it easier for the communities to consider their respective risks, vulnerabilities, capabilities, and strategies. This should also make it easier to update the plan in the future.
- New to this plan update was the invitation to public educational institutions to be full participants. Participants participated in a web-based presentation and survey, then a sub-plan was created for each (Supplement 6).
- The structure of the plan was significantly revamped to create a main plan document with key information and mitigation recommendations along with a plan supplement. This makes the main document more user-friendly and keeps the focus on the most important aspects of the plan, while the supplement contains additional information that is required to meet FEMA planning guidelines. It is also anticipated that this approach will make it most efficient to update the mitigation plan in the future.
- Steering Committee Analysis & Review: The planning process, which is summarized in Section I, was the focus of the first Plan Update Steering Committee meetings, including a review of the process used during the 2020 plan and recommended changes for the plan update.

Section II. Community Profile

- Demographics and other data were updated. A new table-based and infographic format was incorporated for many key data points, which is easier to evaluate and will save time for future mitigation plan updates.
- G.I.S. data for critical facilities continues to be improved and the list of critical facilities was expanded and refocused on FEMA's new community lifelines.

- Steering Committee Analysis & Review: The highlights of the community profile were reviewed and discussed during the second Steering Committee meeting. Particular attention was given to related emergency management implications.

Section III. Assessment of Hazard Conditions

- The County decided to expand the Mitigation Plan scope to include select non-natural hazards, unlike their previous mitigation plans. The assessment for each hazard of significant risk was reorganized and expanded to be consistent with the latest FEMA mitigation planning guidance.
- Throughout this section, NCDC statistics, NFIP participation information, and other data were updated and, for many risks, further supplemented. This includes integrating data and maps available in the *State of Wisconsin Homeland Security Council THIRA & SPR*, which was updated January 2018. It also includes incorporating input from the Steering Committee, stakeholders, newspaper articles, and other plan participants.
- A more robust vulnerability assessment table aligned with key assets and community lifelines was included.
- The Steering Committee re-assessed the risks and vulnerabilities facing Dunn County. Due to similar impacts/vulnerabilities, high winds were combined with tornadoes.
- Steering Committee Analysis & Review: An overview of hazard trends, issues, and mitigation opportunities were discussed by the Committee during their first and second meetings. Following the first meeting, committee members completed a survey assessing hazard risks and vulnerabilities. The survey results were discussed at the committee's second meeting. The analysis of the key results of the assessment and interview process was the focus of the Steering Committee's second meeting.

Section IV. Capabilities Assessment

- This section was amended to consider barriers to implementation and updated to reflect changes in mitigation activities and capabilities.
- Steering Committee Analysis & Review: Current mitigation activities and capabilities were discussed during interviews and the Committee's second and third meetings.

Section V. Mitigation Goals and Strategies

- The mitigation goals were updated as discussed in Section V.A. of the main plan document.
- Mitigation strategies were updated to reflect changes in priorities, which are discussed in this section. Some strategies also placed greater emphasis on nature-based solutions.
- After discussion with the Steering Committee, mitigation and preparedness strategies are separated in the 2026 Plan update with additional implementation guidance for the mitigation strategies.
- The plan coordination subsection was moved into Section V with a greater emphasis on describing how the mitigation plan can/will be integrated into other planning mechanisms.
- The mitigation grant resources list in Supplement 4.D. was updated.
- Steering Committee Analysis & Review: Plan goals were reviewed and discussed as part of the second Steering Committee meeting. Mitigation and preparedness strategy alternatives were discussed during the second and third Steering Committee meetings as well as identifying criteria on which to evaluate and prioritize strategy alternatives. A strategy alternatives survey was distributed to all Steering Committee members; the survey results yielded relative priority of the mitigation and preparedness alternatives and guided the selection of which strategies would be recommended in the final plan.

Section VI. Plan Adoption & Maintenance Process

- This section was amended to include more emphasis on public participation.
- Section VI.B.iii. identifies some potential changes for the next plan update.
- Steering Committee Analysis & Review: The plan adoption and maintenance process were discussed and determined by the Steering Committee during its second and third meetings. Committee members were challenged to identify opportunities to continue to engage the public during plan maintenance as well as future plan updates.

D. Potential Federal & State Grant Programs for Mitigation Projects

The following is a list of grant programs that are most commonly available for natural hazard mitigation in Wisconsin. This list was used when identifying potential grant sources for the mitigation projects identified in Section V. of this plan as well as the local community/school sub-plans. It is not intended to be comprehensive or all-encompassing, and grant programs, opportunities, and requirements frequently change. Beginning in 2025, some of the Federal mitigation grant programs were placed on hold and are being re-evaluated.

In 2020, the U.S. Department of Energy issued a *Mitigation & Resilience Federal Funding Sources* document as part of the U.S. Climate Resilience Toolkit website. This 11-page document includes additional information on many of these federal programs referenced in this subsection as well as providing additional potential funding sources.

	Federal or State Agency & Grant Program	Contact Information	Eligible Activities	Eligibility & Cost Share	Other Notes	Application Deadline
1	Federal Emergency Management Agency, Hazard Mitigation Grant program (HGMP)	Wisconsin Emergency Management P.O. Box 7865 2400 Wright Street Street, Madison, WI 54707-7865	Flood proofing, acquisition and relocation of flood prone properties, elevation of flood prone properties, wind resistant or retrofit, storm water improvements, education and awareness, All Hazards Mitigation Planning efforts	Federal - 75% State - 12.5% Local - 12.5% 90/10 for economic disadvantaged rural communities	Local government must be in compliance with the National Flood Insurance Program to be eligible. Projects must be cost-effective, environmentally sound and solve a problem.	After a Presidential Disaster Declaration
2	Federal Emergency Management Agency, Building Resilient Infrastructure & Communities (BRIC) Program *(replaced PDM Program)*	Wisconsin Emergency Management P.O. Box 7865 2400 Wright Street Street, Madison, WI 54707-7865	Grants can be used for various mitigation projects, information dissemination, planning, technical assistance, etc.	Federal - 75% Local - 25% 90/10 for economic disadvantaged rural communities	Must have an approved hazard mitigation plan. In Spring 2025, FEMA announced that it would be replacing the BRIC program with an alternative mitigation approach; as of January 2026, an announcement on this alternative grant program has not been announced.	Typically, pre-applications due abt. Nov/Dec and application due abt. Jan/Feb
3	Federal Emergency Management Agency, Flood Mitigation Assistance (FMA) Program	Wisconsin Emergency Management P.O. Box 7865 2400 Wright Street Street, Madison, WI 54707-7865	Acquisition, relocation, elevation and flood-proofing of flood-prone insured properties, flood mitigation planning	Federal - 75% Local - 25% 90/10 for economic disadvantaged rural communities	Repetitive loss properties given a high priority. Must have an approved hazard mitigation plan.	Typically, pre-applications due abt. Nov/Dec and application due abt. Jan/Feb
4	Federal Emergency Management Agency, Public Assistance (PA) program	Wisconsin Emergency Management P.O. Box 7865 2400 Wright Street Street, Madison, WI 54707-7865	Repair of infrastructure damaged during a flood that results in a Presidential Disaster declaration. Cost effective mitigation measures may be eligible during the repair of damaged facilities	Federal - 75% State - 12.5% Local - 12.5%		After a Presidential Disaster Declaration
5	Economic Development Administration, Economic Adjustment Program (see CFDA 11.307)	United State Department of Commerce, Economic Development Administration, 111 North Canal Street, Suite 855, Chicago, IL 60606-7204 312-353-7148	Improvements and reconstruction of public facilities after a disaster or industry closing. Research studies designed to facilitate economic development.	Federal - 50%-70% Local - 30%-50%	Documenting economic distress, job impact and proposing a project that is consistent with a Comprehensive Economic Development Strategy are important funding selection criteria	Anytime
6	Economic Development Administration, Public Works and Development Facilities (see CFDA 11.300)	United State Department of Commerce, Economic Development Administration, 111 North Canal Street, Suite 855, Chicago, IL 60606-7204 312-353-7148	Water and sewer, industrial access roads, rail spurs, port improvements, technological and related infrastructure.	Federal - 50%-70% Local - 30%-50%	Documenting economic distress, job impact and proposing a project that is consistent with a Comprehensive Economic Development Strategy are important funding selection criteria	Anytime
7	Wisconsin Department of Commerce, Community Development Local Grant, Public Facilities Emergency Program	Wisconsin Department of Commerce, 201 West Washington Avenue, PO Box 7970, Madison, WI 53707-7970 608-266-8934	Repair of water, sewer, street, curb and gutter, police and fire stations	Federal - 75% Local - 25% Must be a LMI community or serve a vulnerable population	Available after a state and/or Presidential Disaster declaration. these funds can be used towards the local match to receive FEMA public assistance and HMGP funds	After a Disaster event
8	Wisconsin Department of Commerce, Community Development Block Grant, Public Facilities Program	Wisconsin Department of Commerce, 201 West Washington Avenue, PO Box 7970, Madison, WI 53707-7970 608-266-8934	Water, sewer, street, curb and gutter, libraries, fire stations and community centers	To receive maximum points $1.5 of local match to every $1 of state Community Development Block Grant Must be a LMI community or serve a vulnerable population	A community's economic distress score influences funding determination. These funds can be used as a local match to receive FEMA Public Assistance and HMGP funds.	Anytime
9	Wisconsin Department of Transportation (DOT), Flood Damage Aid	Wisconsin Department of Transportation, 4802 Sheboygan Avenue, Madison, WI 53707 608-267-5254	Replacement and improvement costs for major flood damage to a road or road structure under local jurisdiction. To help defray costs of repairing major flood damage to any pubic street, alley, or bridge not located on the State Trunk Highway System	State - 75% of replacement costs and 50% of improvement costs, reimbursed by local	Repairs or replacements can includes resign to prevent or reduce future flood damage. If Federal Disaster Aid is received, community is ineligible for State Federal Disaster Aid.	Applicant must submit final costs within 2 years following flood damage
10	Wisconsin Department of Transportation (DOT), Transportation Enhancement funds	Wisconsin Department of Transportation, 4802 Sheboygan Avenue, Madison, WI 53707 608-267-5254	Activities that "enhance" the surface transportation infrastructure "above and beyond" basic highway projects, can include: landscaping and scenic beautification, acquisition of scenic easements, and scenic or historic sites.	Federal - 80% Local - 20%	Can provide scenic vista and runoff areas, parking and landscaping along flood-prone riverways. Can acquire flood-prone areas along roads for green corridors. Food damage reduction potential is not the primary purpose of the program.	Even-numbered years. Application forms available in January. Must be submitted by April. Funds granted competitively.
11	Wisconsin Department of Commerce, Division of Housing and Community Development CDBG - Emergency Assistance Program	Wisconsin Department of Commerce, 201 West Washington Avenue, PO Box 7970, Madison, WI 53707-7970 608-267-3682	Assists local governments in response to a natural or manmade disaster. Can be used to address damage to housing, public infrastructure, businesses, community buildings, etc.	Varies, depending upon whether the community is already an entitlement community for CDBG funding.	Must give preference to households at or below 80% of the county median income.	After a disaster event.
12	Wisconsin Housing and Economic Development Agency Temporary Housing Grants	WHEDA 201 W. Washington Ave, Ste. 700 Madison WI, 53703 608-266-7884 800-334-6873	WHEDA has provided grant support to communities in the past following a disaster event for housing needs.	contact WHEDA for more information	contact WHEDA for more information	After a disaster event.
13	Wisconsin Department of Natural Resources, Surface Water Grants	Wisconsin Department of Natural Resources, 101 S. Webster Street, PO Box 7921, Madison, WI 53707-7921 608-266-7555	Cost-sharing grants for a variety of lake and river planning, education, analysis, protection, and restoration projects. Can potentially include some flooding- or bank-related and invasive species projects.	Varies by project type Most planning grants are 67% WDNR Most project/management grants are 75% WDNR	Varies by project type (i.e., $5,000 - $200,000) Local govt's and non-profit organizations may apply.	Pre-applications on Sept 15 and Full Applications on Nov 15
14	Wisconsin Department of Natural Resources, Knowles-Nelson Stewardship Fund	Wisconsin Department of Natural Resources, 101 S. Webster Street, PO Box 7921, Madison, WI 53707-7921 608-266-7555	Encompasses 6 sub-programs usually used for outdoor recreation activities. Can include land acquisition, natural/habitat enhancement, stream bank, & urban rivers projects.	State - 50% Local - 50% very competitive	Most projects must be part of an adopted outdoor recreation plan. Local governmental units may apply. Nonprofit conservation orgs are eligible for acquisition projects.	Various by sub-program
15	Wisconsin Department of Natural Resources, Municipal Flood Control Project	Wisconsin Department of Natural Resources, 101 S. Webster Street, PO Box 7921, Madison, WI 53707-7921	Acquisition, flood proofing, wetland-floodplain restoration, storm water projects, flood insurance studies, and floodplain mapping.	State - 70% Local - 30%	Maximum grant cannot exceed 20% of funding available. Cities, villages, towns, and metropolitan sewer districts are eligible.	March 15

		608-266-7555				
16	Wisconsin Emergency Management, Domestic Preparedness Equipment Grant Program	Wisconsin Emergency Management, 2400 Wright Street, Madison, WI 54707-7865 608-242-3232	Some equipment purchased for terrorism readiness may also have valuable emergency response use to mitigate impacts should an event occur.			January 15
17	Wisconsin Department of Natural Resources, Targeted Runoff Management (TRM) Grant Program	https://dnr.wisconsin.gov/aid/TargetedRunoff.html	Local governments can apply to fund efforts to reduce non-point source pollutant runoff	May be able to leverage with Wisconsin DOT funds.		April 15
18	U.S. Army Corp of Engineers Section 14-Emergency Streambank and Shoreline Protection	regional contact: Detroit District 477 Michigan Avenue Detroit, Michigan 48226 313-226-6764	Provide bank protection of highways, bridges, essential public works, and critical facilities endangered by flood-caused erosion.	Federal - 75% Local - 25%	Must meet U.S. Army Corps of Engineers economic feasibility and other criteria Maximum $500,000 per project.	
19	U.S. Army Corps of Engineers Section 22-Water Resources Planning Assistance to States	regional contact: Detroit District 477 Michigan Avenue Detroit, Michigan 48226 313-226-6764	This program can be used to obtain technical assistance from the Army Corps to study, analyze, and/or plan for a water-related challenge. The Corps will consider using some funds to sub-contract if needed.	Federal - 50% Local - 50%	Must meet U.S. Army Corps of Engineers economic feasibility and other criteria	
20	U.S. Army Corps of Engineers Section 205-Small Flood Control Projects (CFDA 12.106)	regional contact: Detroit District 477 Michigan Avenue Detroit, Michigan 48226 313-226-6764	Provision of specialized services through projects not specifically authorized by Congress.	First $100,000 is federally funded, with remainder split 50% Federal/50% Local.	Must meet U.S. Army Corps of Engineers economic feasibility and other criteria Maximum $7 million per project, though this may change.	
21	U.S. Army Corps of Engineers Section 208-Clearing Channels for Flood Prevention (CFDA 12.108)	regional contact: Detroit District 477 Michigan Avenue Detroit, Michigan 48226 313-226-6764	Provision of specialized services. Non-federal sponsor must provide all lands, easements, and rights-of-way.	Federal - 75% Local - 25%	Must meet U.S. Army Corps of Engineers economic feasibility and other criteria Maximum $500,000 per project.	
22	U.S. Department of Agriculture, Farm Service Agency contact local Farm Service Agency Emergency Conservation Program (ECP)		Perform emergency conservation measures to control wind erosion on farmlands and rehabilitate farmlands damaged by natural disasters; includes water conservation	Cost-sharing determined by County committees , following USDA guidelines.	Farm operator or landlord/owner in a disaster area or impacted by drought.	following a natural disaster event; eligibility determined by county FSA cmte
23	U.S. Department of Agriculture, Natural Resources Conservation Service, Watershed Protection and Flood Prevention	Wisconsin Natural Resources Conservation Service - NW Area 1304 N. Hillcrest Altoona, WI 54720 715-832-6547	Project grants and technical assistance to protect and utilize land and water resources in small watersheds. Emphasizes interdisciplinary planning teams.	Varies depending on nature of the project. Federal funding may be incorporated within other State Programs; check with WDNR.	Agricultural related enterprises must account for at least 20% of the total benefits.	
24	U.S. Department of Agriculture, Natural Resources Conservation Service, Emergency Watershed Protect - Floodplain Easement	Wisconsin Natural Resources Conservation Service - NW Area 1304 N. Hillcrest Altoona, WI 54720 715-832-6547	Purchase floodplain easements as an emergency measure in floodplain areas which are impaired or have a history of repetitive flooding	Easement compensation varies by site and location. NRCS pays 100% of restoration costs.	Voluntary program to restore floodplain functions. Easements are permanent. Easement compensation based on offer, rate cap, and area market.	Sign-up period is in March.
25	U.S. Department of Agriculture - Rural Development, Housing & Community Facilities Programs	Rural Development Business & Community Programs 4949 Kirschling Court Stevens Point, WI 54481 Phone: 715-345-7610	Has been used for a wide variety of projects, including early warning systems, sirens, fire equipment, EMS buildings, shelters, radios, etc. Additional USDA programs available for larger projects.	Varies by community size, local household incomes, and funding availability	Counties and small communities; must work with USDA Rural Development officials from project start. One of the few grant sources that may fund sirens and generators.	
26	Wisconsin Department of Natural Resources, Forest Fire Protection (FPP) Grant	FFP Grant Manager Department of Natural Resources P.O. Box 7921 Madison, WI 53707-7921 (608) 267-0848	Equipment, training, prevention materials, communication equipment, mapping/rural numbering systems, ATVs, dry hydrants	For individual fire depts: min. $750; max. $10,000 For County Fire Assoc: min. $5,000; max. $25,000	Fire departments and County Fire Associations	varies; usually May, June or July
27	U.S. Homeland Security Assistance to Firefighters Grant Program	U.S. Dept. of Homeland Security 800 K Street NW Washington DC 20472-3620 1-866-274-0960	For Fire Departments and EMS organizations to enhance fire-related capabilities.	Varies by population served, but 5% - 10% for small communities	Applicants serving less than 500,000 population may not receive over $1 mil in funding.	April or May
28	U.S. Department of Interior Rural Fire Assistance Outreach	U.S. Dept of Interior check up-to-date application materials for contact info.	Training, personal protective equipment, basic gear, limited communications equipment, basic tools, and other activities.	Minimum 10% local match	Max. award of $20,000 per fiscal year. Need to serve DOI lands.	April
29	U.S. Department of Homeland Security, Emergency Operations Centers (CFDA 97.052)	Department of Homeland Security 245 Murray Drive, SW. Washington, DC 20528 202-282-8000	Improve local capabilities to respond to emergencies and disasters	Phase 1 for assessment Phase 2 requires a 50% nonfederal cost share.	Local governments can be sub-grantees under the State.	
30	Federal Emergency Management Agency, Interoperable Communications Equipment (CFDA 97.055)	Contact Wisconsin Office of Emergency Communications to verify grant availability and details	Explore uses of equipment and technologies to increase the interoperability among fire services, law enforcement, and emergency medical services.	Funding is discretionary. Max. Federal share is $6 million. 25% nonfederal cost-share.	Local governments are nominated by the State to submit an application.	
31	U.S. Department of Transportation Promoting Resilient Operations for Transformative, Efficient, & Cost-Saving Transportation (PROTECT) Program	Uncertain of this	For planning and implementing projects to improve transportation resiliency, including vulnerability assessments, evacuation, or other infrastructure enhancement	Grant funding is discretionary. In 2023, $848m available. May also support cooperative agreements with U.S. DOT.	State, Tribal, and local units of government including MPOs and multi-jurisdictional groups.	Uncertain of this grant program status. 2025 deadline was in Feb.
32	Wisconsin Emergency Management Pre-Disaster Flood Resilience Grant Program	Wisconsin Emergency Management, 2400 Wright Street, Madison, WI 54707-7865 608-242-3232	Assessment & Infrastructure components to identify flood vulnerabilities, study options to improve resilience, restore hydrology/reduce risks & damages in flood-prone communities	2024 announcement is the first year of funding with $2 million available; future funding not guaranteed	Units of government; non-profits & consultants may apply on behalf of a govt unit with documentation of commitment	2024 deadline was Nov 30

SUPPLEMENT 5.
CITY & VILLAGE SUB-PLANS

VILLAGE OF BOYCEVILLE HAZARD MITIGATION SUB-PLAN

This sub-plan identifies past hazard events, risks, trends, capabilities, and strategies unique to or specific to the community and is part of the overall *Dunn County Multi-Hazard Mitigation Plan*. The Dunn County mitigation plan provides broader context and contains hazard assessments, capabilities, and strategies that are countywide or multi-jurisdictional.

Primary Contact:	Village Clerk or Police Chief
Planning Meetings:	• Primary planning meeting with WCWRPC staff occurred on 2/24/26. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by Village Board at a public meeting. Resolution included in Section VII.

Community Profile

This table provides a brief overview of key community characteristics, primarily from the 2020 U.S. Census, which are important to assessing capacity and vulnerabilities. For example, the entire population and all above-ground structures in the community are vulnerable to a tornado event, while mobile homes have an elevated vulnerability.

Population	1,100
Median Age	37.3 years
Uniquely vulnerable populations	Seniors; mobile home park residents
Assessed Improvements (2024)	Residential: $40,169,000; Commercial: $6,284,700; Manuf.: $2,920,200
# of Housing units	495
# of Mobile Homes	52
Notable Community Lifelines or Critical Facilities	School. Airport. See map at end of sub-plan.

Hazard Risk Assessment

This table describes past hazard events impacting the community and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the community. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all communities.

Hazard	History & Past Impacts	Vulnerabilities & Potential Impacts
Tornado & High Winds	Serious windstorms in 1948 and 1980. Two tornados close to Village in recent years. Straight-line winds in 2023 caused roof damage and took down some trees.	Four mobile home parks; some trailers tied-down. Straight-line wind in August 2018 results in short-term power outage, dropped trees, and damaged some roofs and sheds.
Hail & Lightning	No unique history noted.	No unique concerns noted.
Winter Storm, Ice, & Extreme Cold	Overall, nothing unique. Falling trees due to ice and/or snow loads have blocked streets during a past event. Sewer main breaks in December 2018. Warming shelter opened.	Frozen water lines not uncommon at mobile home park; laterals can break.
Extreme Heat	No unique history noted.	No unique concerns noted; can activate cooling shelter if needed.

Long-Term Power Outage	No power for 12 hours in July 1980, but not much since then. Power outage of about 6 hours recently.	Good tree-trimming; no areas uniquely prone. Only 2 fixed generators and one portable for all municipal facilities. Community Center is EOC and no generator. Public Works office also lacks generator.
Flooding – Riverine or Overbank	Significant areas of 100-year floodplain. No severe impacts to structures and no critical facilities with a history of flooding problems. Some flooding in 2010, but no structures impacted.	Officials believe official floodplain maps overstate flood risk. Substantial improvements completed in past to mitigate. No unique concerns noted by the community.
Flooding – Stormwater or Overland	On Aug 1, 2010, rec'd 5" rain in 5 hours w/ no serious damage. Some localized flooding from plugged culverts. Redoing Main St in 2019 and replacing culverts. Street ponding outside Village Hall following heavy rains.	High groundwater table, so most homes have sump pumps. Heavy snowmelt followed by heavy rains while ground is frozen is largest risk.
Dams	No modern history.	Dams upstream in St. Croix County are important for flood control.
Drought	No unique history noted.	Good water quantity overall. Demand on south end of Village may require future improvements.
Wildfire	No significant events.	Residential development at Granbakken Ct. and Anderson Hill; hilly, wooded areas have higher wildfire risk than rest of community. Controlled burns around airport.
Hazardous Materials Spills	No significant events in the community.	Train derailment and two fixed facilities of concern. October 2018 functional walk-through with Ethanol Plant.
Active Threats	No significant events in the community.	School is greatest vulnerability; remodel included some hardening but insufficient funding for School Resource Officers. New Village/Municipal Center provides hardened protection vs. previous offices, but could add more. Local industry has shared plans with Village Police and has participated in training.
Cyber-Attack	No history in community to date.	No unique concerns noted.

Notable Trends or Changing Priorities

Have any hazard-related priorities changed since the previous mitigation plan?	Some flood mitigation progress. Recent security hardening at Municipal Hall.
Are there any other trends influencing these concerns, such as changes in development, demographics, or weather patterns/climate?	Increasing frequency and severity of severe weather systems including downpours, wind events (including tornados) and extreme temperatures.

Capabilities Assessment

The following is a general assessment of the community's resiliency and capabilities to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms. This assessment was completed by the community through the 2025 web-based survey, with some supplemental information from the community meeting and other sources (e.g., fire department survey, NFIP Community Status Book). The list of potential plans, policies, and other actions is not exhaustive, and it is not expected that the community has undertaken all actions listed or will undertake all actions in the future.

Planning Activities	
Community Emergency Operations or Response Plan (EOP)	Adopted and reviewed every May
Community Evacuation Plan and/or Exercises	None
Continuity of Government Plan	None
Comprehensive Plan	Limited mitigation or preparedness in Comp Plan, but includes floodplain management
Stormwater Management Plan	Outdated plan; will consider implementing mitigation or preparedness in update
Historic Preservation Plan or Ordinance	None
Capital Improvements Plan or Similar Budget	Yes
Involve Fire & Law Enforcement in planning & development plan review	Doing this as needed.
Policies, Codes, & Ordinances	
Building Codes	Adopted; does not incorporates mitigation or preparedness
Building Code Efficiency Grading Schedule	Unknown
Zoning Ordinance	Adopted; does not incorporate mitigation or preparedness
Subdivision Ordinance	Adopted; does not incorporate mitigation or preparedness
Site Plan Review Requirements	Limited
Floodplain Management	
Initial Flood Hazard Boundary Map:	08/06/1976
Initial FIRM Identified:	11/19/1986
Current Effective FIRM Date:	12/02/2011
Date Community First Joined NFIP (Reg-Emer)	11/19/1986
NFIP Participation Status (and reason if not participating):	Participant
Floodplain Regulations w/ NFIP standards:	Adopted
Designated position or committee for floodplain management, floodplain zoning, & NFIP compliance:	Village Clerk
Other ongoing floodplain management activities:	Ordinance in place that requires backflow prevention and addressing cross-connections. Significant past stormwater improvements and mitigation, including property acquisition for flood storage. Undertook lengthy process of revising City's floodplain maps; made effective 03/26/09
Stormwater Management Ordinance	Outdated plan; will consider implementing mitigation or preparedness in update
Stormwater Utility	No
Winter Emergency Policies	Adopted for parking & snow removal.

Mitigation & Preparedness Actions for Facilities	
Debris Site identified for storm debris disposal (not just woody debris)	No; planning to implement
Emergency Operations Center designated with generator/back-up power	Yes; lacks generator, audio-visual connection, TV, & cots
Public Storm Shelter/Community Safe Room designated	Village Hall/Community Building serves as storm shelter, well-advertised through social media. Built to withstand high winds; interest in remote/auto unlock, generator, and potential hardening of windows/doors if A/E assessment indicates feasibility
Public Heating/Cooling Shelter designated with generator/back-up power	Community Building activated when needed
Storm/warning siren on back-up power	Good siren coverage and recently repaired; lacks battery back-up.
Storm/warning siren that can be activated remotely	Triggered locally
Active shooter/threat plans and/or security hardening for municipal buildings	New Village Center includes significant hardening; very limited for other buildings.
Other Mitigation & Preparedness Actions	
Review EOP at least annually	Update in progress
Individuals in EOP have ICS/NIMS training	Some; not all staff with basic ICS training
Public Information Officer designated & trained	No; planning or considering implementation
Municipal officials and staff participate in regular disaster or emergency response exercises	No; planning or considering implementation
Community-level efforts to improve hazard preparedness among residents	No; planning or considering implementation
Adopted billing rates for public works labor & equipment use during emergencies	No; planning or considering implementation
Adopted mutual aid agreements for public works equipment/personnel support	“Handshake” agreement for Public Works
Adopted emergency contracting and purchasing policies	No; planning or considering implementation
Cyber-security systems, off-site/cloud back-up, and recovery policies or plans for municipal records	Yes
Cyber-security systems and policies for municipal utilities	No; planning or considering implementation
Municipal buildings/staff have NOAA All Hazards Radios or signed-up for Code Red	No; planning or considering implementation.
Other Flood Mitigation projects or activities	One home acquired and demolished about 2021, allowing for additional flood storage. Stream bank stabilized on Tiffany Creek; could use additional work in other areas.
Municipal Dam-related planning or actions	No municipal dam.
Barriers to mitigation or preparedness actions	Need to complete FEMA Incident Command and NIMS trainings. Limited funding; some mitigation actions would be dependent on grant funding.
Other vulnerabilities:	No standing supply of sandbags.
Other:	Red Cross provides sheltering if needed. Exploring own mass notification system so has greater flexibility to direct message residents.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section V.A. of the Dunn County mitigation plan are shared by all participating communities.

The community will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Sections V.B. and C. of the Dunn County mitigation plan include additional mitigation and preparedness actions that are intergovernmental in nature and not specific to the community, but may suggest coordination and funding opportunities.

The following recommended actions/projects are specific to the community:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Explore grant funding for a generator and storm hardening of Municipal Building/Storm Shelter/EOC to enhance its role as a community safe room (storm shelter), emergency shelter, and heating/cooling center. The Public Works office could also benefit from a generator. Continue to enhance physical security hardening of the Municipal Building as opportunities allow.	Medium-to-High; 3-5 years	Village Board	FEMA Hazard Mitigation Grant Programs (BRIC & HMA) FEMA Technical Assistance or Advanced Assistance grant funding could be available to assist with exploring storm hardening options. Funding for stand-alone generator projects are limited; see County-level generator strategy for related discussion. WCWRPC and Wisconsin Emergency Management can provide grant-related guidance.
2. Continue to monitor and address flooding and stormwater challenges in the Village. Explore additional streambank and flood storage along Tiffany Creek. Should flood storage concerns grow and/or repetitive flood losses be experienced, assess the need for hydraulic studies (e.g., planning for additional flood storage) and the feasibility of other mitigation alternatives. Update the mitigation sub-plan if needed.	Medium-to-Low; ongoing	Public Works	Flood studies and mitigation projects are eligible for FEMA and State mitigation grant funding. Contact County Emergency Management or WCWRPC for more information.
3. Consider adoption billing rates for public works labor and equipment use during emergencies.	Medium; 2-5 years	Village Clerk	WCWRPC has model resolution used by other communities that have adopted WDOT rates.

4. Continue to annually review and, as needed, update the Village's Emergency Operations Plan (EOP). For elected officials and individuals identified in the EOP, encourage participation in ICS/NIMS training. Test the EOP as part of a tabletop exercise.	High; ongoing	Village Safety Committee	County Emergency Management can provide a template and guidance.
5. Continue to make residents aware of emergency warning systems (siren use) and the Municipal Building's availability as a storm shelter. Encourage residents to sign-up for the County's Code Red notification system, unless replaced by a Village system.	High; ongoing	Village Clerk or Public Works	Could be included as part of social media or water bills. County Emergency Management can assist with messaging.
6. With Dunn County Emergency Communications, discuss the potential for greater flexibility in the types of messages that can be sent via the County's Code Red system. If this does not meet the Village's needs, explore the feasibility of establishing its own mass notification system.	Medium; 2-5 years	Village Chief of Police	Dunn County Emergency Communications regarding Code Red policies and marketing.

Sub-Plan Coordination and Integration

The previous capacity assessment section identifies how this mitigation sub-plan has been integrated into or coordinated with other municipal plans or planning mechanisms. During the planning process, the following opportunities were identified to integrate the mitigation strategies into other community planning mechanisms:

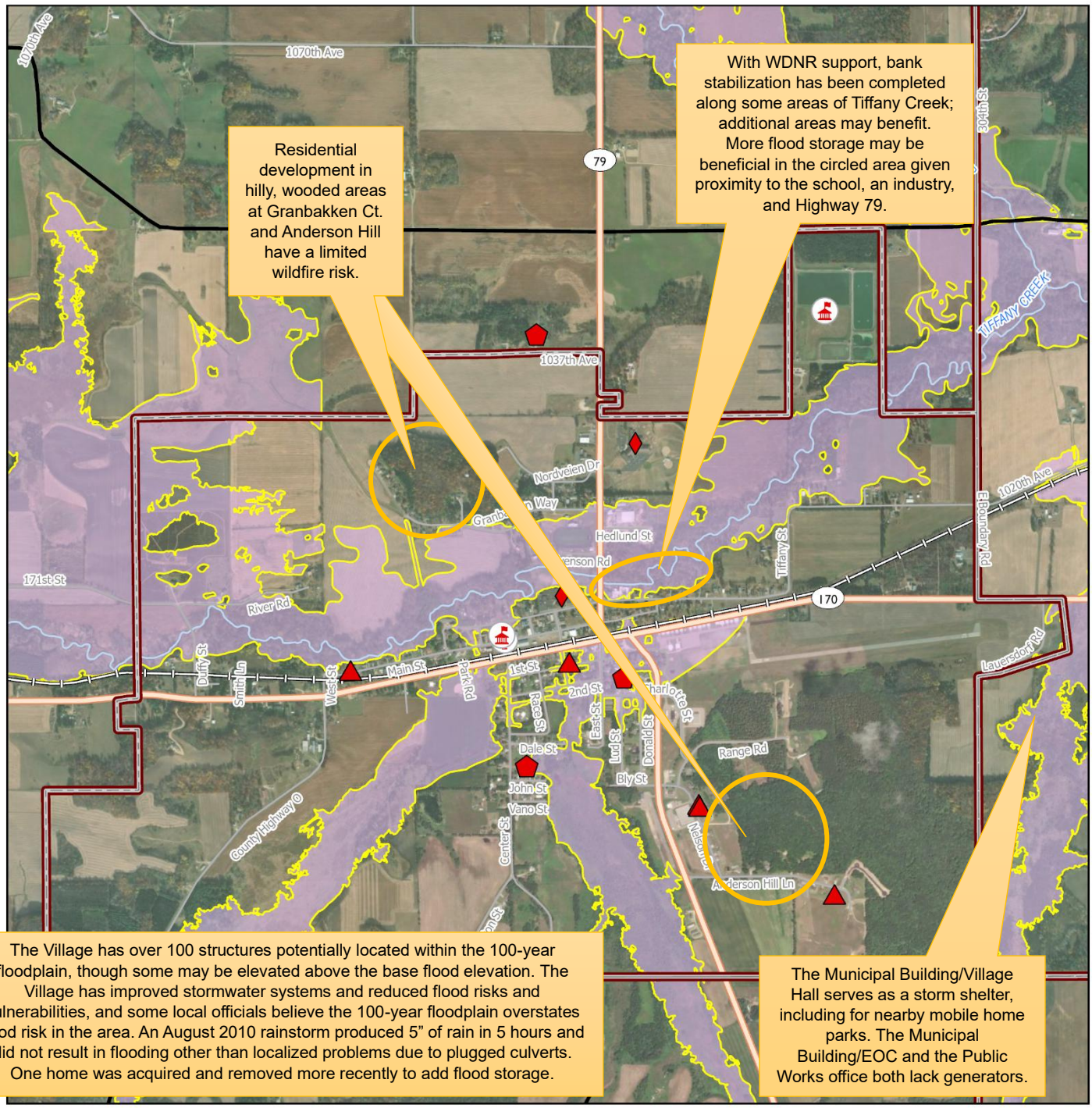
- The Village is expected to update its comprehensive plan in the future. This is an opportunity to integrate mitigation strategies, including obtaining public input on the need for additional community safe rooms.
- The mitigation sub-plan recommendations may influence the Village's Emergency Operation Plan and related training.
- The next section describes how this sub-plan will be maintained, including a periodic review of opportunities to strengthen the coordination and integration with other planning mechanisms.

Sub-Plan Adoption and Maintenance

Plan Adoption	Once updated, the community's governing body will adopt the County's overall hazard mitigation plan (and any future revisions/amendments) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This community-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The community may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	During the second quarter of each year or following a declared disaster event, the primary mitigation plan contact will review this Mitigation Sub-Plan concurrently with (at the same time as) the annual review of the municipal Emergency Operations Plan. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. The community's planning contact will contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. The community may also request that the County consider changes to the County's overall mitigation plan. 2. Provide the suggested changes to the community's emergency planning committee, plan commission, or governing body for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the governing body will adopt the Sub-Plan as noted previously. Such changes will be limited to this community-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The community intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The community will provide opportunities for public participation throughout its mitigation planning processes, including: (1) all governing body or committee actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

VILLAGE OF BOYCEVILLE - HAZARD ASSESSMENT

Dunn County - 2026



Legend

- Municipal Boundaries
- 100-yr Floodplain
- Hospital
- School
- Mobile Home Park
- Assisted Living
- Government Building
- Storm Siren
- Dam w/High or Significant Hazard Rating

WEST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

0 0.3 0.6 1.2 Miles

Data Sources: Dunn County, WDHS, WDNR, WisDOT, WDOA, FEMA, WCWRPC.

N

VILLAGE OF COLFAX HAZARD MITIGATION SUB-PLAN

This sub-plan identifies past hazard events, risks, trends, capabilities, and strategies unique to or specific to the community and is part of the overall *Dunn County Multi-Hazard Mitigation Plan*. The Dunn County mitigation plan provides broader context and contains hazard assessments, capabilities, and strategies that are countywide or multi-jurisdictional.

Primary Contact:	Village Clerk
Planning Meetings:	• Primary planning meeting with WCWRPC staff occurred on 10/28/25. • Village participated in a mitigation/preparedness capabilities assessment on 10/28/25. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by Village Board at a public meeting. Resolution included in Section VII.

Community Profile

This table provides a brief overview of key community characteristics, primarily from the 2020 U.S. Census, which are important to assessing capacity and vulnerabilities. For example, the entire population and all above-ground structures in the community are vulnerable to a tornado event, while mobile homes have an elevated vulnerability.

Population	1,182
Median Age	40.6 years
Uniquely vulnerable populations	Seniors/assisted living; mobile home park residents; fairgrounds visitors
Assessed Improvements (2024)	Residential: $45,294,800; Commercial: $12,615,300; Manuf.: $2,626,800
# of Housing units	530
# of Mobile Homes	98
Notable Community Lifelines or Critical Facilities	School facilities. Fairgrounds. See map at end of sub-plan.

Hazard Risk Assessment

This table describes past hazard events impacting the community and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the community. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all communities.

Hazard	History & Past Impacts	Vulnerabilities & Potential Impacts
Tornado & High Winds	1958 Colfax tornado destroyed much of village w/ about 14 deaths. 1998 tornado in area resulting in power loss of 80+ hours for some. EF1 tornado struck village in June 2014 with worst damage at the high school.	Most homes w/ basements, except mobile home park, SE side (about 24 units slab-on-grade, assisted living facility), and some newer homes on NE side. Wood products from industry could become airborne missiles in high winds. Fairgrounds gets 500+ persons, but no shelter; vendors and security staff stay overnight. Assisted living also a storm concern. Most mobile homes believed to be anchored.
Hail & Lightning	No unique history noted.	No unique concerns noted.

Winter Storm, Ice, & Extreme Cold	Uses "dripping" to prevent water main freezing if needed (2009). Experienced 3 main breaks and 46 lateral freeze-ups during 2014-2015 Polar Vortex.	Hwy 70/40 intersection can be dangerous under winter conditions.
Extreme Heat	No unique history noted.	No unique concerns noted. Good quantity/quality of water.
Long-Term Power Outage	Most are 4-5 hour outages or less. One outage event of about 48 hours, but no area particularly prone.	Rescue/EOC and new fire station have generators. Has fixed generators for wwtp, lift station, and 1 well; need portable for wells. No generator at Village Municipal Building, which could be used as a storm shelter.
Flooding – Riverine or Overbank	Major spring flooding, esp. along creek, in 1935 and 1965. Dam removal all creek in 1997 has reduced some overbank flooding and no recent riverine flooding damage to structures or facilities. However, August 2010 flooding did erode banks at WWTP ponds; a long-considered bank stabilization project has since been completed.	High banks along Red Cedar limits overbank flooding vulnerabilities within the Village; bank erosion has been a greater concern. Berming further protects the wastewater plant and liftstation.
Flooding – Stormwater or Overland	A number of areas in the Village have experienced stormwater flooding. Over $160,000 in municipal costs & damages from Aug 2010 when stormwater from south hills and blew off manhole covers; 1 basement flooded and others flooded with 3+ ft. 1' in SouthSide Motors.	Flash flooding from hills to south remain a concern, though the Village has made stormwater improvements. See map at the end of the sub-plan.
Dams	No dams within Village.	No concerns noted.
Drought	No unique history noted.	No unique concerns noted; good water quality/quantity.
Wildfire	No significant events.	No unique concerns noted; good water quality/quantity for fire protection.
Hazardous Materials Spills	No significant events in the community.	Train derailment and ethanol plant noted as primary concerns. Large fire at wood products business.
Active Threats	No significant events in the community.	School, elections, and fairgrounds identified as the greatest vulnerabilities for an attack.
Cyber-Attack	No significant events impacting municipal facilities or services.	Village has significantly strengthened its cyber-security infrastructure recent years.

Notable Trends or Changing Priorities

Have any hazard-related priorities changed since the previous mitigation plan?	Bank erosion project completed. Plan update places greater emphasis on safe room/tornado shelter needs.
Are there any other trends influencing these concerns, such as changes in development, demographics, or weather patterns?	Increasing high wind/tornado and heavy rainfall events.

Capabilities Assessment

The following is a general assessment of the community's resiliency and capabilities to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms. This assessment was completed by the community through the 2023 web-based survey, with some supplemental information from the community meeting and other sources (e.g., fire department survey, NFIP Community Status Book). The list of potential plans, policies, and other actions is not exhaustive, and it is not expected that the community has undertaken all actions listed or will undertake all actions in the future.

Planning Activities	
Community Emergency Operations or Response Plan (EOP)	Adopted; incorporates mitigation or preparedness
Community Evacuation Plan and/or Exercises	Adopted; incorporates mitigation or preparedness
Continuity of Government Plan	Adopted; incorporates mitigation or preparedness
Comprehensive Plan	Outdated plan; will consider implementing mitigation or preparedness in update
Stormwater Management Plan	Outdated plan; will consider implementing mitigation or preparedness in update
Historic Preservation Plan or Ordinance	No plan
Capital Improvements Plan or Similar Budget	Adopted; incorporates mitigation or preparedness
Involve Fire & Law Enforcement in planning & development plan review	Yes; doing this as needed.
Policies, Codes, & Ordinances	
Building Codes	Adopted; incorporates mitigation or preparedness
Building Code Efficiency Grading Schedule	Adopted; incorporates mitigation or preparedness
Zoning Ordinance	Adopted; incorporates mitigation or preparedness
Subdivision Ordinance	Adopted; incorporates mitigation or preparedness
Site Plan Review Requirements	Adopted; incorporates mitigation or preparedness
Floodplain Management	
Initial Flood Hazard Boundary Map:	06/28/1974
Initial FIRM Identified:	08/16/1988
Current Effective FIRM Date:	12/02/2011
Date Community First Joined NFIP (Reg-Emer)	08/16/1988
NFIP Participation Status (and reason if not participating):	Participant
Floodplain Regulations w/ NFIP standards:	Adopted
Designated position or committee for floodplain management, floodplain zoning, & NFIP compliance:	Zoning Administrator; then Plan Commission
Other ongoing floodplain management activities:	New floodplain maps and updated ordinance adopted. Significant stormwater system improvements in past (e.g., 2004, 2014 & 2017 with street improvements), but 2010 storm and recent heavy rain events still exceed capacities in some areas. Bank stabilization near wastewater plant ponds completed; this was a past mitigation plan priority.
Stormwater Management Ordinance	No policy or code
Stormwater Utility	No policy or code
Winter Emergency Policies	Adopted; incorporates mitigation or preparedness

Mitigation & Preparedness Actions for Facilities	
Debris Site identified for storm debris disposal (not just woody debris)	No
Emergency Operations Center designated with generator/back-up power	Partial;
Public Storm Shelter/Community Safe Room designated	No; has been brought up multiple times. Churches concerned with liability; no other current options unless Municipal Building has handicap accessible elevators installed and a generator provided. Laundry area used for residents of a slab-on-grade development. Fairgrounds have block bathrooms providing very limited shelter. Interest exists in exploring potential safe room project for future.
Public Heating/Cooling Shelter designated with generator/back-up power	No center or shelter designated.
Storm/warning siren on back-up power	Yes; new siren in 2014 with battery back-up but noted need for generator
Storm/warning siren that can be activated remotely	Yes
Active shooter/threat plans and/or security hardening for municipal buildings	No; will consider implementing mitigation or preparedness
Other Mitigation & Preparedness Actions	
Review EOP at least annually	Some.
Individuals in EOP have ICS/NIMS training	Some; additional basic training for local officials may be needed
Public Information Officer designated & trained	No.
Municipal officials and staff participate in regular disaster or emergency response exercises	Limited.
Community-level efforts to improve hazard preparedness among residents	No specific initiatives noted.
Adopted billing rates for public works labor & equipment use during emergencies	No; will consider implementing
Adopted mutual aid agreements for public works equipment/personnel support	No; will consider implementing
Adopted emergency contracting and purchasing policies	No; will consider implementing
Cyber-security systems, off-site/cloud back-up, and recovery policies or plans for municipal records	No; will consider implementing
Cyber-security systems and policies for municipal utilities	Yes
Municipal buildings/staff have NOAA All Hazards Radios or signed-up for Code Red	Some;
Other Flood Mitigation projects or activities	None identified
Municipal Dam-related planning or actions	No municipal dam.
Barriers to mitigation or preparedness actions	Generator for siren needed
Other vulnerabilities:	Ice damming and river scouring could expose the sewer main under Hwy 70 bridge.
Other:	Emergency communications coverage has improved. Chemicals used at wwtp for phosphorus removal.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section V.A. of the Dunn County mitigation plan are shared by all participating communities.

The community will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Sections V.B. and C. of the Dunn County mitigation plan includes additional mitigation and preparedness actions that are intergovernmental in nature and not specific to the community, but may suggest coordination and funding opportunities.

The following recommended actions/projects are specific to the community:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Explore mitigation grant funding for the hardening of the Municipal Building basement as a community safe room, including installation of an elevator and generator. A new community safe room (storm shelter) may also be explored in the future for the Fairgrounds. If a generator and HVAC system are provided, consider using the safe room space as a heating/cooling shelter and emergency assembly location.	Medium-to-High; 2-5 years, subject to funding	Village Board Fairgrounds Board	FEMA Hazard Mitigation Grant Programs (BRIC & HMA) FEMA Technical Assistance or Advanced Assistance grant funding could be available to assist with exploring storm hardening options. WCWRPC and Wisconsin Emergency Management can provide grant-related guidance
2. Continue to monitor flooding within the community especially in light of the increasing frequency of heavy rain events. Explore mitigation actions, such as hydraulic analysis, additional flood retention/storage, stormwater improvements, or, if buildings are impacted, considering structural mitigation projects such as floodproofing.	Medium; ongoing	Village Public Works	FEMA Flood Mitigation Assistance (FMA) or Wisconsin Pre-Disaster Flood Resilience Grant.
3. Consider adoption billing rates for public works labor and equipment use during emergencies.	Medium; 1-5 years	Village Clerk	WCWRPC has model resolution used by other communities that have adopted WDOT rates.

4. Update and annually review the Village's Emergency Operations Plan. Include the review of severe weather and active threat planning for the Fairgrounds. Encourage elected officials and individuals identified in the Plan to complete basic ICS/NIMS training. Exercise the plan with partners through a mock event/tabletop exercise involving the Fairgrounds.	High; ongoing	Village Safety Team	County Emergency Management can provide a template and guidance.
5. As opportunities allow, collaborate with County Emergency Management and other partners (e.g., Public Health, Red Cross, Electric Provider) to increase public participation in CodeRed, awareness of emergency siren use and warning systems, and public preparedness in general.	Medium-to-High; ongoing	Village Administrator (or designee); Fire Department	County Emergency Management & partners have educational materials Could implement annually during Severe Weather Awareness Week and/or Preparedness Month using social media, posters, utility bill inserts, etc.
6. Discuss with Dunn County Information Technology and other area municipalities cost-sharing opportunities for cyber-security services and off-site data storage.	Medium; 2-5 years	Village Administrator; County Information Technology Director	Wisconsin Innovation Grant Program may provide funding for related study or implementation.

Sub-Plan Coordination and Integration

The previous capacity Assessment section identifies how this mitigation sub-plan has been integrated into or coordinated with other municipal plans or planning mechanisms. During the planning process, the following opportunities were identified to integrate the mitigation strategies into other community planning mechanisms:

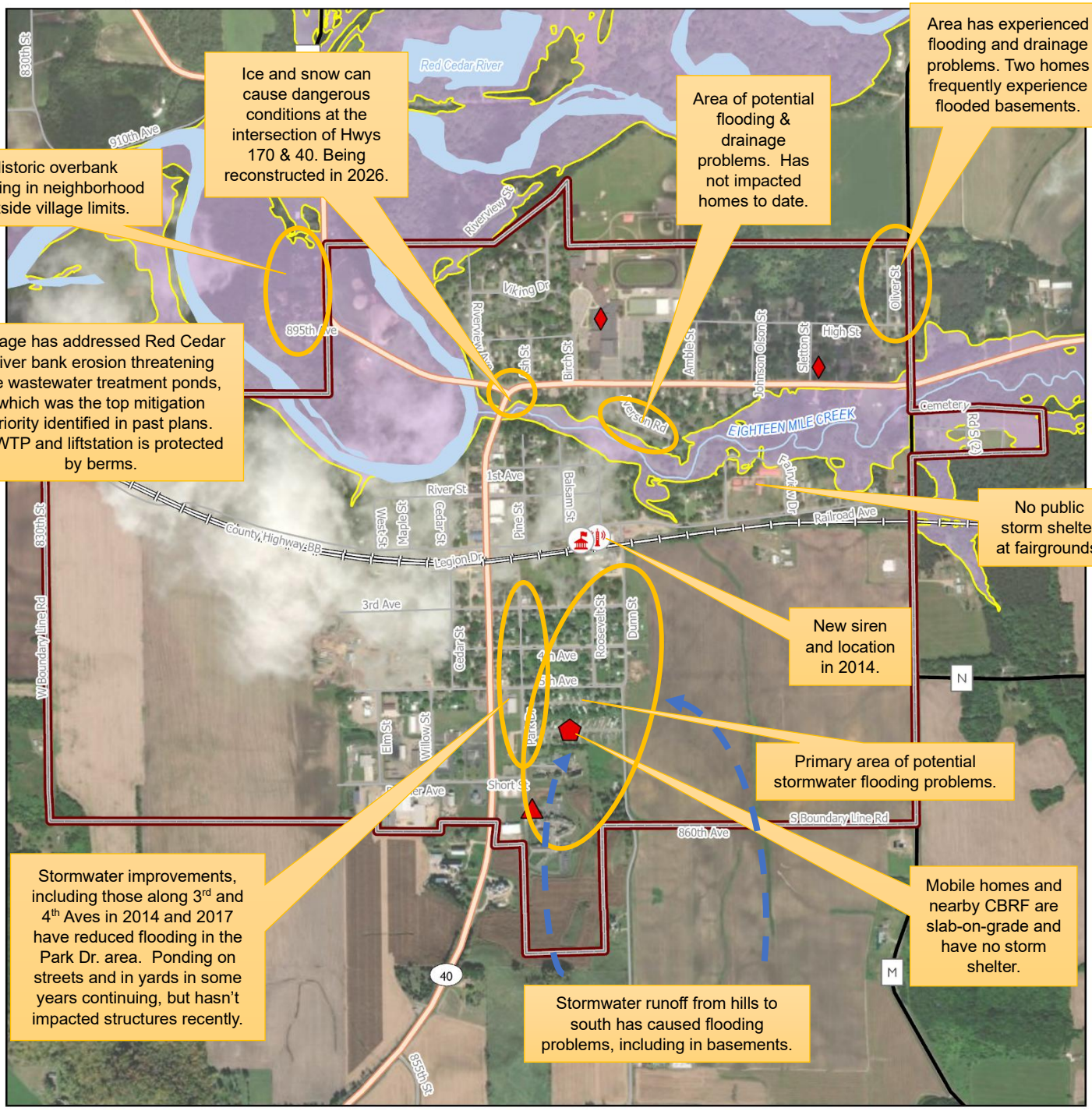
- The Village is expected to update its comprehensive plan in the future. This is an opportunity to integrate mitigation strategies, including obtaining public input on the need for additional community safe rooms.
- Integrate sub-plan recommendations as part of the Village's Emergency Operation Plan.
- The next section describes how this sub-plan will be maintained, including a periodic review of opportunities to strengthen the coordination and integration with other planning mechanisms.

Sub-Plan Adoption and Maintenance

Plan Adoption	Once updated, the community's governing body will adopt the County's overall hazard mitigation plan (and any future revisions/amendments) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This community-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The community may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	During the second quarter of each year or following a declared disaster event, the primary mitigation plan contact will review this Mitigation Sub-Plan concurrently with (at the same time as) the annual review of the municipal Emergency Operations Plan. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. The community's planning contact will contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. The community may also request that the County consider changes to the County's overall mitigation plan. 2. Provide the suggested changes to the community's emergency planning committee, plan commission, or governing body for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the governing body will adopt the Sub-Plan as noted previously. Such changes will be limited to this community-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The community intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The community will provide opportunities for public participation throughout its mitigation planning processes, including: (1) all governing body or committee actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

VILLAGE OF COLFAX - HAZARD ASSESSMENT

Dunn County - 2026



Legend

- Municipal Boundaries
- 100-yr Floodplain
- Hospital
- School
- Mobile Home Park
- Assisted Living
- Government Building
- Storm Siren
- Dam w/High or Significant Hazard Rating

WEST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

0 0.17 0.35 0.7 Miles

Data Sources: Dunn County, WDHS, WDNR, WisDOT, WDOA, FEMA, WCWRPC.

N

VILLAGE OF DOWNING HAZARD MITIGATION SUB-PLAN

This sub-plan identifies past hazard events, risks, trends, capabilities, and strategies unique to or specific to the community and is part of the overall *Dunn County Multi-Hazard Mitigation Plan*. The Dunn County mitigation plan provides broader context and contains hazard assessments, capabilities, and strategies that are countywide or multi-jurisdictional.

Primary Contact:	Village Clerk
Planning Meetings:	• Primary planning meeting with WCWRPC staff occurred on 02/26/26. • • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by Village Board at a public meeting. Resolution included in Section VII.

Community Profile

This table provides a brief overview of key community characteristics, primarily from the 2020 U.S. Census, which are important to assessing capacity and vulnerabilities. For example, the entire population and all above-ground structures in the community are vulnerable to a tornado event, while mobile homes have an elevated vulnerability.

Population	234
Median Age	41.9 years
Uniquely vulnerable populations	Seniors; mobile home park residents; Economic disadvantaged rural community
Assessed Improvements (2024)	Residential: $10,103,500; Commercial: $694,600; Manuf.: $0
# of Housing units	102
# of Mobile Homes	11
Notable Community Lifelines or Critical Facilities	Village Hall. See map at end of sub-plan.

Hazard Risk Assessment

This table describes past hazard events impacting the community and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the community. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all communities.

Hazard	History & Past Impacts	Vulnerabilities & Potential Impacts
Tornado & High Winds	No history or unique issues.	Mobile home park. Most residents have basements or know kin or neighbors with basements if needed, but no storm shelter available.
Hail & Lightning	No unique history noted.	No unique concerns noted.
Winter Storm, Ice, & Extreme Cold	No unique history noted.	One steep driveway can be a challenge when icy. Snow loads on buildings. No municipal water.
Extreme Heat	No unique history noted.	Good water quality/quantity; no municipal water.

Long-Term Power Outage	No unique issues noted. Longest in recent history has been 12-14 hour in January, which was a hardship for some residents.	Lift station lacks fixed generator. Village Hall is EOC; lacks generator. Glenwood City provides municipal sewer and their plant has generator.
Flooding – Riverine or Overbank	No serious flooding since 1954; Glenwood Hills Dams have largely mitigated.	1 lift station and a few homes in floodplain, which occasionally floods, but no significant structural damages noted in last 20+ years.
Flooding – Stormwater or Overland	Countyline Road on northwest side of Village has washed out at creek crossings in past; debris build-up can exacerbate flooding concerns in this area.	Possible road closure on Countyline Road, but has been temporary in past. For the Village, stormwater feeding into the liftstation has been a greater concern. Many homes with basements have sump pumps.
Dams	No modern history of dam-related flooding.	Significant parts of the Village and development are in the dam shadow for Glenwood Hills Dam #10. The dam is in good repair.
Drought	No unique history noted.	Fire Department may benefit from installation of a dry hydrant in area due to lack of municipal water.
Wildfire	No significant events.	Good water quality/quantity; no municipal water.
Hazardous Materials Spills	No significant events in the community.	Agri-chemicals being transported through the community only concern noted.
Active Threats	No significant events in the community.	No unique vulnerabilities noted.
Cyber-Attack	No incidents to date.	No unique concerns noted; Data backed-up off-site

Notable Trends or Changing Priorities

Have any hazard-related priorities changed since the previous mitigation plan?	None noted.
Are there any other trends influencing these concerns, such as changes in development, demographics, or weather patterns/climate?	Increasing frequency and severity of severe weather systems including downpours, wind events (including tornados) and extreme temperatures. Climate may be influencing these trends, including extending the tornado season into the fall and winter months.

Capabilities Assessment

The following is a general assessment of the community's resiliency and capabilities to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms. This assessment was completed by the community through the 2025 web-based survey, with some supplemental information from the community meeting and other sources (e.g., fire department survey, NFIP Community Status Book). The list of potential plans, policies, and other actions is not exhaustive, and it is not expected that the community has undertaken all actions listed or will undertake all actions in the future.

Planning Activities	
Community Emergency Operations or Response Plan (EOP)	No plan
Community Evacuation Plan and/or Exercises	No plan
Continuity of Government Plan	No plan
Comprehensive Plan	Unknown

Stormwater Management Plan	No plan
Historic Preservation Plan or Ordinance	No plan
Capital Improvements Plan or Similar Budget	No plan
Involve Fire & Law Enforcement in planning & development plan review	Doing this as needed; local fire/EMS, Dunn County, and DNR (for flooding) has plans in place for Village.
Policies, Codes, & Ordinances	
Building Codes	Adopted; does not incorporates mitigation or preparedness
Building Code Efficiency Grading Schedule	Unknown
Zoning Ordinance	Unknown
Subdivision Ordinance	Unknown
Site Plan Review Requirements	Unknown
Floodplain Management	
Initial Flood Hazard Boundary Map:	11/08/1974
Initial FIRM Identified:	09/04/1986
Current Effective FIRM Date:	12/02/2011
Date Community First Joined NFIP (Reg-Emer)	-
NFIP Participation Status (and reason if not participating):	Non-participant; suspended 12/05/2011
Floodplain Regulations w/ NFIP standards:	No
Designated position or committee for floodplain management, floodplain zoning, & NFIP compliance:	Village Board
Other ongoing floodplain management activities:	Working to address NFIP status. Floodplain ordinance may be out of date.
Stormwater Management Ordinance	Unknown
Stormwater Utility	Unknown
Winter Emergency Policies	Unknown
Mitigation & Preparedness Actions for Facilities	
Debris Site identified for storm debris disposal (not just woody debris)	No
Emergency Operations Center designated with generator/back-up power	No
Public Storm Shelter/Community Safe Room designated	No need identified; most residents with basements or have kin/neighbor that offers shelter if needed
Public Heating/Cooling Shelter designated with generator/back-up power	No
Storm/warning siren on back-up power	Yes;
Storm/warning siren that can be activated remotely	No; no siren except during high winds but can hear Boyceville and Glenwood City sirens
Active shooter/threat plans and/or security hardening for municipal buildings	No
Other Mitigation & Preparedness Actions	
Review EOP at least annually	Yes
Individuals in EOP have ICS/NIMS training	Some; limited familiarity with NIMS/ICS training.
Public Information Officer designated & trained	Unknown
Municipal officials and staff participate in regular disaster or emergency response exercises	No
Community-level efforts to improve hazard preparedness among residents	No
Adopted billing rates for public works labor & equipment use during emergencies	No
Adopted mutual aid agreements for public works equipment/personnel support	Has mutual aid with Glenwood City and Boyceville for fire and ambulance; basic mutual aid for public works as needed

Adopted emergency contracting and purchasing policies	No
Cyber-security systems, off-site/cloud back-up, and recovery policies or plans for municipal records	Unknown
Cyber-security systems and policies for municipal utilities	No
Municipal buildings/staff have NOAA All Hazards Radios or signed-up for Code Red	No
Other Flood Mitigation projects or activities	No.
Municipal Dam-related planning or actions	No municipal dam.
Barriers to mitigation or preparedness actions	Need to complete FEMA Incident Command and NIMS trainings. Limited funding; some mitigation actions would be dependent on grant funding. No full-time employees
Other vulnerabilities:	Public health concerns noted with trash and burning.
Other:	Relies on local fire/EMS and Dunn County Sheriff Dept.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section V.A. of the Dunn County mitigation plan are shared by all participating communities.

The community will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Section V.B. & C. of the Dunn County mitigation plan discusses additional mitigation and preparedness actions that are intergovernmental in nature and not specific to the community, but may suggest coordination and funding opportunities.

The following recommended actions/projects are specific to the community:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Update and annually review the Village's Emergency Operations Plan.	High; ongoing	Village Board & Glenwood Fire	County Emergency Management can provide a template and guidance.
2. Explore funding for a fixed generator for the liftstation.	Medium-to-High; 3-5 years	Village Board	Grant funding for generators is limited; more options if part of a larger project. See countywide generator-related recommendation in Section V.B.
3. Evaluate the Village's non-participating status under the National Flood Insurance Program (NFIP) and its implications for the Village and landowners. Adoption of the latest floodplain maps and model ordinance would be required to remove the sanctioned status.	Medium; 2-5 years	Village Clerk & Village Board	Village recently discussed status with WCWRPC as part of plan update. WCWRPC & WDNR Floodplain Management program available for guidance.

4. Continue to monitor flooding and stormwater challenges in the Village. Should repetitive flood losses be experienced, assess the need for hydraulic studies and the feasibility of mitigation alternatives. Update the mitigation sub-plan if needed.	Medium-to-Low; ongoing	Village Board	Flood studies and mitigation projects are eligible for FEMA and State mitigation grant funding. Contact County Emergency Management or WCWRPC for more information.
5. Should the construction of a new Village Hall be considered in the future, explore grant funding for the integration of a community safe room (storm shelter) with generator, if there is public demand. If a generator and HVAC system are provided, consider using the safe room space as a heating/cooling shelter and emergency assembly location.	Low; 5+ years	Residents should express need; Village Board	FEMA Hazard Mitigation Grant Programs (BRIC & HMA) FEMA Technical Assistance or Advanced Assistance grant funding could be available to assist with exploring storm hardening options. WCWRPC and Wisconsin Emergency Management can provide grant-related guidance
6. As opportunities allow, collaborate with County Emergency Management and other partners (e.g., Public Health, Red Cross, Electric Provider) to increase public participation in CodeRed, awareness of emergency siren use and warning systems, and public preparedness in general.	Medium-to-High; ongoing	Village Clerk (or designee); Fire Department	County Emergency Management & partners have educational materials Could implement annually during Severe Weather Awareness Week and/or Preparedness Month using social media, posters, utility bill inserts, etc.

Sub-Plan Coordination and Integration

The previous capacity Assessment section identifies how this mitigation sub-plan has been integrated into or coordinated with other municipal plans or planning mechanisms. During the planning process, the following opportunities were identified to integrate the mitigation strategies into other community planning mechanisms:

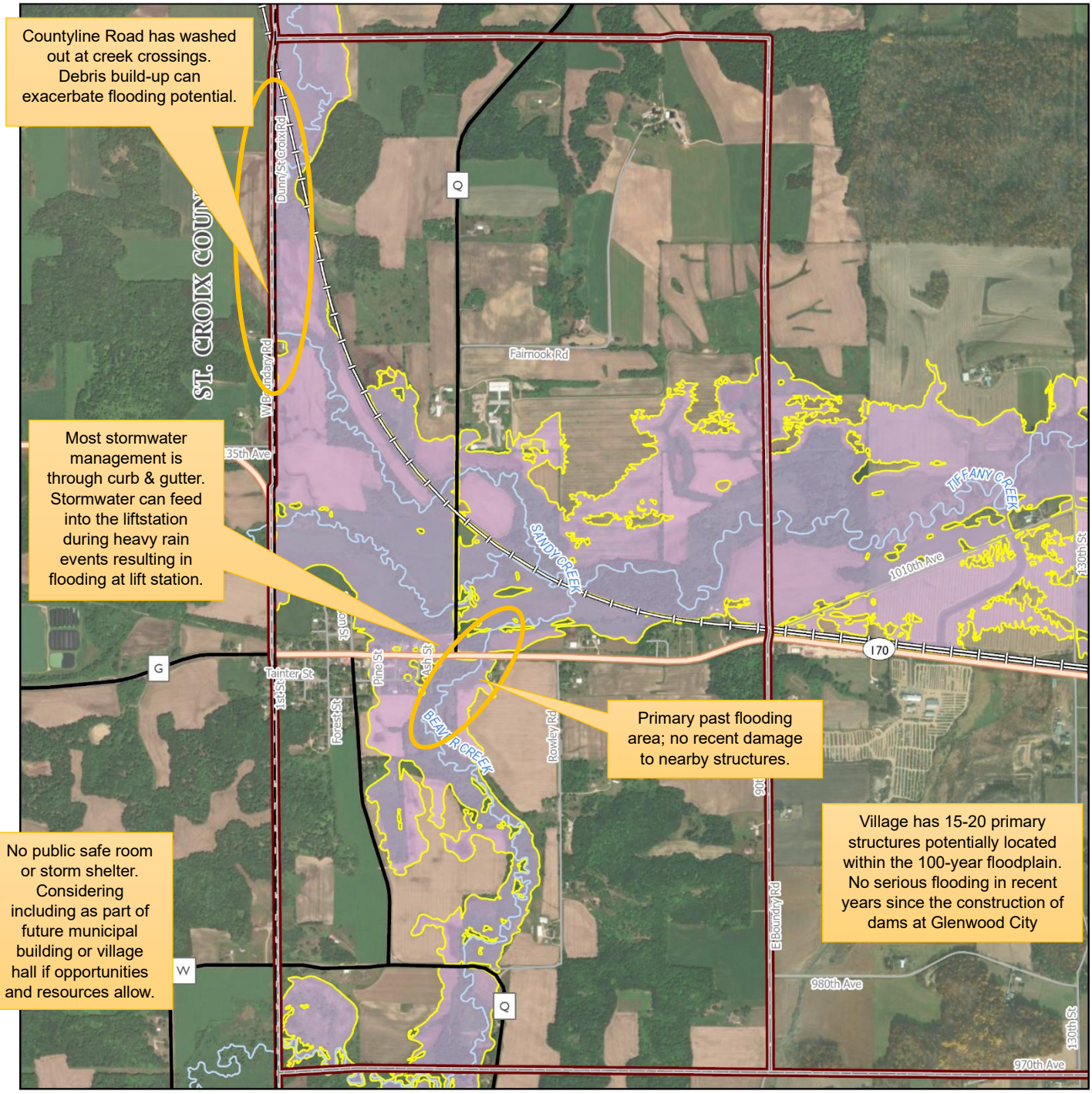
- Integrate mitigation sub-plan recommendations into the Village's Emergency Operations Plan.
- The next section describes how this sub-plan will be maintained, including a periodic review of opportunities to strengthen the coordination and integration with other planning mechanisms.

Sub-Plan Adoption and Maintenance

Plan Adoption	Once updated, the community's governing body will adopt the County's overall hazard mitigation plan (and any future revisions/amendments) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This community-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The community may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	During the second quarter of each year or following a declared disaster event, the primary mitigation plan contact will review this Mitigation Sub-Plan concurrently with (at the same time as) the annual review of the municipal Emergency Operations Plan. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. The community's planning contact will contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. The community may also request that the County consider changes to the County's overall mitigation plan. 2. Provide the suggested changes to the community's emergency planning committee, plan commission, or governing body for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the governing body will adopt the Sub-Plan as noted previously. Such changes will be limited to this community-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The community intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The community will provide opportunities for public participation throughout its mitigation planning processes, including: (1) all governing body or committee actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

VILLAGE OF DOWNING- HAZARD ASSESSMENT

Dunn County - 2026



Legend

- Municipal Boundaries
- 100-yr Floodplain
- Hospital
- School
- Mobile Home Park
- Assisted Living
- Government Building
- Storm Siren
- Dam w/High or Significant Hazard Rating

WEST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

0 0.25 0.5 1 Miles

Data Sources:
Dunn County, WDHS, WDNR, WisDOT, WDOA, FEMA, WCWRPC.

N

VILLAGE OF ELK MOUND HAZARD MITIGATION SUB-PLAN

This sub-plan identifies past hazard events, risks, trends, capabilities, and strategies unique to or specific to the community and is part of the overall *Dunn County Multi-Hazard Mitigation Plan*. The Dunn County mitigation plan provides broader context and contains hazard assessments, capabilities, and strategies that are countywide or multi-jurisdictional.

Primary Contact:	Police Chief
Planning Meetings:	• Primary planning meeting with WCWRPC staff occurred on 11/3/25. • Village participated in a mitigation/preparedness capabilities assessment in November 2025. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by Village Board at a public meeting. Resolution included in Section VII.

Community Profile

This table provides a brief overview of key community characteristics, primarily from the 2020 U.S. Census, which are important to assessing capacity and vulnerabilities. For example, the entire population and all above-ground structures in the community are vulnerable to a tornado event, while mobile homes have an elevated vulnerability.

Population	985
Median Age	34.0 years
Uniquely vulnerable populations	Seniors; mobile home park residents; Economic disadvantaged rural community
Assessed Improvements (2024)	Residential: $44,484,000; Commercial: $16,851,600; Manuf.: $0
# of Housing units	414
# of Mobile Homes	46
Notable Community Lifelines or Critical Facilities	School facilities. Marshfield Clinic Building. See map at end of sub-plan.

Hazard Risk Assessment

This table describes past hazard events impacting the community and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the community. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all communities.

Hazard	History & Past Impacts	Vulnerabilities & Potential Impacts
Tornado & High Winds	Significant past history of damage-producing storms. 1980 wind storm caused significant damage, but no unique issues. Tornado one mile from Village in 1998. May 2018 wind storm damaged trees, which took down power lines, especially near/along N. Holly Ave. Damage to homes and trees, especially on the south-side of the Village, were experienced during the September 2019 EF3 tornado event. This tornado caused serious damage to two duplexes and	Mobile home park, 4-plexes, duplexes, & apartments are slab-on-grade with no basements or shelters. School facilities and Marshfield Clinic; 2019 tornado missed Elementary School by about 100 yards. Outdoor events at park or school. After recent hail and wind/tornada events, there were concerns expressed with storm-chasing contractors seeking repair work.

	pavilion at Lions Park; a gas meter was also damaged, which was potentially life-threatening.	
Hail & Lightning	No unique history noted. Some hail events in Summer 2025 notes with vehicle and roof damage.	No unique concerns noted.
Winter Storm, Ice, & Extreme Cold	Occasional water main or lateral breaks due to freeze-ups. Snow removal during heavy snows can be a challenge. February 2019 blizzard.	No unique issues or concerns noted.
Extreme Heat	No unique history noted.	No unique concerns noted, though should continue to monitor given that such events may be increasing.
Long-Term Power Outage	Most outages are less than 4 hours. Last significant event in past decades was due to 2018 windstorm and some areas without power for about 24 hours. Historically, outages tend to be more common south of USH 12; shale bedrock limits ability to bury power lines.	Most of Village provided electric by Xcel Energy. Fire Hall lacks generator. Since last mitigation plan, generator added at Village Hall/Police Dept/EOC. Generator at wwtp; public works could benefit from a backup portable generator. Sharing a portable with Wheeler if needed.
Flooding – Riverine or Overbank	No floodplain.	Not applicable.
Flooding – Stormwater or Overland	Runoff from north and hill towards south; USH 12 impassible about 20 yrs ago just south of school ballfields. Basement flooding, especially Wapiti area, but has problems have improved with better landscaping, use of drain pipes, and sump pumps. Stormwater previously overwhelmed drainage system near corner of USH 12 and Division St. and near Village Hall in past but not recently and no structural damage to date.	Overall, heavy rain have been manageable and stormwater improvements/ditching has improved some past challenges. No repetitive concerns or significantly structural vulnerabilities noted.
Dams	None.	Not applicable.
Drought	No issues to date.	WWTP discharge could potentially approach regulatory limits should wetlands/stream dry-up in long-term drought; Village continuing to monitor
Wildfire	No significant events.	Significant wooded areas on Elk Mound hill with homes at base. Overall, low-lying grasslands are also a wildfire concern. Conducted a tabletop exercise regarding related notification and evacuation should a wildfire occur. Good water quantity for fire protection.
Hazardous Materials Spills	No unique history or events.	Train derailment and proximity to I-94 and Highway 29 were noted as primary concerns. Conducted a haz mat spill tabletop exercise.
Active Threats	No significant events in the community. A student made threats in February 2020 with an unloaded firearm.	New Village Center provides some hardened security protection vs. previous offices. Village Police participants in regular ALICE training and planning with School and County.
Cyber-Attack	No history or incidents to date.	No unique concerns noted. Cloud-based and off-site data back-ups.

Notable Trends or Changing Priorities

Have any hazard-related priorities changed since the previous mitigation plan?	Increased discussion of high wind and tornado potential during plan update, increasing the need to engage the church in formalizing a storm shelter use agreement or, possibly, pursuing an alternate safe room option. Additional attention to active threats and hazard mat spills.
Are there any other trends influencing these concerns, such as changes in development, demographics, or weather patterns?	Increasing frequency and severity of severe weather systems including downpours, wind events (including tornados) and extreme temperatures.

Capabilities Assessment

The following is a general assessment of the community's resiliency and capabilities to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms. This assessment was completed by the community through the 2025 web-based survey, with some supplemental information from the community meeting and other sources (e.g., fire department survey, NFIP Community Status Book). The list of potential plans, policies, and other actions is not exhaustive, and it is not expected that the community has undertaken all actions listed or will undertake all actions in the future.

Planning Activities	
Community Emergency Operations or Response Plan (EOP)	Adopted; incorporates mitigation or preparedness
Community Evacuation Plan and/or Exercises	Adopted; incorporates mitigation or preparedness. Train could block access and hamper evacuation.
Continuity of Government Plan	Adopted; does not incorporate mitigation or preparedness
Comprehensive Plan	Adopted; does not incorporate mitigation or preparedness
Stormwater Management Plan	Unknown
Historic Preservation Plan or Ordinance	No plan
Capital Improvements Plan or Similar Budget	No formal plan.
Involve Fire & Law Enforcement in planning & development plan review	Doing this as needed.
Policies, Codes, & Ordinances	
Building Codes	Adopted; incorporates mitigation or preparedness
Building Code Efficiency Grading Schedule	Unknown
Zoning Ordinance	Adopted; incorporates mitigation or preparedness
Subdivision Ordinance	Adopted; incorporates mitigation or preparedness
Site Plan Review Requirements	Adopted; incorporates mitigation or preparedness
Floodplain Management	No floodplain; not applicable.
Initial Flood Hazard Boundary Map:	
Initial FIRM Identified:	
Current Effective FIRM Date:	
Date Community First Joined NFIP (Reg-Emer)	
NFIP Participation Status:	
Floodplain Regulations w/ NFIP standards:	
Designated position or committee for floodplain management, floodplain zoning, & NFIP compliance:	
Other ongoing floodplain management activities:	No floodplain; continue public education on gutters/drain pipes, sump pump use, backflow, etc.

Stormwater Management Ordinance	Does have stormwater management plan; Village has "done what it can do" in terms of stormwater.
Stormwater Utility	Adopted; incorporates mitigation or preparedness
Winter Emergency Policies	Adopted; incorporates mitigation or preparedness
Mitigation & Preparedness Actions for Facilities	
Debris Site identified for storm debris disposal (not just woody debris)	Yes
Emergency Operations Center designated with generator/back-up power	Yes
Public Storm Shelter/Community Safe Room designated	Yes; currently provided at Lutheran Church. Interested in exploring formal agreement with Church and retrofitting remote unlock at church and/or construction of new safe room.
Public Heating/Cooling Shelter designated with generator/back-up power	Yes, but not on emergency power; at Church and not activated in past.
Storm/warning siren on back-up power	Yes
Storm/warning siren that can be activated remotely	Yes
Active shooter/threat plans and/or security hardening for municipal buildings	Some hardening as part of new Village Hall. No specific Village Halls. Very active planning with School District.
Other Mitigation & Preparedness Actions	
Review EOP at least annually	Yes; reviewed and updated
Individuals in EOP have ICS/NIMS training	Some; ICS and basic responsibility training needed for local officials.
Public Information Officer designated & trained	Yes
Municipal officials and staff participate in regular disaster or emergency response exercises	Yes.
Community-level efforts to improve hazard preparedness among residents	Yes
Adopted billing rates for public works labor & equipment use during emergencies	Yes
Adopted mutual aid agreements for public works equipment/personnel support	Yes
Adopted emergency contracting and purchasing policies	Yes
Cyber-security systems, off-site/cloud back-up, and recovery policies or plans for municipal records	Yes
Cyber-security systems and policies for municipal utilities	Yes
Municipal buildings/staff have NOAA All Hazards Radios or signed-up for Code Red	Yes
Other Flood Mitigation projects or activities	None noted
Municipal Dam-related planning or actions	No municipal dam
Barriers to mitigation or preparedness actions	Funding for storm hardening/safe room. Time for training. Growing transient, rental population.
Other vulnerabilities:	Some coverage gaps continuing with pagers; sometimes resort to phones. Some Hmong and Hispanic population but no ESL concerns requiring action at this time. Significant turnover in population; newer or shorter-term residents may lack awareness of threats, preparedness, warning systems, shelter availability, resources, etc.
Other:	Siren in good repair, Public Works and police radios recently updated. Would need to consider railroad and I94 barriers when siting new safe room if pursued.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section V.A. of the Dunn County mitigation plan are shared by all participating communities.

The community will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Sections V.B. and C. of the Dunn County mitigation plan includes additional mitigation and preparedness actions that are intergovernmental in nature and not specific to the community, but may suggest coordination and funding opportunities.

The following recommended actions/projects are specific to the community:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Collaborate with the church to formalize the storm shelter use agreement and any related procedures (e.g., unlocking, supervision). Discuss interest in grant funding to add a remote unlock for the door, storm hardening, and/or accessibility improvements. If the church is not available for use as a storm shelter, explore designation or development of a community safe room (storm shelter) for the mobile home parks (campground, park users), if there is increased community demand. If a generator and HVAC system are provided, consider using the safe room space as a heating/cooling shelter and emergency assembly location.	Medium-to-High; 3-5 years Timeline could change based on public demand for safe room or building projects.	Village Safety Committee/Team Church representatives	If there is a need for grant funding for remote unlock/hardening or safe room, the following may be available… FEMA Hazard Mitigation Grant Programs (BRIC & HMA) FEMA Technical Assistance or Advanced Assistance grant funding could be available to assist with exploring storm hardening options. WCWRPC and Wisconsin Emergency Management can provide grant-related guidance
2. Continue to monitor past stormwater challenges and require stormwater management as part of new development.	Medium; ongoing	Village Public Works; Village Plan Commission and Board	Various grants and funding options are available for flood mitigation and stormwater management improvements; reach out to WCWRPC for more information if stormwater flooding becomes a concern.

3. Continue to maintain and annually review the Village's Emergency Operations Plan. Include Village elected officials and staff as part of exercises to increase their familiarity with the Incident Command System and roles.	High; ongoing	Village Safety Committee/Team	County Emergency Management can provide guidance if needed. Disaster Ready Chippewa Valley has a continuity planning template that may be helpful.
4. Village Police Department will continue to collaborate with the School District and Dunn County Sherrif's Department on active threats (e.g., ALICE) planning and training. Encourage the scheduling of a functional active threats exercise with all partners.	High; ongoing	School District & Village Police Department	County Sherrif's Department & DPI/CISA. Consider inclusion of functional exercise as part of County Emergency Management's Integrated Preparedness Plan.
5. Conduct a hazardous spill tabletop exercise involving response agencies and Village/Town elected officials. This could be a multi-community event, perhaps focused on an Interstate or Railroad-based spill.	Medium; 3-5 years	Village Safety Committee/Team w/ Fire Department and County Emergency Management	Encourage inclusion as part of County Emergency Management's Integrated Preparedness Plan. Commodity Flow Study may suggest the type of HazMat release for the exercise.
6. Using the Village newsletter and social media, continue to collaborate with County Emergency Management and other partners (e.g., Public Health, Red Cross, Electric Providers, ADRC) to increase public participation in CodeRed, awareness of emergency siren use and warning systems, and public preparedness in general. Encourage partners to consider specialized outreach efforts targeting: (1) renter and more transient populations, such as a new resident fact sheet and (2) precautions regarding non-local contractors following a severe storm event.	High; ongoing	Village Police/Safety Team; Fire Department	County Emergency Management & partners have educational materials Could implement annually during Severe Weather Awareness Week and/or Preparedness Month using social media, posters, utility bill inserts, etc.

Sub-Plan Coordination and Integration

The previous capacity assessment section identifies how this mitigation sub-plan has been integrated into or coordinated with other municipal plans or planning mechanisms. During the planning process, the following opportunities were identified to integrate the mitigation strategies into other community planning mechanisms:

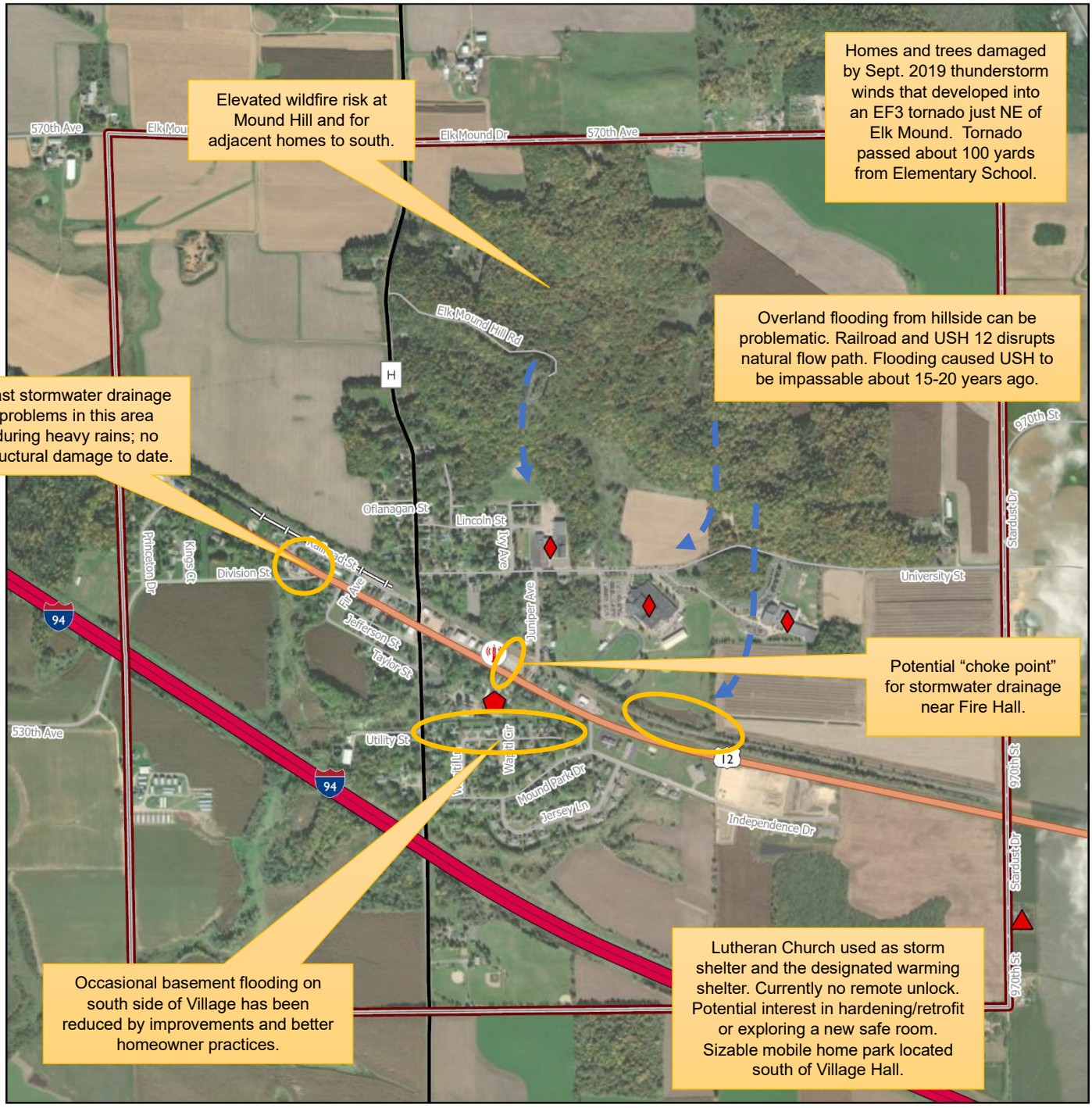
- The Village will integrate mitigation sub-plan recommendations into its Emergency Operations Plan and will continue to identify continuity of government services strategies should key personnel, equipment, or facilities be disrupted by a disaster event.
- Explore opportunities to better integrate this mitigation sub-plan into the next update of the Village's comprehensive plan in the future. This is an opportunity to integrate mitigation strategies, including obtaining public input on the need for additional community safe rooms.
- The next section describes how this sub-plan will be maintained, including a periodic review of opportunities to strengthen the coordination and integration with other planning mechanisms.

Sub-Plan Adoption and Maintenance

Plan Adoption	Once updated, the community's governing body will adopt the County's overall hazard mitigation plan (and any future revisions/amendments) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This community-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The community may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	During the second quarter of each year or following a declared disaster event, the primary mitigation plan contact will review this Mitigation Sub-Plan concurrently with (at the same time as) the annual review of the municipal Emergency Operations Plan. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. The community's planning contact will contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. The community may also request that the County consider changes to the County's overall mitigation plan. 2. Provide the suggested changes to the community's emergency planning committee, plan commission, or governing body for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the governing body will adopt the Sub-Plan as noted previously. Such changes will be limited to this community-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The community intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The community will provide opportunities for public participation throughout its mitigation planning processes, including: (1) all governing body or committee actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

VILLAGE OF ELK MOUND - HAZARD ASSESSMENT

Dunn County - 2026



Legend

- Municipal Boundaries
- 100-yr Floodplain
- Hospital
- School
- Mobile Home Park
- Assisted Living
- Government Building
- Storm Siren
- Dam w/High or Significant Hazard Rating

WEST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

0 0.17 0.35 0.7 Miles

Data Sources:
Dunn County, WDHS, WDNR, WisDOT, WDOA, FEMA, WCWRPC.

N

VILLAGE OF KNAPP HAZARD MITIGATION SUB-PLAN

This sub-plan identifies past hazard events, risks, trends, capabilities, and strategies unique to or specific to the community and is part of the overall *Dunn County Multi-Hazard Mitigation Plan*. The Dunn County mitigation plan provides broader context and contains hazard assessments, capabilities, and strategies that are countywide or multi-jurisdictional.

Primary Contact:	Village Clerk/Treasurer
Planning Meetings:	• Primary planning meeting with WCWRPC staff occurred on 2/19/26. • Village completed capabilities assessment survey in March 2026. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by Village Board at a public meeting.

Community Profile

This table provides a brief overview of key community characteristics, primarily from the 2020 U.S. Census, which are important to assessing capacity and vulnerabilities. For example, the entire population and all above-ground structures in the community are vulnerable to a tornado event, while mobile homes have an elevated vulnerability.

Population	478
Median Age	46.0 years
Uniquely vulnerable populations	Elementary school students; mobile home park residents; Economic disadvantaged community
Assessed Improvements (2024)	Residential: $16,534,900; Commercial: $4,322,000; Manuf.: $1,087,400
# of Housing units	229
# of Mobile Homes	69
Notable Community Lifelines or Critical Facilities	Elementary School. See map at end of sub-plan.

Hazard Risk Assessment

This table describes past hazard events impacting the community and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the community. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all communities.

Hazard	History & Past Impacts	Vulnerabilities & Potential Impacts
Tornado & High Winds	Some impacts from 1958 tornado, but primarily non-structural. June 1980 high winds tipped over a trailer.	Mobile home park; owner's home was available as a shelter in past, but no longer available.
Hail & Lightning	No unique history noted.	No unique concerns noted.
Winter Storm, Ice, & Extreme Cold	Some water line freeze-ups in 2014-2015 and 2019; residents were given credits for dripping.	No unique concerns noted.
Extreme Heat	No unique history noted.	No unique concerns noted; good water quality/quantity.

Long-Term Power Outage	3-day outage during summer in mid-1980s	1 aging portable generator; need additional.
Flooding – Riverine or Overbank	No history of riverine flooding in Village. Was previously working to modify FIRM maps to decrease floodplain area.	No unique concerns noted.
Flooding – Stormwater or Overland	In the past, during rapid spring melt or heavy rains, water runs down from hills to south causing basement, street, and yard flooding, which was especially bad for 4-6 homes	Cleaned out and rip-rapped the hillside about 5-7 years ago, which significantly reduced runoff. About twice a decade, ponding on Main Street near Post Office and a home.
Dams	No modern history of dam failure.	No concerns noted.
Drought	No significant impacts within the Village from past droughts.	No unique concerns noted; good water quality/quantity from two wells.
Wildfire	No significant events.	No unique concerns noted; good water quality/quantity.
Hazardous Materials Spills	No significant events in the community.	Primary concerns are railroad and one fixed industry (paint).
Active Threats	No significant events in the community.	Elementary School is the most significant vulnerability.
Cyber-Attack	No history or issues noted.	No unique concerns noted.

Notable Trends or Changing Priorities

Have any hazard-related priorities changed since the previous mitigation plan?	None noted.
Are there any other trends influencing these concerns, such as changes in development, demographics, or weather patterns/climate?	None noted.

Capabilities Assessment

The following is a general assessment of the community's resiliency and capabilities to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms. This assessment was completed by the community through the 2025 web-based survey, with some supplemental information from the community meeting and other sources (e.g., fire department survey, NFIP Community Status Book). The list of potential plans, policies, and other actions is not exhaustive, and it is not expected that the community has undertaken all actions listed or will undertake all actions in the future.

Planning Activities	
Community Emergency Operations or Response Plan (EOP)	Adopted; does not incorporate mitigation or preparedness
Community Evacuation Plan and/or Exercises	Unknown
Continuity of Government Plan	Unknown
Comprehensive Plan	Outdated plan; will consider mitigation or preparedness in update
Stormwater Management Plan	Unknown

Historic Preservation Plan or Ordinance	No plan
Capital Improvements Plan or Similar Budget	Outdated plan; will consider mitigation or preparedness when updating
Involve Fire & Law Enforcement in planning & development plan review	Doing this as needed.
Policies, Codes, & Ordinances	
Building Codes	Unknown
Building Code Efficiency Grading Schedule	Unknown
Zoning Ordinance	Adopted; does not incorporate mitigation or preparedness
Subdivision Ordinance	Adopted; does not incorporate mitigation or preparedness
Site Plan Review Requirements	Unknown
Floodplain Management	
Initial Flood Hazard Boundary Map:	07/19/1974
Initial FIRM Identified:	05/04/1989
Current Effective FIRM Date:	12/02/2011
Date Community First Joined NFIP (Reg-Emer)	-
NFIP Participation Status (and reason if not participating):	Non-participant; suspended 05/04/1989 for failure to adopt updated floodplain maps.
Floodplain Regulations w/ NFIP standards:	No
Designated position or committee for floodplain management, floodplain zoning, & NFIP compliance:	Village Board
Other ongoing floodplain management activities:	Rip-rapping of hillside has mitigated some of the worst runoff. Continuing to address other stormwater and drainage challenges when funds available.
Stormwater Management Ordinance	Unknown
Stormwater Utility	None.
Winter Emergency Policies	None noted.
Mitigation & Preparedness Actions for Facilities	
Debris Site identified for storm debris disposal (not just woody debris)	Unknown
Emergency Operations Center designated with generator/back-up power	Community Hall used as EOC, but no generator.
Public Storm Shelter/Community Safe Room designated	Yes; Community Hall available if needed, but low use in 2025. Recommended to explore hardening options at Community Hall or new onsite safe room at mobile home park or, perhaps, at municipal park in future.
Public Heating/Cooling Shelter designated with generator/back-up power	No
Storm/warning siren on back-up power	Yes; new with battery back-up
Storm/warning siren that can be activated remotely	Yes
Active shooter/threat plans and/or security hardening for municipal buildings	No
Other Mitigation & Preparedness Actions	
Review EOP at least annually	Yes; currently being updated
Individuals in EOP have ICS/NIMS training	Some; uncertain if elected officials and everyone identified in EOP are familiar with NIMS/ICS.
Public Information Officer designated & trained	No; planning or considering implementation
Municipal officials and staff participate in regular disaster or emergency response exercises	No; planning or considering implementation
Community-level efforts to improve hazard preparedness among residents	No; planning or considering implementation
Adopted billing rates for public works labor & equipment use during emergencies	No; planning or considering implementation

Adopted mutual aid agreements for public works equipment/personnel support	"Handshake" agreements with nearby communities if needed
Adopted emergency contracting and purchasing policies	Unknown
Cyber-security systems, off-site/cloud back-up, and recovery policies or plans for municipal records	Yes
Cyber-security systems and policies for municipal utilities	Limited.
Municipal buildings/staff have NOAA All Hazards Radios or signed-up for Code Red	No; some individual staff may be signed-up for Code Red.
Other Flood Mitigation projects or activities	No.
Municipal Dam-related planning or actions	No municipal dam.
Barriers to mitigation or preparedness actions	Need to complete FEMA Incident Command and NIMS trainings. Limited funding; some mitigation actions would be dependent on grant funding.
Other:	AED installed at Village Hall and related training

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section V.A. of the Dunn County mitigation plan are shared by all participating communities.

The community will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Sections V.B. and C. of the Dunn County mitigation plan includes additional mitigation and preparedness actions that are intergovernmental in nature and not specific to the community, but may suggest coordination and funding opportunities.

The following recommended actions/projects are specific to the community:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Explore grant funding for the storm hardening of the Community Hall or a new, onsite community safe room at or near the mobile home park. If a generator and HVAC system are provided, consider using the safe room space as a heating/cooling shelter and emergency assembly location.	Medium; 3-5 years Timeline could change based on public demand for safe room or building projects.	Residents should express need; Village Board	FEMA Hazard Mitigation Grant Programs (BRIC & HMA) FEMA Technical Assistance or Advanced Assistance grant funding could be available to assist with exploring storm hardening options. WCWRPC and Wisconsin Emergency Management can provide grant-related guidance
2. Update and annually review the Village's Emergency Operations Plan (EOP). Encourage basic ICS/NIMS training for Board and individuals identified in the Village's EOP.	High; ongoing	Village Safety Committee	County Emergency Management can provide an EOP template and guidance for exercises.

Integrate any related procedures regarding the use of Community Hall as a reunification site for the school Consider exercising the EOP as part of a severe weather (tornado) or HazMat spill tabletop exercise.			
3. Evaluate the Village's non-participating status under the National Flood Insurance Program (NFIP) and its implications for the Village and landowners. Adoption of the latest floodplain maps and model ordinance would be required to remove the sanctioned status.	Medium; 2-5 years	Village Clerk & Village Board	Clerk recently discussed status with WCWRPC. WDNR Floodplain Management program available for guidance.
4. Consider adoption billing rates for public works labor and equipment use during emergencies.	Medium; 1-5 years	Village Clerk	WCWRPC has model resolution used by other communities that have adopted WDOT rates.
5. Continue to make residents aware of emergency warning systems (siren use) and the Community Hall's availability as a storm shelter. Encourage residents to sign-up for the County Code Red notification system.	High; ongoing	Village Clerk or Public Works	Could be included as part of social media or water bills. County Emergency Management can assist with messaging.
6. Continue to monitor flooding and stormwater challenges in the Village. Should repetitive flood losses be experienced, assess the need for hydraulic studies and the feasibility of mitigation alternatives. Update the mitigation sub-plan if needed.	Medium-to-Low; ongoing	Public Works	Flood studies and mitigation projects are eligible for FEMA and State mitigation grant funding. Contact County Emergency Management or WCWRPC for more information.

Sub-Plan Coordination and Integration

The previous capacity assessment section identifies how this mitigation sub-plan has been integrated into or coordinated with other municipal plans or planning mechanisms. During the planning process, the following opportunities were identified to integrate the mitigation strategies into other community planning mechanisms:

- The Village is encouraged to integrated strategies from this sub-plan into any future comprehensive plan updates, including obtaining public input on the need for additional community safe rooms.
- Ensure consistency between the Village's Emergency Operations Plan and this mitigation sub-plan.

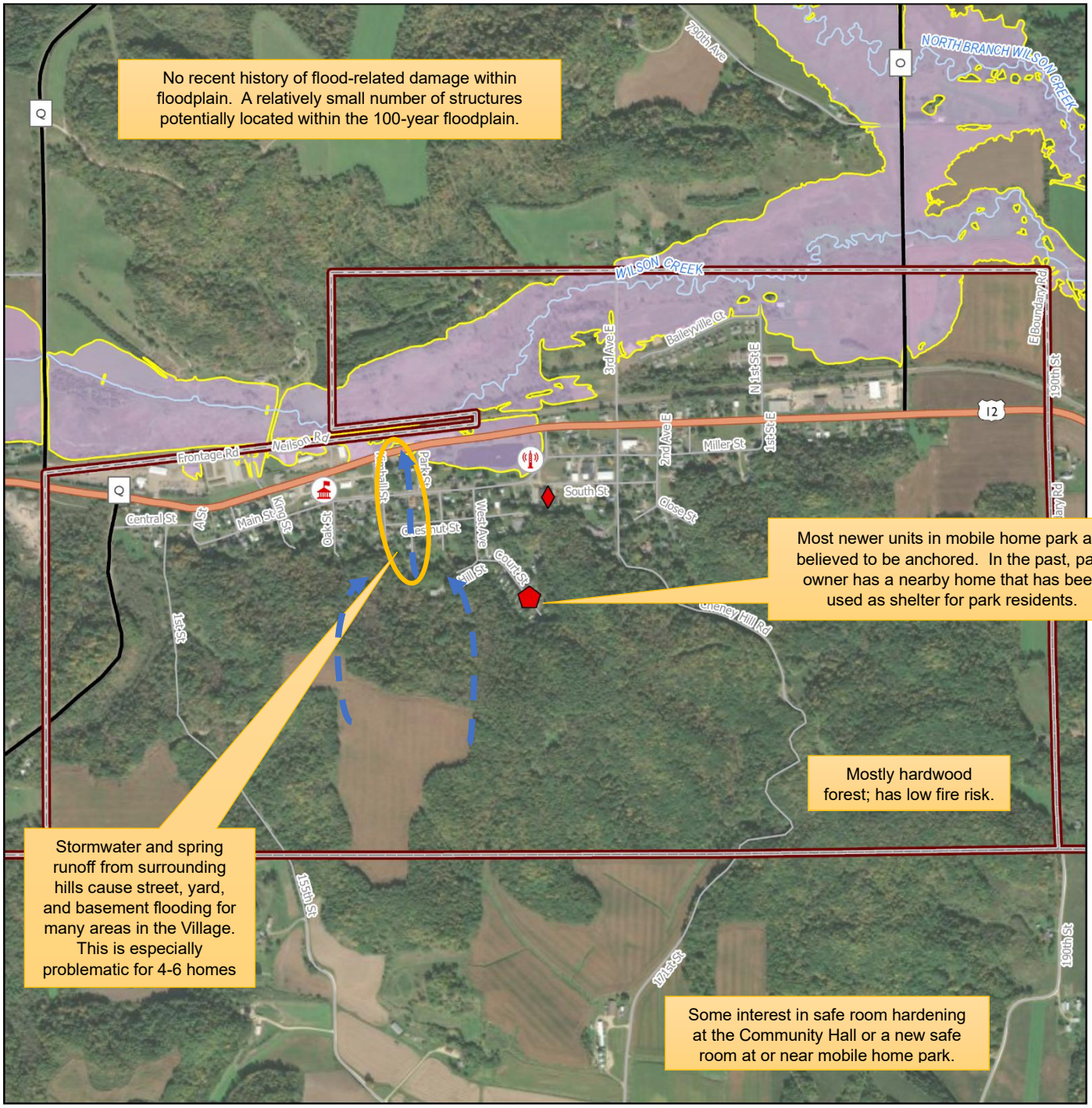
- The next section describes how this sub-plan will be maintained, including a periodic review of opportunities to strengthen the coordination and integration with other planning mechanisms.

Sub-Plan Adoption and Maintenance

Plan Adoption	Once updated, the community's governing body will adopt the County's overall hazard mitigation plan (and any future revisions/amendments) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This community-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The community may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	During the second quarter of each year or following a declared disaster event, the primary mitigation plan contact will review this Mitigation Sub-Plan concurrently with (at the same time as) the annual review of the municipal Emergency Operations Plan. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. The community's planning contact will contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. The community may also request that the County consider changes to the County's overall mitigation plan. 2. Provide the suggested changes to the community's emergency planning committee, plan commission, or governing body for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the governing body will adopt the Sub-Plan as noted previously. Such changes will be limited to this community-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The community intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The community will provide opportunities for public participation throughout its mitigation planning processes, including: (1) all governing body or committee actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

VILLAGE OF KNAPP - HAZARD ASSESSMENT

Dunn County - 2026



Legend

- Municipal Boundaries
- 100-yr Floodplain
- Hospital
- School
- Mobile Home Park
- Assisted Living
- Government Building
- Storm Siren
- Dam w/High or Significant Hazard Rating

WEST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

0 0.17 0.35 0.7 Miles

Data Sources:
Dunn County, WDHS, WDNR, WisDOT, WDOA, FEMA, WCWRPC.

N

VILLAGE OF WHEELER HAZARD MITIGATION SUB-PLAN

This sub-plan identifies past hazard events, risks, trends, capabilities, and strategies unique to or specific to the community and is part of the overall *Dunn County Multi-Hazard Mitigation Plan*. The Dunn County mitigation plan provides broader context and contains hazard assessments, capabilities, and strategies that are countywide or multi-jurisdictional.

Primary Contact:	Village Clerk
Planning Meetings:	• Primary planning meeting with WCWRPC staff occurred on 10/28/25. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by Village Board at a public meeting. Resolution included in Section VII.

Community Profile

This table provides a brief overview of key community characteristics, primarily from the 2020 U.S. Census, which are important to assessing capacity and vulnerabilities. For example, the entire population and all above-ground structures in the community are vulnerable to a tornado event, while mobile homes have an elevated vulnerability.

Population	326
Median Age	37.3 years
Uniquely vulnerable populations	Seniors; mobile home park residents; economic disadvantaged community
Assessed Improvements (2024)	Residential: $11,520,200; Commercial: $2,332,100; Manuf.: $0
# of Housing units	147
# of Mobile Homes	35
Notable Community Lifelines or Critical Facilities	See map at end of sub-plan.

Hazard Risk Assessment

This table describes past hazard events impacting the community and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the community. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all communities.

Hazard	History & Past Impacts	Vulnerabilities & Potential Impacts
Tornado & High Winds	No tornado history with occasional straight-line winds.	Mobile home park residents is the primary vulnerability.
Hail & Lightning	Abt. 1986, softball-sized hail damaged windshields and roofs. Some hail and roof damage in Summer 2025.	No unique concerns noted.
Winter Storm, Ice, & Extreme Cold	Hills can be dangerous when icy. Some water main breaks in 2014-2015. Some water meters and lines can occasionally freeze in mobile home park.	No unique concerns noted.
Extreme Heat	No unique history noted.	No unique concerns noted.

Long-Term Power Outage	No history noted. Some limited outages up to 4 hours due to winds.	Village has natural gas, decreasing power outage risk.
Flooding – Riverine or Overbank	Flooding at or near bridge crossings on Hay River; Bridge Street is occasionally closed due to flooding.	No known structures in 100-year floodplain per village officials. Riverine flooding could potentially be a greater concern if ice damming occurs.
Flooding – Stormwater or Overland	No unique history noted. Some runoff from nearby hills. Occasional, isolated street and yard ponding.	Stormwater systems sufficient for current development. No substantial basement flooding, washouts, etc.
Dams	None	
Drought	No significant history noted.	Good water quality and quantity from 2 wells. Small water tower does limit capacity for a very large fire.
Wildfire	No significant events.	Good water quality and quantity, but no back-up well if fails.
Hazardous Materials Spills	No significant events in the community. Trail derailment about 4-5 miles to south, but no HazMat spill.	Concerns primarily limited to transport through the community via rail or highway. Vehicles often exceeding posted speed limits.
Active Threats	No significant events in the community.	No unique vulnerabilities noted. Village has taken Homeland Security audit and considering hardening options.
Cyber-Attack	Village accounts had been hacked, but access to data was limited.	Cyber-security measures strengthened considerably since last plan.

Notable Trends or Changing Priorities

Have any hazard-related priorities changed since the previous mitigation plan?	Increased interest in emergency power generation.
Are there any other trends influencing these concerns, such as changes in development, demographics, or weather patterns/climate?	Growing cyber-security threats to governmental facilities and services.

Capabilities Assessment

The following is a general assessment of the community's resiliency and capabilities to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms. This assessment was completed by the community through the 2025 web-based survey, with some supplemental information from the community meeting and other sources (e.g., fire department survey, NFIP Community Status Book). The list of potential plans, policies, and other actions is not exhaustive, and it is not expected that the community has undertaken all actions listed or will undertake all actions in the future.

Planning Activities	
Community Emergency Operations or Response Plan (EOP)	Yes; may need review and updating
Community Evacuation Plan and/or Exercises	Limited to exercises
Continuity of Government Plan	No.
Comprehensive Plan	No updated plan.
Stormwater Management Plan	No overall stormwater plan.
Historic Preservation Plan or Ordinance	No.

Capital Improvements Plan or Similar Budget	Largely limited to streets and sewer/water.
Involve Fire & Law Enforcement in planning & development plan review	Limited. Doing this as needed.
Policies, Codes, & Ordinances	
Building Codes	Adopted; does not incorporate mitigation or preparedness
Building Code Efficiency Grading Schedule	Unknown
Zoning Ordinance	Adopted; does not incorporate mitigation or preparedness
Subdivision Ordinance	Adopted; does not incorporate mitigation or preparedness
Site Plan Review Requirements	Limited under zoning/land division ordinances
Floodplain Management	
Initial Flood Hazard Boundary Map:	08/02/1974
Initial FIRM Identified:	03/15/1984
Current Effective FIRM Date:	12/02/2011
Date Community First Joined NFIP (Reg-Emer)	03/15/1984
NFIP Participation Status (and reason if not participating):	Participant
Floodplain Regulations w/ NFIP standards:	Adopted
Designated position or committee for floodplain management, floodplain zoning, & NFIP compliance:	Village Clerk
Other ongoing floodplain management activities:	Floodplain ordinance up to date; Stormwater addressed as needed or with newer street work
Stormwater Management Ordinance	No specific ordinance.
Stormwater Utility	No.
Winter Emergency Policies	Limited.
Mitigation & Preparedness Actions for Facilities	
Debris Site identified for storm debris disposal (not just woody debris)	No.
Emergency Operations Center designated with generator/back-up power	Village Hall lacks generator.
Public Storm Shelter/Community Safe Room designated	Yes; available and well-used. Door unlocking mechanism triggered with storm siren. Red Cross provides long-term shelter support if needed.
Public Heating/Cooling Shelter designated with generator/back-up power	No formal shelter designated; not activated.
Storm/warning siren on back-up power	Yes, but not centrally located.
Storm/warning siren that can be activated remotely	Yes
Active shooter/threat plans and/or security hardening for municipal buildings	Some, but assessing options based on audit.
Other Mitigation & Preparedness Actions	
Review EOP at least annually	Currently being updated.
Individuals in EOP have ICS/NIMS training	Some; additional efforts being considered.
Public Information Officer designated & trained	No; planning or considering implementation
Municipal officials and staff participate in regular disaster or emergency response exercises	No; planning or considering implementation
Community-level efforts to improve hazard preparedness among residents	No. Encourage sign-up for Code Red.
Adopted billing rates for public works labor & equipment use during emergencies	No; planning or considering implementation
Adopted mutual aid agreements for public works equipment/personnel support	Working on agreements
Adopted emergency contracting and purchasing policies	No.

Cyber-security systems, off-site/cloud back-up, and recovery policies or plans for municipal records	Yes
Cyber-security systems and policies for municipal utilities	Some.
Municipal buildings/staff have NOAA All Hazards Radios or signed-up for Code Red	Yes.
Other Flood Mitigation projects or activities	None noted.
Municipal Dam-related planning or actions	No municipal dam.
Barriers to mitigation or preparedness actions	Limited funding and time; some actions would be dependent on grant funding.
Other vulnerabilities:	Vehicle speeds on highways.
Other:	Outside the Village, emergency communications "dead spots". Lack of ID cards/credentialing system for Board and key employees.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section V.A. of the Dunn County mitigation plan are shared by all participating communities.

The community will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Sections V.B. and C. of the Dunn County mitigation plan includes additional mitigation and preparedness actions that are intergovernmental in nature and not specific to the community, but may suggest coordination and funding opportunities.

The following recommended actions/projects are specific to the community:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Update and annually review the Village's Emergency Operations Plan.	High; ongoing	Village Clerk /Village Emergency Planning Team	County Emergency Management can provide a template and guidance.
2. Collaborate with County Emergency Management to conduct additional ICS and EOC training for local elected officials and municipal staff. Encourage Village officials to participate.	Medium to High; 3-5 years	Village Board	County Emergency Management can include such training as part of the County Integrated Preparedness Plan
3. Continue to explore opportunities to secure a generator for the Village Hall/EOC (and Mission Hope Store), with a possible connection to the nearby storm shelter. Work with WCWRPC to reach-out to Wisconsin Emergency Management on the feasibility of utilizing FEMA mitigation grant funding to support	High 2-5 years, as funding allows.	Village Clerk & Public Works	Grant funding for generators is very difficult to obtain; more options if part of a larger project. See countywide generator-related recommendation in Section VI.C. Village is exploring use of State Innovation Grant funding as an alternative.

some of the costs of such a generator, to the extent that it would serve the storm shelter and its door unlock system.			That portion of expenses (e.g., generator, battery backup, other hardening) that support the existing safe room may be eligible FEMA Hazard Mitigation Grant Program or BRIC funding.
4. As opportunities allow, collaborate with County Emergency Management and other partners (e.g., Public Health, Red Cross, Electric Provider) to increase public participation in CodeRed, awareness of emergency siren use and warning systems, and public preparedness in general. Distribute related materials through water bills.	Medium-to-High; ongoing	Village Clerk & Emergency Planning Team	County Emergency Management & partners have educational materials Could implement annually during Severe Weather Awareness Week and/or Preparedness Month using social media, posters, utility bill inserts, etc.
5. Continue to evaluate and implement physical and cyber-security measures.	Medium (ongoing)	Village Clerk & Emergency Planning Team	Wisconsin CISA Cybersecuity staff, WI Division of Enterprise Technology (DET) State & Local Cybersecurity Grant Program (SLCGP). USDA Rural Development-Facilities and CDBG-Public Facility grant funding for physical buildings.
6. Work with the County Highway Department and Sherrif's Office to develop a strategy to reduce speeds and improve safety on highways in the Village (e.g., digital speed signage, traffic calming, increased enforcement).	Medium (3-5 years)	Village Board working with County	Wisconsin DOT may have funding available for some measures. If youth bus stops are involved, Safe Route to School funding may be an option.
7. Explore relocating the siren to a more central location, perhaps near the storm shelter.	Medium-to-Low (5+ years)	Village Clerk & Emergency Planning Team	Potentially eligible for USDA Rural Development Community Facilities grant dollars. It is recommended that the siren re-location also be discussed with WEM; if serving the storm shelter, determine if its re-location could be included in a mitigation grant request along with a generator or battery-backup system.

Sub-Plan Coordination and Integration

The previous capacity assessment section identifies how this mitigation sub-plan has been integrated into or coordinated with other municipal plans or planning mechanisms. During the planning process, the following opportunities were identified to integrate the mitigation strategies into other community planning mechanisms:

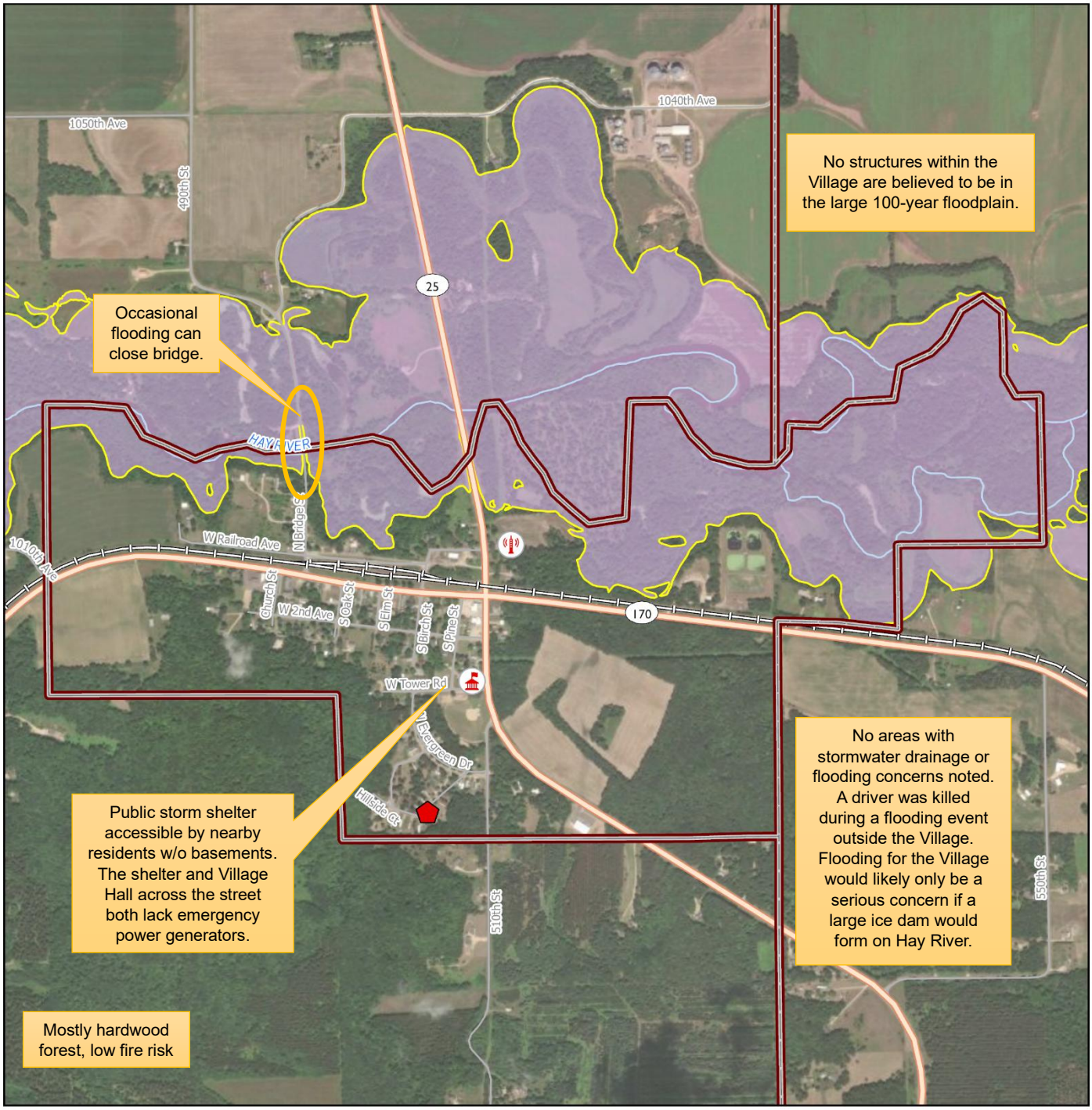
- Integrate any lessons learned from ICS & EOC training into the Village's Emergency Operations Plan.
- Should the Village create a comprehensive plan in the future, this would be an opportunity to integrate mitigation strategies, including obtaining public input on the need for additional community safe rooms.
- The next section describes how this sub-plan will be maintained, including a periodic review of opportunities to strengthen the coordination and integration with other planning mechanisms.

Sub-Plan Adoption and Maintenance

Plan Adoption	Once updated, the community's governing body will adopt the County's overall hazard mitigation plan (and any future revisions/amendments) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This community-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The community may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	During the second quarter of each year or following a declared disaster event, the primary mitigation plan contact will review this Mitigation Sub-Plan concurrently with (at the same time as) the annual review of the municipal Emergency Operations Plan. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. The community's planning contact will contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. The community may also request that the County consider changes to the County's overall mitigation plan. 2. Provide the suggested changes to the community's emergency planning committee, plan commission, or governing body for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the governing body will adopt the Sub-Plan as noted previously. Such changes will be limited to this community-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The community intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The community will provide opportunities for public participation throughout its mitigation planning processes, including: (1) all governing body or committee actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

VILLAGE OF WHEELER - HAZARD ASSESSMENT

Dunn County - 2026



Legend

- Municipal Boundaries
- 100-yr Floodplain
- Hospital
- School
- Mobile Home Park
- Assisted Living
- Government Building
- Storm Siren
- Dam w/High or Significant Hazard Rating

WEST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

0 0.17 0.35 0.7 Miles

Data Sources:
Dunn County, WDHS, WDNR, WisDOT, WDOA, FEMA, WCWRPC.

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CITY OF MENOMONIE HAZARD MITIGATION SUB-PLAN

This sub-plan identifies past hazard events, risks, trends, capabilities, and strategies unique to or specific to the community and is part of the overall *Dunn County Multi-Hazard Mitigation Plan*. The Dunn County mitigation plan provides broader context and contains hazard assessments, capabilities, and strategies that are countywide or multi-jurisdictional.

Primary Contact:	Director of Public Works
Planning Meetings:	• Primary planning meeting with WCWRPC staff occurred on 11/21/25. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by City Council at a public meeting. Resolution included in Section VII of the main plan document.

Community Profile

This table provides a brief overview of key community characteristics, primarily from the 2020 U.S. Census, which are important to assessing capacity and vulnerabilities. For example, the entire population and all above-ground structures in the community are vulnerable to a tornado event, while mobile homes have an elevated vulnerability.

Population	16,843
Median Age	25.1 years
Uniquely vulnerable populations	Mobile home park residents; large student population
Assessed Improvements (2024)	Residential: $512,125,200; Commercial: $459,285,800; Manuf.: $94,967,100
# of Housing units	6,674
# of Mobile Homes	295
Notable Community Lifelines or Critical Facilities	Highest concentration of lifeline facilities in the County, including manufacturing, services, UW-Stout, and County Government buildings. See map at end of sub-plan.

Hazard Risk Assessment

This table describes past hazard events impacting the community and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the community. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all communities.

Hazard	History & Past Impacts	Vulnerabilities & Potential Impacts
Tornado & High Winds	No tornado history. 1980 straight-line winds last major event; caused serious damage to roofs, trees, power lines, etc.; curfew was instituted. Last major wind storm (55kts)was in August 2007, downed light poles, power poles, trees, and caused roof damage, including serious damage to one home. Thunderstorm with high winds downed trees, power lines, and caused some roof damage on July 3, 2025.	30%-40% mobile homes likely not anchored. 8 mobile home parks, plus Birch Terrace just south of City; 3 of these parks concentrated on north side. Nearly all private homes have basements. Many apartments and newer 4-to12-plexes (mostly on south side) do not; this is a growing trend. Limited camping and overnight vendor guests at Fairgrounds.
Hail & Lightning	No unique history noted.	No unique concerns noted.

Winter Storm, Ice, & Extreme Cold	Dec 2010 snow storm 20+"; hit City worse than Eau Claire. During 2014-2015 Polar Vortex, 60-70 water mains and laterals froze; used media and social media to encourage residents to use dripping to prevent freeze-ups. Heavy snowfall in 2019 made snow removal difficult and costly	Some ice damming and roof damage due to snow loads. Knapp Hill on I-94 has closed in past due to winter/icy conditions resulting in traffic congestion within the City, but not a great concern recently and I-94 accidents have been down.
Extreme Heat	No unique history noted. Some heat buckling of roads (e.g., Crescent near 9th Street intersection)	No unique concerns noted.
Long-Term Power Outage	In Aug 2007, lost power for 3 days in some areas, but no areas especially prone.	Most City facilities, including City Hall and County Judicial Center, have generators or hook-ups for portables. Generator for Well #8 and additional portable needed; only 3 generators for 17 liftstation. County fuel tanks have generator.
Flooding – Riverine or Overbank	Due to height of banks, dams, and levee, no riverine flooding problems identified. Riverside Park floods annually but expected.	Wastewater plant and an industry at risk should levee fail.
Flooding – Stormwater or Overland	With increasing frequency of heavy rain events, stormwater management a greater concern than river/overbank flooding, especially if combined with large snow melts or frozen ground. Past stormwater flooding problems also in the Heller Road area, mostly outside the City. Bank erosion is a concern in some areas, particularly downstream of Menomonie Dam. See **UW-Stout sub-plan** for a description of past, on-campus stormwater flooding.	Drainage and basement flooding concerns in Domain Drive likely mitigated through recent improvements. Monitoring flood potential near wastewater treatment plant. Some isolated street ponding.
Dams	No modern history of dam or levee failure.	Xcel's Menomonie Dam in good repair. A failure at Xcel's Cedar Falls Dam could "take out" Menomonie Dam. Very low probability of a dam failure, but potential losses are high due to potential damage to bridges and structures in the dam shadow. Wastewater plant and an industry would also be at risk should levee fail. Expressed interest in participating in a dam failure exercise for Xcel-owned dams.
Drought	No unique history noted.	Good water quantity and haven't had to enact water restrictions.
Wildfire	No significant events.	Good water quantity and haven't had to enact water restrictions. Some elevated wildfire concerns between 24th & Red Cedar Streets, but nothing actionable. Homes within pines near the river south of the City.
Hazardous Materials Spills	No significant events in the community. Average about 1 call per year in the area, mostly for small spills. A fire near Elk Mound with batteries and chemicals involved.	I-94 transport of HazMat identified as greatest concern. Also rail and fixed sites.
Active Threats	Limited threats, but no significant events in the community.	University and school facilities identified as highest vulnerabilities and potential targets. Some, limited hardening of City facilities. Menomonie Fire trained as Rescue Task Force able to enter "warm zone".
Cyber-Attack	No history of incidents in the City.	No unique concerns noted; data backed-up off-site

Notable Trends or Changing Priorities

Have any hazard-related priorities changed since the previous mitigation plan?	None noted.
Are there any other trends influencing these concerns, such as changes in development, demographics, or weather patterns/climate?	Increasing frequency and severity of heavy rain events.

Capabilities Assessment

The following is a general assessment of the community's resiliency and capabilities to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms. This assessment was completed by the community through the 2025 web-based survey, with some supplemental information from the community meeting and other sources (e.g., fire department survey, NFIP Community Status Book). The list of potential plans, policies, and other actions is not exhaustive, and it is not expected that the community has undertaken all actions listed or will undertake all actions in the future.

Planning Activities	
Community Emergency Operations or Response Plan (EOP)	Adopted; incorporates mitigation or preparedness
Community Evacuation Plan and/or Exercises	No plan
Continuity of Government Plan	No plan
Comprehensive Plan	Adopted; does not incorporate mitigation or preparedness
Stormwater Management Plan	Adopted; does not incorporate mitigation or preparedness
Historic Preservation Plan or Ordinance	Adopted; does not incorporate mitigation or preparedness
Capital Improvements Plan or Similar Budget	Adopted; does not incorporate mitigation or preparedness
Involve Fire & Law Enforcement in planning & development plan review	Doing this as needed.
Policies, Codes, & Ordinances	
Building Codes	Adopted; does not incorporate mitigation or preparedness
Building Code Efficiency Grading Schedule	No policy or code
Zoning Ordinance	Adopted; does not incorporate mitigation or preparedness
Subdivision Ordinance	Adopted; does not incorporate mitigation or preparedness
Site Plan Review Requirements	Adopted; does not incorporate mitigation or preparedness
Floodplain Management	
Initial Flood Hazard Boundary Map:	06/28/1974
Initial FIRM Identified:	01/03/1990
Current Effective FIRM Date:	12/02/2011
Date Community First Joined NFIP (Reg-Emer)	01/03/1990
NFIP Participation Status (and reason if not participating):	Participant
Floodplain Regulations w/ NFIP standards:	Adopted
Designated position or committee for floodplain management, floodplain zoning, & NFIP compliance:	Zoning Administrator; then Plan Commission
Other ongoing floodplain management activities:	Many past problem areas addressed, such as the 13th Street neighborhood. Maintains levees and works to prevent bank erosion.
Stormwater Management Ordinance	Adopted; does not incorporate mitigation or preparedness
Stormwater Utility	Adopted; does not incorporate mitigation or preparedness
Winter Emergency Policies	No policy or code

Mitigation & Preparedness Actions for Facilities	
Debris Site identified for storm debris disposal (not just woody debris)	Yes
Emergency Operations Center designated with generator/back-up power	Yes
Public Storm Shelter/Community Safe Room designated	No
Public Heating/Cooling Shelter designated with generator/back-up power	Uncertain if a shelter is formally designated. Menomonie Library informally used, but no generator if power loss. Dunn County Emergency Management has agreements with School District of Menomonie Area for heating/cooling shelters.
Storm/warning siren on back-up power	6 City sirens + 1 at Xcel Dam. Not all on backup. Completed a study and relocated city sirens for best coverage. Some sirens are aging and may need 1-2 additional for growth areas in future.
Storm/warning siren that can be activated remotely	Partially
Active shooter/threat plans and/or security hardening for municipal buildings	Partially
Other Mitigation & Preparedness Actions	
Review EOP at least annually	Yes; reviewed and updated regularly
Individuals in EOP have ICS/NIMS training	Yes
Public Information Officer designated & trained	Yes
Municipal officials and staff participate in regular disaster or emergency response exercises	Yes; active shooter drill with UW-Stout in 2012, working with County on planning rescue task force and drill
Community-level efforts to improve hazard preparedness among residents	Some; strong coordination with County and UW-Stout, City Fire Dept. very active in establishing Countywide MABAS.
Adopted billing rates for public works labor & equipment use during emergencies	Yes
Adopted mutual aid agreements for public works equipment/personnel support	No formal agreements.
Adopted emergency contracting and purchasing policies	Yes
Cyber-security systems, off-site/cloud back-up, and recovery policies or plans for municipal records	Partially
Cyber-security systems and policies for municipal utilities	Partially
Municipal buildings/staff have NOAA All Hazards Radios or signed-up for Code Red	Partially
Other Flood Mitigation projects or activities	New floodplain maps and updated ordinance adopted. Stormwater system designed for a 100-year storm; projects identified in CIP.
Municipal Dam-related planning or actions	No municipal dams.
Barriers to mitigation or preparedness actions	None noted
Other vulnerabilities:	Continuing to work with County on replacing emergency communications equipment. Public can have unrealistic expectations from responders & recovery support.
Other:	**See UW-Stout sub-plan.** As a larger city, has a robust set of planning and regulatory tools and procedures in place, such as site plan review, capital improvements planning, and requiring power lines to be buried in new subdivisions. Can send educational flyers on Code Red, emergency preparedness, etc. with water bills. City Fire Department is the County's Level B Haz Mat Response Team.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section V.A. of the Dunn County mitigation plan are shared by all participating communities.

The community will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Sections V.B. and C. of the Dunn County mitigation plan includes additional mitigation and preparedness actions that are intergovernmental in nature and not specific to the community, but may suggest coordination and funding opportunities.

The following recommended actions/projects are specific to the community:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Explore development of a community safe room (storm shelter) for mobile home parks, particularly on the north side, and at the Fairgrounds, depending on community demand. If a generator and HVAC system are provided, consider using the safe room space as a heating/cooling shelter and emergency assembly location.	Medium-to-Low; 3-5 years Timeline could change based on public demand for safe room or building projects.	Residents should express need; City Council	FEMA Hazard Mitigation Grant Programs (BRIC & HMA) FEMA Technical Assistance or Advanced Assistance grant funding could be available to assist with exploring storm hardening options. WCWRPC and Wisconsin Emergency Management can provide grant-related guidance
2. Continue to maintain and implement the City's Stormwater Management Plan and address stormwater flooding concerns as needed. Collaborate with UW-Stout to help address on-campus stormwater flooding challenges. Monitor trends related to heavy rain and stormwater flooding. If updated NOAA Atlas 15 precipitation data is not available by 2028, consider modifying the City's erosion control and stormwater management ordinance to require peak rate control based on more than the 100-year storms used in the current Atlas 14 data.	Medium-to-High; ongoing	City Public Works; City Plan Commission and Council	WEM, WCWRPC, and County Emergency Management are resources if mitigation grant funding is being considered. FEMA Flood Mitigation Assistance and WEM Pre-Disaster Flood Resilience grant programs may be available to assist with project funding. Wisconsin Rainfall Project, WDNR and NOAA for stormwater modeling guidance.

3. Maintain and, as needed, improve the levee to protect adjacent areas from overbank flooding. Monitor bank erosion along the Red Ceder, especially downstream of the dam, and explore mitigation options if needed.	Medium-to-High; ongoing	City Public Works; City Plan Commission and Council	WEM, WCWRPC, and County Emergency Management are resources if mitigation grant funding is being considered. FEMA Flood Mitigation Assistance and WEM Pre-Disaster Flood Resilience grant programs may be available to assist with project funding.
4. Update and annually review the City's Emergency Operations Plan. Consider adding continuity of operations elements for critical governmental functions. The City and its partners are also encouraged to participate in Public Information Officer Training, then amend the City's EOP as needed.	High; ongoing	City Administrator to delegate responsibility	County Emergency Management can provide a template and guidance.
5. As opportunities allow, collaborate with County Emergency Management, UW-Stout, and other partners (e.g., Public Health, Red Cross, Electric Provider) to increase public participation in CodeRed, awareness of emergency siren use and warning systems (including the Xcel siren), and public preparedness in general.	Medium-to-High; ongoing	City Administrator (or designee); Fire Department	County Emergency Management & partners have educational materials Could implement annually during Severe Weather Awareness Week and/or Preparedness Month using social media, posters, utility bill inserts, etc. County Emgy Mgmt can add PIO and other training to its Integrated Preparedness Plan
6. Work with Xcel Energy and Dunn County Emergency Management to conduct period dam failure exercises and address related vulnerabilities. Encourage the installation of an Xcel siren at the Highway 29 bridge.	High; 1-3 years	Xcel Energy	County Emergency Management/Communications
7. Acquire an emergency power generator for well and 2 portables for lift stations as resources allow.	Medium-to-Low; 5+ years	City Public Works	Grant funding for generators is very difficult to obtain; more options if part of a larger project. See countywide generator-related recommendation in Section V.

Sub-Plan Coordination and Integration

The previous capacity assessment section identifies how this mitigation sub-plan has been integrated into or coordinated with other municipal plans or planning mechanisms. During the planning process, the following opportunities were identified to integrate the mitigation strategies into other community planning mechanisms:

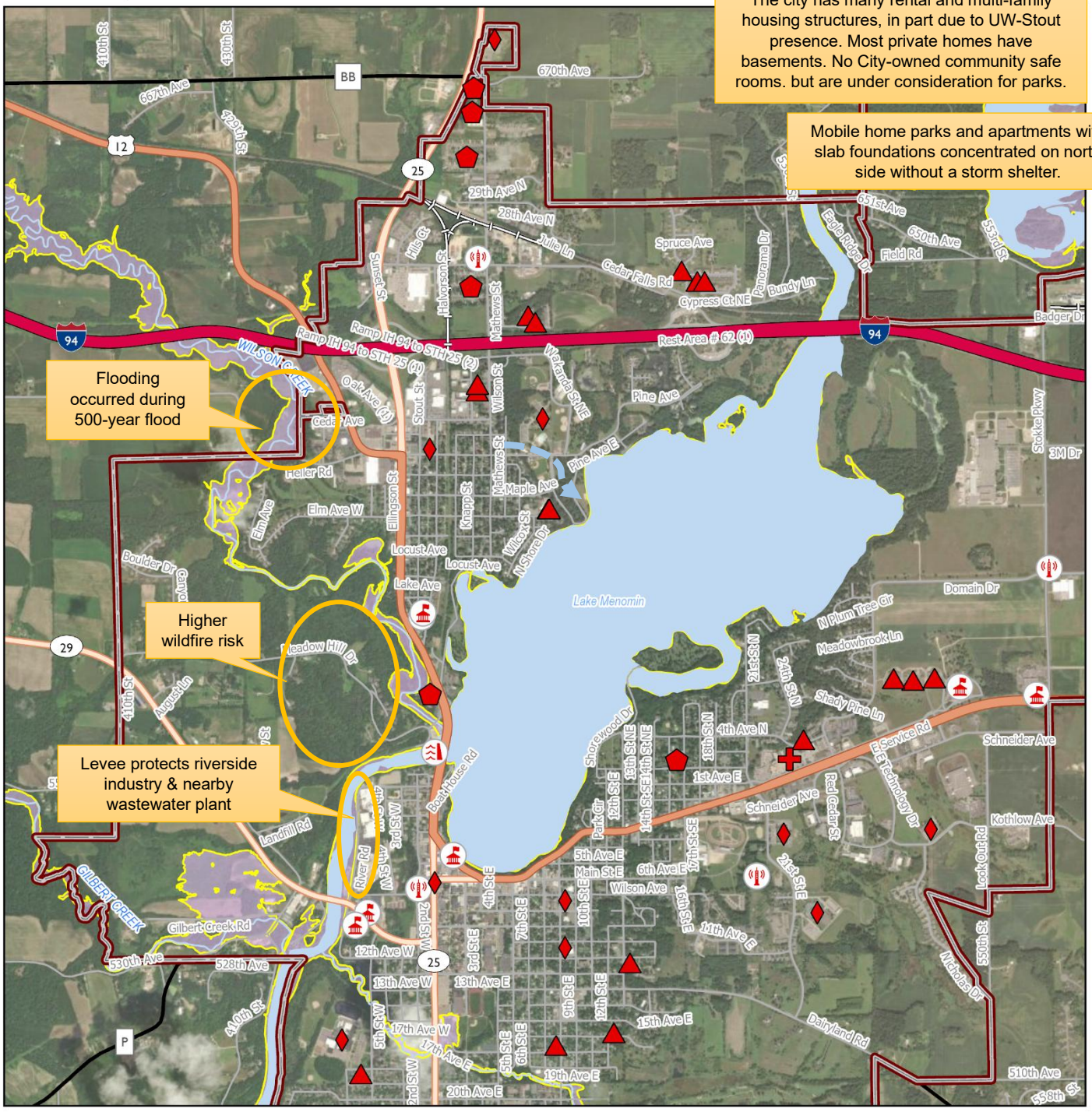
- The City is expected to update its comprehensive plan in the future. This is an opportunity to integrate mitigation strategies, including obtaining public input on the need for additional community safe rooms.
- Continue to address stormwater flooding, bank erosion, and levee maintenance as part of the City's stormwater management plan and capital improvements plan.
- The next section describes how this sub-plan will be maintained, including a periodic review of opportunities to strengthen the coordination and integration with other planning mechanisms.

Sub-Plan Adoption and Maintenance

Plan Adoption	Once updated, the community's governing body will adopt the County's overall hazard mitigation plan (and any future revisions/amendments) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This community-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The community may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	During the second quarter of each year or following a declared disaster event, the primary mitigation plan contact will review this Mitigation Sub-Plan concurrently with (at the same time as) the annual review of the municipal Emergency Operations Plan. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. The community's planning contact will contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. The community may also request that the County consider changes to the County's overall mitigation plan. 1. Provide the suggested changes to the community's emergency planning committee, plan commission, or governing body for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the governing body will adopt the Sub-Plan as noted previously. Such changes will be limited to this community-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The community intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The community will provide opportunities for public participation throughout its mitigation planning processes, including: (1) all governing body or committee actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

CITY OF MENOMONIE (NORTHWEST) - HAZARD ASSESSMENT

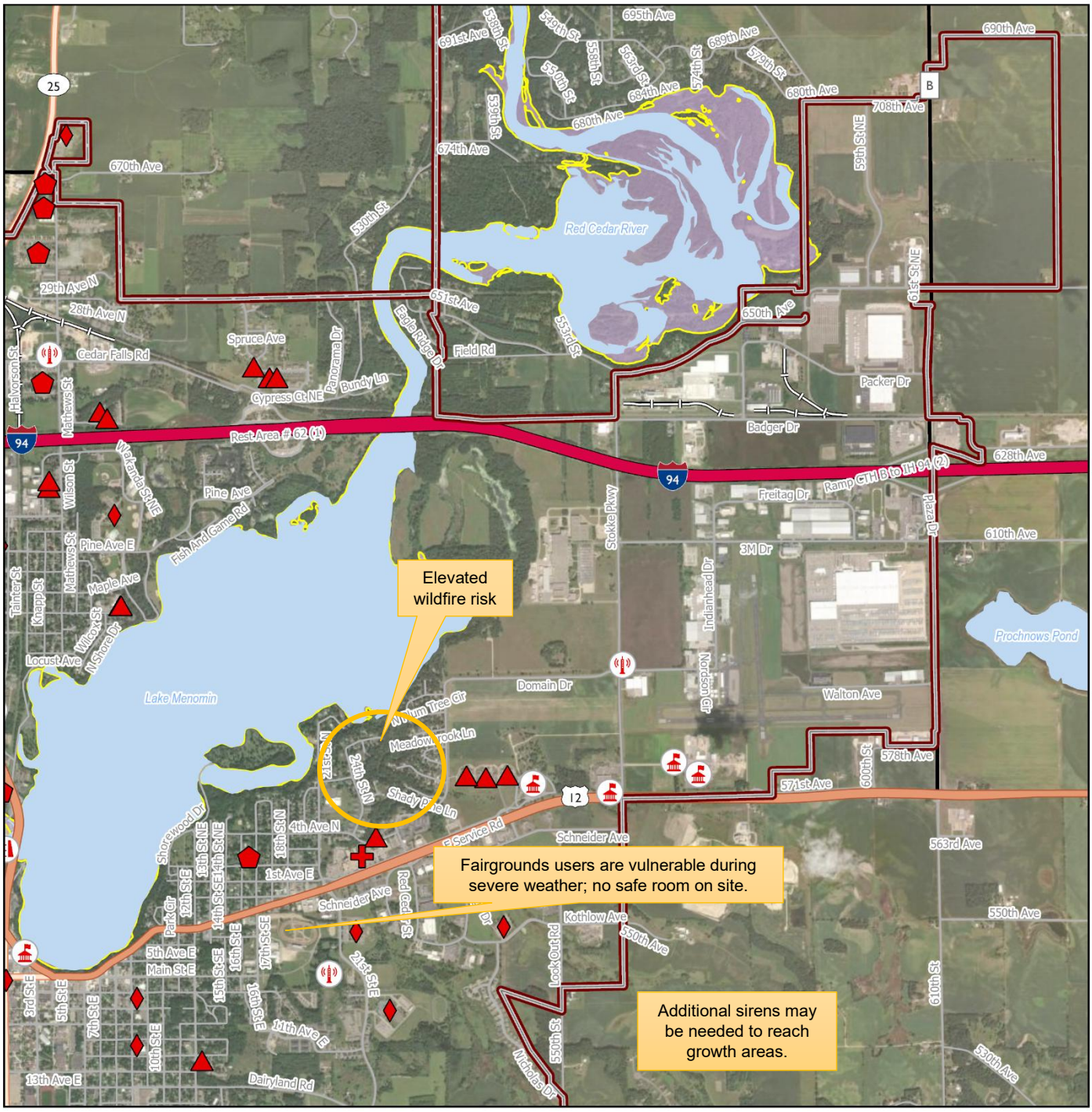
Dunn County - 2026



WEST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

CITY OF MENOMONIE (NORTHEAST) - HAZARD ASSESSMENT

Dunn County - 2026



CITY OF MENOMONIE (SOUTH) - HAZARD ASSESSMENT

Dunn County - 2026

Legend

- Municipal Boundaries
- 100-yr Floodplain
- Hospital
- School
- Mobile Home Park
- Assisted Living
- Government Building
- Storm Siren
- Dam w/High or Significant Hazard Rating

WEST CENTRAL WISCONSIN REGIONAL PLANNING COMMISSION

0 0.42 0.85 1.7 Miles

Data Sources: Dunn County, WDHS, WDNR, WisDOT, WDOA, FEMA, WCWRPC.

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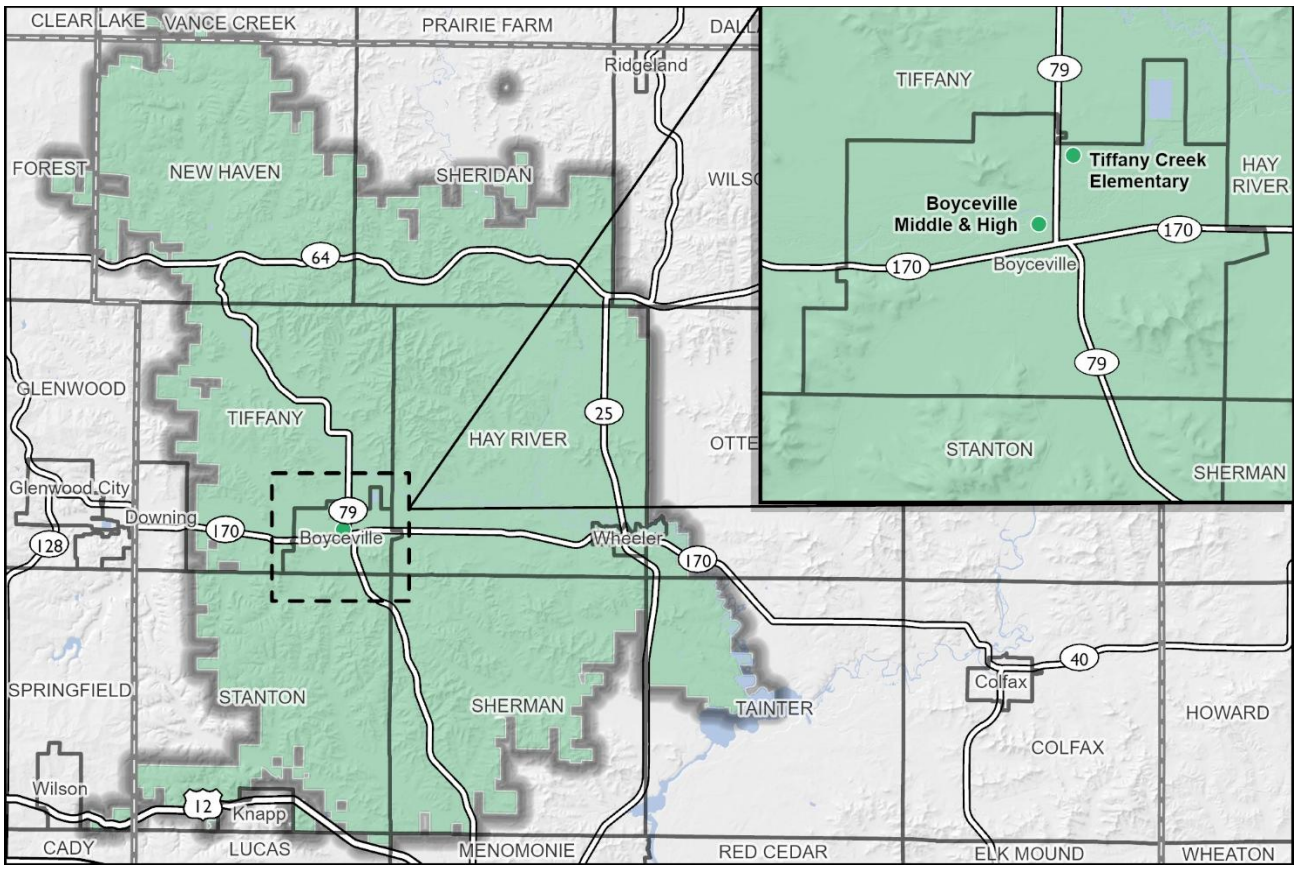
SUPPLEMENT 6.
PUBLIC EDUCATIONAL INSTITUTION SUB-PLANS

SCHOOL DISTRICT OF BOYCEVILLE HAZARD MITIGATION SUB-PLAN

Primary Contact:	Nick Kaiser, District Administrator
Planning Process:	• Hazard mitigation webinar conducted by WCWRPC in Summer 2025. • District completed a comprehensive hazard mitigation survey on August 7, 2025. WCWRPC prepared the draft sub-plan based on the survey results. • District reviewed the draft sub-plan and provided additional input to WCWRPC on sub-plan and strategy alternatives as needed. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by School Board at a public meeting. Resolution included in Appendix A.

School District Profile

Institution Type:	Public; K4 through 12 grades primary & secondary school		
Campus/Facility in Dunn County	**Address**	**approx. 2023-2024 Enrollment**	**approx. 2023-2024 Staff**
Boyceville Middle & High School	1003 Tiffany St, Boyceville, WI	350	45
Tiffany Creek Elementary School	161 East St, Boyceville, WI	334	56



Hazard Threat Assessment

This table describes past hazard events impacting the District and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the District. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all districts.

Hazard	History or Probability	Absenteeism	Vulnerability or Potential Impacts
Flooding – Riverine or Overbank	High	Limited Impact, 3+ events for 1-2 days	Moderate
Flooding – Stormwater or Overland	Moderate		Moderate
Tornado	Moderate	Limited Impact, 3+ events for 1-2 days	High
Thunderstorm, Lightning, High Winds & Hail	High	Significant Impact, 1-2 events for 3+ days	High
Winter Storms & Extreme Cold	Moderate	Limited Impact, 3+ events for 1-2 days	Moderate
Extreme Heat	Moderate	Limited Impact, 1-2 events for 1-2 days	Moderate
Drought	Low	Limited Impact, 1-2 events for 1-2 days	Low
Wildfire	Low	Limited Impact, 1-2 events for 1-2 days	Low
Cyber-Attack	High	Limited Impact, 3+ events for 1-2 days	High
Active Threat	High	Significant Impact, 3+ events for 3+ days	High
Hazardous Materials Spill	Low	Significant Impact, 3+ events for 3+ days	Moderate
Landslides or Sinkholes	Low	Significant Impact, 1-2 events for 3+ days	Moderate
Pandemic or Infectious Disease	Low	Significant Impact, 1-2 events for 3+ days	Moderate
Long-Term Power Outage	Moderate	Significant Impact, 1-2 events for 3+ days	Moderate

Hazard Analysis

Flooding	
1. Flood history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of flooding.	Water can rise up from creek nearby back of Middle and High School building but no damage to structures or critical infrastructure identified.
2. Are any existing or planned school buildings or assets located within the 100-year floodplain?	Unknown if structures are within or near the 100-year floodplain.
3. Facilities covered by flood the National Flood Insurance Program or other flood insurance.	None, but may be interested in exploring further.
4. Existing or needed flood mitigation activities.	None identified.

Tornados, Thunderstorms, Winter Storms, & Extreme Temperatures	
5. Extreme weather event history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None noted
6. Facilities with storm shelters or safe rooms.	No. A safe room project or storm hardening is not being considered at this time.
7. Facilities serving as heating/cooling centers or other emergency/recovery shelters.	The District has an agreement in place with Red Cross to serve as an emergency/recovery shelter.
8. Unique concerns, vulnerabilities, or resources/support needed to address future severe weather threats.	None noted
Active Threats	
9. Active threat history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None noted
10. Adopted protocols for training and response to active threats.	The District has adopted Alert-Lockdown-Inform-Counter-Evacuate (ALICE) approach.
11. Concerns, strategies, resources, support, or training needed for the District or in partnership with others.	None noted
12. Emergency agencies with access to floor plans for the District's primary buildings.	Yes
13. Does local law enforcement have physical keys or access cards to the District's primary buildings?	Yes
14. Describe preparedness activities.	Mandatory trainings are conducted
Other Threats	
15. Wildfire history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None identified.
16. Hazardous material spill history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None identified.
17. Cybersecurity / cyber-attack history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None identified.
18. Zoonotic / infections disease history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None identified.
19. Other threat events or strategies of note.	None identified.

Capabilities Assessment & Plan Coordination The following is a brief assessment of the District's resiliency and capability needs (or related recommendations) to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms.	
Capability Needs or Recommendations	
Equipment Needs	None identified
Training Needs	
Collaboration Needs	
Communications/Outreach Needs	
County Emergency Management Relationship	No concerns identified.
Plan Coordination	
Key Plans & Training related to hazard mitigation	• CPR Training • ALICE Training
Additional opportunities to integrate hazard mitigation plan recommendations into the above plans	The District intends to share any plans with other schools and local law enforcement
Other:	The District is not familiar with Student Tools for Emergency Planning (STEP) Program.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section VI. of the Dunn County mitigation plan are shared by all participating communities and school districts. The previous assessment and analysis shows the School District has been very proactive in evaluating and preparing for hazard threats in collaboration with the Village and other partners.

The District will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Section VI of the Dunn County mitigation plan includes additional mitigation projects and actions that are intergovernmental in nature and not specific to the District. The District will continue to collaborate with the Village of Boyceville, Dunn County, area emergency response providers, Red Cross, and other partners to explore and implement such mitigation and preparedness actions to enhance the safety and disaster resiliency of the District and community.

The following recommended, key actions/projects are specific to the District:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Continue to collaborate with the Village, County, area law enforcement, and other partners to enhance active threats prevention/preparedness, evacuation planning, and overall community preparedness, including regular drills and exercises. Regularly update the District's Emergency Operations Plan and other plans/protocols to address emerging threats, integrate	High; Ongoing	District Safety Committee	Local/County law enforcement; CESA and DPI; County Emergency Management; Railroad Also consider how Strategy #4 may influence these other plans.

community mitigation opportunities, and reflect on any lessons learned from exercises.			
2. Explore the potential integration of the Student Tools for Emergency Planning (STEP) Program curriculum for fourth and fifth grade classes.	Medium; 1-3 years	School Board and/or District Administrator to discuss	Curriculum materials available at ReadyWisconsin website
3. Further assess and monitor flood insurance and flood mitigation needs. Consider collaborating with the community and Dunn County on related educational and demonstration projects to improve flood storage, reduce runoff (e.g., rain barrels/gardens), and other efforts to reduce peak flood events. Should flood concerns increase, conduct analysis and potentially pursue grant funding for flood mitigation projects.	Med-to-High 1-3 year + as needed	Overall, District Administrator. Educational efforts could be integrated into learning activities.	Grant funding may be available for educational efforts. If damage occurs or is imminent, contact County Dunn County Emergency Management or WCWRPC for flood mitigation funding support (e.g., FEMA Flood Mitigation Grant Program, FEMA Hazard Mitigation Grant Program, WI Flood Resiliency Grant Program)
4. Continue to collaborate with Red Cross, County Emergency Management, Village-County Public Health and other partners to evaluate school facility availability, capacity, and policies for various public use during or following a disaster event (e.g., storm shelters/safe rooms, heating/cooling centers, emergency recovery shelters, reunification site, family assistance/reception centers, medical point of dispensing). Update these policies as necessary and collaborate with the Village and County to increase community awareness of shelter/center availability.	High; 1-3 years	Red Cross, Village-County Public Health	This strategy would likely be led by outside agencies.
5. Continue to assess school and community safe room/storm shelter needs. In the future, potentially amend this sub-plan to consider a safe room or storm hardening as part of a future facility remodel, expansion/addition, or new gym.	Medim; ongoing	District Administrator and District Safety Committee	Contact WCWRPC and/or Dunn County Emergency Management to discuss safe room grant funding and potentially amending the sub-plan.

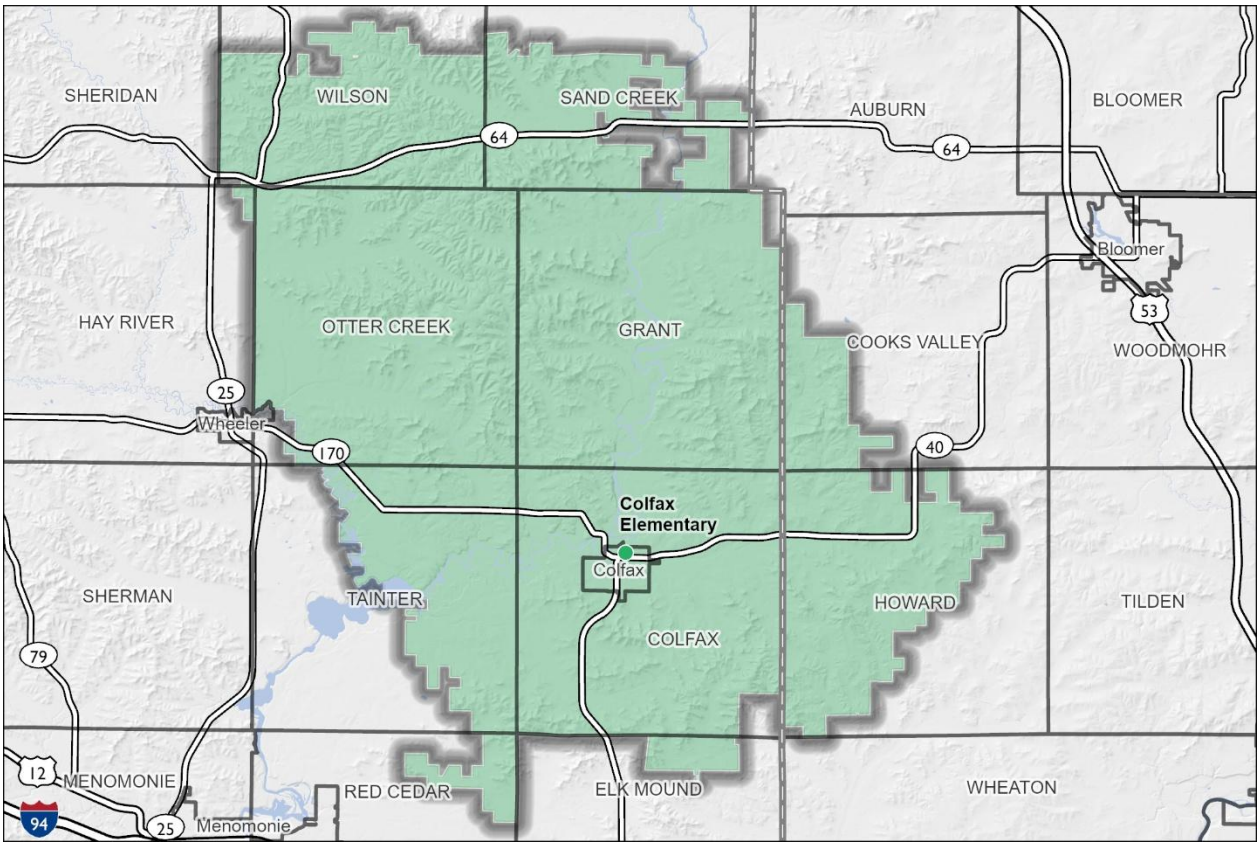
Sub-Plan Adoption and Maintenance

Plan Adoption	The School Board will adopt the County's overall hazard mitigation plan (and any future revisions/amendments specific to the District) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This school district-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The District may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	Concurrent with the annual review of its other All Hazards Plans and protocols or following a declared disaster event impacting the District, District administration staff will review this Mitigation Sub-Plan and its recommendations. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. Contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. 2. Provide the suggested changes to the School Board or its committees for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the School Board will adopt the Sub-Plan as noted previously. Such changes will be limited to this district-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The District intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The District will provide opportunities for public participation throughout its mitigation planning processes, including: (1) School Board actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

SCHOOL DISTRICT OF COLFAX HAZARD MITIGATION SUB-PLAN

Primary Contact:	Paul Blanford, Co-Interim Superintendent
Planning Process:	• Hazard mitigation webinar conducted by WCWRPC in Summer 2025. • District completed a comprehensive hazard mitigation survey on August 4, 2025. WCWRPC prepared the draft sub-plan based on the survey results. • District reviewed the draft sub-plan and provided additional input to WCWRPC on sub-plan and strategy alternatives as needed. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by School Board at a public meeting. Resolution included in Appendix A.

School District Profile			
Institution Type:	Public; K4 through 12 grades primary & secondary school		
Campus/Facility in Dunn County	**Address**	**approx. 2023-2024 Enrollment**	**approx. 2023-2024 Staff**
Colfax Elementary	601 University Ave, Colfax, WI	368	65
Colfax High School	601 University Ave, Colfax, WI	337	75



Hazard Threat Assessment

This table describes past hazard events impacting the District and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the District. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all districts.

Hazard	History or Probability	Absenteeism	Vulnerability or Potential Impacts
Flooding – Riverine or Overbank	Moderate	No Significant Impact	Low
Flooding – Stormwater or Overland	Moderate		Low
Tornado	Moderate	No Significant Impact	Low
Thunderstorm, Lightning, High Winds & Hail	Moderate	No Significant Impact	Low
Winter Storms & Extreme Cold	Moderate	Limited Impact, 3+ events for 1-2 days	Moderate
Extreme Heat	Low	Limited Impact, 1-2 events for 1-2 days	Low
Drought	Low	No Significant Impact	Low
Wildfire	Low	No Significant Impact	Low
Cyber-Attack	Moderate	Limited Impact, 1-2 events for 1-2 days	Moderate
Active Threat	Low	No Significant Impact	Low
Hazardous Materials Spill	Low	No Significant Impact	Low
Landslides or Sinkholes	Low	No Significant Impact	Low
Pandemic or Infectious Disease	Low	Limited Impact, 1-2 events for 1-2 days	Low
Long-Term Power Outage	Low	No Significant Impact	Low

Hazard Analysis

Flooding	
1. Flood history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of flooding.	No significant events have occurred and no vulnerabilities identified.
2. Are any existing or planned school buildings or assets located within the 100-year floodplain?	No structures believed to be within or near the 100-year floodplain.
3. Facilities covered by flood the National Flood Insurance Program or other flood insurance.	Unknown
4. Existing or needed flood mitigation activities.	None identified
Tornados, Thunderstorms, Winter Storms, & Extreme Temperatures	
5. Extreme weather event history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None identified
6. Facilities with storm shelters or safe rooms.	No

7. Facilities serving as heating/cooling centers or other emergency/recovery shelters.	The District does not have any agreements in place with the Village of Colfax or County to serve as a shelter.
8. Unique concerns, vulnerabilities, or resources/support needed to address future severe weather threats.	None identified
Active Threats	
9. Active threat history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No credible threats or events have occurred.
10. Adopted protocols for training and response to active threats.	The District has adopted Alert-Lockdown-Inform-Counter-Evacuate (ALICE) approach.
11. Concerns, strategies, resources, support, or training needed for the District or in partnership with others.	None identified
12. Emergency agencies with access to floor plans for the District's primary buildings.	Yes
13. Does local law enforcement have physical keys or access cards to the District's primary buildings?	Unsure
14. Describe preparedness activities.	Annual ALICE training
Other Threats	
15. Wildfire history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No significant events have occurred.
16. Hazardous material spill history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None identified
17. Cybersecurity / cyber-attack history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	District experienced a severe breach and cyber-attack in 2024
18. Zoonotic / infections disease history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None identified
19. Other threat events or strategies of note.	None identified

Capabilities Assessment & Plan Coordination

The following is a brief assessment of the District's resiliency and capability needs (or related recommendations) to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms.

Capability Needs or Recommendations	
Equipment Needs	None identified
Training Needs	
Collaboration Needs	
Communications/Outreach Needs	
County Emergency Management Relationship	No concerns noted.

Plan Coordination	
Key Plans & Training related to hazard mitigation	• ALICE Training
Additional opportunities to integrate hazard mitigation plan recommendations into the above plans	None identified
Other:	The District is unsure if they are familiar with Student Tools for Emergency Planning (STEP) Program; may consider it in the future.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section VI. of the Dunn County mitigation plan are shared by all participating communities and school districts. The previous assessment and analysis shows the School District has been very proactive in evaluating and preparing for hazard threats in collaboration with the Village and other partners.

The District will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Section VI of the Dunn County mitigation plan includes additional mitigation projects and actions that are intergovernmental in nature and not specific to the District. The District will continue to collaborate with the Village of Colfax, Dunn County, area emergency response providers, Red Cross, and other partners to explore and implement such mitigation and preparedness actions to enhance the safety and disaster resiliency of the District and community.

The following recommended, key actions/projects are specific to the District:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Continue to collaborate with the Village, County, area law enforcement, and other partners to strengthen HazMat spill incident preparedness, active threats prevention/preparedness, evacuation planning, and overall community preparedness, including regular drills and exercises. Regularly update the District's Emergency Operations Plan and other plans/protocols to address emerging threats, integrate community mitigation opportunities, and reflect on any lessons learned from exercises.	High; Ongoing	District Safety Committee	Local/County law enforcement; CESA and DPI; County Emergency Management; Railroad Also consider how Strategy #4 may influence these other plans.
2. Confirm that emergency responders and law enforcement have needed access to school district facilities during a time of emergency.	High; 1-3 years	District Safety Committee	Address as part of drills/exercises (see #1)

3. Explore the potential integration of the Student Tools for Emergency Planning (STEP) Program curriculum for fourth and fifth grade classes.	Medium; 3-5 years	School Board and/or District Administrator to discuss	Curriculum materials available at ReadyWisconsin website
4. Continue to assess school and community safe room/storm shelter needs. In the future, potentially amend this sub-plan to consider a safe room or storm hardening as part of a future facility remodel, expansion/addition, or new gym.	Medim; ongoing	District Administrator and District Safety Committee	Contact WCWRPC and/or Dunn County Emergency Management to discuss safe room grant funding and potentially amending the sub-plan.
5. Continue to collaborate with Red Cross, County Emergency Management, Village-County Public Health and other partners to evaluate school facility availability, capacity, and policies for various public use during or following a disaster event (e.g., storm shelters/safe rooms, heating/cooling centers, emergency recovery shelters, reunification site, family assistance/reception centers, medical point of dispensing). Update these policies as necessary and collaborate with the Village and County to increase community awareness of shelter/center availability.	High; 1-3 years	Red Cross, Village-County Public Health	This strategy would be led by outside agencies. If pursuing mitigation grant funding for safe rooms or storm hardening, incorporate these other facility roles.

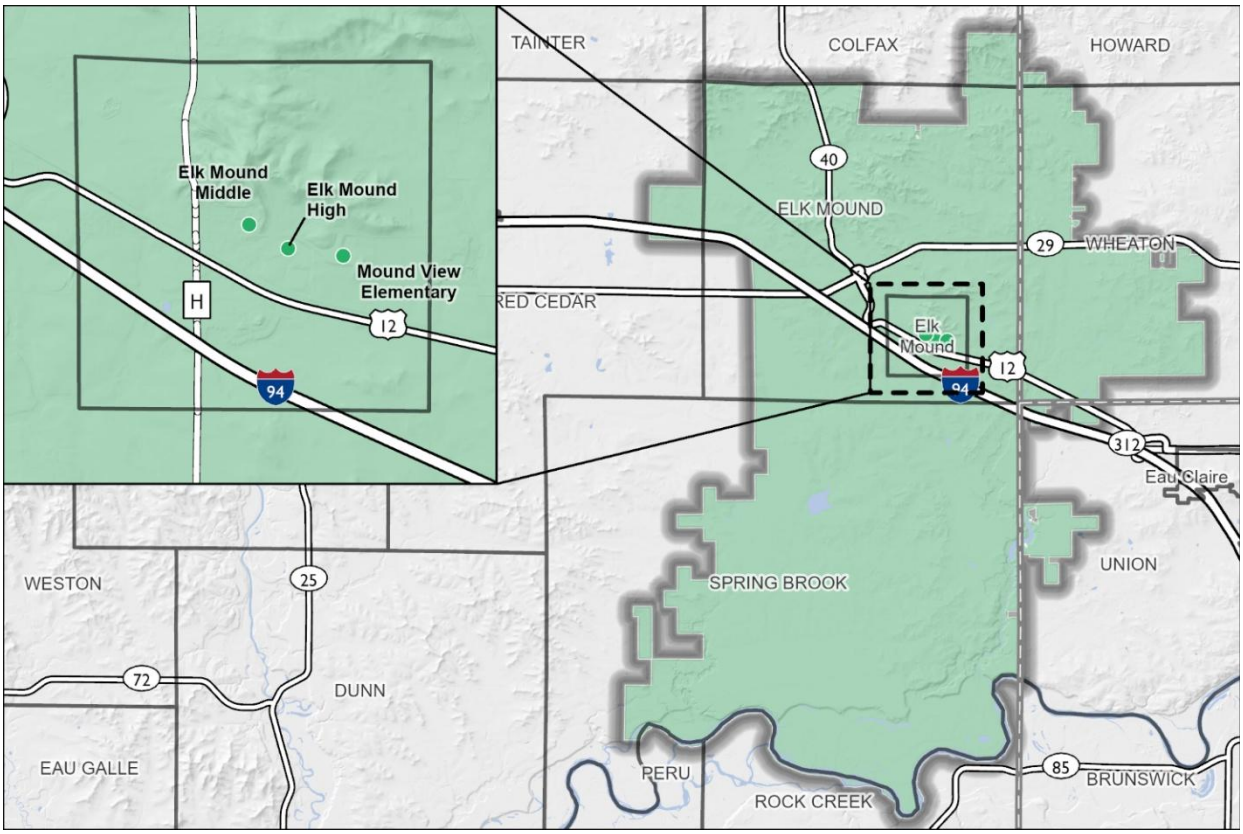
Sub-Plan Adoption and Maintenance

Plan Adoption	The School Board will adopt the County's overall hazard mitigation plan (and any future revisions/amendments specific to the District) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This school district-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The District may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	Concurrent with the annual review of its other All Hazards Plans and protocols or following a declared disaster event impacting the District, District administration staff will review this Mitigation Sub-Plan and its recommendations. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. Contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. 2. Provide the suggested changes to the School Board or its committees for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the School Board will adopt the Sub-Plan as noted previously. Such changes will be limited to this district-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The District intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The District will provide opportunities for public participation throughout its mitigation planning processes, including: (1) School Board actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

SCHOOL DISTRICT OF ELK MOUND AREA HAZARD MITIGATION SUB-PLAN

Primary Contact:	Eric Wright, District Administrator
Planning Process:	• Hazard mitigation webinar conducted by WCWRPC in Summer 2025. • District completed a comprehensive hazard mitigation survey on August 5, 2025. WCWRPC prepared the draft sub-plan based on the survey results. • District reviewed the draft sub-plan and provided additional input to WCWRPC on sub-plan and strategy alternatives as needed. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by School Board at a public meeting. Resolution included in Appendix A.

School District Profile			
Institution Type:	Public; K4 through 12 grades primary & secondary school		
Campus/Facility in Dunn County	**Address**	**approx. 2023-2024 Enrollment**	**approx. 2023-2024 Staff**
Elk Mound High School	405 University St, Elk Mound, WI	380	40
Elk Mound Middle School	302 University St, Elk Mound, WI	370	35
Meadowview Elementary School	455 University St, Elk Mound, WI	500	50



Hazard Threat Assessment

This table describes past hazard events impacting the District and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the District. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all districts.

Hazard	History or Probability	Absenteeism	Vulnerability or Potential Impacts
Flooding – Riverine or Overbank	None	Limited Impact, 1-2 events for 1-2 days	None
Flooding – Stormwater or Overland	Moderate		Moderate
Tornado	High	Limited Impact, 1-2 events for 1-2 days	High
Thunderstorm, Lightning, High Winds & Hail	High	Limited Impact, 1-2 events for 1-2 days	Moderate
Winter Storms & Extreme Cold	Low	Limited Impact, 1-2 events for 1-2 days	Low
Extreme Heat	Low	No Significant Impact	None
Drought	None	No Significant Impact	None
Wildfire	None	No Significant Impact	None
Cyber-Attack	High	No Significant Impact	High
Active Threat	Low	No Significant Impact	Low
Hazardous Materials Spill	Low	No Significant Impact	None
Landslides or Sinkholes	Low	No Significant Impact	None
Pandemic or Infectious Disease	Low	Significant Impact, 3+ events for 3+ days	Moderate
Long-Term Power Outage	Low	No Significant Impact	None

Hazard Analysis

Flooding	
1. Flood history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of flooding.	No significant events have occurred and no vulnerabilities identified.
2. Are any existing or planned school buildings or assets located within the 100-year floodplain?	No structures believed to be within or near the 100-year floodplain.
3. Facilities covered by flood the National Flood Insurance Program or other flood insurance.	None. Does not believe it is needed.
4. Existing or needed flood mitigation activities.	None identified.
Tornados, Thunderstorms, Winter Storms, & Extreme Temperatures	
5. Extreme weather event history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	Tornado passed through Village and missed Meadowview Elementary by about 100 yards.
6. Facilities with storm shelters or safe rooms.	No, but would like to consider safe room as part of future building project
7. Facilities serving as heating/cooling centers or other emergency/recovery shelters.	The District has an agreement in place with Red Cross to serve as an emergency/recovery shelter. District has served as an emergency shelter during 2019 tornado.

8. Unique concerns, vulnerabilities, or resources/support needed to address future severe weather threats.	None identified
Active Threats	
9. Active threat history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No credible threats or events have occurred; all building entrances are secure.
10. Adopted protocols for training and response to active threats.	The District has adopted Alert-Lockdown-Inform-Counter-Evacuate (ALICE) approach.
11. Concerns, strategies, resources, support, or training needed for the District or in partnership with others.	Security upgrades
12. Emergency agencies with access to floor plans for the District's primary buildings.	Yes
13. Does local law enforcement have physical keys or access cards to the District's primary buildings?	Yes
14. Describe preparedness activities.	Staff receive ALICE training annually; four additional trainings conducted with students and staff annually
Other Threats	
15. Wildfire history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No significant events have occurred.
16. Hazardous material spill history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No significant events have occurred.
17. Cybersecurity / cyber-attack history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No significant events have occurred, and IT staff is continually upgrading to prevent cyber-attacks.
18. Zoonotic / infections disease history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No significant events have occurred.
19. Other threat events or strategies of note.	None identified.

Capabilities Assessment & Plan Coordination

The following is a brief assessment of the District's resiliency and capability needs (or related recommendations) to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms.

Capability Needs or Recommendations	
Equipment Needs	None identified
Training Needs	
Collaboration Needs	
Communications/Outreach Needs	
County Emergency Management Relationship	The District meets bi-annually through County-wide safety meetings

Plan Coordination	
Key Plans & Training related to hazard mitigation	• Safety Binder incorporates multiple plans • ALICE Training • Safety walk through outside with safety consultants • Attend Dunn County Safety meetings bi-annually
Additional opportunities to integrate hazard mitigation plan recommendations into the above plans	Plans would be added to Safety Binder
Other:	The District is uncertain if they are familiar with Student Tools for Emergency Planning (STEP) Program and may use it in the future.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section VI. of the Dunn County mitigation plan are shared by all participating communities and school districts. The previous assessment and analysis show the School District has been very proactive in evaluating and preparing for hazard threats in collaboration with the Village and other partners.

The District will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Section VI of the Dunn County mitigation plan includes additional mitigation projects and actions that are intergovernmental in nature and not specific to the District. The District will continue to collaborate with the Village of Elk Mound, Dunn County, area emergency response providers, Red Cross, and other partners to explore and implement such mitigation and preparedness actions to enhance the safety and disaster resiliency of the District and community.

The following recommended, key actions/projects are specific to the District:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Continue to collaborate with the Village, County, area law enforcement, and other partners to strengthen HazMat spill incident preparedness, active threats prevention/preparedness, evacuation planning, and overall community preparedness, including regular drills and exercises. Regularly update the District's Emergency Operations Plan, Safety Binder, and other plans/protocols to address emerging threats, integrate community mitigation opportunities, and	High; Ongoing	District Safety Committee	Local/County law enforcement; CESA and DPI; County Emergency Management; Railroad Also consider how Strategy #4 may influence these other plans.

reflect on any lessons learned from exercises.			
2. Explore the potential integration of the Student Tools for Emergency Planning (STEP) Program curriculum for fourth and fifth grade classes.	Medium; 3-5 years	School Board and/or District Administrator to discuss	Curriculum materials available at ReadyWisconsin website
3. As part of future facility remodel, expansion/addition, or new gym, explore the development of a community safe room (storm shelter) for use by District students, staff, and visitors as well as area residents. Include a generator and heating/cooling as part of the project, which will also allow the space to be used as a heating/cooling, emergency shelter, reunification site, and/or public health emergency point of distribution.	High; 3-5 years or as facility expansions are considered	School Board; District Administrator	FEMA Hazard Mitigation Grant Programs WCWRPC and Wisconsin Emergency Management can provide grant-related guidance Note: As of Dec 2024, FEMA may fund generators for emergency lighting, etc., as part of safe room projects, but has considered full HVAC and insulation costs to be ineligible unless otherwise required by code.
4. Continue to collaborate with Red Cross, County Emergency Management, Village-County Public Health and other partners to evaluate school facility availability, capacity, and policies for various public use during or following a disaster event (e.g., storm shelters/safe rooms, heating/cooling centers, emergency recovery shelters, reunification site, family assistance/reception centers, medical point of dispensing). Update these policies as necessary and collaborate with the Village and County to increase community awareness of shelter/center availability.	High; 1-3 years	Red Cross, Village-County Public Health	This strategy would be led by outside agencies. If pursuing mitigation grant funding for safe rooms or storm hardening, incorporate these other facility roles.

Sub-Plan Adoption and Maintenance

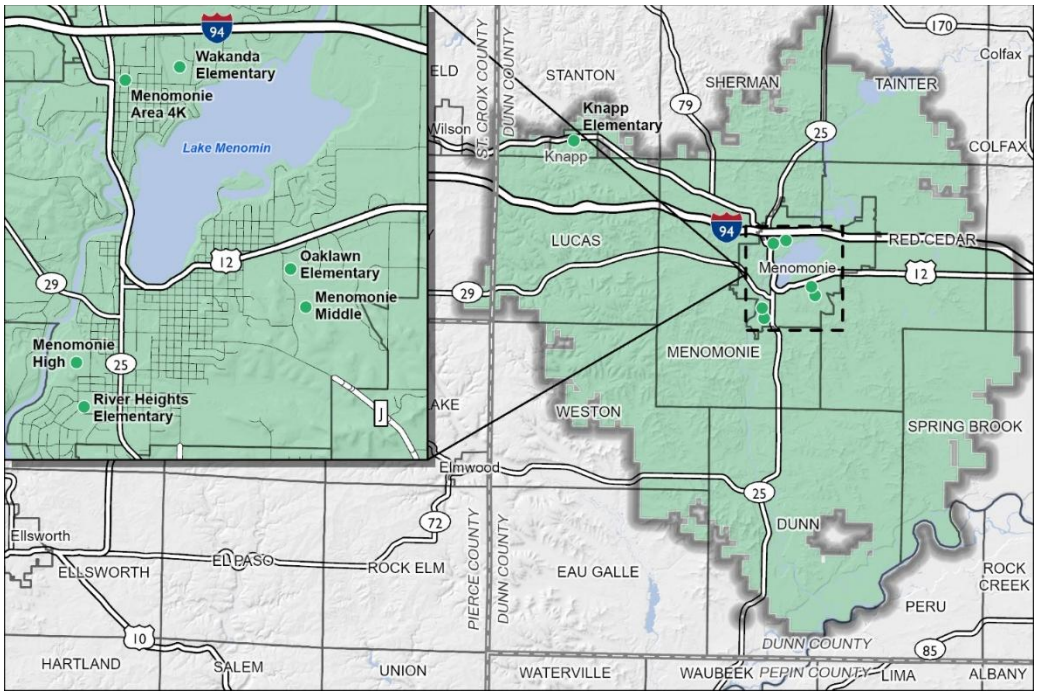
Plan Adoption	The School Board will adopt the County's overall hazard mitigation plan (and any future revisions/amendments specific to the District) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This school district-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The District may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	Concurrent with the annual review of its other All Hazards Plans and protocols or following a declared disaster event impacting the District, District administration staff will review this Mitigation Sub-Plan and its recommendations. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. Contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. 2. Provide the suggested changes to the School Board or its committees for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the School Board will adopt the Sub-Plan as noted previously. Such changes will be limited to this district-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The District intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The District will provide opportunities for public participation throughout its mitigation planning processes, including: (1) School Board actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

SCHOOL DISTRICT OF MENOMONIE AREA HAZARD MITIGATION SUB-PLAN

Primary Contact:	Kevin Tomaszewski, Building & Grounds Director
Planning Process:	• Hazard mitigation webinar conducted by WCWRPC in Summer 2025. • District completed a comprehensive hazard mitigation survey on September 11, 2025. WCWRPC prepared the draft sub-plan based on the survey results. • District reviewed the draft sub-plan and provided additional input to WCWRPC on sub-plan and strategy alternatives as needed. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by School Board at a public meeting. Resolution included in Appendix A.

School District Profile

Institution Type:	Public; K4 through 12 grades primary & secondary school		
Campus/Facility in Dunn County	**Address**	**approx. 2023-2024 Enrollment**	**approx. 2023-2024 Staff**
Menomonie High School	1715 5th St, Menomonie, WI	931	116
Menomonie Middle School	920 21st St, Menomonie, WI	724	77
Knapp Elementary	110 South St, Knapp, WI	91	20
Oaklawn Elementary	500 21st St SE, Menomonie, WI	396	54
River Heights Elementary	615 24th Ave W, Menomonie, WI	444	68
Wakanda Elementary	801 Pine Ave E, Menomonie, WI	369	57



Hazard Threat Assessment

This table describes past hazard events impacting the District and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the District. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all districts.

Hazard	History or Probability	Absenteeism	Vulnerability or Potential Impacts
Flooding – Riverine or Overbank	None	No Significant Impact	None
Flooding – Stormwater or Overland	None		None
Tornado	Moderate	No Significant Impact	Moderate
Thunderstorm, Lightning, High Winds & Hail	High	No Significant Impact	Moderate
Winter Storms & Extreme Cold	High	Limited Impact, 1-2 events for 1-2 days	Moderate
Extreme Heat	Moderate	No Significant Impact	Low
Drought	Moderate	No Significant Impact	None
Wildfire	Low	No Significant Impact	Low
Cyber-Attack	Low	No Significant Impact	Low
Active Threat	Low	No Significant Impact	Moderate
Hazardous Materials Spill	Low	No Significant Impact	Low
Landslides or Sinkholes	Low	No Significant Impact	Low
Pandemic or Infectious Disease	Low	No Significant Impact	Low
Long-Term Power Outage	Low	No Significant Impact	Low

Hazard Analysis

Flooding	
1. Flood history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of flooding.	No significant events have occurred and no vulnerabilities identified.
2. Are any existing or planned school buildings or assets located within the 100-year floodplain?	No structures believed to be within or near the 100-year floodplain.
3. Facilities covered by flood the National Flood Insurance Program or other flood insurance.	None. Does not believe it is needed.
4. Existing or needed flood mitigation activities.	None identified.
Tornados, Thunderstorms, Winter Storms, & Extreme Temperatures	
5. Extreme weather event history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	None identified
6. Facilities with storm shelters or safe rooms.	No, but District is interested in exploring grant funding for a potential safe room.
7. Facilities serving as heating/cooling centers or other emergency/recovery shelters.	The District does not have any agreements in place with the City of Menomonie or Dunn County to serve as a shelter if needed, but is willing to consider such agreements.

8. Unique concerns, vulnerabilities, or resources/support needed to address future severe weather threats.	None identified
Active Threats	
9. Active threat history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No credible threats or events have occurred.
10. Adopted protocols for training and response to active threats.	The District has adopted the Alert-Lockdown-Inform-Counter-Evacuate (ALICE) approach.
11. Concerns, strategies, resources, support, or training needed for the District or in partnership with others.	None identified
12. Emergency agencies with access to floor plans for the District's primary buildings.	Yes
13. Does local law enforcement have physical keys or access cards to the District's primary buildings?	Yes
14. Describe preparedness activities.	None identified
Other Threats	
15. Wildfire history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No significant events have occurred.
16. Hazardous material spill history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No significant events have occurred.
17. Cybersecurity / cyber-attack history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No significant events have occurred; all staff receive annual cyber security training and receive phishing tests
18. Zoonotic / infections disease history, damage/impacts, repetitive losses, or concerns for District facilities and assets, including the nature/type of event.	No unique concerns identified.
19. Other threat events or strategies of note.	None identified

Capabilities Assessment & Plan Coordination

The following is a brief assessment of the District's resiliency and capability needs (or related recommendations) to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms.

Capability Needs or Recommendations	
Equipment Needs	None identified
Training Needs	
Collaboration Needs	
Communications/Outreach Needs	
County Emergency Management Relationship	District notes a great relationship with County Emergency Management, including annual communications.

Plan Coordination	
Key Plans & Training related to hazard mitigation	• Severe Weather & Tornado Drills • Fire Drills (monthly at all locations) • Off site plans with Emergency Management • ALICE & Active shooter trainings
Additional opportunities to integrate hazard mitigation plan recommendations into the above plans	Above plans are simple student, staff, and community related emergency procedures; any further plans would likely be developed to align with or expand details of current plans.
Other:	The District is familiar with Student Tools for Emergency Planning (STEP) Program and may use it in the future.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section VI. of the Dunn County mitigation plan are shared by all participating communities and school districts. The previous assessment and analysis shows the School District has been very proactive in evaluating and preparing for hazard threats in collaboration with the City and other partners.

The District will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Section VI of the Dunn County mitigation plan includes additional mitigation projects and actions that are intergovernmental in nature and not specific to the District. The District will continue to collaborate with the City of Menomonie, Dunn County, area emergency response providers, Red Cross, and other partners to explore and implement such mitigation and preparedness actions to enhance the safety and disaster resiliency of the District and community.

The following recommended, key actions/projects are specific to the District:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. Continue to collaborate with the City, County, area law enforcement, and other partners to strengthen active threats prevention/preparedness, evacuation planning, and overall community preparedness, including regular drills and exercises. Regularly update the District's Emergency Operations Plan and other plans/protocols to address emerging threats, integrate community mitigation opportunities, and reflect on any lessons learned from exercises.	High; Ongoing	District Safety Committee	Local/County law enforcement; CESA and DPI; County Emergency Management; Railroad Also consider how Strategy #4 may influence these other plans.

2. As part of future facility remodel, expansion/addition, or new gym, explore the development of a community safe room (storm shelter) or safe space hardening for use by District students, staff, and visitors as well as area residents. Potentially include a generator and heating/cooling as part of the project, which will also allow the space to be used as a heating/cooling, emergency shelter, reunification site, and/or public health emergency point of distribution.	High; 3-5 years or as facility expansions are considered	School Board; District Administrator	FEMA Hazard Mitigation Grant Programs WCWRPC and Wisconsin Emergency Management can provide grant-related guidance Note: As of Dec 2024, FEMA may fund generators for emergency lighting, etc., as part of safe room projects, but has considered full HVAC and insulation costs to be ineligible unless otherwise required by code.
3. Continue to collaborate with Red Cross, County Emergency Management, City-County Public Health and other partners to evaluate school facility availability, capacity, and policies for various public use during or following a disaster event (e.g., storm shelters/safe rooms, heating/cooling centers, emergency recovery shelters, reunification site, family assistance/reception centers, medical point of dispensing). Update these policies as necessary and collaborate with the City and County to increase community awareness of shelter/center availability.	High; 1-3 years	Red Cross, City-County Public Health	This strategy would be led by outside agencies. If pursuing mitigation grant funding for safe rooms or storm hardening, incorporate these other facility roles.
4. Explore the potential integration of the Student Tools for Emergency Planning (STEP) Program curriculum for fourth and fifth grade classes.	Medium; 5+ years	School Board and/or District Administrator to discuss	Curriculum materials available at ReadyWisconsin website

Sub-Plan Adoption and Maintenance

Plan Adoption	The School Board will adopt the County's overall hazard mitigation plan (and any future revisions/amendments specific to the District) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This school district-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The District may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	Concurrent with the annual review of its other All Hazards Plans and protocols or following a declared disaster event impacting the District, District administration staff will review this Mitigation Sub-Plan and its recommendations. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. Contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. 2. Provide the suggested changes to the School Board or its committees for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the School Board will adopt the Sub-Plan as noted previously. Such changes will be limited to this district-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The District intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The District will provide opportunities for public participation throughout its mitigation planning processes, including: (1) School Board actions regarding the Sub-Plan shall be conducted in adherence with the Wisconsin Open Meetings rules; (2) public comments will be accepted on draft Sub-Plans and Sub-Plan changes prior to adoption; and (3) public input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects are welcomed and will be considered.

UW-STOUT MENOMONIE CAMPUS HAZARD MITIGATION SUB-PLAN

Primary Contact:	Erik Guenard, Vice Chancellor – Business & Finance
Planning Process:	• Hazard mitigation planning meeting between UW-Stout representatives and WCWRPC on 11/14/25.. • University completed a comprehensive hazard mitigation survey on January 29, 2026. WCWRPC prepared the draft sub-plan based on the survey results. • University reviewed the draft sub-plan and provided additional input to WCWRPC on sub-plan and strategy alternatives as needed. • Resolution adopting the Hazard Mitigation Plan and Sub-Plan will be approved by the University at a public meeting. Resolution included in Appendix A.

University Profile			
Institution Type:	Public; Higher Education University		
Campus/Facility in Dunn County	**Address**	**approx. 2023-2024 Enrollment**	**approx. 2023-2024 Staff**
UW-Stout Menomonie Campuses	817 S Broadway St., Menomonie, WI	7,000	1,100

Hazard Threat Assessment

This table describes past hazard events impacting the University and any unique vulnerabilities to each event. This assessment is supplemented by the risk assessment map included at the end of this Mitigation Sub-Plan for the University. Also see the Risk Assessment in Section III of the main text of the Dunn County mitigation plan for general risks and vulnerabilities applicable to most or all educational institutions.

Hazard	History or Probability	Absenteeism	Vulnerability or Potential Impacts
Tornado & High Winds	Moderate	Limited Impact, 3+ events for 1-2 days	High
Hail & Lightning	Moderate		Moderate
Winter Storm, Ice, & Extreme Cold	High	Significant Impact, 3+ Events for 3+ days	High
Extreme Heat	Moderate	Limited Impact, 1-2 events for 1-2 days	Low
Long-Term Power Outage	Moderate	Significant Impact, 1-2 events for 3+ days	High
Flooding – Riverine or Overbank	Low	No Significant Impact	Low
Flooding – Stormwater or Overland	Moderate	Limited Impact, 1-2 events for 1-2 days	Moderate
Drought	Low	No Significant Impact	None
Wildfire	Low	No Significant Impact	None
Hazardous Materials Spills	Moderate	Limited Impact, 1-2 events for 1-2 days	Moderate
Active Threats	Moderate	No Significant Impact	High
Cyber-Attack	Moderate	Limited Impact, 1-2 events for 1-2 days	High
Pandemic or Infectious Disease	Low	Significant Impact, 1-2 events for 3+ days	Moderate
Landslides / Sinkholes	Low	No Significant Impact	None

Hazard Analysis

Overall, the University of Wisconsin-Stout (UW-Stout) shares the same natural hazard threats and many of the same risks and vulnerabilities as the City of Menomonie and Dunn County. Except for flooding and wildfire, the remaining natural hazards addressed in the County's mitigation plan update (i.e., tornados and severe weather, winter storms, extreme temperatures, long-term power loss) can occur anywhere within the upper Midwest. These shared threats, risks, and vulnerabilities are defined and analyzed in Section III.C. of the plan update. This section briefly describes the risks and vulnerabilities more unique to UW-Stout.

Unique Population & Infrastructure

From a hazard assessment perspective, UW-Stout is most unique due to its vulnerabilities, not its risks. The University is functionally a community within the City of Menomonie, with over 9,000 students and staff when school is in session. The student and faculty population is diverse and not everyone may be familiar with the natural hazard risks and notification systems commonly used in west-central Wisconsin. In addition, up to 10,000 persons can be in attendance at an event at Johnson Fieldhouse or Williams Field.

UW-Stout also has significant infrastructure, with ten residence halls and about thirty other academic, sports, administrative, and services structures as shown on the map included here. Most of these buildings are centralized in the roughly 100-acre area main campus, with the smaller north campus located a few blocks away. A large number of privately owned rental apartments also existing in the campus vicinity that cater to students; some are slab-on-grade without basements for shelter.

Flooding	
1. Flood history, damage/impacts, repetitive losses, or concerns for University facilities and assets, including the nature/type of flooding.	Overland flooding during 06/21/2013 rainstorm flooding 3 buildings (Jarvis, MSC, and Administrative), damages of $1 million. Similar event on 07/04/2025 that caused $70,000 in damage to North & South Residence Halls.
2. Are any existing or planned University buildings or assets located within the 100-year floodplain?	Yes; a small portion of the athletic fields by the Williams Field Football Stadium in Athletic Complex, which is within or near the 100-year floodplain.
3. Facilities covered by flood the National Flood Insurance Program or other flood insurance.	None. Does not believe it is needed as campus is State of Wisconsin self-insured.
4. Existing or needed flood mitigation activities.	None identified.

Riverine Flooding

- There has been no recent history of riverine or overbank flooding events impacting the UW-Stout campus.
- A relatively small area of 100-year floodplain exists on campus, which include Williams Stadium at the far south side of the main campus. The floodplain also comes close to or may slightly include the Sports & Fitness Center.
- Some nearby student rental housing (privately owned) may also be in the floodplain, but no recent history of impacts.
- If a dam failure occurred, one parking lot potentially impacts, but no structures. Xcel has installed a siren at the dam.

Overland or Stormwater Flooding

- Overland, stormwater flooding from heavy rains and/or spring snow melt have been a more growing concern over the past decade. The area has been experiencing an increasing frequency of heavy rain events.
- Stormwater from the north, east, and west drain into the Main Campus towards the Student Center and Jarvis Hall, then south towards the sports fields. The following areas have the greatest stormwater flooding risks and some history of past flooding: Memorial Student Center (topographically low point on campus), Administration Building (loading dock), Merle Price Commons (loading dock), Residence hall quad of North, AFM, CKTO, HKMC, and South.
- The University has large areas of impervious surfaces (e.g., roofs, parking lots, sidewalks), which exacerbate runoff.

- The south part of the Main Campus (e.g., Williams Stadiums, sports fields) generally has poor drainage. Walking paths can be occasionally flooded. Local oral history suggests the area was a swamp in the distance past.
- Significant stormwater flooding occurred on June 21, 2013, which resulted in over $1 million in estimated damages to Jarvis Hall, the Student Center, and the Administration Building, with some additional damages occurring within the Commons area.
- Additional stormwater improvements may be needed.
- Campus officials are concerned about how climate change may be contributing to severe weather and flooding risks.

Tornados, Thunderstorms, Winter Storms, & Extreme Temperatures	
5. Extreme weather event history, damage/impacts, repetitive losses, or concerns for University facilities and assets, including the nature/type of event.	Polar vortex/cold snaps have caused 2-3 days of class closings in 2019. Extreme cold has also caused fire sprinkler freeze-ups in 2017 and 2019 with $100,000 in damage per year. 1980 Derecho caused numerous tree and window damages on campus.
6. Facilities with storm shelters or safe rooms.	No public safe room. University is interested in exploring grant funding for potential storm hardening at this and other facilities.
7. Facilities serving as heating/cooling centers or other emergency/recovery shelters.	Have used Merle Price Commons as summer cooling shelter for dorm students in summer and early fall. The University has an agreement to serve as a Red Cross or other emergency/recovery shelter at the Sports & Fitness Center; Center used by Public Health as a Point of Distribution during COVID epidemic.
8. Unique concerns, vulnerabilities, or resources/support needed to address future severe weather threats.	In process of upgrading Police radio system and it is unknown if this will have any special vulnerabilities due to it being an external State of Wisconsin-run system; unsure if back-up system is needed.

Tornados, High Winds, & Thunderstorms

- Tornado is greatest natural hazard vulnerability threat in terms of life-safety. No history of a tornado event on campus. Some high winds have caused damage to roofs, trees, power lines, etc. in the City. No unique hail or lightning concerns noted.
- Some buildings, such as Jarvis Hall, has large amounts of glass. Also, some larger-span structures potentially with increased vulnerability to high winds.

Winter Storms & Extreme Cold

- Some pipes have frozen during extreme cold and occasional frozen roof drains, but no unique risks noted.
- Student population commuting to campus can be concern during extreme cold if appropriate precautions are not taken.

Extreme Heat

- Extreme heat a concern for outdoor events and athletes. Some buildings without cooling systems. Fewer students on campus during the hottest months.

Long-Term Power Loss

- Outages more than 3-4 hours are very uncommon. Lost power for 24-48 hours in August 2007 due to high winds.
- No areas of campus are uniquely prone.
- Commons is the Campus EOC; installing a generator with the remodel. Has some generators for basic life-safety, but many are aging.

Active Threats	
9. Active threat history, damage/impacts, repetitive losses, or concerns for University facilities and assets, including the nature/type of event.	No credible threats or events have occurred within past few decades. Stout did have large campus protest/counter-protest with the Westboro Baptist Church in April 2008. Shooting at UW-Platteville in 2025.
10. Adopted protocols for training and response to active threats.	The University's campus has adopted the "Run-Hide-Fight" or "Avoid-Deny-Defend" approaches. Stout also has professional police department with sworn officers, as well as mutual aid with law enforcement agencies of City of Menomonie and Dunn County.
11. Concerns, strategies, resources, support, or training needed for the University or in partnership with others.	Stout is in process of evaluating interior door locking capabilities and our interior/exterior security camera systems to improve capabilities against potential active threats. Is interested in any potential grant opportunities.
12. Emergency agencies with access to floor plans for the University's primary buildings.	Yes
13. Does local law enforcement have physical keys or access cards to the University's primary buildings?	Yes, Stout Police Dept. has keys to all buildings. Menomonie Fire Dept. also has key cards to all residence hall exteriors.
14. Describe preparedness activities.	Stout Police Department trains staff and students in active threat response. In addition, Stout PD and Stout Emergency Operations Center team train with City of Menomonie and Dunn County on emergency exercises.
Other Threats	
15. Wildfire history, damage/ impacts, repetitive losses, or concerns for University facilities and assets.	No areas with an elevated wildfire risk; no significant events have occurred.
16. Hazardous material spill history, damage/impacts, repetitive losses, or concerns for University facilities and assets, including the nature/type of event.	No significant events have occurred, but does have some vulnerability as the University is adjacent to State Highway 25, which has extensive truck transportation of gasoline, industrial gases, and chemicals. North Campus is adjacent to Con Agra, which has some chemicals; believed to be on the EPCRA Tier II list.
17. Cybersecurity / cyber-attack history, damage/impacts, repetitive losses, or concerns for University facilities and assets, including the nature/type of event.	No significant events have occurred; past incidents have mainly been limited to software systems and applications being down due to hacks on external service providers. The University does have a cyber security/information security plan and has a dedicated cyber-security team. Cybersecurity Research & Outreach Center (CyROC) located on Campus.

18. Zoonotic / infections disease history, damage/impacts, repetitive losses, or concerns for University facilities and assets, including the nature/type of event.	The University currently does not have research involving live mammals, but do have biological sciences programs that teach and conduct research on environmental health. University is considering doing more studies and research on infectious diseases in future.
19. Other threat events or strategies of note.	None identified.

Capabilities Assessment & Plan Coordination

The following is a brief assessment of the University's resiliency and capability needs (or related recommendations) to mitigate, respond to, and recover from a disaster event. It also notes if mitigation or preparedness has been integrated into planning mechanisms.

Capability Needs or Recommendations	
Equipment Needs	Additional interior door-locking devices to address active shooter threats, as well as interior/exterior security cameras and monitoring software.
Training Needs	Noted good access to training and partnership exercises but emphasized need for emergency management trainings that are 2 hours-half day as federal/FEMA courses on ICS and NIMS are too long and cannot be fit into work schedules as easily. Strong interest in continuing partnerships with Dunn County, City of Menomonie, and other community agencies and non-profits regarding emergency management and preparedness activities. University hosts city-wide Employee Wellness Fair on first Wednesday in April each year at Sports & Fitness Center and encourages other partners to join with event.
Collaboration Needs	
Communications/Outreach Needs	Accurate, timely public information is a growing concern due to limited number of Communications Directors and government agency spokespersons in area, particularly regarding traditional news providers. University welcomes partnerships on growing public agency communications with citizen journalism and citizen preparedness groups.
County Emergency Management Relationship	Excellent; University meets and trains with County Emergency Management regularly. Notes main limitation being limited staff dedicated to emergency management at both County and University.
Plan Coordination	
Key Plans & Training related to hazard mitigation	• UW-Stout Emergency Operations Plan • UW-Stout Continuity Plans • University Long Range Plan • University Strategic Plan • UW-Stout Capital Improvements Plan

Additional opportunities to integrate hazard mitigation plan recommendations into the above plans	The University will integrate mitigation plan recommendations into the Emergency Operations Plan as needed and continue to partner with the City and County to expand mitigation and preparedness opportunities.

Planning, ICS, &Training

- Has a variety of emergency plans in places for response, information technologies, crisis recovery, continuity of operations, etc. Stormwater infrastructure or other structural improvements included in a Capital Improvements Plan when needed.
- Uses an ICS structure for emergency response if needed.
- Commons building serves as Campus EOC. Generator available.
- If a large event impacts campus, a UW-Stout representative is assigned to the County Emergency Operations Center.

Communications & Notification Systems

- StoutAlert is the university's mass notification system regarding campus security and emergency incidents. All students and employees are automatically registered to receive StoutAlerts.
- Good emergency communications interoperability with City and County.
- Given the diverse and highly mobile student and faculty, more education and awareness may be needed on local risks, warning notification systems, what to do during an event, and general preparedness. Warning systems often ignored by some students.
- Promoting social media and smart phone apps, instead of relying on PA systems.
- New radio system being implemented that will offer flexibility for future and should alleviate many past problems. However, as a State entity, not eligible for certain grant funding available to local governments for needed for the police radio upgrade.

Mutual Aid, Partnerships, & Coordination

- Has a University Police department Law enforcement mutual aid available if needed.
- Menomonie Fire Department provide medical and fire services.
- Meets quarterly with the City to coordinate emergency services.

Mitigation Strategy Recommendations

The overall mitigation goal statements in Section V.A. of the Dunn County mitigation plan are shared by all participating communities and public educational institutions. The previous assessment and analysis show the University has been very proactive in evaluating and preparing for hazard threats in collaboration with the City and other partners.

The University will strive to implement the following mitigation actions/projects as resources and funding allows, though priorities could change due to a variety of fiscal, technical, or other factors, including changes in hazard risks. Sections V.B. and C. of the Dunn County mitigation plan includes additional mitigation projects and actions that are intergovernmental in nature and not specific to the

University. The University will continue to collaborate with the City of Menomonie, Dunn County, area emergency response providers, Red Cross, and other partners to explore and implement such mitigation and preparedness actions to enhance the safety and disaster resiliency of the University and community.

The following recommended, key actions/projects are specific to the University:

Action/Project	Priority & Timeline	Primary Responsible Party	Potential Resources
1. PLANNING & COORDINATION - Continue to collaborate with the City, County, area law enforcement, hospital, and other partners to enhance community preparedness, strengthen respective response plans, and conduct regular drills and exercises for those threats of most concern to the University and community (e.g., tornado, active threats, HazMat spills, extreme heat, flooding). Include multi-jurisdictional crisis communications and Public Informational Officer (PIO) components to exercises. Regularly update the University Emergency Operations Plan and other plans/protocols to address emerging threats, integrate community mitigation opportunities, and reflect on any lessons learned from exercises.	High; Ongoing Target annual tabletop exercises with functional every 2-3 years and a full-scale exercise about once every 5 years.	University Safety Committee	County Emergency Management is available to assist with coordinating multi-jurisdictional training and can add such activities to the County Integrated Preparedness Plan.
2. COMMUNICATIONS - Maintain use of the StoutAlert system and pass along messaging from Dunn County's Code Red system when pertinent. Collaborate with the County to explore share messaging opportunities to educate students and faculty on hazard risks, warning systems, and preparedness.	High; Ongoing	University Emergency Communications	County Emergency Communication regarding any coordination with Code Red.

3. COMMUNITY SAFE ROOMS - As part of a future facility remodel, expansion/addition, or new facility explore the development of a community safe room (storm shelter) for use by University students, staff, and visitors, and possibly nearby residents. As an alternative, explore opportunities for the hardening of existing structures (e.g., storm shutters, missile-rate doors). Key locations may include Williams Field and the Sports & Fitness Center. Include a generator and heating/cooling as part of the project, which will also allow the space to be used as a heating/cooling, emergency shelter, reunification site, and/or public health emergency point of distribution.	Moderate-to-High; 3-5 years or as facility expansions are considered	University Safety Committee & Facilities	FEMA Hazard Mitigation Grant Programs WCWRPC and Wisconsin Emergency Management can provide grant-related guidance Note: As of Dec 2024, FEMA may fund generators for emergency lighting, etc., as part of safe room projects, but has considered full HVAC and insulation costs to be ineligible unless otherwise required by code.
4. FLOOD MITIGATION - Conduct an updated stormwater flooding analysis of the UW-Stout campus to determine the likely impacts of a 30-year event given the increasing frequency of heavy rainfall events. Include a benefits-cost analysis of additional stormwater management improvements to mitigate the impacts of a 30-year event.	High; 2-5 years	University Safety Committee & Facilities	This may potentially be eligible for Wisconsin Pre-Disaster Flood Resiliency Grant or FEMA Flood Mitigation Grant funding
5. PHYSICAL INFRASTRUCTURE – Continue with the police radio upgrade project. Implement the door-locking systems, security cameras, panic alarms, and other improvements recommended in the recent physical security assessment as resources allow. Continue to replace aging generators as resources allow.	Medium-to-High; varies	University Safety Committee & Facilities	Would likely be funded through standard State-approved capital improvements planning. Homeland Security grant funding has been used for some physical security hardening projects in the past; confirm availability and eligibility. No grant programs for stand-alone generator projects identified for urban areas.
6. UW-Stout's CyROC program may provide an opportunity to increase cyber-security preparedness among public- and private-sector organizations within Dunn County and the larger region.	Medium; as resources allow	UW-Stout CyROC program	Many smaller units of government and smaller businesses can struggle to maintain strong cyber-security systems, practices, and plans for today's quickly changing technologies.

Sub-Plan Adoption and Maintenance

Plan Adoption	The Chancellor's Cabinet, which also functions as the University's Executive Policy group will review the County's overall hazard mitigation plan (and any future revisions/amendments specific to the University) by resolution during a noticed public meeting in adherence with Wisconsin Open Meetings laws. This University-specific Hazard Mitigation Sub-Plan is an appendix of the County's overall plan. The University may modify and re-adopt its Sub-Plan by resolution during a noticed public meeting at any time at their discretion.
Plan Maintenance	Concurrent with the annual review of its other plans and protocols following a declared disaster event impacting the University, University administration staff will review this Mitigation Sub-Plan and its recommendations. Other municipal and agency officials (e.g., public works, fire department, law enforcement) may be involved in this review or consulted as needed. The Mitigation Sub-Plan will be reviewed for: • Any significant changes in vulnerabilities, priorities, or trends, including to populations, structures, 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 comments or discussion with the public, partners, or other stakeholders. If potential changes to the Sub-Plan are being considered, the planning contact will: 1. Contact County Emergency Management and West Central Wisconsin Regional Planning Commission (WCWRPC) to discuss the proposed changes and any guidance regarding potential resources and next steps. 2. Provide the suggested changes to the Safety Committee for consideration. Should it be determined that a Mitigation Sub-Plan change is needed, the University will adopt the Sub-Plan as noted previously. Such changes will be limited to this University-specific Mitigation Sub-Plan. Changes to this Sub-Plan may be made in the future without County Board or other participant re-adoption of the County's overall mitigation plan.
Plan Updates	The University intends to be a full participant in five-year updates of the County's overall hazard mitigation plan, which will include reviewing and updating the information provided in this Mitigation Sub-Plan. Changes to Sub-Plan content may be necessitated by applicable mitigation rules and planning guidance in effect at that time.
Continued Public Participation	The University will provide opportunities for public participation throughout its mitigation planning processes, including inviting student and faculty input and ideas on potential risks, vulnerabilities, capabilities, or mitigation projects.