

# Discovery Report - *DRAFT*

Castle Rock Watershed, HUC 07070003

*Adams County, Clark County, Columbia County, Jackson County, Juneau County, Langlade County, Marathon County, Marquette County, Monroe County, Portage County, Sauk County, Shawano County, Waushara County, Wood County*

*Ho-Chunk Nation of Wisconsin*

*City of Adams, Village of Almond, Village of Aniwa, Village of Arpin, Village of Auburndale, Village of Biron, Village of Camp Douglas, Village of Coloma, Village of Friendship, Village of Hancock, Village of Hatley, Village of Hewitt, Village of Hustler, Village of Junction City, Village of Lake Delton, Village of Lyndon Station, City of Marshfield, City of Mauston, Village of Milladore, Village of Necedah, City of Nekoosa, City of New Lisbon, Village of Oakdale City of Pittsville, City of Portage, Village of Park Ridge, Village of Plainfield, Village of Plover, Village of Port Edwards, Village of Rudolph, Village of Spencer, City of Stevens Point, City of Tomah, Village of Vesper, Village of Warrens, Village of Whiting, City of Wisconsin Dells, Village of Wyeville*

August 3, 2022



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## I. Study Information

The Federal Emergency Management Agency's (FEMA's) Risk Mapping, Assessment, and Planning (Risk MAP) program helps communities identify and assess their flood risk. Through Risk MAP, FEMA provides information to enhance local Hazard Mitigation Plans (HMPs), improve community outreach, and increase local resilience to floods. Discovery is the process of gathering local knowledge and data for analysis with the goal of initiating a hazard risk assessment and promoting risk discussions within the watershed.

The Discovery process for the Castle Rock Watershed began with a kickoff meeting on May 25, 2021. The Discovery meetings are scheduled for August 4-5. Details on meetings and stakeholder involvement can be found in the *Discovery Outreach and Engagement Strategy*, community input can be found in the *Summary of Community Risks Identified*, and outcomes can be found in the *Recommendations for Future Risk MAP Project Scope*.

## II. Project Area Community List

The Discovery project for the Castle Rock Watershed includes 39 communities in Adams, Clark, Columbia, Jackson, Juneau, Langlade, Marathon, Marquette, Monroe, Portage, Sauk, Shawano, Waushara, and Wood Counties. While most of these communities are entirely within the Castle Rock Watershed, those that overlap with the adjoining Lake DuBay, Wolf River, Upper Fox, Baraboo, Kickapoo, La Crosse-Pine, and Black River Watersheds are also included in this project area. Communities denoted with an asterisk in the list below should review the other applicable Discovery report(s) and, if available, the section on Recommendations for Future Risk MAP Project Scope. While all communities may be under consideration for a revised FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM), not all communities will receive them. In this report, current conditions and flood concerns are summarized geographically by county. Community specific concerns and information will be added to the report after the Discovery meetings if desired and applicable.

## Project Area Community List

The Discovery project for the CRW includes 39 communities in 14 Counties. While most of these communities are entirely within the CRW, those that overlap with the adjoining Lake DuBay, Wolf River, and Upper Fox Watersheds are also included in this project area. Communities denoted with an asterisk in the list below should review the other applicable Discovery report(s) and, if available, the section on Recommendations for Future Risk MAP Project Scope. While all communities may be under consideration for a revised FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM), not all communities will receive them.

### **Adams County:**

City of Adams  
City of Wisconsin Dells  
Village of Friendship

### **Clark County:**

County only

### **Columbia County:**

City of Portage§  
City of Wisconsin Dells

### **Jackson County:**

County only

### **Juneau County:**

Village of Camp Douglas  
Village of Huster  
Village of Lyndon Station  
City of Mauston  
Village of Necedah  
City of New Lisbon  
City of Wisconsin Dells

### **Langlade County:**

County only

### **Marathon County:**

Village of Hatley  
Village of Spencer\*  
City of Marshfield

### **Marquette County:**

County only

### **Monroe County:**

Village of Oakdale  
City of Tomah  
Village of Warrens  
Village of Wyeville

### **Portage County:**

Village of Almond  
Village of Junction City\*  
Village of Park Ridge  
Village of Plover  
Village of Milladore\*  
City of Stevens Point  
Village of Whiting

### **Sauk County:**

Village of Lake Delton  
City of Wisconsin Dells

### **Shawano County:**

Village of Aniwa†

### **Waushara County:**

Village of Coloma  
Village of Hancock  
Village of Plainfield

### **Wood County:**

Village of Auburndale  
Village of Biron  
Village of Hewitt\*  
City of Pittsville  
Village of Port Edwards  
Village of Rudolph  
Village of Milladore\*  
City of Nekoosa  
Village of Vesper  
City of Wisconsin Rapids  
City of Marshfield\*

\*also spans Lake DuBay Watershed

§also spans Upper Fox Watershed

†also spans Wolf River Watershed

### III. Terms and Acronyms

CAC: Community Assistance Contact  
CAV: Community Assistance Visit  
CFR: Code of Federal Regulations  
CID: Community Identification Number  
CIS: Community Information System  
CRW: Castle Rock Watershed  
CLOMA: Conditional Letter of Map Amendment  
CLOMR: Conditional Letter of Map Revision  
CNMS: Coordinated Needs Management Strategy  
CRS: Community Rating System  
CRW: Castle Rock Watershed  
DNR: Department of Natural Resources  
FEMA: Federal Emergency Management Agency  
FIRM: Flood Insurance Rate Map  
FIS: Flood Insurance Study  
FMA: Flood Mitigation Assistance  
GIS: Geographic Information System  
HMA: Hazard Mitigation Assistance  
HMGP: Hazard Mitigation Grant Program  
HMP: Hazard Mitigation Plan  
HUC: Hydrologic Unit Code  
LiDAR: Light Detection and Ranging  
LOMA: Letter of Map Amendment  
LOMR: Letter of Map Revision  
LOMR-F: Letter of Map Revision Based on Fill  
LOMR-VZ: Letter of Map Revision V Zone  
MIP: Mapping Information Platform  
NRCS: Natural Resources Conservation Service  
NCDC: National Climatic Data Center  
OHWM: Ordinary High Water Mark  
NOAA: National Oceanic and Atmospheric Administration  
NWS: National Weather Service  
PDM: Pre-Disaster Mitigation  
PMR: Physical Map Revision  
Risk MAP: Risk Mapping, Assessment, and Planning  
RL: Repetitive Loss  
SHFA: Special Flood Hazard Area  
SRL: Severe Repetitive Loss  
SWCD: Soil and Water Conservation District  
USACE: United States Army Corps of Engineers  
USDA: United States Department of Agriculture  
USGS: United States Geological Survey

## V. Glossary of Terms

*Please note: The Federal Emergency Management Agency (FEMA) is the source for the following terms and definitions, unless cited otherwise.*

**1-Percent-Annual-Chance Flood:** The flood that has a 1-percent chance of being equaled or exceeded in any given year. This is the regulatory standard also referred to as the “100-year flood” or “base flood.” The base flood is the national standard used by the National Flood Insurance Program (NFIP) and all Federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development.

**0.2-Percent-Annual-Chance Flood:** A flood that has a 0.2-percent chance of being equaled or exceeded in any given year (also known as a 500-year flood).

**Approximate Study:** Areas subject to inundation by the 1-percent-annual-chance flood event, generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply. An approximate study is represented on a FIRM as a Zone A.

**Community Assistance Contacts (CACs):** A telephone call or brief visit to an NFIP community for the purpose of establishing or reestablishing contact to determine if any program-related problems exist and to offer assistance.

**Community Assistance Visits (CAVs):** A visit to a community by a FEMA staff member or staff of a State agency on behalf of FEMA that serves the dual purpose of providing technical assistance to the community and ensuring that the community is adequately enforcing its floodplain management regulations.

**Community Rating System (CRS):** A voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Flood insurance premium rates in participating communities are discounted to reflect the reduced flood risk resulting from the community actions.

**Conditional Letter of Map Revision (CLOMR):** A CLOMR is a letter from FEMA that comments on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFEs, or the Special Flood Hazard Area (SFHA). The letter does not revise an effective NFIP map; it indicates whether the project, if built as proposed, would be recognized by FEMA. FEMA charges a fee for processing a CLOMR to recover the costs associated with the review.

**Conditional Letter of Map Revision Based on Fill (CLOMR-F):** A CLOMR-F is FEMA's comment on a proposed project that will be elevated by fill. This process is not for submitting proposed development that would affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFEs, or the SFHA. The letter does not revise an effective NFIP map, but indicates whether the project, if built as proposed, would be recognized by FEMA.

**Coordinated Needs Management Strategy (CNMS):** The CNMS application is FEMA's inventory of flood hazard studies and flood hazard mapping needs for areas where a



flood hazard study is needed. CNMS is beneficial for community officials and FEMA staff in analyzing and depicting flood hazards to enhance understanding of flood risk and make informed decisions on community planning and flood mitigation.

**Dam:** An artificial barrier that has the ability to impound water, wastewater, or any liquid-borne material, for the purpose of storage or control of water (Federal Energy Regulatory Commission). The New York State Department of Environmental Conservation (NYSDEC) uses a classification scale of A to D to assign hazard potential to each of the dam structures contained within the inventory, while dams without a hazard code assignment are considered Class 0 or unclassified hazard potential. The hazard classifications for dams are assigned based on the particular physical characteristics of a dam and its location, may be assigned irrespective of the size of the dam, as appropriate, and are as follows:

- Class A or low hazard dam. A dam failure is unlikely to result in damage to anything more than isolated or unoccupied buildings, undeveloped lands, minor roads such as town or county roads; is unlikely to result in the interruption of important utilities, including water supply, sewage treatment, fuel, power, cable, or telephone infrastructure; and/or is otherwise unlikely to pose the threat of personal injury, substantial economic loss, or substantial environmental damage.
- Class B or intermediate hazard dam. A dam failure may result in damage to isolated homes, main highways, and minor railroads; may result in the interruption of important utilities, including water supply, sewage treatment, fuel, power, cable, or telephone infrastructure; and/or is otherwise likely to pose the threat of personal injury and/or substantial economic loss or substantial environmental damage. Loss of human life is not expected.
- Class C or high hazard dam. A dam failure may result in widespread or serious damage to home(s); damage to main highways, industrial or commercial buildings, railroads, and/or important utilities, including water supply, sewage treatment, fuel, power, cable, or telephone infrastructure; or substantial environmental damage; such that the loss of human life or widespread substantial economic loss is likely.
- Class D or negligible or no hazard dam. A dam that has been breached or removed, or has failed or otherwise no longer materially impounds waters, or a dam that was planned but never constructed. Class D dams are considered to be defunct dams posing negligible or no hazard. The department may retain pertinent records regarding such dams.

**Disaster Declaration:** The President can declare a major disaster for any natural event that is determined to have caused damage of such severity that it is beyond the combined capabilities of State and local governments to respond. A Major Disaster Declaration provides a wide range of Federal assistance programs for individuals and public infrastructure, including funds for both emergency and permanent work.

**Detailed Study:** A flood hazard mapping study done using hydrologic and hydraulic methods that produce BFEs, floodways, and other pertinent flood data. Detailed study areas are shown on the FIRM as Zones AE, AH, AO, AR, A99, A1-A30, and in coastal areas as Zones V, VE, and V1-30.

**Flood Insurance Rate Map (FIRM):** The official map of a community on which FEMA has delineated both the SFHAs and the risk premium zones applicable to the community.

**Flood Insurance Study (FIS):** A compilation and presentation of flood risk data for specific watercourses, lakes, and coastal flood hazard areas within a community. When a flood study is completed for the NFIP, the information and maps are assembled into an FIS report. The FIS report contains detailed flood elevation data in flood profiles and data tables.

**Flood Mitigation Assistance (FMA):** The FMA program provides funds for projects to reduce or eliminate risk of flood damage to buildings that are insured under the NFIP on an annual basis. There are three types of FMA grants available, which include (1) planning grants, (2) project grants, and (3) management cost grants.

**Hazard Mitigation Assistance (HMA):** FEMA's HMA grant programs, which include the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), and FMA, provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages.

**Hazard Mitigation Grant Program (HMGP):** The HMGP provides grants to States or Tribes and local governments (as sub-grantees) to implement long-term hazard mitigation measures after a Major Disaster Declaration.

**Hydrologic Unit Code (HUC):** The U.S. Geological Survey (USGS) divides and subdivides the area of the United States into successively smaller hydrologic units that are classified into four levels: regions, sub-regions, accounting units, and cataloging units. The hydrologic units are arranged or nested within each other, from the largest geographic area (regions) to the smallest geographic area (cataloging units). Each hydrologic unit is identified by a unique HUC consisting of two to eight digits based on the four levels of classification in the hydrologic unit system. (USGS)

**Ice Jams:** An ice jam may be defined as an accumulation of ice in a river, stream, or other flooding source that reduces the cross-sectional area available to carry the flow and increases the water-surface elevation. Ice usually accumulates at a natural or manmade obstruction or a relatively sudden change in slope, alignment, or cross-section shape or depth. Ice jams are common in locations where the channel slope changes from relatively steep to mild and where a tributary stream enters a large river.

**Light Detection and Ranging (LiDAR):** LiDAR is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses—combined with other data recorded by the airborne system—generate precise, three-dimensional information about the shape of the Earth and its surface characteristics. LiDAR systems allow scientists and mapping professionals to examine both natural and manmade environments with accuracy, precision, and flexibility. (NOAA)

**Letter of Map Amendment (LOMA):** A LOMA is an official amendment, by letter, to an effective NFIP map. A LOMA establishes a property's location in relation to the SFHA. LOMAs are usually issued because a property has been inadvertently identified as being in the floodplain but is actually on natural high ground above the BFE or out as shown on the FIRM. Because a LOMA officially amends the effective NFIP map, it is a public record that the community must maintain. Any LOMA should be noted on the community's master flood map and filed by panel number in an accessible location.

**Letter of Map Change (LOMC):** LOMC is a general term used to refer to the several types of revisions and amendments to FEMA maps that can be accomplished by letter. They include LOMAs, Letters of Map Revision (LOMRs), and Letters of Map Revision Based on Fill (LOMR-Fs).

**Letter of Map Revision (LOMR):** A LOMR is FEMA's modification to an effective FIRM or portion of the FIRM. LOMRs are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and, thus, result in the modification of the existing regulatory floodway, the effective BFEs, or the SFHA. The LOMR officially revises the FIRM and sometimes the FIS report.

**Letter of Map Revision Based on Fill (LOMR-F):** A LOMR-F is a FEMA letter amending the effective FIRM for an existing structure or parcel of land that has been elevated by fill.

**Levee/Floodwall:** A manmade structure designed to contain or control the flow of water. Levees and floodwalls are constructed from earth, compacted soil, or artificial materials, such as concrete or steel. To protect against erosion and scouring, earthen levees can be covered with grass and gravel or hard surfaces like stone, asphalt, or concrete.

**Mitigation:** Any action taken to eliminate or reduce the long-term risk to life and property from natural and technological hazards, including, but not limited to, flooding. Flood mitigation measures include elevation, floodproofing, relocation, demolition, or any combination thereof.

**Multi-Frequency Depth Grids:** This Flood Risk Product helps communities better understand their flood hazard risk beyond the 1-percent-annual-chance floodplain and provides information useful for developing a Benefit-Cost Analysis by producing grids for the 10-percent (10-year depth), 4-percent (25-year depth), 2-percent (50-year depth), 1-percent (100-year depth), and 0.2-percent-annual-chance (500-year depth) flood events. These grids will be used to create additional analyses that depict the percent-annual chance of flooding and the percent chance of flooding over a 30-year span in the floodplain.

**Pre-Disaster Mitigation (PDM):** The PDM grant program provides funds for hazard mitigation planning and projects on an annual basis. The PDM program was enacted to reduce overall risk to people and structures, while simultaneously reducing reliance on Federal funding in the event of a disaster.

**Repetitive Loss (RL) property:** An RL property is any insurable building for which two or more claims of more than \$1,000 were paid by the NFIP within any rolling 10-year period since 1978. An RL property may or may not be currently insured by the NFIP.

**Risk Mapping, Assessment, and Planning (Risk MAP) program:** The FEMA Risk MAP program provides communities with flood risk information and tools to support mitigation planning and risk reduction actions.

**Severe Repetitive Loss (SRL) property:** An SRL property is a single family property (consisting of one to four residences) covered by flood insurance underwritten by the NFIP and has incurred flood-related damage for which four or more separate claim payments have been paid with the amount of each claim payment exceeding \$5,000 and with a cumulative amount of such claim payments exceeding \$20,000; or for which at least two separate claim payments have been made with the cumulative amount of such claims exceeding the market value of the property.

**Special Flood Hazard Area (SFHA):** SFHAs are high-risk areas subject to inundation by the base (1-percent-annual-chance) flood; they are also referred to as 1-percent-annual-chance floodplains, base floodplains, or 100-year floodplains.

**Water-Surface Elevation Grids:** When appropriated, this non-regulatory Flood Risk Product is produced during the Flood Risk Review phase to complement the 1-percent-annual-chance floodplains designated on the FIRMs making the calculated WSEL results more readily available. The WSEL Grid is prepared for the 1-percent-annual-chance storm event and may be produced for a range of other flood events. Using a Geographic Information System (GIS), community officials can easily generate an estimated BFE for interested residents and land developers, and to make critical floodplain management and mitigation decisions.

## VII. Executive Summary

In 2020, FEMA funded a Risk MAP Discovery project for the Castle Rock Watershed (CRW), which consists of 14 counties and 41 communities. Through the Discovery process, FEMA will be able to obtain key insights and data that will lead to greater community resiliency. Stakeholders in the watershed will help FEMA to identify and review existing natural hazard information to prioritize natural hazard information needs for making mitigation decisions. Communities will help to identify critical infrastructure and resources that could be impacted during a natural hazard event.

Comprising significant input from local stakeholders, the CRW Discovery Report describes historical flood risk, existing flood-related data, local needs concerning FEMA FIS reports and FIRMs, and current flood mitigation activities. During the outreach process—which involved a kickoff meeting and discussion-based Discovery Meeting—emphasis was placed on opportunities for stakeholders to provide comments, concerns, input for future mapping projects, and ideas for mitigation activities.

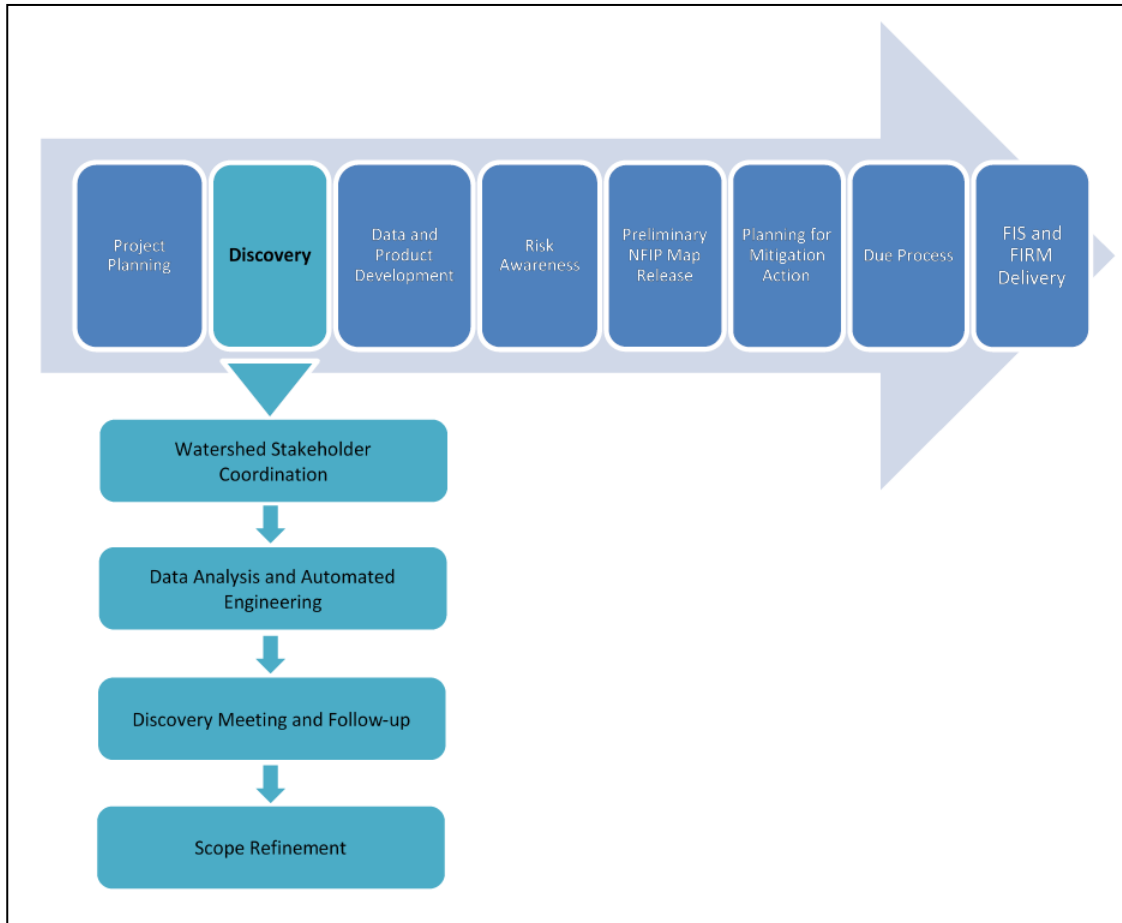
The Discovery project was informed by data and resources available at the watershed and county level, as well as local insights from stakeholders at the community level. Using community mapping needs and data collected through the engagement process, as well as additional detailed analysis, a recommended scope of work for the Watershed was developed. Data collected from community stakeholders can be found in the *County Overview* sections and the *Summary of Community Risks Identified* section.

Upon completion of the Risk MAP Discovery phase, FEMA will initiate further data development, prioritize areas for restudy, and begin the process to update maps within the watershed, pending available funding.

## IX. Discovery Overview

The Discovery process is the second phase in FEMA’s Risk MAP Project lifecycle (Figure 1). It kicks off with an investigation of existing terrain, flood hazard data, and flood risk data for development of an initial Discovery map (Figure 1). Further data is gathered through stakeholder coordination and is used to refine the map and scope of the Risk MAP project. As a Cooperating Technical Partner, the Wisconsin Department of Natural Resources (WDNR) led the Discovery process for the CRW. In coordination with FEMA and Wisconsin Emergency Management (WEM), the WDNR gathered data and identified stakeholders. Community officials, Land Information Officers, Emergency Managers, Tribal Officers, State Agencies, and Federal Agencies were identified as stakeholders and invited to participate in the Discovery process.

Figure 1. Risk MAP Project Lifecycle



## **X. Discovery Outreach and Engagement Strategy**

In the Castle Rock Watershed, the Discovery phase of RiskMAP had four major components: (1) identify stakeholders, (2) gather information from participating communities through email correspondence, meetings, and phone calls, (3) support two virtual Discovery meetings to gather additional information, (4) conduct post-meeting follow-up and engagement.

### **i. Stakeholder Identification**

Initial stakeholders identified were county chairpersons, village presidents, mayors, tribal president, clerks, and zoning administrators. The invitation sent out to stakeholders informed those persons that the invitation can be forwarded to local officials or relevant staff who may be interested. Others that have joined the Discovery process have been GIS staff, emergency management, planners, & other local professionals.

### **ii. Pre-Meeting Information Exchange**

As a pre-Discovery meeting engagement, Wisconsin DNR held a kick-off meeting on May 25, 2021. A formal presentation was given to 42 stakeholders (see Appendix B) and with questions the meeting lasted about 30 minutes. The WDNR project lead kicked off the meeting with introductions and an overview of the meeting agenda. WDNR then summarized the goals of RiskMap and provided basic information about the National Flood Insurance Program (NFIP). Details specific to the Discovery process were then discussed and a project timeline was given. Attendees were then given information about next steps in the process, which include data collection, Draft Discovery Report, and the Discovery Meeting.

### **iii. Discovery Meeting**

The WDNR decided to schedule two Discovery Meetings to accommodate how large the Castle Rock Watershed is. Meetings occurred virtually via Zoom on August 4<sup>th</sup> at 10am and August 5<sup>th</sup> at 1pm. The meetings were split up geographically by county. Langlade, Shawano, Marathon, Clark, Wood, & Portage were invited to attend the August 4<sup>th</sup> Discovery Meeting. Jackson, Monroe, Juneau, Adams, Waushara, Marquette, Columbia, and Sauk County were invited to attend the Discovery Meeting on August 5<sup>th</sup>. Ho-Chunk Nation has land throughout the entire watershed and was invited to attend either meeting.

## **XII. Watershed Characteristics and Geography**

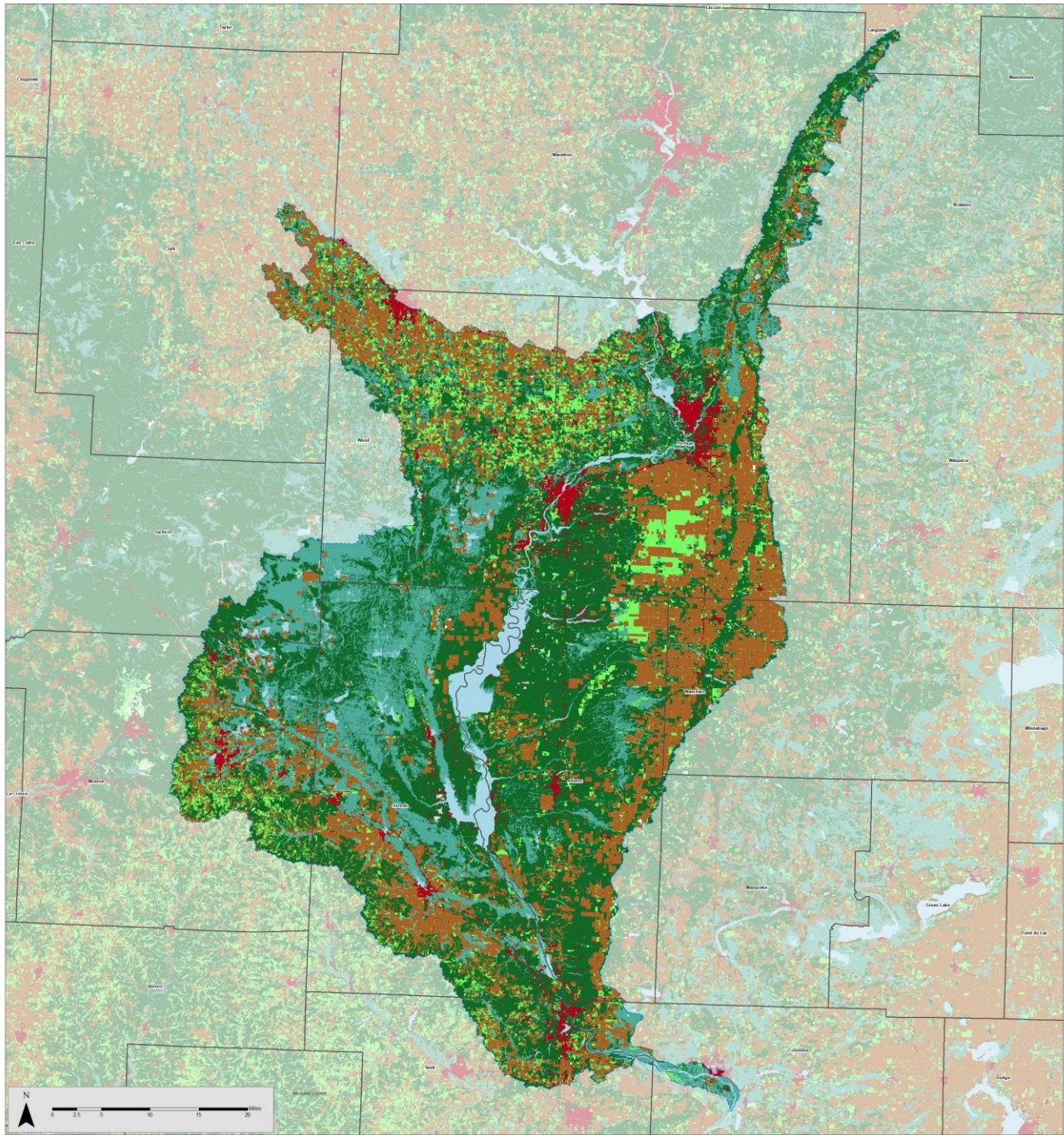
The Castle Rock Watershed is in Central Wisconsin and occupies 3,221 square miles. The Wisconsin River roughly divides the watershed down the middle from Stevens Point to Portage. The southernmost extent is the confluence of the Wisconsin River and the Baraboo River. There are several major tributaries to the main stem Wisconsin River, including the Plover River, Yellow River, Mill Creek, Big and Little Roche A Cri Creeks, and the Lemonweir River.

The watershed includes large portions of Adams, Juneau, Portage, and Wood Counties, and smaller portions of Clark, Columbia, Jackson, Langlade, Marathon, Marquette, Monroe, Sauk, Shawano, and Waushara Counties, including 39 incorporated areas. Elevation ranges from just under 240 to 460 feet, with higher elevations along the north and northeastern boundaries, and along a narrow portion of the western boundary in Juneau and Monroe Counties.

Mapped land use is a mix of agricultural and forested with low-density urban corridors. According to the WiscLand2 Database, 4.0% of the watershed is urban or developed, while forested land makes up 41% and agriculture makes up 25% of the land use. The largest urban areas are Steven's Point (pop. 26,717), Marshfield (pop. 19,118), Wisconsin Rapids (pop. 18,367), and Plover (pop. 12,123). The remaining land use classifications are depicted in Figure 2.



Figure 2. – Watershed Location and Land Use



**MAP SYMBOLOLOGY**

- |                      |                       |
|----------------------|-----------------------|
| <b>Land Use Type</b> | County Boundary       |
| Wetland              | Castle Rock Watershed |
| Urban/Developed      |                       |
| Shrubland            |                       |
| Open Water           |                       |
| Grassland            |                       |
| Forest               |                       |
| Barren               |                       |
| Agriculture          |                       |

**WATERSHED LOCATOR**



**NATIONAL FLOOD INSURANCE PROGRAM**  
**Discovery Map**

**CASTLE ROCK WATERSHED**

This is a non-regulatory product and is provided to your community for the information gathering and sharing purposes only.

Sources:  
 Wisconsin Department of Natural Resources

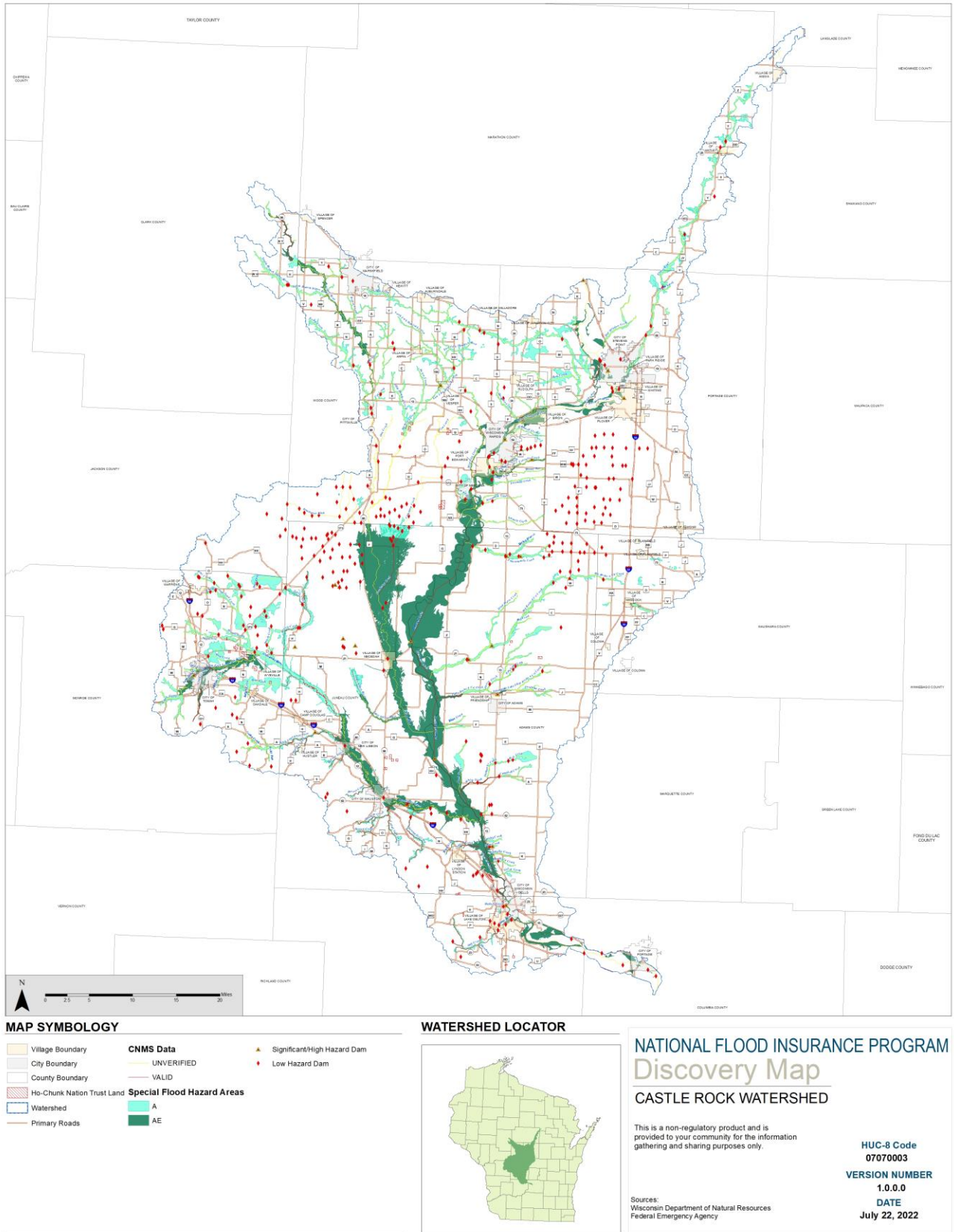
**HUC-8 Code**  
 07070003  
**VERSION NUMBER**  
 1.0.0.0  
**DATE**  
 July 22, 2022

According to the Wisconsin DNR Dams database, there are 374 dams in the watershed. A dam is classified by its size and hazard. A *Large* dam has a structural height of over 6 feet and impounds 50 acre-feet or a structural height of 25 feet or more and impounds more than 15-acre-feet. Every *Large* dam is given a hazard rating based on the potential for loss of life or property damage should the dam fail. A dam is assigned a rating of *High* hazard when its failure would probably put lives at risk. There are 117 *Large* dams in the CRW and 25 of those have a rating of *High* or *Significant* hazard.

Watershed boundaries are classified based on hydrologic unit codes (HUC). The CRW is a HUC 8 class with the number 07070003. The numbers are arranged by scale, with the first two numbers representing the region, and the following two numbers each representing the sub-regions, accounting units, and cataloging units, respectively. The CRW shares boundaries with:

- Lake DuBay Watershed (0707002)
- Black River Watershed (0704007)
- La Crosse-Pine River Watershed (0704006)
- Kickapoo River Watershed (0707006)
- Baraboo River Watershed (0707004)
- Lower Wisconsin Watershed (0707005)
- Upper Fox River Watershed (04030201)
- Wolf River Watershed (04030202)

Figure 3. – Dams in the CRW



### XIII. Watershed Disaster Declarations

In response to disasters, FEMA can issue disaster declarations for Major Disasters (DRs) and Emergency Declarations (EMs).

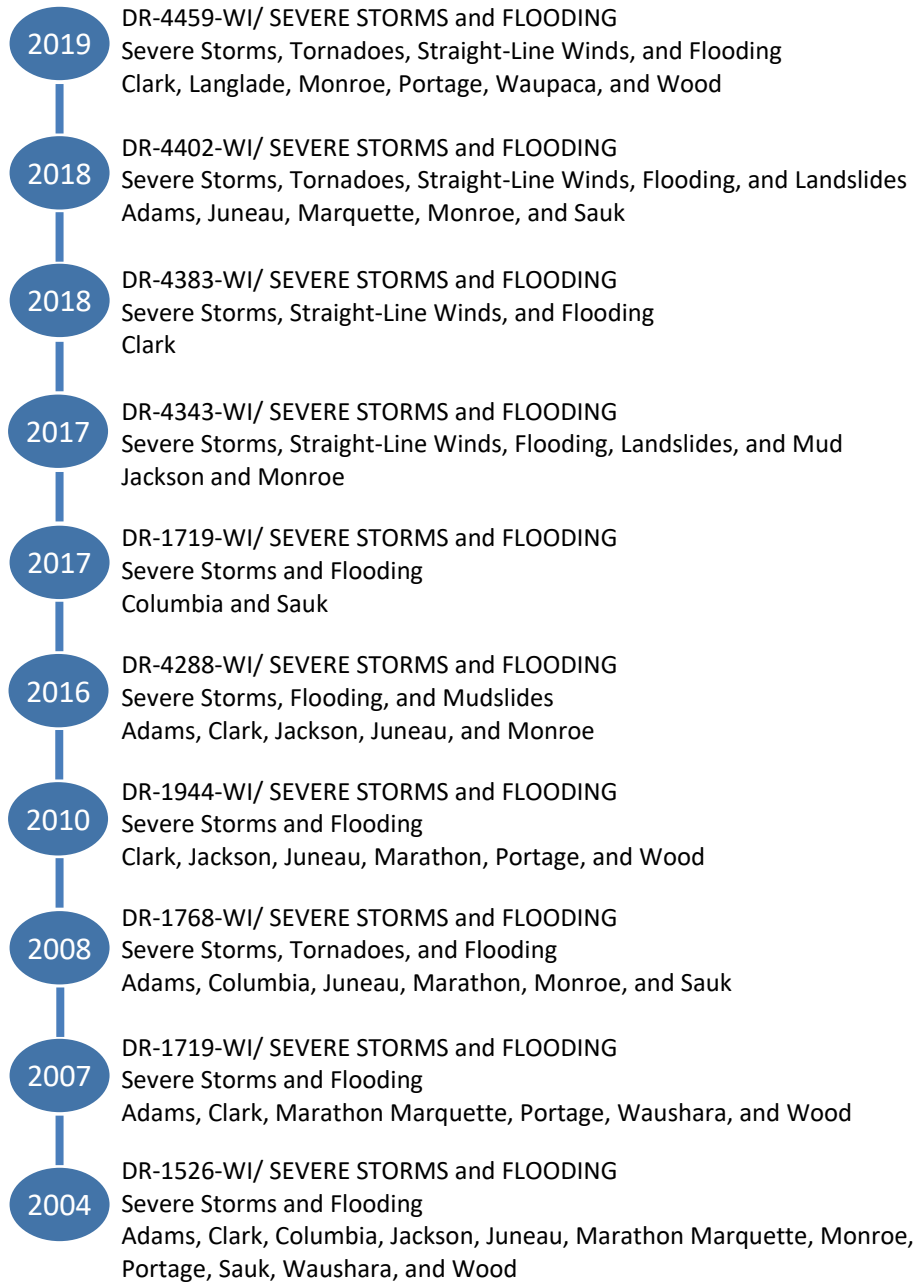
The President can declare a DR in Wisconsin after the Governor submits a request for any natural event, fire, flood, or explosion in which the severity of damage is determined to exceed the combined response capabilities of State and local governments. A wide range of Federal assistance programs for individual and public infrastructure can be provided after such a declaration is made, including funds for both emergency and permanent work. EMs can be declared by the President after the Governor submits a request for any occasion or instance when the President determines Federal assistance is needed to supplement State and local government efforts in providing emergency services, up to \$5 million dollars.

As of May 2022, there have been a total of 26 FEMA disaster declarations in the CRW dating back to 1982. The number of declarations informed the need for this Discovery effort. The timeline below (Figure 4) shows the 10 most recent flooding declarations in more detail, while the table (Table 1) summarizes all declarations within the watershed (FEMA 2022, Disaster Declarations Summary).

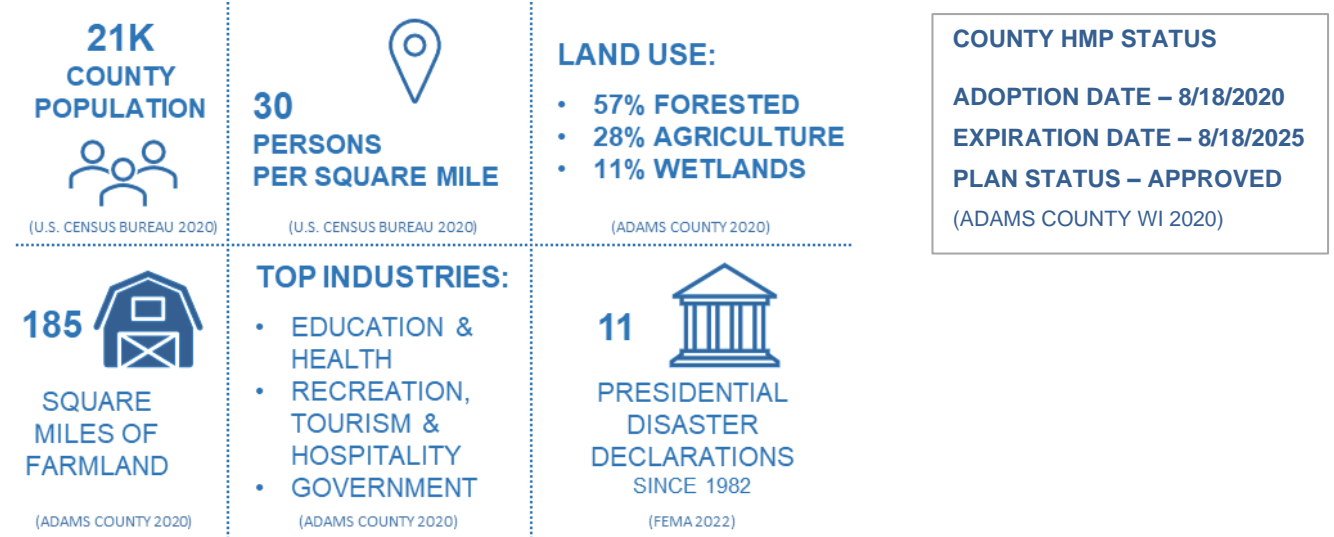
**Table 1. FEMA Disaster Declarations for the CRW**

Incident Type	Declared County/ Area	Number of Disaster Declarations	Declaration Date
Severe Storms and Flooding	All Castle Rock Watershed counties	20	(DR): 2019, 2018, 2018, 2017, 2017, 2016, 2010, 2008, 2007, 2004, 2002, 2002, 2001, 2000, 1998, 1993, 1992, 1992, 1990, 1990
Tornado	Marathon, Clark, Wood, Portage, Waushara	2	(DR): 2002, 1992
Hurricane	Statewide	1	(DR): 2005
Snow	Columbia	1	(DR): 2001
Biological (covid-19)	Statewide	2	(DR): 2020

**Figure 4. Ten Most Recent FEMA Flood Disaster Declarations in the CRW**



## XIV. Adams County Overview



### Overview

Adams County is bordered by Juneau, Wood, Portage, Waushara, Marquette, and Columbia Counties, and has a total area of 689 square miles. The Wisconsin River forms the western boundary of the county. The total population is 20,875. Close to 90% of Adams County, or 606 square miles, are located in the CRW. The remaining portion of Adams County is in the Upper Fox HUC 8 watershed. The County seat is the Village of Friendship, with a population of 595. The County is largely forested and rural, with agriculture accounting for 28% of the land use. There is higher population density in the Friendship/Adams area where commercial and industrial activity are concentrated. There are 234 miles of interior streams in the county, along with 52 dams including 18 large dams and five that have a high hazard rating.

Presidential Disaster declarations for Adams County occurred most recently following severe storms, high winds, and flooding in 2018 and after severe storms and flooding in 2016. The flooding events in 2018 and 2016 were caused by groundwater flooding. Adams County received support through FEMA Public Assistance for the 2016 and 2018 events. The County Hazard Mitigation Plan states that the listed 10 disaster declarations significantly underestimate overall hazard events, and that weather events or disasters that cause thousands of dollars in damages almost every year.

### Planning

Adams County has the following resources for land use planning and flood resiliency:

- Adams County Comprehensive Plan (2018)
- Adams County Hazard Mitigation Plan (2020)
- City of Adams Comprehensive Plan (2017)

- Village of Friendship Comprehensive Plan (2018)
- Towns of Adams, Big Flats, Colburn, Dell Prairie, Easton, Jackson, Leola, Lincoln, Monroe, New Chester, New Haven, Preston, Quincy, Richfield, Springville, Strongs Prairie, and Rome Comprehensive Plans (various years)

## Common Flooding Concerns

- Flooding and dam failure ranked as top hazard mitigation priority in the County HMP.
- Shallow depth to groundwater (20 feet or less) means limited storage capacity to hold excess water. Recent floods in 2016 and 2018 caused by groundwater flooding.
- Floodplains are small and typically flood only during periods of exceptionally heavy rainfall.
- Flooding a major concern due to the Wisconsin River and 235 miles of streams in the county.
- Flood vulnerability assessment in the County HMP:
  - Review of public infrastructure, utilities, roadways, residential structures, businesses, and agriculture
  - 828 structures identified in designated floodplain boundaries
  - The drainage network (surface runoff) in the County is poorly defined.
  - The Town of Rome has 196 structures / \$24.2 million in property values in the DFIRM.
- During June 2002 floods, several dams were close to failure:
  - Lake Camelot Dam – 1 inch
  - Lake Arrowhead Dam – 7 inches
  - Sherwood Dam – 4 inches
- Other notable dam emergencies
  - 2006, Tri-Lakes dams were rapidly drawn down to avoid failure
  - 2007, Easton Lake Dam showed risk of failure, dam replacement was planned and implemented
- Flood impacts:
  - Roadway closures
  - Business and tourism impacts
  - Agriculture industry losses
  - Forest products industry losses

## Flooding Concerns Shared During Discovery Meeting

- ADD

## Common Mitigation Concerns

- Acquisition/demolition of floodplain properties
- New or updated EAPs for all large dams, prioritizing significant and high hazard rating dams. Identify rehabilitation needs
- Comprehensive flood study for Town of Big Flats

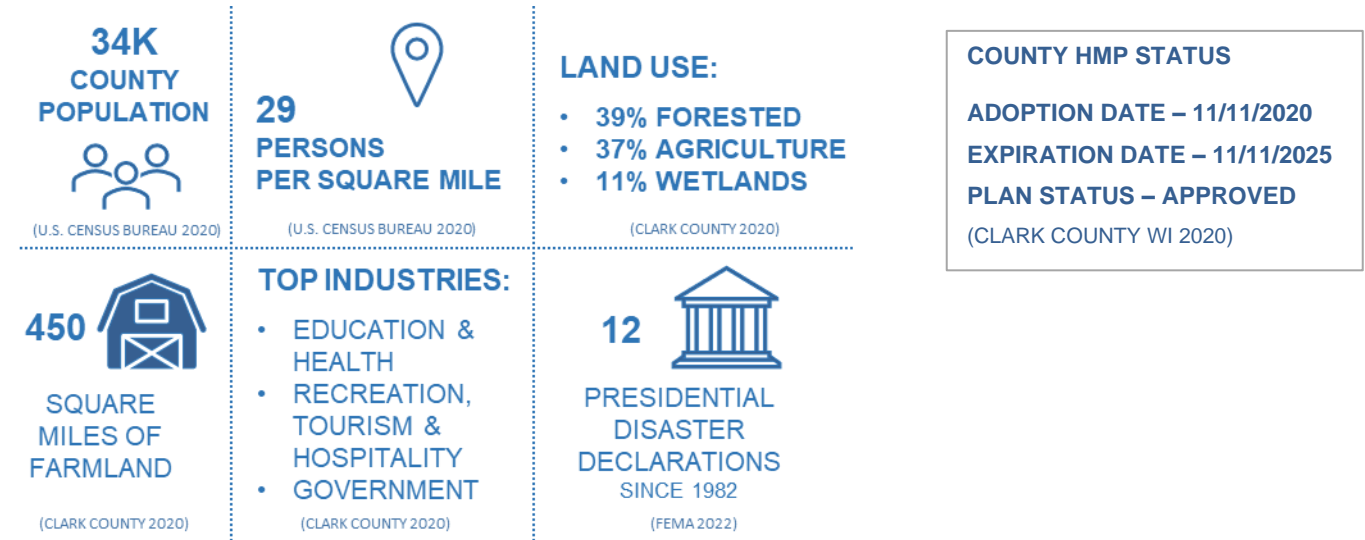
- Improve ditching and culverts along town roads in Jackson, Quincy, Richfield, and other towns to better manage water and control flooding
- Conduct drainage study for City of Adams to determine BMPs for City to manage stormwater to reduce flooding.

### Mitigation Concerns Shared During Discovery Meeting

- ADD



## XV. Clark County Overview



### Overview

Clark County is bordered by Chippewa, Taylor, Marathon, Wood, Jackson, and Eau Claire Counties, and has a total area of 1217 square miles. The Wisconsin River forms the western boundary of the county. The total population is 34,478. Only 4.3% of Clark County, or 52 square miles, are located in the Castle Rock watershed. The remaining portions of the county are split between the Lake DuBay, Black River, and Eau Claire HUC 8 watersheds. The County seat is the City of Neilsville, with a population of 2,463. The county is largely forested and rural, with agriculture the predominant land use in the portion of the county that lies within the CRW. Portions of the Yellow Creek and Rocky River watersheds and the Towns of Sherman, Fremont, and Unity are in the Castle Rock Watershed study area. There are 64 dams in Clark County, with 17 large and two high hazard dams, but no dams are located in the study area.

Presidential Disaster declarations for Clark County occurred most recently following severe storms, high winds, tornadoes and flooding in 2019 and after severe storms, flooding, and mudslides in 2018. Clark County received support through FEMA Public Assistance for the 2019 and 2018 events. The County Hazard Mitigation Plan notes that there have been 30 documented flooding events from 1993-2019, or nearly one significant flood event per year since 2000. The data suggests that the frequency of these flooding events has been increasing, as was frequently commented on anecdotally during HMP planning meetings and interviews.

### Planning

Clark County has the following resources for land use planning and flood resiliency:

- Clark County Hazard Mitigation Plan (2020)
- City of Neilsville Comprehensive Plan (2021)
- City of Greenwood Comprehensive Plan (2007)

## Common Flooding Concerns

- There are 413 structures identified in the 100-year floodplain and 10 structures are in the CRW.
- A HAZUS model in the County HMP shows most economic losses concentrated along the Black River
- Minimal new floodplain development is occurring, and no significant new floodplain development is planned (as of 2020, stated in the County HMP).
- There were 30 flooding events from 1993-2019, or nearly one significant flood event per year since 2000. Historic flood data show the frequency of flooding events has been increasing, as was frequently commented on anecdotally during County HMP planning meetings and interviews.
- Escalating flood impacts and associated damages.
- There are 17 large dams in the county, none are FERC regulated, and no high hazard dams in the CWR.
- Flood damages from 1993-2019 as reported in National Climatic Data Center (NCDC) database:
  - \$4,973,000 in property damage
  - \$154,000 in crop damage
  - These may be underestimates as privately insured damages and federal crop insurance are often not reported in the NCDC database
- Riverine flooding less of a concern in recent decades.
- The County HMP finds a 44% probability of flooding over a 10-year period.
- Overland and flash flooding has increased with stormwater systems being unable to handle heavy rain events, resulting in damage to roads, culverts, etc. in rural, unincorporated areas. Larger and higher capacity stormwater and culvert systems are being engineered and implemented now.
- Heavy rains have caused greater impacts than snowmelt since 2010.
- Flash flooding on the Black River and O'Neill Creek and its impacts on the City of Neilsville and Towns of Levis and Dewhurst. Note that these are not in the CRW.
- CRW flooding concerns:
  - Bobwhite Road travels through the Yellow River riverbed and is at times impassable.
  - Town of Unity – need culvert upsizing.
  - There are six repetitive loss structures identified in the county, but none are in the CRW.
- Flooding rated as moderate risk and vulnerability in the County HMP.

## Flooding Concerns Shared During Discovery Meeting

- ADD

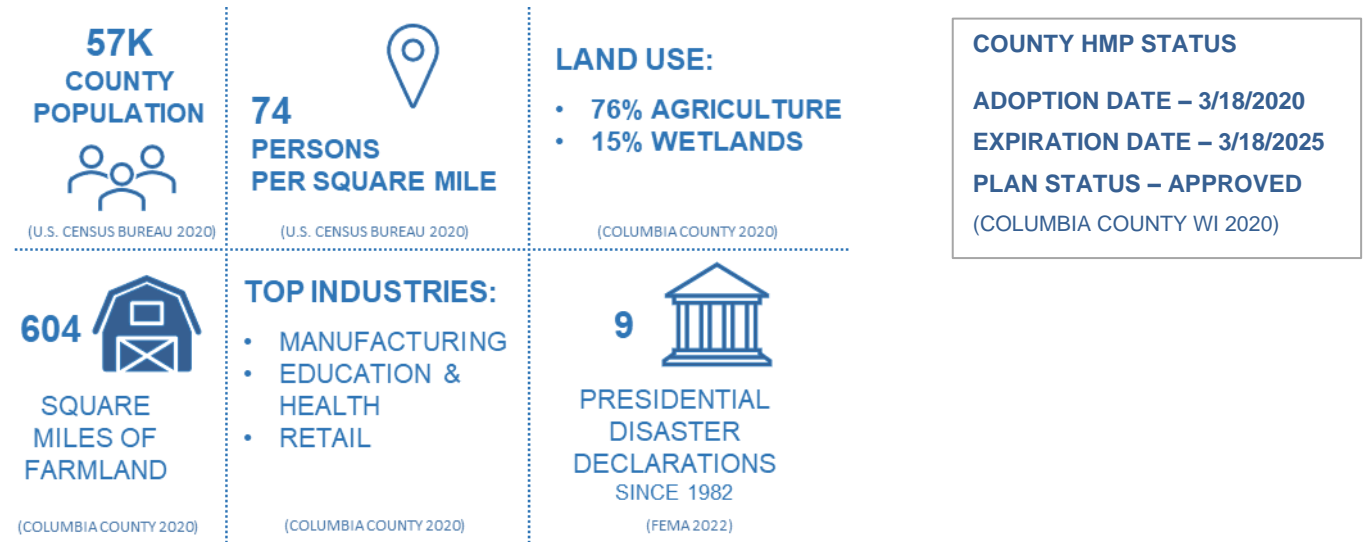
## Common Mitigation Concerns

- From County HMP:
  - County floodplain ordinance based on state model, permit applications reviewed accordingly
  - Additional public education on NFIP insurance may be valuable

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XVI. Columbia County Overview



### Overview

Columbia County is bordered by Adams, Marquette, Green Lake, Dodge, Dane, and Sauk Counties, and has a total area of 795 square miles. The Wisconsin River forms the western boundary of the county. The total population is 57,358. Only 6.1% of Columbia County, or 49 square miles, are located in the CRW. This includes portions of the Cities of Portage and Wisconsin Dells. The remaining areas of the county are split between the Upper Fox, Upper Rock, Middle Rock, and Lower Wisconsin River HUC 8 watersheds. The County seat is the City of Portage, with a population of 10,581. The county land use is largely agricultural, with urbanization increasing due to its proximity to the Madison metro area. There are 82 dams in Columbia County, with 15 large and four high hazard dams, with one of the high hazard dams located in the watershed study area.

Presidential Disaster declarations for Columbia County occurred most recently following severe storms, high winds, tornadoes and flooding in 2008 after severe storms, flooding, and tornadoes, and in 2007, following severe storms and flooding. Columbia County received support through FEMA Public Assistance and Individual Assistance for the 2008 event and support through FEMA Individual Assistance for the 2007 event. The County Hazard Mitigation Plan notes that flooding is a significant issue in the City of Portage.

### Planning

Columbia County has the following resources for land use planning and flood resiliency:

- Columbia County Hazard Mitigation Plan (2020)
- Columbia County Comprehensive Plan (2013)
- City of Portage Comprehensive Plan (2008)

- City of Wisconsin Dells Comprehensive Plan (2003)

## Common Flooding Concerns

- 45% of the City of Portage is in the floodplain, 23% is wetlands.
- City of Portage FMA repetitive loss – 5 properties, 14 losses, \$201,545 in payouts.
- Flash floods:
  - 1996 Portage, \$150K property damage
  - 2004 Wisconsin Dells, \$15K property damage
  - 2008 Portage, \$10K crop damage
  - 2010 Portage, \$100K property damage, \$10K crop damage
  - 2018 Portage, \$5K property, \$1K crop
  - 2019 Portage, \$5K property, \$1K crop
- NFIP payouts through 2019:
  - Countywide - \$933,000
  - Portage - \$579,000
- History of building and infrastructure damage due to floods.
- Portage and WI Dells have NFIP and floodplain ordinances.

## Flooding Concerns Shared During Discovery Meeting

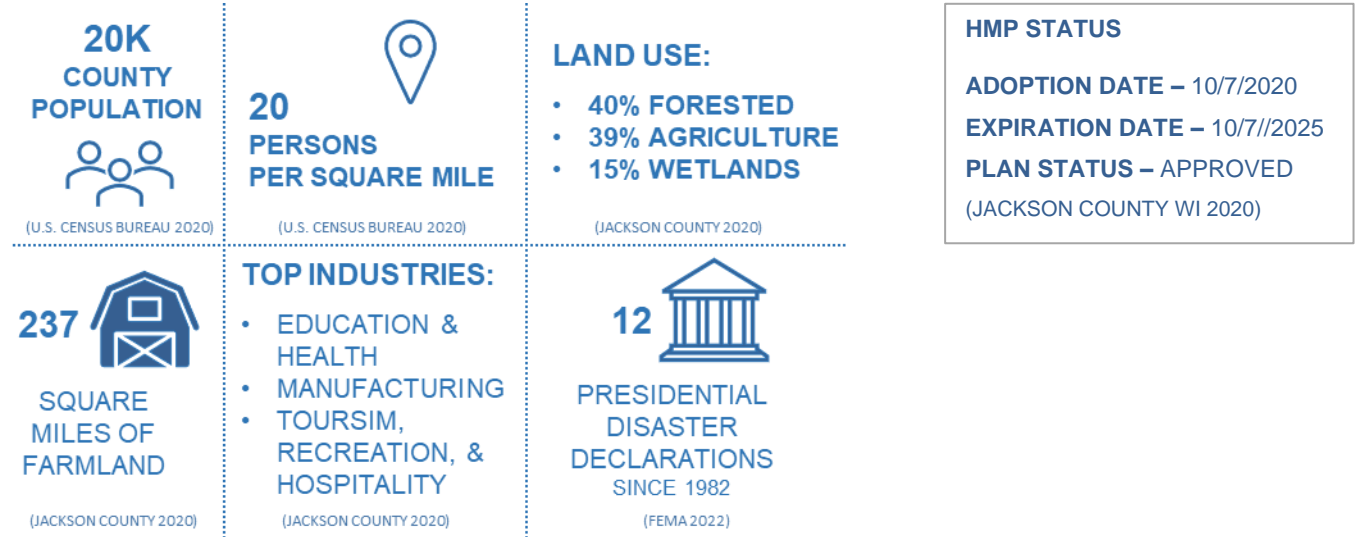
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## Common Mitigation Concerns

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XVII. Jackson County Overview



### Overview

Jackson County is bordered by Eau Claire, Clark, Wood, Juneau, Monroe, La Crosse and Trempealeau Counties, and has a total area of 1,000 square miles. The Black River bisects the eastern and western sides of the county. The total population is 20,531. Only 7.8% of Jackson County, or 78 square miles, are located in the CRW. This includes portions of the Towns of Bear Bluff and City Point. The remaining areas of the county are split between the Black River, Trempealeau, Eau Claire, and Lower Chippewa River HUC 8 watersheds. The County seat is the City of Black River Falls, with a population of 3,622. Land use in the county is largely agricultural and forestry. There are 216 dams in Columbia County, with 36 large and four high hazard dams, though no high hazard dams in the watershed study area.

Presidential Disaster declarations for Jackson County occurred most recently following severe storms, high winds, tornadoes and flooding in 2017 after severe storms, flooding, straight-line winds, landslides, and mud, and in 2016, following severe storms, flooding, and mudslides. Jackson County received support through FEMA Public Assistance and Individual Assistance for the 2017 and 2016 event. The County Hazard Mitigation Plan mentions 31 reported NCDL flooding events between 2010-2017, up from less than 10 from both 2000-2010 and 1990-2000.

### Planning

Jackson County has the following resources for land use planning and flood resiliency:

- Jackson County Hazard Mitigation Plan (2020)
- Jackson County Comprehensive Plan (2010)

- City of Black River Falls Comprehensive Plan (2010)

## Common Flooding Concerns

- Flooding is rated as a high threat in the County HMP, assets subject to flooding risk are laid out.
- The county has floodplain ordinance and shoreland-wetland ordinance.
- There are 97 parcels with structures in the 100-year floodplain, mostly in Village of Hixton and Town of Melrose.
- There are 6 repetitive loss structures in Black River Falls.

## Flooding Concerns Shared During Discovery Meeting

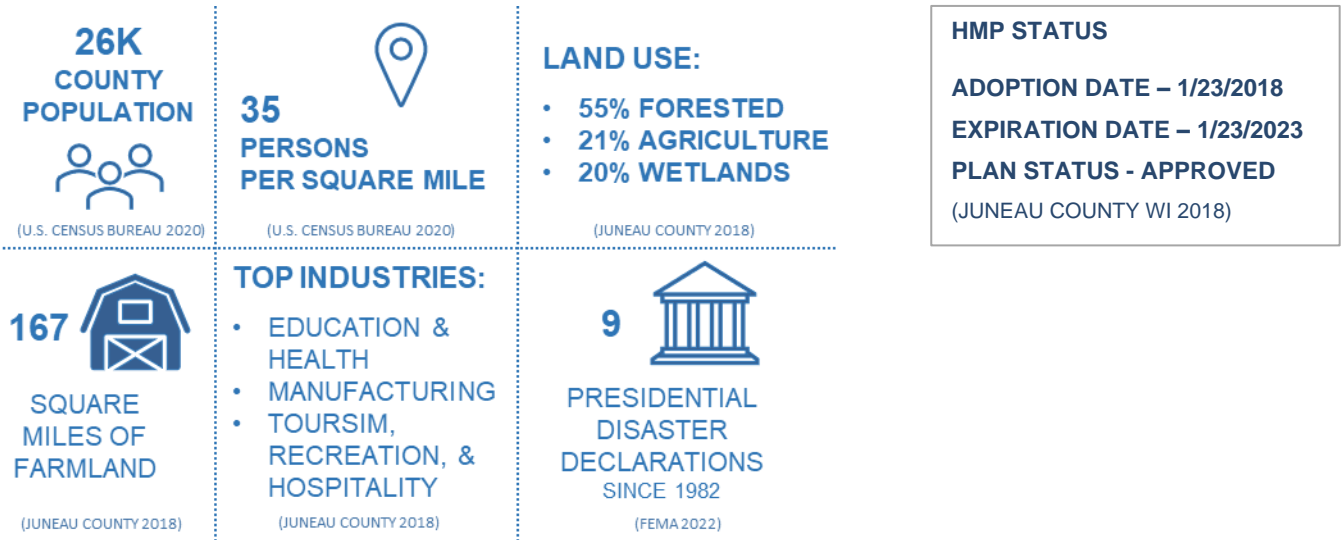
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## Common Mitigation Concerns

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XVIII. Juneau County Overview



### Overview

Juneau County is bordered by Wood, Adams, Sauk, Vernon, Monroe, and Jackson Counties. The total area is 804 square miles. The Wisconsin River forms the eastern boundary of the county. The total population is 26,478. Close to 87% of Juneau County, or 698 square miles, are located in the CRW. The remaining portion of the county is in the Baraboo River HUC 8 watershed. The County seat is the City of Mauston, with a population of 4,423. The County is largely forested and rural, with forested cover at 55% and agriculture accounting for 21% of the land use, respectively. There is higher population density along the I-90/94 corridor, where commercial and industrial activity are concentrated. There are 378 miles of interior streams in the county, along with 118 dams including 48 large dams and two that have a high hazard rating.

Presidential Disaster declarations for Juneau County occurred most recently following severe storms, tornadoes, straight-line winds, flooding, and landslides in 2018 and flooding in 2016. The flooding event in 2018 involved a series of severe storms and heavy rains over a one-month period that resulted in flash flooding and significant public and private property damage. The flooding event in 2016 was the result of heavy rains that caused road and culvert washouts across the southern half of the county. Juneau County received support through FEMA Public Assistance and Individual Assistance for the 2018 and 2016 events.

### Planning

Juneau County has the following resources for land use planning and flood resiliency:

- Juneau County Hazard Mitigation Plan (2018)
- Juneau County Comprehensive Plan (2010)
- City of New Lisbon Comprehensive Plan (2020)



- City of Mauston Comprehensive Plan (2016)
- Village of Necedah Comprehensive Plan (2015)
- City of Camp Douglas Comprehensive Plan (2009)

## Common Flooding Concerns

- There are 662 structures identified in floodplains in the County, with high numbers and dollar value in the Town of Armenia, Town of Finley, Town of Necedah, Town of Marion, and City of Mauston.
- The County HMP (2018) reports that 55,888 acres or 11.5% of the county area is in the FEMA A Zone floodplain.
- Two high hazard dams in the CRW – Petenwell and Mauston.
- There is one repetitive loss structure in Village of Lyndon Station.
- Flooding is often a concern beyond the floodplains, due to topography and a high groundwater table.
- The surface drainage network in the County is poorly defined.
- The County HMP states that a significant flood event is expected every 4 years on average, with potential losses of \$9.6 million over 10 years.

## Flooding Concerns Shared During Discovery Meeting

- ADD

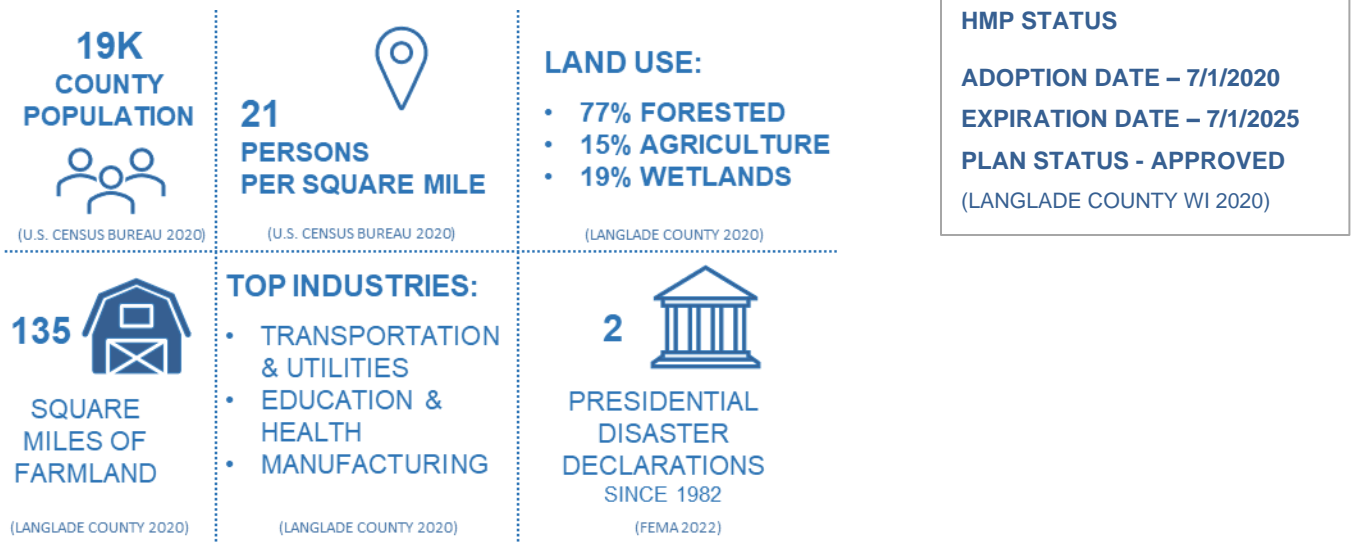
## Common Mitigation Concerns

- Acquire the most at-risk structures in the floodplain.
- The county HMP describes that 250 structures in the floodplain are at risk of flood impact damage and suggests acquisition of these properties when floods do occur if funding can be obtained.
- Dam inspections for 2 large, high hazard dams (local govt. concern for dam failure).
- Encourage NFIP participation – Lyndon Station had withdrawn as of County HMP approval.
- Road washouts due to flooding.
- Countywide culvert maintenance program – documentation currently minimal, lack of process.
- Lake study of Lemonweir Flowage in Mauston, recurring flooding issues (2019 planned).
- Require stormwater detention basins in new developments.
- Installation of detention ponds in flood-prone communities.

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XIX. Langlade County Overview



### Overview

Langlade County is bordered by Oneida, Forest, Oconto, Menominee, Shawano, Marathon, and Lincoln Counties. The total area is 882 square miles. The total population is 19,147. Less than 1% of the county land area, including small portions of the Plover River and the Town of Rolling, is within the CRW. The remaining county area is split between the Lake DuBay and Wolf River HUC 8 watersheds. The County seat is the City of Antigo, with a population of 8,234. The County is largely forested and rural, with forested cover at 77% and agriculture accounting for 15% of the land use, respectively. There are 843 lakes and 225 streams in the county, along with 37 dams including 12 large dams and one with a high hazard rating, though it is not in the CRW.

Presidential Disaster declarations for Langlade County occurred most recently following severe storms, tornadoes, straight-line winds, and flooding in 2019 and severe storms and flooding in 2002. Langlade County received support through FEMA Public Assistance for the 2019 event and it received support through FEMA Individual Assistance for the 2002 event. Also, the county experienced major flooding in 2004 due to rapid snowmelt and heavy rains, causing the Skinner Dam to overflow to the City of Antigo. Overall damages exceeded \$1 million, but a Presidential Disaster Declaration was not awarded.

### Planning

Langlade County has the following resources for land use planning and flood resiliency:

- Langlade County Hazard Mitigation Plan (2020)
- Langlade County Comprehensive Plan (2019)
- City of Antigo Comprehensive Plan (2018)

## Common Flooding Concerns

- One large high hazard dam – Skinner on Spring Brook. Dam overtopped in 2004 due to rapid snowmelt and heavy rainfall.
- There are no repetitive loss structures identified in County HMP.
- Significant flood every 6 years, or projection of \$2 million in damages over the next 10 years.

## Flooding Concerns Shared During Discovery Meeting

- ADD

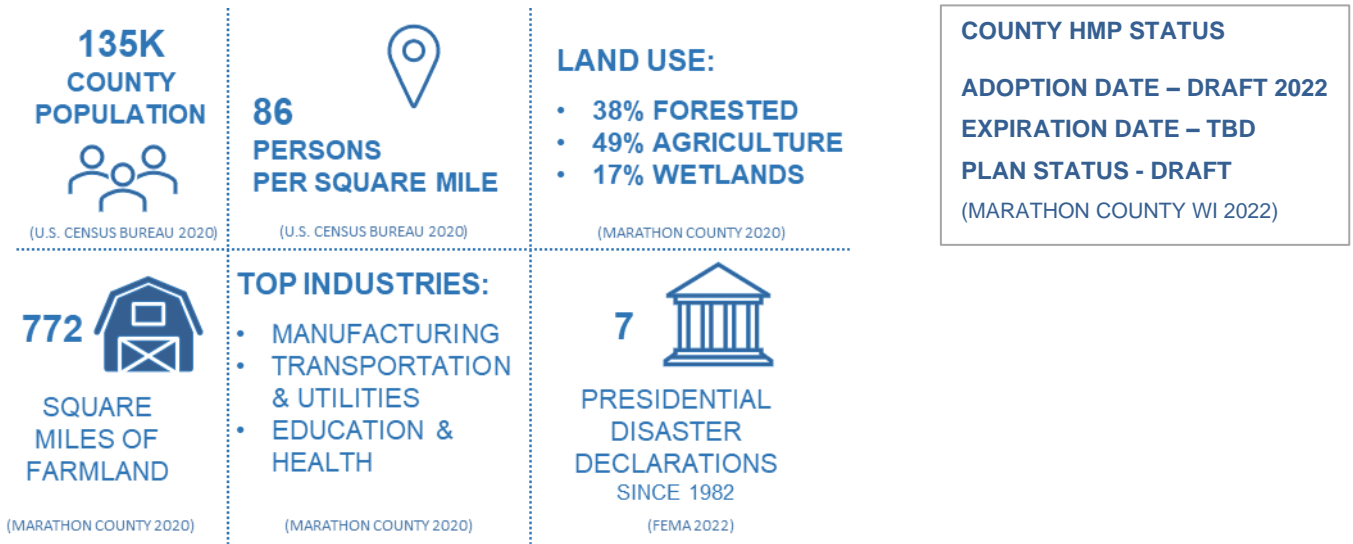
## Common Mitigation Concerns

- Several ongoing or as needed mitigation measures listed in County HMP.

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XX. Marathon County Overview



### Overview

Marathon County is bordered by Lincoln, Taylor, Langlade, Shawano, Portage, Wood, Waupaca, and Clark Counties. The total area is 1,575 square miles. The total population is 135,485. A little over 8% of the county land area is located in the CRW, including the Plover River, Village of Hatley, and small portions of the City of Marshfield and the Town of Spencer in the southwestern corner of the county. The remaining county area is split between the Lake DuBay, Wolf River, and Black River HUC 8 watersheds. The Wisconsin River roughly bisects the county in half, flowing south and separating a largely agricultural western half of the county from a predominantly forested eastern half. Agriculture makes up 49% of the land use with forested areas comprising 38% and wetlands covering 17% of the county. The county seat is the City of Wausau, with a population of 33,994. There are 202 lakes and 356 streams in the county, along with 118 dams including 13 large dams and one with a high hazard rating, though it is not in the CRW.

Presidential Disaster declarations for Marathon County occurred most recently following severe storms and flooding in 2010 and severe storms and flooding in 2004. Marathon County received support through FEMA Public Assistance for the 2010 event and it received support through FEMA Individual Assistance for the 2004 event.

### Planning

Marathon County has the following resources for land use planning and flood resiliency:

- Marathon County Hazard Mitigation Plan (2022 Draft)
- Marathon County Comprehensive Plan (2016)
- City of Wausau Comprehensive Plan (2017)
- City of Weston Comprehensive Plan (2017)

- Village of Hatley Comprehensive Plan (2018)
- Town of Spencer Comprehensive Plan (2017)
- Town of Mosinee Comprehensive Plan (2017)

## Common Flooding Concerns

- There are no repetitive loss structures in the CRW.
- Significant numbers of structures in the floodplain along the Wisconsin River and Wausau area.
- There are 15 structures in the floodplain in the Village of Hatley in the CRW.
- Flooding is often a concern beyond the floodplains, due to topography and a high groundwater table.
- The surface drainage network in the County is poorly defined.
- The County HMP states that a significant flood event is expected every 3.34 years on average, with potential losses of \$12.5 million over 10 years.

## Flooding Concerns Shared During Discovery Meeting

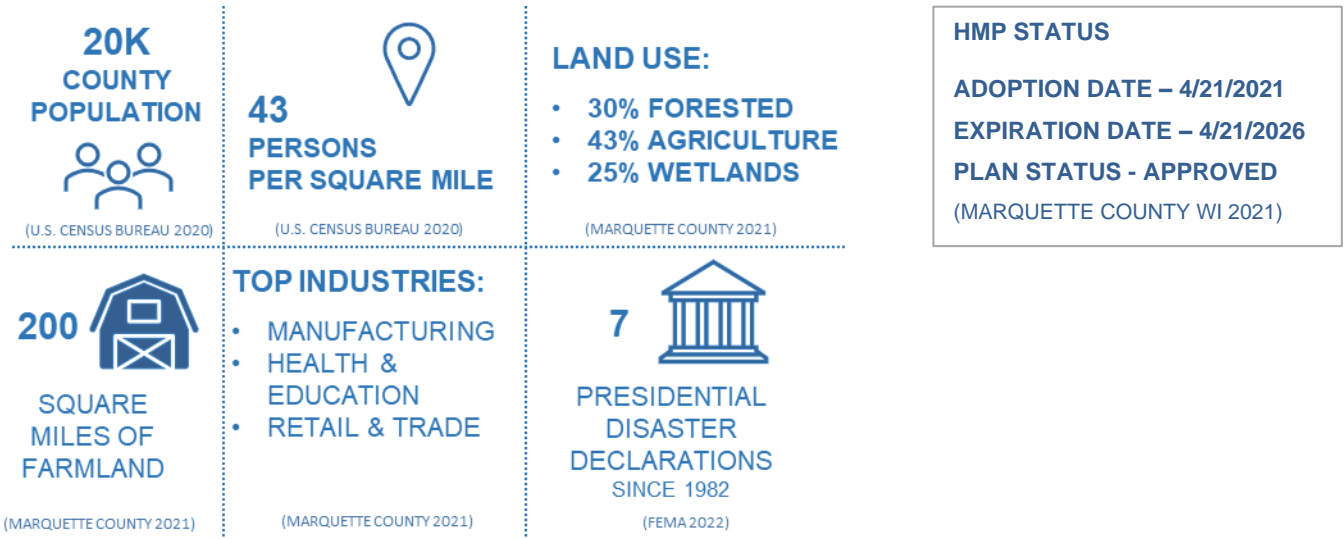
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## Common Mitigation Concerns

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XXI. Marquette County Overview



### Overview

Marquette County is bordered by Waushara, Green Lake, Columbia, and Adams Counties. The total area is 464 square miles. The total population is 20,208. Only 370 acres of county land area is located in the CRW. The remaining county area is in the Upper Fox HUC 8 watershed. The land cover is 43% agricultural and 30% forested. There are 90 lakes and several streams in the county, along with 63 dams including 12 large dams, but none are in the CRW.

Presidential Disaster declarations for Marquette County occurred most recently following severe storms, tornadoes, straight-line winds, landslides, and flooding in 2018 and after severe storms, tornadoes, and flooding in 2008. Marquette County received support through FEMA Public Assistance and Individual Assistance for both events.

### Planning

Marquette County has the following resources for land use planning and flood resiliency:

- Marquette County Hazard Mitigation Plan (2021 Draft)
- Marquette County Comprehensive Plan (2015)

### Common Flooding Concerns

- The County HMP finds 3 repetitive loss structures in the county, but none are in the CRW.
- The County HMP rates flooding as medium probability of occurrence and medium probability of damage and losses due to flooding.

- No county special flood areas identified by FEMA that are not in NFIP.

### Flooding Concerns Shared During Discovery Meeting

- ADD

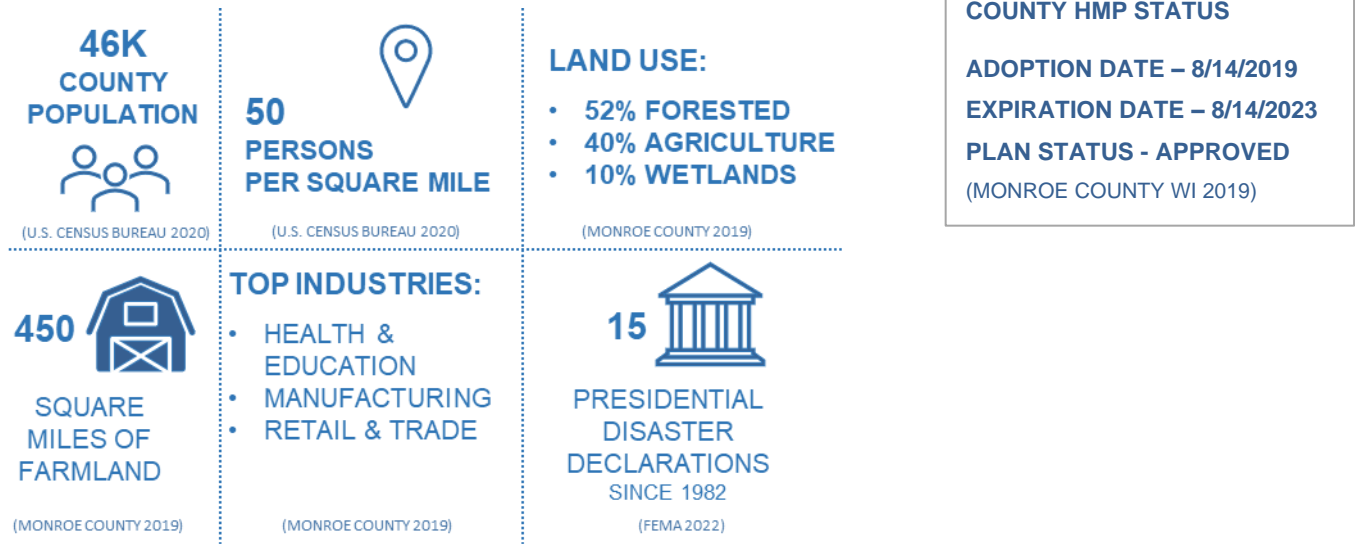
### Common Mitigation Concerns

- Infrastructure mitigation for Highway 22 flooding in Montello at Buffalo Lake
- Establish river gages for Buffalo Lake, Fox River, Montello River.

### Mitigation Concerns Shared During Discovery Meeting

- ADD

## XXII. Monroe County Overview



### Overview

Monroe County is bordered by Jackson, Juneau, Vernon, and La Crosse Counties. The total area is 908 square miles. The total population is 46,155. Roughly 30% of the county land area, or 275 square miles, is located in the CRW, including the City of Tomah. The remaining county area is split between the La Crosse-Pine and Black River HUC 8 watersheds. Agriculture makes up 40% of the land use with forested areas comprising 52% and wetlands covering 10% of the county. The county seat is the City of Tomah, with a population of 9,342. Most of the landscape in the county is Driftless Area ridgetops and valleys, but the northeastern corner, which is the portion in the CRW, is mostly glaciated. There are 146 dams in the county including 31 large dams and two with a high hazard rating, including the Tomah Lake dam.

Presidential Disaster declarations for Monroe County occurred most recently following severe storms, tornadoes, straight-line winds, and flooding in 2019 severe storms, tornadoes, straight-line winds, flooding, and landslides in 2018. Monroe County received support through FEMA Public Assistance for the 2019 event and it received support through FEMA Individual and Public Assistance for the 2018 event.

### Planning

Monroe County has the following resources for land use planning and flood resiliency:

- Monroe County Hazard Mitigation Plan (2022 Draft)
- Monroe County Comprehensive Plan (2014)
- City of Tomah Comprehensive Plan (2013)
- Town of Byron Comprehensive Plan (2010)



## Common Flooding Concerns

- The County HMP finds one repetitive loss structure in the City of Tomah.
- There are 704 parcels with structures located in the FEMA A Zone floodplain, with a total assessed value of \$73.5 million:
  - City of Tomah, 305 parcels
  - Town of Byron, 37 parcels.
- Long extensive history of Kickapoo River flooding events.
- The County HMP states that a significant flood event (undefined) is expected every 1.3 years on average, with potential losses of \$7.5 million over 5 years.
- The DFIRM from 2010 for areas in the CRW.
- The Village of Warrens has chosen not to participate in NFIP due to the topography of the Village.
- Riverine/flooding is rated as a high threat in the County HMP.

## Flooding Concerns Shared During Discovery Meeting

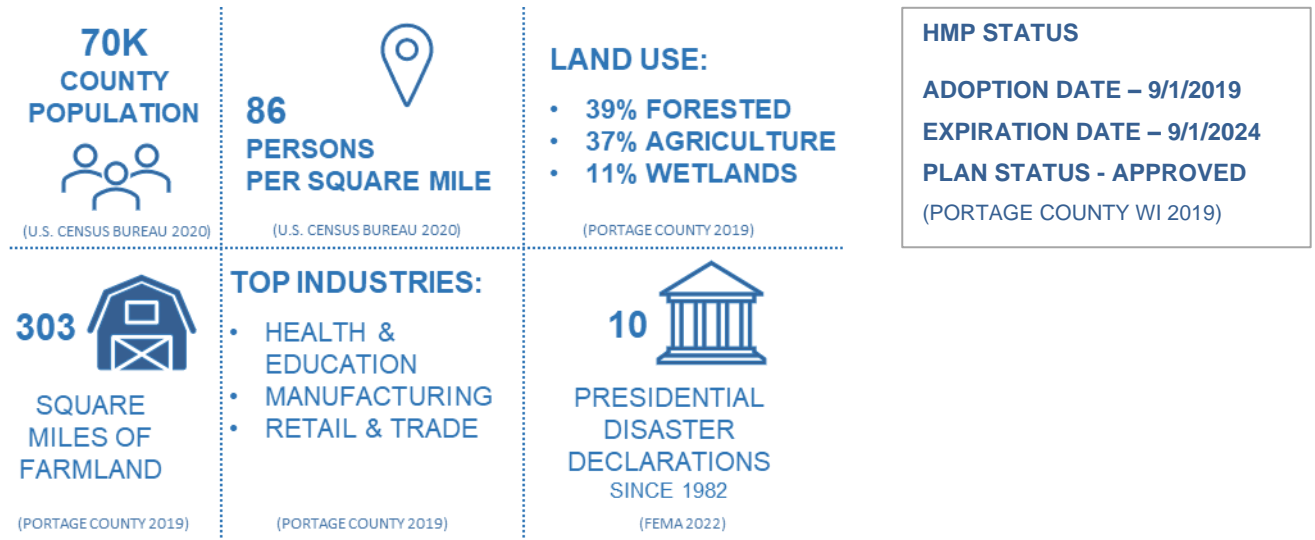
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## Common Mitigation Concerns

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XXIII. Portage County Overview



### Overview

Portage County is bordered by Marathon, Waupaca, Waushara, Adams, and Wood Counties. The total area is 823 square miles. The total population is 70,822. Roughly 62% of the county land area, or 510 square miles, is located in the CRW. The remaining county area is in the Wolf River HUC 8 watershed. Agriculture makes up 37% of the land use with forested areas comprising 35% of the county. The county seat is the City of Steven's Point, with a population of 26,144. The Wisconsin River flows north to south in the northwest corner of the county. There are 135 lakes and 64 streams in the county. There are 81 dams in the county including 14 large dams and four with a high hazard rating. High hazard dams in the CWR include the Springville, Steven's Point, and Dubay dams.

Presidential Disaster declarations for Portage County occurred most recently following severe storms, tornadoes, straight-line winds, and flooding in 2019 and severe storms, and flooding in 2010. Portage County received support through FEMA Public Assistance for the 2019 and 2010 events.

### Planning

Portage County has the following resources for land use planning and flood resiliency:

- Portage County Hazard Mitigation Plan (2019)
- Portage County Comprehensive Plan (2006)
- City of Steven's Point Comprehensive Plan (2006)
- Village of Whiting Comprehensive Plan (2004)
- Village of Plover Comprehensive Plan (2005)
- Village of Junction City Comprehensive Plan (2005)

## Common Flooding Concerns

- There were six severe flooding events from 2010-2019 resulted in \$2.2 million in direct property damage. Four were flash flooding events.
- There is one repetitive loss structure in the Town of Carson.
- DFIRM maps effective in 2009.
- The Village of Park Ridge does not have storm sewers and few swales, making the area prone to flash floods.
- In the Village of Plover, the area east of Pleasant Drive and the redeveloped Tree Acres area at County HWY R and Pleasant Drive are prone to flooding.
- The City of Stevens Point lacks stormwater drainage infrastructure, making the city and Village of Plover susceptible to flash flooding.
- There are flash flood prone areas in most of the townships in the county.

## Flooding Concerns Shared During Discovery Meeting

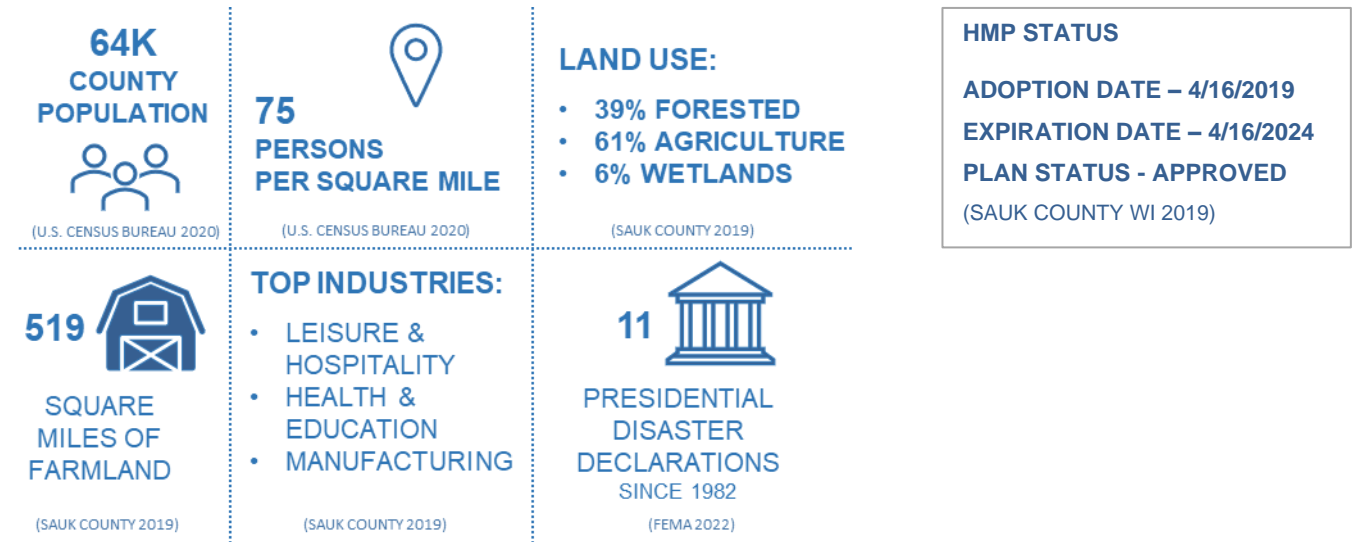
- ADD

## Common Mitigation Concerns

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XXIV. Sauk County Overview



### Overview

Sauk County is bordered by Juneau, Adams, Columbia, Dane, Iowa, Richland, Vernon, and Monroe Counties. The total area is 849 square miles. The total population is 64,152. Roughly 11% of the county land area, or 96 square miles, is located in the CRW including the Village of Lake Delton and City of Wisconsin Dells. The remaining county area is in the Baraboo River and Lower Wisconsin River HUC 8 watersheds. Agriculture makes up 61% of the land use with forested areas comprising 39% and wetlands covering 6% of the county. The county seat is the City of Baraboo, with a population of 12,133. The Wisconsin River forms the southern boundary and there are 19 lakes and 75 miles of trout streams in the county. There are 180 dams in the county including 28 large dams and two with a high hazard rating, though neither of the two are in the CRW.

Presidential Disaster declarations for Sauk County occurred most recently following severe storms, tornadoes, straight-line winds, flooding, and landslides in 2018 and severe storms, tornadoes, and flooding in 2008. Sauk County received support through FEMA Individual Assistance and Public Assistance for the 2018 and 2008 events.

### Planning

Sauk County has the following resources for land use planning and flood resiliency:

- Sauk County Hazard Mitigation Plan (2019)
- Sauk County Comprehensive Plan (2009)
- Village of Lake Delton Comprehensive Plan (2003)
- City of Wisconsin Dells Comprehensive Plan (2003)

## Common Flooding Concerns

- The 2008 flooding on the Baraboo River resulted in CTY HWY A in Lake Delton to wash out, and drainage out of Lake Delton. Five houses were destroyed.
- The County HMP describes seven repetitive loss structure in the county.
- The Hillsboro Dam breached in the 2018 floods, resulting in flash flooding along the Baraboo River. Total impacts from this flood were estimated at \$15 million in damages to 400 homes and 50 businesses.
- The County HMP estimates annual flash flood probability at 0.8 and annual riverine flood probability at 0.4.
- A 2010 HAZUS-MH model from the County HMP estimated 221 buildings impacted and a total of \$134 million in economic losses during a countywide 100-year flood event.

## Flooding Concerns Shared During Discovery Meeting

- ADD

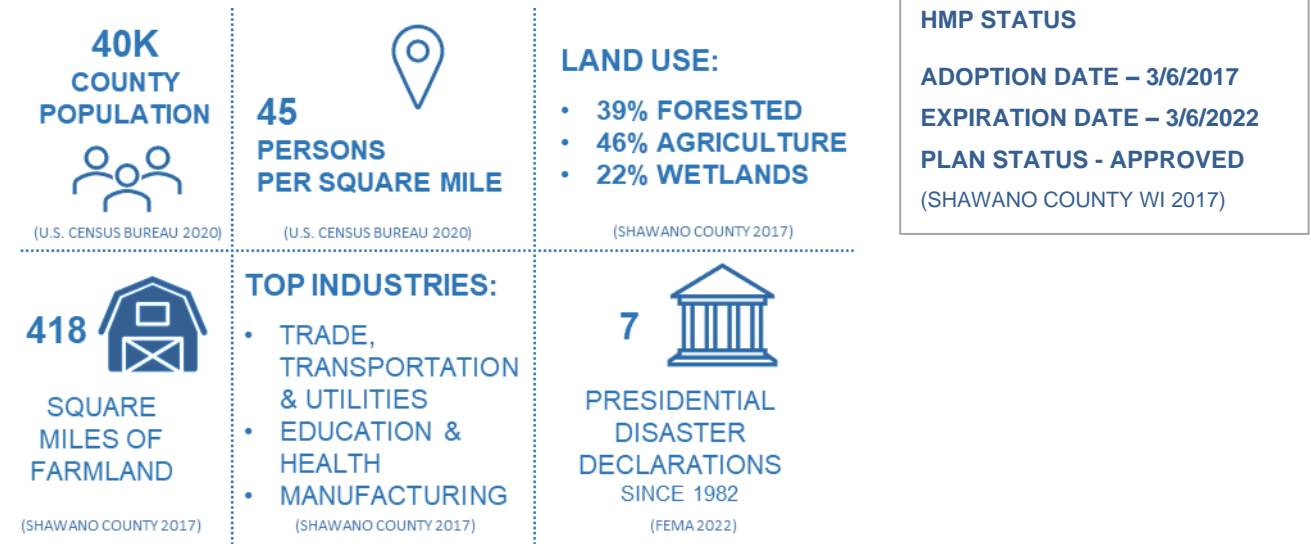
## Common Mitigation Concerns

- Flash flood prone area mapping (with USACE, in progress 2018).
- Upgrade undersized culverts.
- Join CRS.
- Study feasible solutions to minimize riverine flood areas that have experienced flooding in the last 5 years.
- Prevent inappropriate development in flood storage areas delineated on FIRMs.

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XXV. Shawano County Overview



### Overview

Shawano County is bordered by Marathon, Langlade, Menominee, Oconto, Brown, Outagamie, and Waupaca Counties. The total area is 909 square miles, and the total population is 40,813. Only 1.9 square miles, or 1,200 acres, is located in the CRW. The remaining county area is in the Wolf River and Pensaukee River HUC 8 watersheds. Agriculture accounts for 46% of the land use while forested areas cover 39% and wetlands cover 22%. The county seat is the City of Shawano, with a population of 8,928. The county has 135 lakes and 595 miles of streams. There are 63 dams in the county including 16 large dams and one with a high hazard rating, though it is not in the CRW. The portion of the county in the CRW includes part of the Village of Aniwa and Town of Aniwa.

Presidential Disaster declarations for Shawano County occurred most recently following severe storms, tornadoes, straight-line winds, and flooding in 2019 and severe storms, and flooding in 2004. Shawano County received support through FEMA Public Assistance for the 2019 event and through FEMA Individual Assistance for the 2004 event.

### Planning

Shawano County has the following resources for land use planning and flood resiliency:

- Shawano and Menominee Counties Hazard Mitigation Plan (2017)
- Shawano County Comprehensive Plan (2013)

### Common Flooding Concerns

- The County HMP finds that there are no repetitive loss structures.

## Flooding Concerns Shared During Discovery Meeting

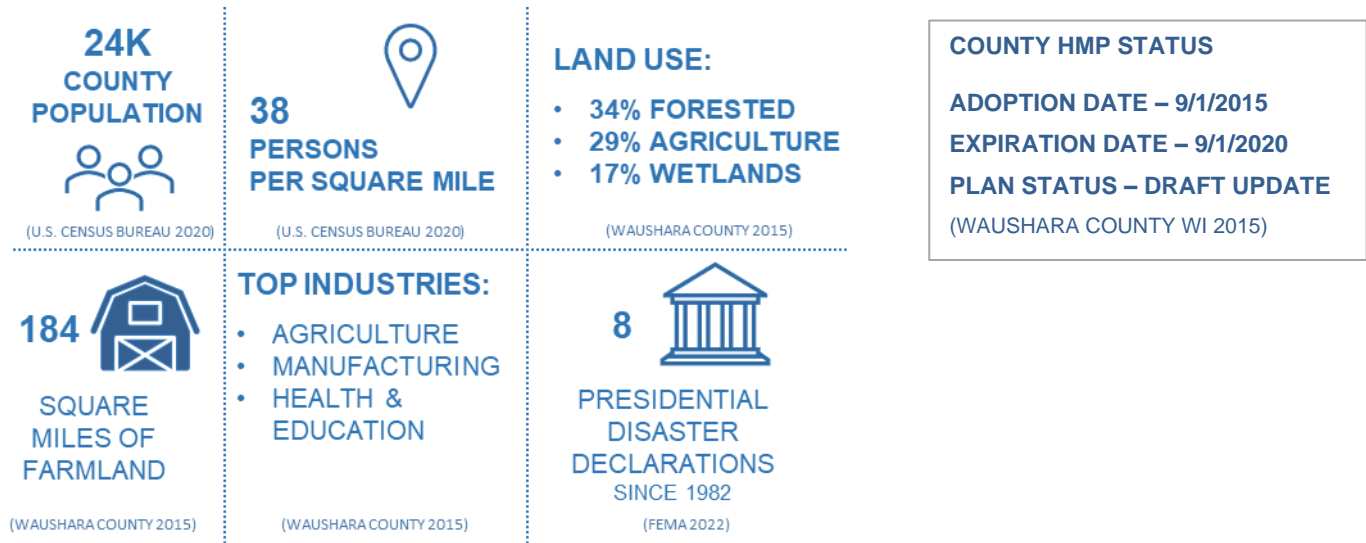
- ADD

## Common Mitigation Concerns

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XXVI. Waushara County Overview



### Overview

Waushara County is bordered by Portage, Waupaca, Winnebago, Green Lake, Marquette, and Adams Counties. The total area is 637 square miles. The total population is 24,256. Almost 20% of the county land area, or 125 square miles, is located in the CRW including the Villages of Coloma, Hancock, and Plainfield. The remaining county area is split between the Upper Fox and Wolf River HUC 8 watersheds. Agriculture makes up 29% of the land use with forested areas comprising 34% and wetlands covering 17% of the county. The county seat is the City of Wautoma, with a population of 2,218. The Wisconsin River forms the southern boundary and there are 19 lakes and 75 miles of trout streams in the county. There are 45 dams in the county including 13 large dams and three with a high hazard rating, though none of the three are in the CRW.

Presidential Disaster declarations for Waushara County occurred most recently following severe storms and flooding in 2004 and 2002. Waushara County received support through FEMA Individual Assistance for the 2005 event and Public Assistance for the 2004 events.

### Planning

Waushara County has the following resources for land use planning and flood resiliency:

- Waushara County Hazard Mitigation Plan (2015)
- Waushara County Comprehensive Plan (2018)



## Common Flooding Concerns

- The portion of Waushara County in the CWR does not lie in FEMA floodplains. (\*1.2 acres of floodplain in Village of Hancock).

## Flooding Concerns Shared During Discovery Meeting

- ADD

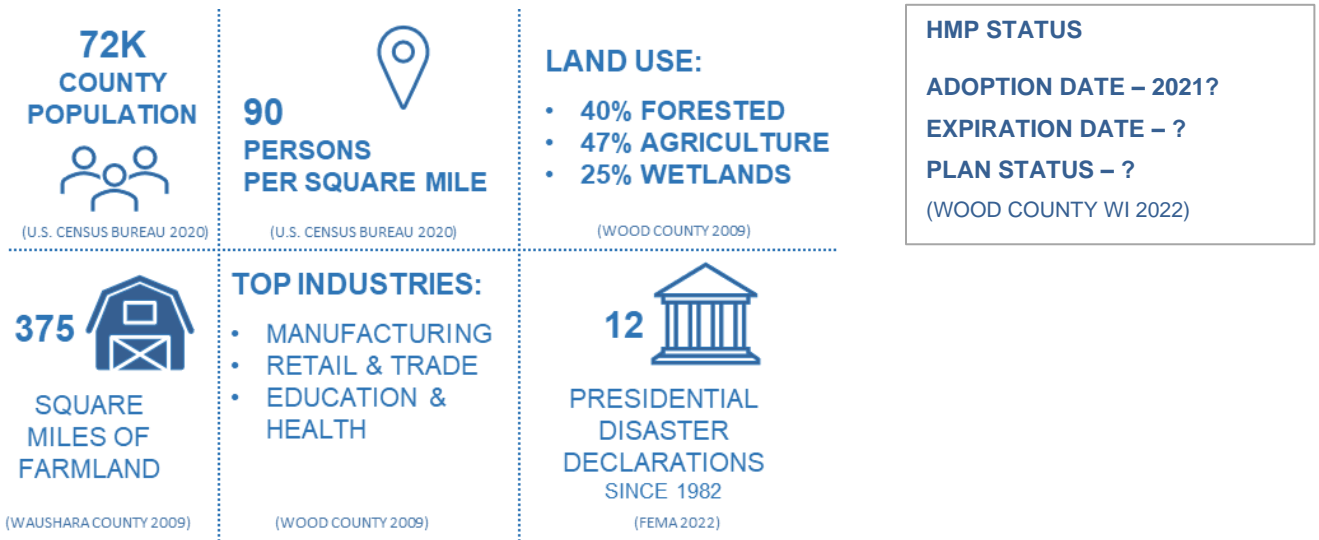
## Common Mitigation Concerns

- ADD

## Mitigation Concerns Shared During Discovery Meeting

- ADD

## XXVII. Wood County Overview



### Overview

Wood County is bordered by Marathon, Portage, Adams, Juneau, Jackson, and Clark Counties. The total area is 809 square miles. The total population is 72,892. Roughly 77% of the county land area, or 624 square miles, is located in the CRW. The remaining county area is split between the Lake DuBay and Black River HUC 8 watersheds. Agriculture makes up 37% of the land use with forested areas comprising 35% of the county. The county seat is the City of Wisconsin Rapids, with a population of 17,691. The Wisconsin River flows through the southeast corner of the county and there are 78 lakes and 82 streams in the county. There are 81 dams in the county including 14 large dams and four with a high hazard rating. High hazard dams in the CWR include the Springville, Steven’s Point, and Dubay dams.

Presidential Disaster declarations for Wood County occurred most recently following severe storms, tornadoes, straight-line winds, and flooding in 2019 and severe storms, and flooding in 2010. Wood County received support through FEMA Public Assistance for the 2019 and 2010 events.

### Planning

Wood County has the following resources for land use planning and flood resiliency:

- Wood County Hazard Mitigation Plan (2021)
- Wood County Comprehensive Plan (2009)
- Village of Whiting Comprehensive Plan (2004)
- Village of Plover Comprehensive Plan (2005)
- Village of Junction City Comprehensive Plan (2005)

## Common Flooding Concerns

### Flooding Concerns Shared During Discovery Meeting

- ADD

## Common Mitigation Concerns

### Mitigation Concerns Shared During Discovery Meeting

- ADD

## XXVIII. Summary of Community Risks Identified

- ADD if applicable after Discovery meetings

City of Adams (Adams County)  
Village of Friendship (Adams County)  
City of Portage (Columbia County)  
Village of Camp Douglas (Juneau County)  
Village of Hustler (Juneau County)  
Village of Lyndon Station (Juneau County)  
City of Mauston (Juneau County)  
Village of Necedah (Juneau County)  
City of New Lisbon (Juneau County)  
Village of Hatley (Marathon County)  
Village of Spencer (Marathon County)  
Village of Oakdale (Monroe County)  
City of Tomah (Monroe County)  
Village of Warrens (Monroe County)  
Village of Almond (Portage County)  
Village of Junction City (Portage County)  
Village of Lake Delton (Sauk County)  
Village of Coloma (Waushara County)  
Village of Hancock (Waushara County)  
Village of Plainfield (Waushara County)  
Village of Auburndale (Wood County)  
Village of Biron (Wood County)  
Village of Hewitt (Wood County)  
City of Pittsville (Wood County)  
Village of Port Edwards (Wood County)  
Village of Rudolph (Wood County)  
City of Nekoosa (Wood County)  
Village of Vesper (Wood County)  
City of Wisconsin Rapids (Wood County)  
City of Marshfield (Marathon/Wood Counties)  
Village of Milladore (Portage/Wood Counties)  
City of Wisconsin Dells (Adams/Columbia/Juneau/Sauk Counties)

## XXIX. Available Watershed Data Collection

For Discovery, data is collected to get a better understanding of risk in a community and inform recommendations for potential Risk MAP projects. Existing tabular and spatial data was collected for the CRW from multiple sources and displayed on the Discovery Map, Discovery Report, and/or in the Geodatabase. A list of the data collected, sources, and deliverable is listed in Table 2. In addition, data is categorized into two sections: one listing data that can be used for Risk MAP products, and one section listing other data available for the watershed.

**Table 2. Discovery Data for the CRW**

DATA	SOURCE	DELIVERABLE
Average Annualized Loss	FEMA HAZUS Analysis; U.S. Census Data (2000)	Discovery Report Geodatabase
Community Boundaries	Wisconsin DNR	Discovery Map Geodatabase
Coordinated Needs Management Strategy (CNMS)	FEMA Region V	Discovery Map Geodatabase
County Boundaries	Wisconsin DNR	Discovery Map Geodatabase
DAM Information	Wisconsin DNR Dams Inventory	Discovery Map Geodatabase
Effective SFHA	FEMA NFHL	Discovery Map Geodatabase
Flood Insurance Claims	FEMA Community Information System (CIS)	Discovery Report
Hazard Mitigation Plan Status	Wisconsin Emergency Management	Discovery Report
Ice Jams	U.S. Army Corp of Engineers - Ice Jam Database	Discovery Map Geodatabase
Last CAC Date	FEMA CIS	Discovery Report
Last CAV Date	FEMA CIS	Discovery Report
Letters of Map Change	FEMA NFHL	Discovery Map Geodatabase
Major Roads	Wisconsin Dept. of Transportation; FEMA NFHL	Discovery Map Geodatabase
Mitigation- Acquisition Parcels	Wisconsin Emergency Management	Discovery Map Geodatabase
NFIP Participation	FEMA CIS	Discovery Report

Population	U.S. Census (2020)	Discovery Report
Repetitive Loss	FEMA CIS	Discovery Report
Stream Gages	USGS National Hydrography Dataset	Discovery Map Discovery Report Geodatabase
Streams and Rivers	FEMA NFHL & Wisconsin DNR	Discovery Map Geodatabase
Structures	FEMA NFHL	Geodatabase
Topographic Data	Wisconsin Department of Administration	Discovery Map Discovery Report
Watershed Boundaries	USGS National Hydrography Dataset	Discovery Map Geodatabase

**Note:** Please see spatial metadata for more information about data set contribution and source.

## XXXI. Data For Flood Risk MAP Products

### i. LiDAR Data

Light detection and ranging data (LiDAR) is a remote sensing method use for acquiring terrain data by sending pulses of lasers to measure distance from the ground to an airborne object. This LiDAR data is then used to create a digital elevation model (DEM). The DEM depicts what the terrain looked like on the given day of flight.

When a RiskMAP project is funded by FEMA, the best available data is used for floodplain modeling and remapping. Listed below in Table 3 are the most recent LiDAR available by county.

**Table 3. LiDAR Latest Available**

<b>County</b>	<b>Flight Year</b>	<b>County</b>	<b>Flight Year</b>
Adams County	2019	Marquette County	2018
Clark County	2018	Monroe County	2019
Columbia County	2011*	Portage County	2016
Jackson County	2015	Sauk County	2011*
Juneau County	2010*	Shawano County	2015
Langlade County	2017	Waushara County	2017
Marathon County	2012*	Wood County	2015

\*More recent LiDAR, but not yet available

## ii. USGS Gages

The project team identified USGS stream gages within the watershed. The locations are shown on the Discovery Map and a summary is listed in Table 4.

Table 4. USGS Stream Gage Locations

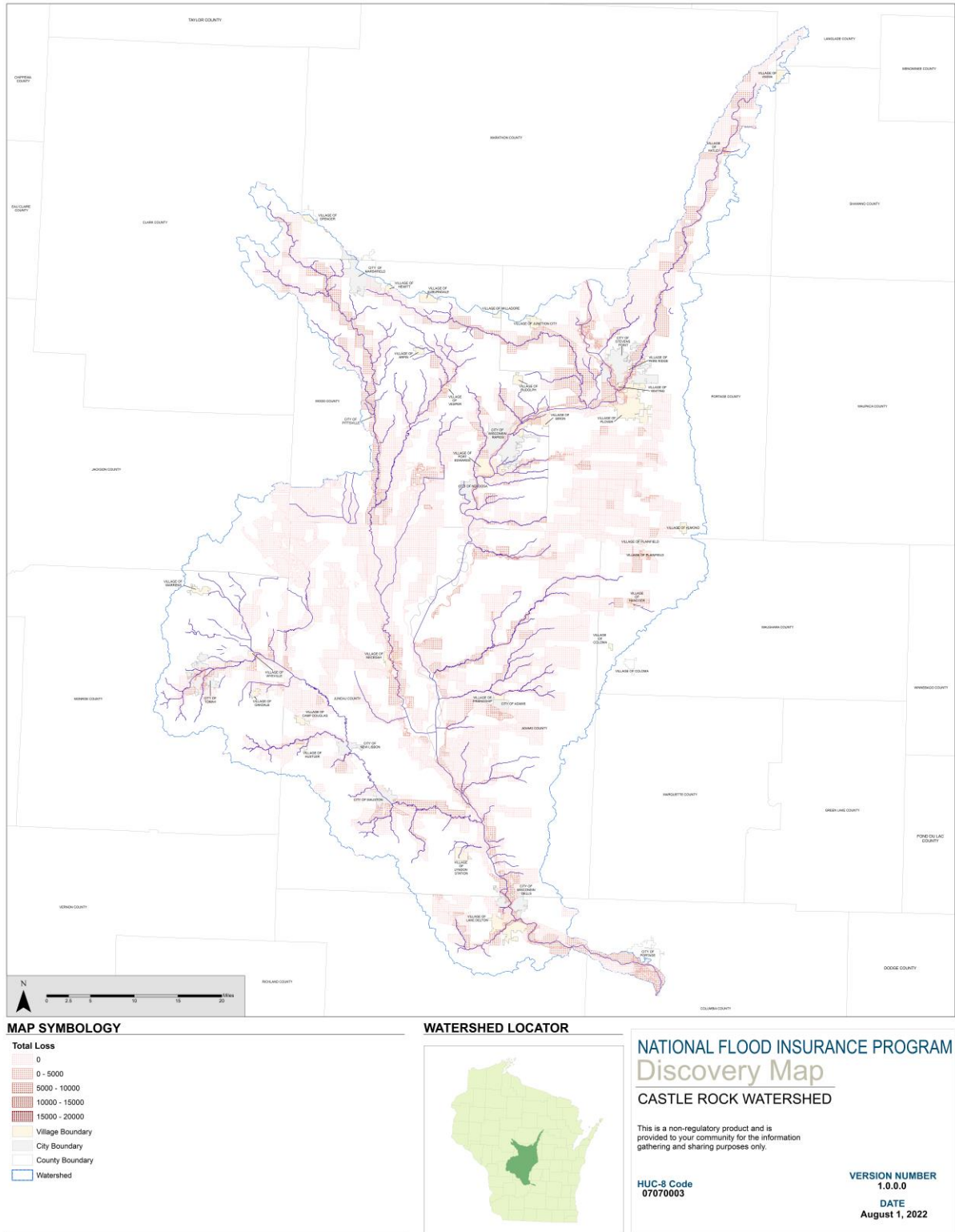
GAGE NUMBER	DESCRIPTION
05400625	<a href="#">LITTLE PLOVER RIVER NEAR PLOVER, WI</a>
05400760	<a href="#">WISCONSIN RIVER AT WISCONSIN RAPIDS, WI</a>
05402000	<a href="#">YELLOW RIVER AT BABCOCK, WI</a>
05401034	<a href="#">SOUTH BRANCH OF TENMILE CREEK NEAR BANCROFT, WI</a>
05401050	<a href="#">TENMILE CREEK NEAR NEKOOSA, WI</a>
05400163	<a href="#">LAKE HURON NEAR PLAINFIELD, WI</a>
05401514	<a href="#">BIG ROCHE A CRI CREEK AT HWY G NEAR LEOLA, WI</a>
05403000	<a href="#">YELLOW RIVER AT NECEDAH, WI</a>
05403500	<a href="#">LEMONWEIR RIVER AT NEW LISBON, WI</a>
05404000	<a href="#">WISCONSIN RIVER NEAR WISCONSIN DELLS, WI</a>

## iii. Average Annualized Loss (AAL) Data

FEMA conducted a national AAL analysis using HAZUS-MH MR4. This consisted of a Level 1 flood analysis, using 2000 Census Data, USGS 30-meter Digital Elevation Models, and regression equations for the development of the floodplains. The analysis was developed to provide a general understanding of the relative flood risk throughout the nation. The data is intended to for relative comparison of risk between areas and not to be used as absolute loss value. The AAL data for the Castle Rock Watershed has been included in the geodatabase and is shown in Figure 4.



**Figure 4. Average Annualized Loss for the CRW.**



## XXXII. Other Available Data and Information

### i. Community Rating System (CRS)

The Community Rating System is a voluntary incentive program that recognize and encourages community floodplain management activities that exceed the minimum NFIP requirements. Currently, none of the communities in the CRW participate in CRS. At the Discovery Meeting, the National Flood Insurance Program State Coordinator spoke about the CRS program and the benefits to communities.

### ii. FEMA Coordinated Needs Management Strategy (CNMS) Needs

There are 1,337 miles of mapped streams in the CRW with Special Flood Hazard Areas (SFHA) shown on FEMA Digital Flood Insurance Rate Maps (DFIRM). The majority of SFHA are approximate studies (Zone A), with detail studies (Zone AE) accounting for 423.9 stream miles. FEMA's Coordinated Needs Management Strategy (CNMS) database (<https://msc.fema.gov/cnms/Default.aspx>) categorizes flood studies by validation status. The designations reflect an evaluation of the study since the date the FIRM took effect. The evaluation considers land use changes, new/removed bridges or culverts, and account for recent flood events captured by gage data. A Valid status indicates the study meets FEMA's current FIRM mapping standards including using up-to-date engineering methodology and no significant changes since the effective date. When a study does not meet the standards, it is given an Unverified status. According to the database, 279.7 study miles are Valid and 1057.3 study miles are Unverified.

### iii. Levees

- Marathon
  - City of Mosinee WWTP, 0.2 miles
  - Rothschild Mill, 0.5 miles
- Portage
  - City of Steven's Point LOMR 12-05-4844, 0.19 miles
- Wood
  - Biron, 2.8 miles
- Columbia
  - Lewiston Segment 3, 1.2 miles
  - Lewiston Segment 1, 2.39 miles
  - Caledonia Segment 3, 0.83 miles
  - Caledonia Segment 2, 3.51 miles
  - Caledonia Segment 1, 4.77 miles
  - Wisconsin River Portage, 3.11 miles

#### iv. Demographics

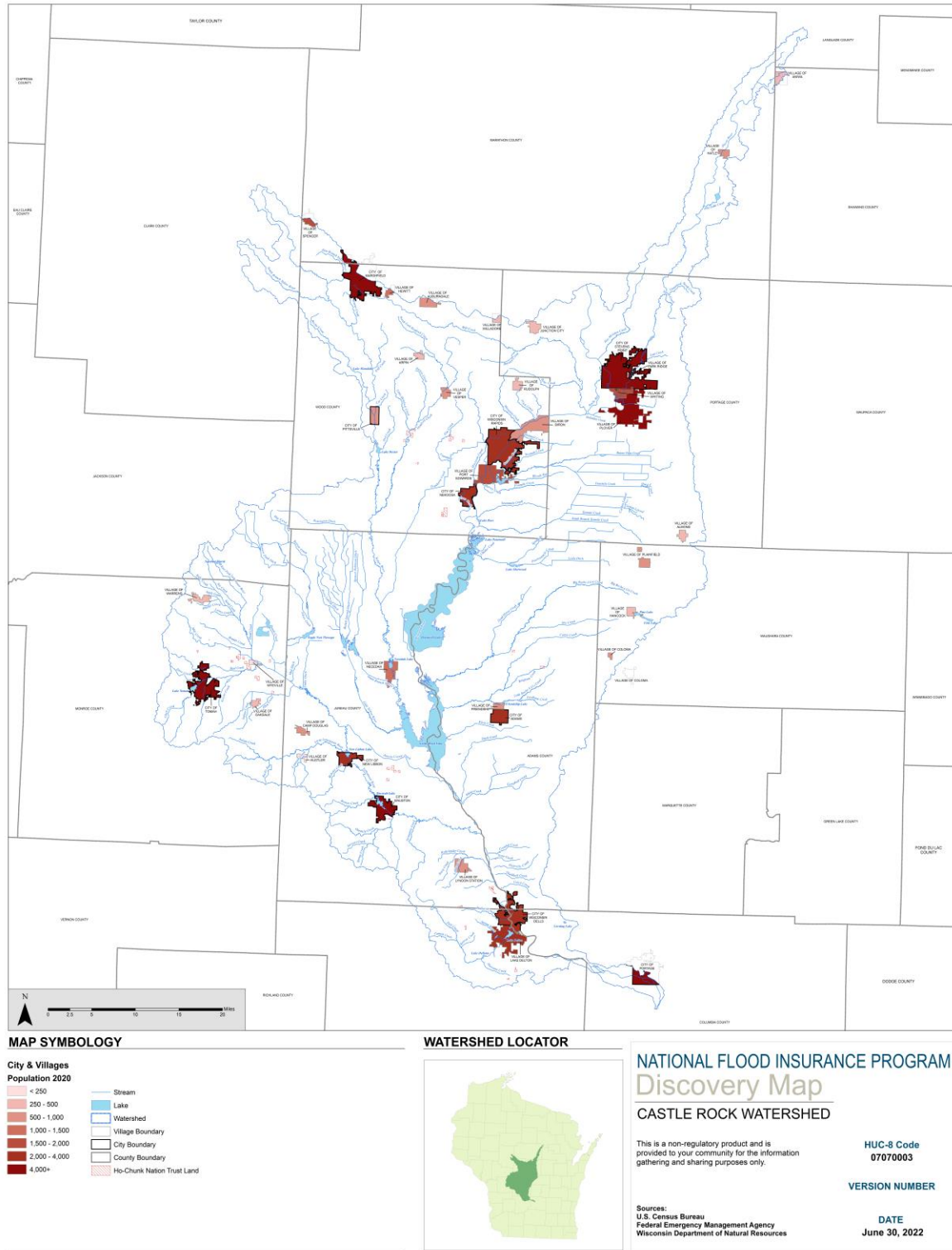
Populations are listed by community in Table 5. The below map illustrates the population of incorporated communities across the study area.

**Table 5. Watershed Community Population and NFIP Status**

COUNTY	CID	COMMUNITY	POPULATION 2020	NFIP STATUS
ADAMS	550001	Adams County	20,208	PARTICIPATING
	550002	Adams (City)	2,159	PARTICIPATING
	550003	Friendship (Village)	653	PARTICIPATING
CLARK	550048	Clark County	34,668	PARTICIPATING
COLUMBIA	550581	Columbia County	57,331	PARTICIPATING
	550063	Portage (City)	10,412	PARTICIPATING
JACKSON	550583	Jackson County	20,556	PARTICIPATING
JUNEAU	550580	Juneau County	26,603	PARTICIPATING
	550551	Camp Douglas (Village)	674	NOT PARTICIPATING
	550202	Hustler (Village)	212	PARTICIPATING
	550203	Lyndon Station (Village)	728	WITHDRAWN
	550204	Mauston (City)	4,354	PARTICIPATING
	550205	Necedah (Village)	1001	PARTICIPATING
	550206	New Lisbon (City)	2,521	PARTICIPATING
LANGLADE	550576	Langlade County	19,167	PARTICIPATING
MARATHON	550245	Marathon County	135,485	PARTICIPATING
	550251	Hatley (Village)	557	PARTICIPATING
	550315	Spencer (Village)	1,690	PARTICIPATING
MARQUETTE	550601	Marquette County	15,380	PARTICIPATING
MONROE	550571	Monroe County	46,155	PARTICIPATING
	550324	Oakdale (Village)	266	PARTICIPATING
	550291	Tomah (City)	9,342	PARTICIPATING
	550329	Warrens (Village)	493	NOT PARTICIPATING
	550293	Wyeville (Village)	158	PARTICIPATING
PORTAGE	550572	Portage County	70,822	PARTICIPATING
	550319	Almond (Village)	462	NOT PARTICIPATING
	550303	Junction City (Village)	419	NOT PARTICIPATING
	550255	Park Ridge (Village)	575	NOT PARTICIPATING

	550340	Plover (Village)	13,519	PARTICIPATING
	550342	Stevens Point (City)	26,144	PARTICIPATING
	550607	Whiting (Village)	1,527	PARTICIPATING
SAUK	550391	Sauk County	64,152	PARTICIPATING
	550394	Lake Delton (Village)	2,989	PARTICIPATING
SHAWANO	550412	Shawano County	40,183	PARTICIPATING
	550550	Aniwa (Village)	260	NOT PARTICIPATING
WAUSHARA	550540	Waushara County	24,256	PARTICIPATING
	550552	Coloma (Village)	554	NOT PARTICIPATING
	550553	Hancock (Village)	395	NOT PARTICIPATING
	550559	Plainfield (Village)	981	NOT PARTICIPATING
WOOD	550513	Wood County	72,892	PARTICIPATING
	550220	Auburndale (Village)	717	NOT PARTICIPATING
	555545	Biron (Village)	953	PARTICIPATING
	550199	Hewitt (Village)	1,016	NOT PARTICIPATING
	550517	Pittsville (City)	889	PARTICIPATING
	555572	Port Edwards (Village)	1,825	PARTICIPATING
	550234	Rudolph (Village)	473	NOT PARTICIPATING
	550516	Nekoosa (City)	2,509	PARTICIPATING
	550519	Vesper (Village)	520	NOT PARTICIPATING
	555587	Wisconsin Rapids (City)	17,691	PARTICIPATING
MARATHON/ WOOD	550515	Marshfield (City)	18,214	PARTICIPATING
PORTAGE/WOOD	550253	Milladore (Village)	411	NOT PARTICIPATING
ADAMS / COLUMBIA JUNEAU / SAUK	550065	Wisconsin Dells (City)	2,907	PARTICIPATING
ADAMS / MONROE / JUNEAU / SAUK / WOOD	550630	Ho-Chunk Nation		NOT SANCTIONED

**Figure 5. Population distribution in the CRW.**



## **v. Floodplain Management/Community Assistance Visits**

The WDNR State NFIP Coordinator initiates and conducts Community Assistance Visits (CAVs) and Community Assistants Contacts (CACs) as part of the floodplain management program. A CAV consists of reviewing local permitting, evaluation a community's floodplain ordinance, and field tour to assess recent activity within the regulatory floodplain. The NFIP coordinator meets with local officials to discuss the program, potential violations, training opportunities, and recent flood events. A CAC is a less extensive contact between the community and the State NFIP Coordinator. The CAC can be a phone call or brief visit intended to establish or re-establish contact with the community. The purpose is to identify any existing problems and offer assistance if necessary. The most recent CAVs and CACs for NFIP participating communities within the study area are listed in Table 6.

**Table 6. Recent CAV/CACs in the CRW**

COUNTY	COMMUNITY	CAV OPENED	CAV CLOSED	CAC
ADAMS	Adams County	7/26/1994	12/4/2007	N/A
	Adams (City)	N/A	N/A	N/A
	Friendship (Village)	N/A	N/A	9/25/1995
CLARK	Clark County	N/A	N/A	2/25/2015
COLUMBIA	Columbia County	N/A	N/A	9/30/2014
	Portage (City)	7/25/1994	10/4/2007	9/26/2005
JACKSON	Jackson County	N/A	N/A	2/25/2015
JUNEAU	Juneau County	9/15/2011	Open	9/13/1994
	Camp Douglas (Village)	N/A	N/A	N/A
	Hustler (Village)	N/A	N/A	N/A
	Lyndon Station (Village)	N/A	N/A	N/A
	Mauston (City)	3/16/2004	10/22/2014	11/7/2018
	Necedah (Village)	N/A	N/A	9/28/1993
	New Lisbon (City)	N/A	N/A	9/27/1995
LANGLADE	Langlade County	2/5/1991	12/4/2007	N/A
MARATHON	Marathon County	8/3/2011	10/28/2014	N/A
	Hatley (Village)	N/A	N/A	9/29/1993
	Spencer (Village)	N/A	N/A	N/A
MARQUETTE	Marquette County	N/A	N/A	9/20/2005
MONROE	Monroe County	N/A	N/A	9/22/1994
	Oakdale (Village)	N/A	N/A	N/A
	Tomah (City)	N/A	N/A	N/A
	Warrens (Village)	N/A	N/A	N/A
	Wyeville (Village)	N/A	N/A	N/A
PORTAGE	Portage County	7/25/1994	12/4/2007	4/22/2014
	Almond (Village)	N/A	N/A	N/A
	Junction City (Village)	N/A	N/A	N/A
	Park Ridge (Village)	N/A	N/A	N/A
	Plover (Village)	N/A	N/A	9/28/1993
	Stevens Point (City)	2/15/1991	7/7/2014	9/26/1995
	Whiting (Village)	5/12/1989	12/5/2007	12/22/1993
SAUK	Sauk County	9/23/2015	6/5/2017	7/9/1993
	Lake Delton (Village)	9/24/2009	10/2/2012	9/26/1995
SHAWANO	Shawano County	9/25/1989	12/5/2007	9/30/1993
	Aniwa (Village)	N/A	N/A	N/A

WAUSHARA	Waushara County	N/A	N/A	10/8/2019
	Coloma (Village)	N/A	N/A	N/A
	Hancock (Village)	N/A	N/A	N/A
	Plainfield (Village)	N/A	N/A	N/A
WOOD	Wood County	9/15/2011	Open	6/25/2009
	Auburndale (Village)	N/A	N/A	N/A
	Biron (Village)	3/24/2005	5/1/2014	9/16/1994
	Hewitt (Village)	N/A	N/A	N/A
	Pittsville (City)	6/14/1995	7/8/2014	N/A
	Port Edwards (Village)	N/A	N/A	6/26/1990
	Rudolph (Village)	N/A	N/A	N/A
	Nekoosa (City)	N/A	N/A	9/25/1995
	Vesper (Village)	N/A	N/A	N/A
	Wisconsin Rapids (City)	N/A	N/A	9/14/1995
MARATHON/WOOD	Marshfield (City)	N/A	N/A	N/A
PORTAGE/WOOD	Milladore (Village)	N/A	N/A	N/A
ADAMS/COLUMBIA / JUNEAU/SAUK	Wisconsin Dells (City)	N/A	N/A	9/13/1995
ADAMS/MONROE/ JUNEAU/ SAUK/WOOD	Ho-Chunk Nation	N/A	N/A	N/A



## vi. Regulatory Floodplain Mapping

Each county is listed below, along with the effective date of the most recent county-wide FIRMs. This date only reflects the most recent county-wide FIRM, and not PMRs that have taken place. Some counties in the Castle Rock Watershed are currently going through a countywide revision as part of a separate project.

**Table 7. Digital Flood Insurance Rate Map Status**

COUNTY	STATUS	EFFECTIVE DATE
ADAMS	Effective	6/17/2008
CLARK	Effective	7/6/2010
COLUMBIA	Effective	4/2/2008
JACKSON	Effective	9/28/2012
JUNEAU	Effective	10/16/2012
LANGLADE	Effective	9/28/1990
MARATHON	Effective	7/22/2010
MARQUETTE	Effective	12/18/2012
MONROE	Effective	1/20/2010
PORTAGE	Effective	7/20/2009
SAUK	Effective	12/18/2009
SHAWANO	Effective	11/15/1985
WAUSHARA	Effective	6/18/2013
WOOD	Effective	2/17/2010

## vii. Flood Insurance Policies and Payouts

FEMA's Community Information System (CIS) keeps track of current flood insurance policies for each NFIP participating community. For participating communities in the CRW, there has been more than \$6 million paid out towards flood loss claims since 1978, and more \$2 million toward repetitive loss properties. Table 8 summarize the flood insurance characteristics for participating communities in the study area.

**Table 8. Summary of Flood Insurance by Community**

<b>Community</b>	<b>Policies in Force</b>	<b>Policies in A-Zone</b>	<b>Total Premium</b>	<b>Total Coverage</b>	<b>Total Claims</b>	<b>Total Paid Flood Loss</b>	<b>Rep Loss</b>	<b>Total Paid Rep Loss</b>
Adams County	57	24	\$56,958	\$12,782,900	27	\$78,618	11	\$17,170
Adams (City)	0	N/A	N/A	N/A	1	\$3,494	0	\$0
Friendship (Village)	0	N/A	N/A	N/A	1	\$0	0	\$0
Clark County	28	11	\$23,429	\$5,395,600	17	\$428,337	5	\$308,381
Columbia County	86	43	\$90,499	\$19,340	92	\$1,111,376	33	\$385,375
Portage (City)	35	24	\$36,180	\$5,104,900	54	\$610,147	17	\$314,640
Jackson County	28	12	\$23,643	\$6,001,900	20	\$377,424	4	\$153,609
Juneau County	82	34	\$67,897	\$12,860,800	37	\$308,277	8	\$120,521
Hustler (Village)	0	N/A	N/A	N/A	0	N/A	0	N/A
Mauston (City)	17	8	\$16,112	\$2,313,700	8	\$61,645	0	N/A
Necedah (Village)	3	2	\$3,486	\$544,200	2	\$9,447	0	N/A

Community	Policies in Force	Policies in A-Zone	Total Premium	Total Coverage	Total Claims	Total Paid Flood Loss	Rep Loss	Total Paid Rep Loss
New Lisbon (City)	4	1	\$2,166	\$1,121,000	3	\$41,271	0	N/A
Langlade County	19	4	\$11,217	\$4,241,600	2	\$0	0	N/A
Marathon County	66	21	\$85,992	\$14,560,700	31	\$245,625	10	\$77,987
Hatley (Village)	2	0	\$726	\$217,000	0	N/A	0	N/A
Spencer (Village)	1	0	\$189	\$42,000	0	N/A	0	N/A
Marquette County	44	20	\$40,686	\$7,567,500	19	\$317,566	8	\$176,964
Monroe County	48	21	\$32,731	\$8,449,300	39	\$1,029,005	17	\$475,921
Oakdale (Village)	0	N/A	N/A	N/A	0	N/A	0	N/A
Tomah (City)	77	61	\$54,076	\$9,832,700	26	\$68,223	3	\$5,658
Wyeville (Village)	6	6	\$8,212	\$419,100	2	\$0	0	N/A
Portage County	45	20	\$35,582	\$10,336,900	9	\$131,192	2	\$64,259

Community	Policies in Force	Policies in A-Zone	Total Premium	Total Coverage	Total Claims	Total Paid Flood Loss	Rep Loss	Total Paid Rep Loss
Plover (Village)	6	0	\$2,358	\$1,610,000	1	\$3,627	0	N/A
Stevens Point (City)	27	5	\$15,932	\$6,288,900	7	\$14,165	0	N/A
Whiting (Village)	0	N/A	N/A	N/A	0	N/A	0	N/A
Sauk County	84	28	\$64,217	\$17,350,800	62	\$1,117,611	12	\$183,581
Lake Delton (Village)	2	1	\$450	\$245,000	0	\$0	0	N/A
Shawano County	38	21	\$33,037	\$8,405,900	9	\$99,540	0	N/A
Waushara County	65	29	\$65,491	\$12,787,700	16	\$62,558	0	N/A
Wood County	49	22	\$37,451	\$8,777,900	15	\$125,441	4	\$55,731
Biron (Village)	29	24	\$40,687	\$4,053,000	6	\$135,175	3	\$135,175
Pittsville (City)	2	0	\$1,029	\$329,500	1	\$0	0	N/A
Port Edwards (Village)	4	0	\$1,380	\$700,000	0	N/A	0	N/A

<b>Community</b>	<b>Policies in Force</b>	<b>Policies in A-Zone</b>	<b>Total Premium</b>	<b>Total Coverage</b>	<b>Total Claims</b>	<b>Total Paid Flood Loss</b>	<b>Rep Loss</b>	<b>Total Paid Rep Loss</b>
Wisconsin Rapids (City)	22	12	\$28,524	\$3,928,100	16	\$500,957	2	\$8,120
Marshfield (City)	3	0	\$1,125	\$742,000	0	N/A	0	N/A
Wisconsin Dells (City)	7	1	\$3,883	\$2,135,000	0	N/A	0	N/A
<b>Total:</b>	<b>986</b>	<b>455</b>	<b>\$885,345</b>	<b>\$169,164,940</b>	<b>523</b>	<b>\$6,880,721</b>	<b>139</b>	<b>\$2,483,092</b>