Monroe County Hazard Mitigation Plan 2025 to 2030

Prepared by the Mississippi River Regional Planning Commission
Under the Direction of the Monroe County Board and
Local Emergency Planning Committee

RESOLUTION NO. 02-25-01

RESOLUTION ADOPTING THE MONROE COUNTY MULTI-HAZARDS MITIGATION PLAN 2025-2030

WHEREAS, Monroe County recognizes the threat that natural and man-made hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the possibility and potential of harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted all hazards mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, in 2011-12 Monroe County participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazards Mitigation Plan and has done so again with this new updated plan; and

NOW, THEREFORE, BE IT RESOLVED, that Monroe County, hereby adopts the Monroe County Multi-Hazards Mitigation Plan 2025-2030 as the official plan Monroe County; and

BE IT FURTHER RESOLVED that the Monroe County Emergency Management Department will submit, on behalf of the participating municipalities, the adopted Monroe County Multi-Hazards Mitigation Plan 2025-2030 to Wisconsin Emergency Management and Federal Emergency Management Agency officials.

Offered by the Public Safety & Justice Coordinating Committee this 26th day of February, 2025.

Statement of purpose: To officially adopt the all hazards mitigation plan.

Fiscal note: Maintains eligibility for certain grants or programs.

Finance Vote (If required):
____ Yes ____ No ____ Absent

Approved as to form: 2/17/2025
Lisa Aldinger Hamblin, Corporation Counsel

Committee of Jurisdiction Forwarded on: 2/13, 2025
3 Yes 0 No 2 Absent
Committee Chair:

X ADOPTED ☐ FAILED ☐ AMENDED
☐ OTHER _____
County Board Vote on April 23 2025
14 Yes 0 No 2 Absent

STATE OF WISCONSIN
COUNTY OF MONROE
I, SHELLEY R. BOHL, Monroe County Clerk, DO HEREBY CERTIFY that the foregoing is a true and correct copy of Resolution # 02-25-01 acted on by the Monroe County Board of Supervisors at the meeting held on April 23, 2025
Shelley R. Bohl
SHELLEY R. BOHL, MONROE COUNTY CLERK
A raised seal certifies an official document.

Table of Contents

Abstract

Title:
Monroe County Multi-Hazards Mitigation Plan 2025 to 2030

Plan Purpose:
The purpose of this plan is to identify goals, projects, and actions that Monroe County, local governments, and organizations can implement to reduce risks to life, health, and property from various hazards. By meeting the federal requirements outlined in the Disaster Mitigation Act of 2000, the plan ensures that Monroe County and participating local governments remain eligible for Federal Hazard Mitigation Grant Programs. These programs provide crucial assistance for planning, relocation, and infrastructure projects aimed at reducing or eliminating damage from future hazards.

Plan Participants:
This plan was developed under the direction of the County Emergency Management Committee, which worked closely with the County Emergency Management Coordinator throughout the process. The Mississippi River Regional Planning Commission (MRRPC), which secured the planning grant to fund this effort, was contracted to draft the plan and facilitate public meetings.

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Chapter 1: Planning Process

Disaster Mitigation Act of 2000-DMA2K

The development and update of this plan are in response to the Disaster Mitigation Act of 2000 (DMA2K), signed into law on October 30, 2000 (Public Law 106-390). This Act amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act, aiming to reduce disaster losses, lower public and private expenditures, and accelerate response and recovery efforts. Key provisions of the Act relevant to local governments and tribal organizations include:

- **Multi-Hazard Mitigation Plan Requirement:**
  - Local governments and tribal organizations must prepare a Multi-Hazard Mitigation Plan to be eligible for FEMA funding through the Pre-Disaster Mitigation Assistance Program and the Hazard Mitigation Grant Program.
- **Natural Hazards Requirement:**
  - The Act requires that natural hazards, such as tornadoes, floods, and wildfires, be addressed in the risk assessment and vulnerability analysis sections of the plan. While addressing man-made hazards, such as hazardous waste spills, is encouraged, it is not mandatory.
- **Funding for Plan Development:**
  - Up to 7% of Hazard Mitigation Grant Program funds available to a state after a federal disaster can be used for developing state, local, and tribal All Hazard Mitigation Plans.
- **Compliance Deadlines:**
  - Local governments and tribal organizations were required to prepare and adopt their mitigation plans by November 1, 2004, to be eligible for FEMA's Hazard Mitigation Grant Program. The deadline for eligibility under the Pre-Disaster Mitigation Program was November 1, 2003.
- **Grace Period for Disaster Areas:**
  - If a major disaster is declared after November 1, 2004, and a local government or tribal organization has not yet prepared a plan, they must agree to complete one within a year to be eligible for Hazard Mitigation Grant Program funding.
- **Impact of Not Having a Plan:**
  - Without a Multi-Hazard Mitigation Plan, local governments and tribal organizations cannot access funding through the Pre-Disaster Mitigation Grant Program.

Funding for the Monroe County Hazards Mitigation Plan

On October 2, 2023, Monroe County was officially awarded a planning grant under the 2022 Federal Fiscal Year Building Resilient Infrastructure and Communities (BRIC) Program by the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), and Wisconsin Emergency Management (WEM). The grant, managed through FEMA GO with WEM as the pass-through entity, was awarded to support the update of the Monroe County Hazard Mitigation Plan.

The subaward provides $59,999.90 in funding, with FEMA covering 75% of the costs ($44,999.92) and the remaining 25% ($14,999.98) being the community's required local match. This funding allows Monroe County to begin work on the approved scope for the plan update, ensuring that critical mitigation strategies are revised and improved for future resilience.

On December 13, 2023, Monroe County entered into a contract with the Mississippi River Regional Planning Commission (MRRPC) to facilitate the preparation of the updated Hazard Mitigation Plan. The MRRPC will also contribute to the required local match, fulfilling a key role in the overall planning and coordination efforts.

Plan Committees, Organizations, and Participating Jurisdictions

The Monroe County Multi-Hazards Mitigation Plan 2025-2030 includes all local units of government and organizations that choose to participate. This update to the plan continues to offer participation to all interested local units of government and organizations. Participants include Monroe County, as well as the following municipalities: the Towns of Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, La Grange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells, and Wilton; the Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton, and Wyeville; and the Cities of Sparta and Tomah.

The plan update was prepared under the guidance of the Local Emergency Planning Committee due to their expertise with flooding issues and floodplain management. The committee's involvement ensured that relevant local knowledge and experience were incorporated into the plan.

As a member of the Mississippi River Regional Planning Commission (MRRPC), the county contracted with the MRRPC to facilitate the plan update under the direction of the County Emergency Management Director.

Community and Stakeholder Engagement

Municipal Participation
All local municipalities were actively engaged in the planning process through the distribution of risk assessment surveys. The following municipalities received the survey: the Towns of Adrian, Angelo, Byron, Clifton, Glendale, Grant, Greenfield, Jefferson, Lafayette, La Grange, Leon, Lincoln, Little Falls, New Lyme, Oakdale, Portland, Ridgeville, Scott, Sheldon, Sparta, Tomah, Wellington, Wells, Wilton, and the Villages of Cashton, Kendall, Melvina, Norwalk, Oakdale, Warrens, Wilton, Wyeville, as well as the Cities of Sparta and Tomah.

These municipalities were also sent their project listings from the previous plan and were asked to provide updates. A follow-up survey was conducted, focusing on mitigation projects related to severe flooding. The plan includes a table (Table 3-1) that summarizes the survey responses.

Additionally, all municipalities were required to adopt the updated plan by passing a resolution. The adoption had to be included as an agenda item at their board meetings, ensuring formal approval. Appendix E contains these adoption resolutions.

Business Participation
To gather feedback from the local business community, a draft of the plan was shared with key business organizations. These included:

- Monroe County Economic Development
- Sparta Area Chamber of Commerce
- Cashton Area Development Corporation
- Tomah Chamber of Commerce
- Warrens Area Business Association

These organizations were invited to review the draft and provide their input on how the plan might impact or benefit their sectors.

Neighboring Communities Participation
The Emergency Management Directors from neighboring counties were also involved in the planning process. Copies of the draft plan were sent to them for their review and comments, ensuring regional coordination and collaboration.

Academia Participation
School Districts within Monroe County were engaged in the plan development as well. The Cashton, Norwalk-Ontario-Wilton, Sparta, and Tomah School Districts received copies of the draft plan for their review and feedback. Their involvement ensures that the educational sector's unique needs and vulnerabilities are addressed in the plan.

Nonprofit Participation
Nonprofit organizations were encouraged to participate through public hearings, which were announced via Class Two notices to ensure wide community involvement. These organizations had the opportunity to provide input during the hearings and shape the plan's development.

MRRPC Bimonthly Meetings
Starting with the February 2024 MRRPC Bimonthly meeting and continuing until final approval from FEMA, the Monroe County Multi-Hazards Mitigation Plan was discussed at each meeting as part of the staff report. These bimonthly meetings, announced through the press and direct mailings, are open to the public. Commissioners, the public, and other interested parties were kept informed about the plan's progress, with their comments and suggestions welcomed throughout the process.

The MRRPC Bimonthly meeting agenda from December 2023, where the contract between Monroe County and the MRRPC was approved by the Commissioners, can be found in Appendix C.

Public Involvement

Monroe County used a variety of methods to actively gather input for the Multi-Hazards Mitigation Plan. These methods included two surveys, committee meetings, a public information session, public hearings, and news releases. Table 3-1 provides a list of the representatives who received the surveys. The county and the Mississippi River Regional Planning Commission (MRRPC) ensured that their programs complied with Title VI of the Civil Rights Act, which prohibits discrimination based on race, color, age, sex, disability, income, limited English proficiency, or national origin. The public participation plan followed these guidelines to ensure inclusion of all populations.

Undeserved Communities and Vulnerable Population Participation
In our efforts to ensure that underserved communities and vulnerable populations in Monroe County had an opportunity to be involved in the hazard mitigation planning (HMP) process, we took several targeted outreach measures:

- Public Meeting Advertisements: We advertised the public meeting across all communities within Monroe County to increase awareness and encourage broad participation.
- Mobile Home Residents: Recognizing the unique vulnerabilities of residents in mobile home parks, we distributed flyers at the larger mobile home parks to inform residents of the public meeting and provide them an opportunity to participate.
- Senior Citizens: For senior citizens, we worked with senior living facilities to distribute flyers. Additionally, we provided a Zoom link to offer seniors the option of joining the meeting virtually, ensuring they could participate even if they were unable to attend in person.
- Minority Populations: We also reached out to community leaders of the Amish and Hispanic populations in Monroe County, understanding that these groups are often underserved. Despite our efforts, these communities chose not to participate in the process.

Through these targeted efforts, we aimed to create an inclusive process and ensure that vulnerable populations were informed of and had access to participate in the HMP process.

Risk Assessment Survey Process
In February 2024, a risk assessment survey was distributed via email to key local leaders across Monroe County, including Police Chiefs, Fire Chiefs, Town Chairmen, Village Presidents, and Mayors. This survey was designed to actively involve municipalities and organizations in the planning process. Respondents were asked to:

- Rank hazards as high, medium, or low based on the perceived threat to their community's health and public safety.

- Provide suggestions for projects or programs aimed at reducing the impact of these hazards and mitigating future losses.

Additionally, all municipalities in Monroe County were asked to update their hazard mitigation project lists from the previous plan. Each municipality was invited to:

- Mark completed projects and
- Propose new projects for inclusion in the updated plan.

Initial response to the survey was limited. However, follow-up emails were sent over the following months, which gradually increased the number of responses received. MRRPC staff attended the August 2024 meeting of the Monroe County Towns Association and presented on the plan and the planning process. They distributed flyers with a QR code and link to complete the survey online. This further increased the number of responses received, especially from the Towns.

Results and Analysis

The results of this survey are presented in Table 3-1. Projects identified through the survey, along with those identified through other means, are listed in Chapter 4. A copy of the survey can be found in Appendix B.

Public Safety Planning Committee Meetings

Throughout the plan's development, the Local Emergency Planning Committee regularly included updates on the Monroe County Multi-Hazards Mitigation Plan in its agenda. These meetings were open to the public, and community input was both encouraged and accepted. The first such meeting where the plan was discussed was in February 2024.

Committee Feedback Integration

Feedback from these meetings played a crucial role in shaping the priorities and strategies included in the updated plan. A copy of a Public Safety Planning Committee meeting agenda is available in Appendix C.

Public Meetings and Hearings

Repeated attempts to schedule a public hearing to present a draft of the Monroe County Multi-Hazard Mitigation Plan were made, but none could be arranged prior to the submission of this plan for review. These hearings are essential for ensuring transparency and gathering final input before the plan's adoption. Efforts are currently underway to schedule a public hearing in December 2024. During this future meeting, the results of the Official Hazard Risk Assessment Survey (see Table 3-1) and a list of potential projects aimed at reducing future losses from hazards (see Chapter 4) will be presented. Community members will also have the opportunity to provide input and discuss project priorities. Details of the planned hearing will be updated in the final version of this plan.

Incorporated Plans, Studies, Reports and Technical Data

The following is a list of plans, studies, and reports that were used to assist in preparing this plan:

- **2021 State of Wisconsin Hazard Mitigation Plan**
  - Provided dates and amounts of damage for various natural hazards
- **National Climatic Data Center (NCDC)**
  - Provided data on the history and damage amounts for various natural hazards
- **Hazard Analysis and Mitigation, Monroe County**
  - Provided data on the history and damage amounts for various natural hazards
  - Provided a source of mitigation projects
- **Natural Hazards Assessment, Monroe County WI, by NOAA/National Weather Service La Crosse, WI**
  - Provided data on the history and damage amounts for various natural hazards
- **Wisconsin Department of Natural Resources Dam Database**
  - Provided a list of dams within Monroe County
- **Wisconsin Department of Administration, Hazard Material Site Database**
  - Provided a list of hazardous material sites located within the county

- **World Health Organization COVID-19 Dashboard**
  - Provided worldwide COVID-19 data
- **Wisconsin Department of Health Services**
  - Provided Monroe County COVID-19 data

Plan Contents

The Five Chapters of the Hazard Mitigation Plan

In order to meet FEMA's local mitigation plan requirements, the Monroe County Multi-Hazards Mitigation Plan is organized into the following five Chapters, which also follow the Resource Guide to Hazard Mitigation Planning in Wisconsin.

1. Planning Process
2. Planning Area
3. Risk Assessments
4. Mitigation Strategy
5. Plan Maintenance and Adoption

Updated Items

During this update, each chapter of the previous plan was thoroughly reviewed and revised. The key updates made during this process include:

- **Chapter 1:**
  - The oversight responsibilities for the plan were transferred from the County Emergency Management Committee to the Public Safety Committee and the Local Emergency Planning Committee. Survey information and the table identifying recipients of the surveys were also updated.
- **Chapter 2:**
  - Population, housing, and land use tables were revised with the latest available data.
- **Chapter 3:**
  - Risk assessments were updated, incorporating historical data and vulnerability information through 2022. Updates include 100-year floodplain data, flood potential, critical facilities tables, and maps.
- **Chapter 4:**
  - The list of mitigation projects was updated by identifying completed projects and adding new ones.
- **Chapter 5:**
  - The maintenance schedule was reviewed, and the list of municipalities that have approved the plan was updated.

Chapter 2: Planning Area

General Geography

Monroe County, established in 1854, is located in west-central Wisconsin. It is bordered by La Crosse County to the west, Vernon County to the south, Juneau County to the east, and Jackson County to the north. The county spans approximately 33 miles from east to west and 30 miles from north to south, covering a total area of about 586,828 acres or 908 square miles. According to the U.S. Census, Monroe County had a population of 44,673 in 2010, which grew to 46,274 by 2020. The two largest incorporated communities, Sparta and Tomah, each have populations of approximately 10,000 people as of 2020. Sparta, located in the west-central part of the county, serves as the county seat. The Town of Sparta and the Town of La Grange are the two largest towns, surrounding the cities of Sparta and Tomah, respectively.

Tomah is the largest city in the county by land area, covering 8.16 square miles, while Sparta is the smallest, at 7.91 square miles. Cashton is the largest village by land area, covering 1.2 square miles. The Town of Little Falls is the largest town, spanning 68.69 square miles. Monroe County is home to two cities, eight villages, and 24 town governments. The Ho-Chunk Nation also owns land in the City of Tomah and the Towns of Byron, Greenfield, La Grange, Leon, and Oakdale. The Fort McCoy Military Reservation covers 60,000 acres across six townships, and the Meadow Valley Wildlife Area, managed cooperatively by the U.S. Fish and Wildlife Service (USFWS) and the Wisconsin Department of Natural Resources (DNR), spans 16,000 acres in Scott Township.

Monroe County is located 155 miles northwest of Milwaukee, 146 miles southwest of Green Bay, 93 miles northwest of Madison, 91 miles south of Wausau, 78 miles south of Eau Claire, and 23 miles east of La Crosse. Major metropolitan areas outside of Wisconsin with transportation connections to Monroe County include Chicago (215 miles southeast), Minneapolis-St. Paul (133 miles northwest), and Duluth (206 miles north).

Driftless Area

Monroe County, with the exception of a small portion in the northeast corner, lies within the Driftless Area, a region that covers 15,425,920 acres or 24,103 square miles. This unique region includes parts of southeast Minnesota, southwest Wisconsin, northeast Iowa, and a small section of northwest Illinois in the Upper Mississippi River Basin. The Driftless Area was bypassed by the last continental glacier around 10,000 years ago, resulting in its steep, rugged landscape. It is characterized by deeply dissected bedrock plateaus with moderately broad but highly dissected ridgetops. The ridgetop elevations in Monroe County range from about 1,350 to 1,450 feet, with valleys dropping 300 to 400 feet below the ridgetops. The northeastern and east-central parts of Monroe County are part of the lake basin of Glacial Lake Wisconsin, where the terrain is much more subdued compared to the rest of the county.

Land Use

Agriculture is the primary land use in Monroe County, with dairy farming being the dominant agricultural activity. The county's northeastern region is also notable for its extensive cranberry operations, which play a significant role in the local landscape.

Transportation

Monroe County, Wisconsin, is a critical transportation hub with key infrastructure supporting both freight and passenger movement. Major highways include Interstate 90 and Interstate 94, providing essential east-west corridors, along with U.S. Highway 12 and State Highways 16, 21, 27, and 71. The county is also served by Canadian Pacific Railway and Union Pacific Railway, supporting freight operations. Additionally, Amtrak's Empire Builder route stops in Tomah, offering passenger rail services. These transportation networks facilitate the efficient movement of goods and people within Monroe County and to surrounding regions.

The map on the next page illustrates Monroe County's transportation network and the overall setting of the County.

Map 3.10 Monroe County Critical Facilities

Transportation

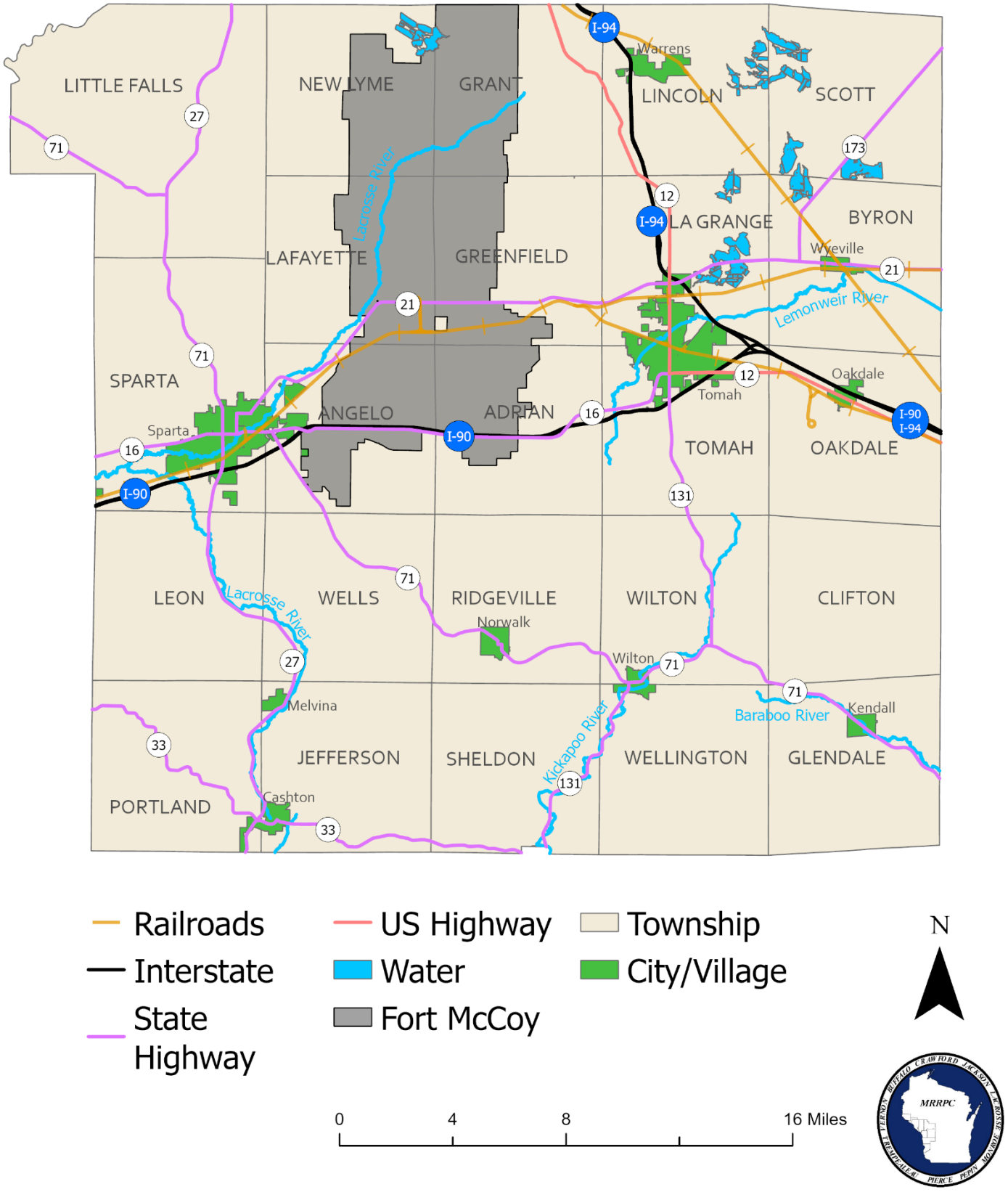


Figure 2.1: Monroe County Transportation Network

Rivers and Waterbodies

Monroe County features numerous rivers, streams, and creeks, shaped by its steep topography and diverse landscape. These waterways, varying in size and flow, play an important role in the county's natural environment. Below is a summary of the major rivers flowing through Monroe County.

- Baraboo River: Flows through the southeastern part of Monroe County, near the village of Kendall. It is a tributary of the Wisconsin River, relatively small in size within the county.
- Black River: Borders the northwest corner of Monroe County, a major river system, it flows through a large area in western Wisconsin, supporting a significant watershed.
- Kickapoo River: Located in the southwestern corner of Monroe County. Known for its winding course, the Kickapoo is a moderate-sized river that extends through the Driftless Area.
- La Crosse River: Runs through the central part of Monroe County, flowing through Sparta. It is a medium-sized river that eventually joins the Mississippi River near La Crosse.
- Lemonweir River: Meanders through Monroe County, Wisconsin, characterized by its slow flow and sandy bottomlands, often bordered by wetlands and forests. It serves as a significant tributary to the Wisconsin River, draining a substantial portion of the county's landscape.
- Little La Crosse River: A smaller tributary of the La Crosse River, flowing through the central part of the county, primarily near Sparta.
- Little Lemonweir River: Flows through the eastern part of Monroe County, near Tomah. It is a moderate-sized river that joins the Wisconsin River.

The only large lake in the County is Lake Tomah, a 245-acre man-made reservoir located in the City of Tomah, serves as a recreational hub for fishing, boating, and outdoor activities, while also contributing to the area's water management and conservation efforts.

Fort McCoy

Fort McCoy is a prominent federal military installation located in the northern part of Monroe County. Covering over 60,000 acres, it serves as a key training facility for the U.S. Army and other military branches. Fort McCoy significantly influences the county's economy, providing employment and contributing to local infrastructure development. Its presence also impacts land use and transportation within the region, with key roads and railways supporting military operations. The installation is a vital asset for both national defense and the local community, integrating military readiness with Monroe County's broader development.

Demographic and Economic Profile

Population

Monroe County's population grew from 44,673 in 2010 to 46,274 in 2020, a 4% increase—matching the state's growth rate but below the national rate of 7% (see Table 2-1). Incorporated communities ranged in size from 93 residents in the Village of Melvina to 10,025 in the City of Sparta. Town populations varied from 106 in Scott to 3,825 in Sparta. The Village of Warrens experienced the fastest growth among cities and villages, increasing by 50%, while the Town of Angelo saw a 31% growth, reaching 1,697 residents.

Monroe County is projected to grow by 14%, or 6,676 people, between 2020 and 2030, a much faster rate than the previous decade. About 60% of this growth (4,026 people) is expected in the towns, reflecting a 30% population increase. In contrast, growth in incorporated areas will be minimal and concentrated in Sparta and Tomah. Outside of these two cities, only 145 additional residents are expected by 2030.

Housing

From 2012 to 2022, Monroe County's housing units grew by 3%, from 19,248 to 19,804, a rate lower than both Wisconsin (4%) and the nation (7%). The City of Tomah had the most housing units in 2022, with 4,720. The Town of Oakdale saw the largest growth, with a 45% increase in housing units. See Table 2-3 for details.

Housing Density
Housing density varied across Monroe County. While many townships saw little change or slight decreases, several villages and cities experienced notable growth in housing units per square mile. The Villages of Cashton and Warrens saw the most significant increases, reflecting strong residential development. Overall, villages and cities combined saw a 5% rise in housing density, while Monroe County, Wisconsin, and the United States experienced more modest growth. This indicates varying levels of housing development and population changes across the region. See Table 2-4 for details.

Employment and Industry
Employment for those aged 16 and older in Monroe County decreased by 2%, from 21,840 in 2012 to 21,290 in 2022. The top three sectors in 2022 were Educational, Health, and Social Services (22%), Manufacturing (19%), and Retail Trade (11%). The fastest-growing sector was Other Services (except Public Administration), which saw a 35% increase, while Public Administration had the largest decline, dropping by 33%. See Table 2-5 for more details. Table 2-6 lists Monroe County employers with 100 or more employees. (Source: 2012 and 2022 ACS 5-Year Estimates, S2407 Industry by Class of Worker for the Civilian Employed Population 16 Years and Over)(Source: WisConomy Employers by Area - Data Axle)

Land Use Trends
Residential land in Monroe County increased by 3%, from 17,966 acres in 2017 to 18,436 acres in 2022, driven by favorable housing market conditions like low interest rates. Agricultural land remains the dominant land use, totaling 244,801 acres (57%) in 2022. Other key land use categories include:

- Agricultural Forest: 65,441 acres (15%)
- Undeveloped Land: 46,163 acres (11%)
- Forest Lands: 42,672 acres (10%)
- Residential: 18,436 acres (4%)

Overall, 82% of the county's land is dedicated to agriculture and forests (see Table 2-7). (Source: 2017 and 2022 Wisconsin Department of Revenue Line Summary)

Agricultural Land Use Trends
Agricultural land (including Agricultural and Agricultural Forest) declined by 4%, from 310,242 acres in 2017 to 307,526 acres in 2022. During the same period, urban land use grew, with residential land increasing by 470 acres (3%) and commercial land by 800 acres (24%). Manufacturing land, however, decreased by 340 acres (13%) – see Table2-7. (Source: 2017 and 2022 Wisconsin Department of Revenue Line Summary)

Table 2-1: Population

Jurisdiction	Population			Change (2010 to 2020)		Projected Change (2020 to 2030)	
	2010	2020	2030 (Projected)	#	%	#	%
T. Adrian	762	733	1,000	-29	-4%	267	36%
T. Angelo	1,296	1,697	1,435	401	31%	-262	-15%
T. Byron	1,342	1,234	1,455	-108	-8%	221	18%
T. Clifton	690	733	770	43	6%	37	5%
T. Glendale	667	663	860	-4	-1%	197	30%
T. Grant	495	469	585	-26	-5%	116	25%
T. Greenfield	707	677	860	-30	-4%	183	27%
T. Jefferson	819	841	920	22	3%	79	9%
T. Lafayette	396	447	430	51	13%	-17	-4%
T. La Grange	2,007	1,948	2,400	-59	-3%	452	23%
T. Leon	1,086	1,144	1,425	58	5%	281	25%
T. Lincoln	835	793	910	-42	-5%	117	15%
T. Little Falls	1,523	1,509	1,910	-14	-1%	401	27%
T. New Lyme	168	193	215	25	15%	22	11%
T. Oakdale	772	754	945	-18	-2%	191	25%
T. Portland	808	833	1,005	25	3%	172	21%
T. Ridgeville	501	479	540	-22	-4%	61	13%
T. Scott	135	106	155	-29	-21%	49	46%
T. Sheldon	727	649	890	-78	-11%	241	37%
T. Sparta	3,128	3,253	3,825	125	4%	572	18%
T. Tomah	1,400	1,488	1,755	88	6%	267	18%
T. Wellington	621	666	750	45	7%	84	13%
T. Wells	519	562	570	43	8%	8	1%
T. Wilton	1,027	963	1,250	-64	-6%	287	30%
Town Totals	**22,431**	**22,834**	**26,860**	**403**	**2%**	**4,026**	**18%**
V. Cashton	1,102	1,158	1,310	56	5%	152	13%
V. Kendall	472	484	490	12	3%	6	1%
V. Melvina	104	93	115	-11	-11%	22	24%
V. Norwalk	638	611	670	-27	-4%	59	10%
V. Oakdale	297	302	330	5	2%	28	9%

Jurisdiction	Population			Change (2010 to 2020)		Projected Change (2020 to 2030)	
	2010	2020	2030 (Projected)	#	%	#	%
V. Warrens	363	544	405	181	50%	-139	-26%
V. Wilton	504	532	520	28	6%	-12	-2%
V. Wyeville	147	121	150	-26	-18%	29	24%
C. Sparta	9,522	10,025	11,420	503	5%	1,395	14%
C. Tomah	9,093	9,570	10,680	477	5%	1,110	12%
Village & City Totals	**22,242**	**23,440**	**26,090**	**1,198**	**5%**	**2,650**	**11%**
Monroe County	**44,673**	**46,274**	**52,950**	**1,601**	**4%**	**6,676**	**14%**
Wisconsin	**5,686,986**	**5,893,718**	**6,375,910**	**206,732**	**4%**	**482,192**	**8%**
United States	**308,745,538**	**331,449,281**	**345,074,000**	**22,703,743**	**7%**	**13,624,719**	**4%**

Sources: 2010 and 2020 US Census, Wisconsin Department of Administration 2013 Municipal Population Projections, US Census 2023 National Population Projections Tables: Main Series

Table 2-2: Area

Jurisdiction	Area (Square Miles)		
	Land	Water	Total
T. Adrian	35.2	0.01	35.25
T. Angelo	34.4	0.13	34.52
T. Byron	35.5	0.58	36.04
T. Clifton	34.1	0.00	34.12
T. Glendale	35.6	0.01	35.60
T. Grant	35.8	0.16	35.92
T. Greenfield	35.3	0.06	35.39
T. Jefferson	34.7	0.00	34.73
T. Lafayette	35.3	0.04	35.34
T. La Grange	29.8	1.59	31.38
T. Leon	35.7	0.00	35.72
T. Lincoln	33.1	0.83	33.91
T. Little Falls	68.4	0.42	68.84
T. New Lyme	35.4	0.49	35.90
T. Oakdale	35.7	0.08	35.73
T. Portland	35.8	0.01	35.80
T. Ridgeville	34.3	0.04	34.29

Jurisdiction	Area (Square Miles)		
	Land	Water	Total
T. Scott	34.0	2.62	36.58
T. Sheldon	35.4	0.00	35.37
T. Sparta	47.3	0.00	47.31
T. Tomah	31.3	0.00	31.25
T. Wellington	35.4	0.00	35.42
T. Wells	35.7	0.00	35.67
T. Wilton	34.9	0.00	34.89
Town Totals	**877.9**	**7.07**	**885.0**
V. Cashton	1.3	0.00	1.26
V. Kendall	0.8	0.00	0.76
V. Melvina	0.5	0.00	0.48
V. Norwalk	1.0	0.00	1.03
V. Oakdale	0.8	0.00	0.77
V. Warrens	1.5	0.02	1.52
V. Wilton	0.9	0.00	0.89
V. Wyeville	0.6	0.00	0.56
C. Sparta	7.9	0.06	7.96
C. Tomah	7.7	0.39	8.10
Village & City Totals	**22.9**	**0.5**	**23.3**
Monroe County	**900.8**	**7.5**	**908.3**
Wisconsin	**54,310**	**11,888**	**65,498**
United States	**3,537,422**	**181,272**	**3,718,694**

Source: US Census 2020 TIGER Files

Table 2-3: Housing Units

Jurisdiction	Housing Units		Change from 2012 to 2022	
	2012	2022	#	%
T. Adrian	295	275	-20	-7%
T. Angelo	509	618	109	21%
T. Byron	595	475	-120	-20%
T. Clifton	274	207	-67	-24%
T. Glendale	276	338	62	22%
T. Grant	199	230	31	16%
T. Greenfield	399	332	-67	-17%
T. Jefferson	273	254	-19	-7%
T. Lafayette	119	134	15	13%
T. La Grange	818	819	1	0%
T. Leon	430	397	-33	-8%
T. Lincoln	445	404	-41	-9%
T. Little Falls	627	624	-3	0%
T. New Lyme	164	99	-65	-40%
T. Oakdale	338	270	-68	-20%
T. Portland	319	377	58	18%
T. Ridgeville	211	180	-31	-15%
T. Scott	65	59	-6	-9%
T. Sheldon	224	204	-20	-9%
T. Sparta	1,158	1,128	-30	-3%
T. Tomah	545	562	17	3%
T. Wellington	223	269	46	21%
T. Wells	220	200	-20	-9%
T. Wilton	321	320	-1	0%
Town Totals	**9,047**	**8,775**	**-272**	**-3%**
V. Cashton	477	611	134	28%
V. Kendall	232	186	-46	-20%
V. Melvina	33	42	9	27%
V. Norwalk	260	244	-16	-6%
V. Oakdale	110	160	50	45%
V. Warrens	265	365	100	38%

Jurisdiction	Housing Units		Change from 2012 to 2022	
	2012	2022	#	%
V. Wilton	270	206	-64	-24%
V. Wyeville	81	49	-32	-40%
C. Sparta	4,136	4,446	310	7%
C. Tomah	4,337	4,720	383	9%
Village & City Totals	**10,201**	**11,029**	**828**	**8%**
Monroe County	**19,248**	**19,804**	**556**	**3%**
Wisconsin	**2,620,401**	**2,734,511**	**114,110**	**4%**
United States	**131,642,457**	**140,943,613**	**9,301,156**	**7%**

Source: American Community Survey 2022 and 2012 5-Year Estimates - Table B25001 Housing Units

Table 2-4: Housing Unit Density

Jurisdiction	Housing Units per Square Mile		Change from 2012 to 2022	
	2012	2022	#	%
T. Adrian	21.6	20.8	-0.8	-4%
T. Angelo	37.7	49.3	11.7	31%
T. Byron	37.8	34.8	-3.0	-8%
T. Clifton	20.2	21.5	1.3	6%
T. Glendale	18.7	18.6	-0.1	-1%
T. Grant	13.8	13.1	-0.7	-5%
T. Greenfield	20.0	19.2	-0.8	-4%
T. Jefferson	23.6	24.2	0.6	3%
T. Lafayette	11.2	12.7	1.4	13%
T. La Grange	67.4	65.4	-2.0	-3%
T. Leon	30.4	32.0	1.6	5%
T. Lincoln	25.2	24.0	-1.3	-5%
T. Little Falls	22.3	22.1	-0.2	-1%
T. New Lyme	4.7	5.5	0.7	15%
T. Oakdale	21.7	21.2	-0.5	-2%
T. Portland	22.6	23.3	0.7	3%
T. Ridgeville	14.6	14.0	-0.6	-4%
T. Scott	4.0	3.1	-0.9	-21%
T. Sheldon	20.6	18.3	-2.2	-11%
T. Sparta	66.1	68.8	2.6	4%

Jurisdiction	Housing Units per Square Mile		Change from 2012 to 2022	
	2012	2022	#	%
T. Tomah	44.8	47.6	2.8	6%
T. Wellington	17.5	18.8	1.3	7%
T. Wells	14.6	15.8	1.2	8%
T. Wilton	29.4	27.6	-1.8	-6%
Town Totals	**25.6**	**26.0**	**0.5**	**2%**
V. Cashton	874.6	919.0	44.4	5%
V. Kendall	621.1	636.8	15.8	3%
V. Melvina	216.7	193.8	-22.9	-11%
V. Norwalk	619.4	593.2	-26.2	-4%
V. Oakdale	385.7	392.2	6.5	2%
V. Warrens	242.0	362.7	120.7	50%
V. Wilton	566.3	597.8	31.5	6%
V. Wyeville	262.5	216.1	-46.4	-18%
C. Sparta	1,205.3	1,269.0	63.7	5%
C. Tomah	1,179.4	1,241.2	61.9	5%
Village & City Totals	**973.0**	**1,025.4**	**52.4**	**5%**
Monroe County	**49.6**	**51.4**	**1.8**	**4%**
Wisconsin	**104.7**	**108.5**	**3.8**	**4%**
United States	**87.3**	**93.7**	**6.4**	**7%**

Source: American Community Survey 2022 and 2012 5-Year Estimates - Table B25001 Housing Units

Table 2.5: Employment by Industry in Monroe County

Industry	2012		2022		Change from 2012 to 2022	
	Employees	% of Employees	Employees	% of Employees	# of Employees	% of Employees
Agriculture, forestry, fishing and hunting, and mining	1,259	6%	1,508	7%	249	20%
Construction	1,276	6%	1,722	8%	446	35%
Manufacturing	3,634	17%	4,070	19%	436	12%
Wholesale trade	452	2%	563	3%	111	25%
Retail trade	2,410	11%	2,393	11%	-17	-1%
Transportation and warehousing, and utilities	1,276	6%	1,338	6%	62	5%
Information	249	1%	318	1%	69	28%
Finance and insurance, and real estate and rental and leasing	679	3%	760	3%	81	12%
Professional, scientific, and management, and administrative and waste management services	1,004	5%	886	4%	-118	-12%
Educational services, and health care and social assistance	4,531	21%	4,788	22%	257	6%
Arts, entertainment, and recreation, and accommodation and food services	1,736	8%	1,246	6%	-490	-28%
Other services, except public administration	813	4%	880	4%	67	8%
Public administration	1,971	9%	1,317	6%	-654	-33%
Total	**21,290**	**100%**	**21,789**	**100%**	**499**	**2%**

Source: 2012 and 2022 ACS 5-Year Estimates, S2407 Industry by Class of Worker for the Civilian Employed Population 16 Years and Over

Table 2-6: Monroe County Employers With 100 or More Employees

Name	Industry	Employees	Location
Northern Engraving Corp	Metal Engravers	1,000-4,999	Sparta WI
Fort Mccoy Info Operator	Military Bases	1,000-4,999	Fort Mccoy WI
Toro Co	Lawn Mowers	500-999	Tomah WI
Tomah VA Medical Ctr	Hospitals	500-999	Tomah WI
Walmart Distribution Ctr	Distribution Centers	500-999	Tomah WI

Name	Industry	Employees	Location
TC Transcontinental Packaging	Packaging Materials	250-499	Tomah WI
Morrow Home Community	Nursing & Convalescent Homes	250-499	Sparta WI
Knights of Columbus	Fraternal Organizations	250-499	Tomah WI
Walmart Supercenter	Department Stores	250-499	Tomah WI
Century Foods Intl LLC	Food Products & Manufacturers	250-499	Sparta WI
Cardinal Ig Co	Glass-Manufacturers	250-499	Tomah WI
Handishop Industries Inc	Wood-Household Furniture	100-249	Tomah WI
Sparta High School	Schools	100-249	Sparta WI
Meca Sportswear Inc	Screen Printing	100-249	Tomah WI
Mayo Clinic Health Syst-Sparta	Hospitals	100-249	Sparta WI
Allan Gerke & Sons Inc	Excavating Contractors	100-249	Tomah WI
Three Bears Resort	Resorts	100-249	Warrens WI
Monroe County	Nursing & Convalescent Homes	100-249	Sparta WI
Express Employment Pro	Employment Agencies & Opportunities	100-249	Tomah WI
Ho-Chunk Gaming Tomah	Casinos	100-249	Tomah WI
Tomah High School	Schools	100-249	Tomah WI
Walmart Supercenter	Department Stores	100-249	Sparta WI
Tomah Health	Hospitals	100-249	Tomah WI
Monroe County Nursing Home	Government Offices-County	100-249	Sparta WI
Band Box Cleaners & Laundry	Cleaners	100-249	Tomah WI
Marten Transport	Trucking	100-249	Tomah WI
Jellystone Park Warrens	Water Parks	100-249	Warrens WI
Allstate Peterbilt of Tomah	Automotive Stampings	100-249	Tomah WI
UFP Eastern Div Inc	Building Materials-Manufacturers	100-249	Warrens WI
Gage Corp the Intl	Tile-Ceramic-Manufacturers	100-249	Sparta WI
Ocean Spray Cranberries Inc	Cranberries	100-249	Tomah WI
Usemco Inc	Tanks & Tank Components	100-249	Tomah WI

Source: WisConomy Employers by Area - Data Axle

Table 2-7: Monroe County Land Use

Land Use	2017		2022		Change	
	Acres	% of Land	Acres	% of Land	Acres	%
Residential	17,966	4%	18,436	4%	470	3%
Commercial	3,290	1%	4,090	1%	800	24%
Manufacturing	2,593	1%	2,253	1%	-340	-13%
Agricultural	244,801	57%	242,848	57%	-1,953	-1%
Undeveloped	46,593	11%	46,163	11%	-430	-1%
Agricultural Forest	65,441	15%	64,678	15%	-763	-1%
Forest Lands	42,672	10%	41,401	10%	-1,271	-3%
Other	5,280	1%	5,139	1%	-141	-3%
Total Real Estate	428,636	100%	425,008	100%	-3,628	-1%

Source: 2017 and 2022 Wisconsin Department of Revenue Line Summary

Critical Facilities Inventory

Critical facilities provide essential services during both normal operations and emergencies. These include government buildings, military installations, hospitals, clinics, residential care facilities, police and fire stations, schools, municipal wells, wastewater treatment plants, and dams. Each category ensures continuity in key services such as governance, public safety, healthcare, education, water supply, and waste management.

Municipal wells are vital for water supply, with factors like well depth and served communities closely monitored. Wastewater treatment facilities support environmental health, while dams are classified by hazard ratings based on the risks they pose to nearby communities. These infrastructure points form the foundation for emergency planning and disaster mitigation.

Most critical facilities, especially hospitals and clinics, are concentrated in Sparta and Tomah, which serve as regional hubs for healthcare and emergency services. However, critical facilities throughout the County support smaller communities and rural areas. Vulnerability assessments, including their risk to natural hazards, are detailed in Chapter 4. For example, the Village of Norwalk Wastewater Treatment Facility is examined in the context of mitigation strategies for the Village of Norwalk.

Tables and maps on the following pages provide an inventory of these facilities.

Table 2-8: Monroe County Critical Facilities: Government and Military Facilities

Facilities	Community	Address	Telephone
Adrian Town Hall	Adrian Township	15937 Co Hwy T, Tomah 54660	(608)343-2325
Angelo Town Hall	Angelo Township	14123 Co Hwy I, Sparta	(608) 487-2878
Byron Town Hall	Byron Township	32386 St Hwy 21, Warrens	(608) 372-7048
Cashton Village Hall	Village of Cashton	723 Main St, P.O. Box 188, Cashton	(608) 654-7828
Clifton Town Hall	Clifton Township	31819 Co Hwy A, Camp Douglas	(608) 427-6814
Fort McCoy Headquarters	Fort McCoy	1941 C St, Sparta	(608) 388-7113
Glendale Town Hall	Glendale Township	27337 Mocha Rd, Kendall	(608) 463-7559
Grant Town Hall	Grant Township	3975 County Highway E, Warrens	(608) 378-4583
Greenfield Town Hall	Greenfield Township	11575 Fisher Rd, Tomah	(608) 372-1814
Jefferson Town Hall	Jefferson Township	12035 Olympic Avenue, Cashton	(608) 654-7855
Kendall Village Hall	Village of Kendall	219 W South Railroad, P.O. Box 216, Kendall	(608) 463-7124
La Grange Town Hall	La Grange Township	22731 Flint Ave, Tomah	(608) 372-3594
Lafayette Town Hall	Lafayette Township	11336 Co Hwy Q, Sparta	(608) 269-2738
Leon Town Hall	Leon Township	8108 Jackrabbit Ave, Sparta	(608) 269-5873
Lincoln Town Hall	Lincoln Township	Fire Station, 506 Hartwell Drive, Warrens	(608) 378-3317
Little Falls Town Hall	Little Falls Township	4124 Co Hwy I, Sparta	(608) 272-3175
Melvina Village Hall	Village of Melvina	604 Central Dr, Cashton	(608) 654-7433
National Guard Armory - Sparta	City of Sparta	602 E. Division St, Sparta	(608) 269-4625

Facilities	Community	Address	Telephone
National Guard Armory - Tomah	City of Tomah	530 Mill St, Tomah	(608) 372-5434
New Lyme Town Hall	New Lyme Township	2682 Co Hwy S, Sparta	(715) 209-7920
Norwalk Village Hall	Village of Norwalk	208 S Church St, Norwalk	(608) 823-7760
Oakdale Town Hall	Oakdale Township	228 Ballpark Dr, P.O. Box 37, Oakdale	(608) 372-6475
Oakdale Village Hall	Village of Oakdale	133 Well Drive, Tomah, WI	(608) 372-2927
Portland Town Hall	Portland Township	6736 State Hwy 33, Cashton	(608) 654-5187
Ridgeville Town Hall	Ridgeville Township	309 Main Street, P.O. Box 187, Norwalk	(608) 823-7459
Scott Town Hall	Scott Township	28788 Buckley Ave, Warrens	(608) 387-4717
Sheldon Town Hall	Sheldon Township	29215 State Hwy 131, Norwalk	(608) 487-6188
Sparta City Hall	City of Sparta	201 W Oak St, Sparta	(608) 269-4340
Sparta Town Hall	Sparta Township	5724 Hamlet Avenue, Sparta	(608) 269-4830
Tomah City Hall	City of Tomah	819 Superior Ave, Tomah	(608) 374-7420
Tomah Town Hall	Tomah Township	24381 Heritage Ave, Tomah	(608) 372-4611
Warrens Village Hall	Village of Warrens	301 Main Street, P.O. Box 97, Warrens	(608) 378-4177
Wellington Town Hall	Wellington Township	27503 Co Hwy P, Kendall	(608) 463-7447
Wells Town Hall	Wells Township	11754 Co Hwy XX, Norwalk	(608) 269-4391
Wilton Town Hall	Wilton Township	23988 St Hwy 71, Wilton	(608) 435-6161
Wilton Village Hall	Village of Wilton	400 East St, Suite 103, Wilton	(608) 435-6666
Wyeville Village Hall	Village of Wyeville	215 Wyeville Ave, Wyeville	(608) 706-1457

Map 3.1 Monroe County Critical Facilities

Government, Military, Wastewater Treatment Facilities, and Wells

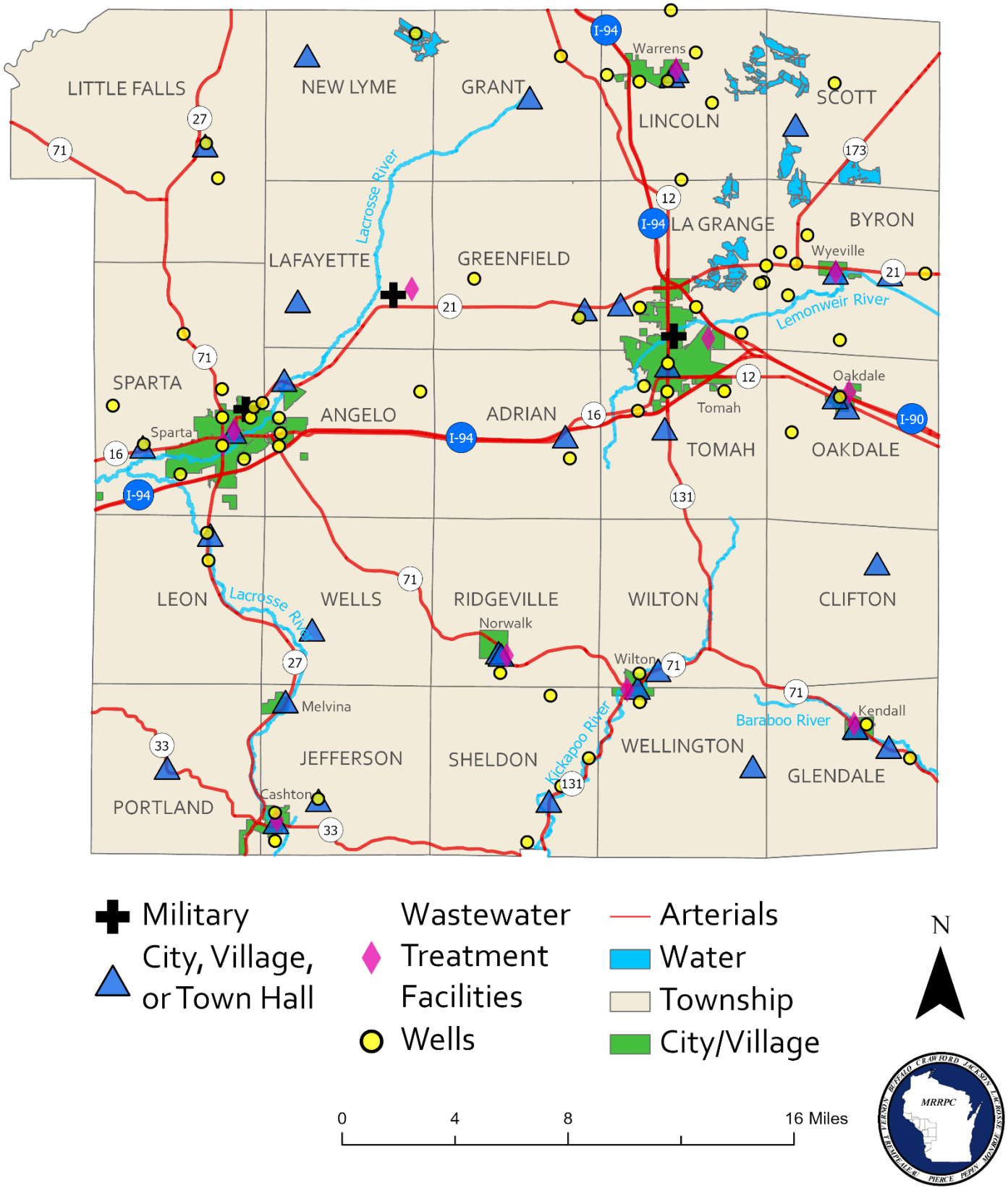


Figure 2.2: Monroe County Critical Facilities - Government, Military, Wastewater Treatment Facilities, and Wells

Table 2-9: Monroe County Hospitals, Clinics, and Residential Care Facilities

Critical Facility Name	Community	Address	Telephone
Clinics			
Mayo Clinic/Hospital Health System in Sparta	Sparta	310 W Main St	(608) 269-2132
Emplify Health Tomah Clinic	Tomah	501 Gopher Dr	(608) 372-2181
Scenic Bluffs Community Health Center	Cashton	238 Front St	(608) 654-5100
Scenic Bluffs Community Health Center	Norwalk	200 W North St	(608) 823-7853
Hospitals			
Tomah Veterans Administration	Tomah	500 East Veterans Street	
Tomah Memorial Hospital	Tomah	501 Gopher Dr	908-372-2181
EMS			
Cashton Fire & Rescue First Responders	Cashton	811 Main St.	608-654-5441
Cataract First Responders	Sparta	4013 County Highway I	608-272-3252
Lincoln (Town Of) Fire Dept Monroe Co	Warrens	506 Hartwell Dr	608-696-8608
Norwalk First Responders	Norwalk	213 W South St	608-633-0545
Tomah Area Ambulance Service	Tomah	400 N Glendale Ave	(608) 374-7460
Fort McCoy Fire Department	Fort McCoy	1680 W Eaton Rd	608-388-2508
Sparta Area Ambulance Service LTD	Sparta	618 Stelting St	608-269-4949
Tomah Area Ambulance Service	Tomah	400 North Glendale Ave	608-374-7460
Wilton (Village Of) Ambulance Service	Wilton	400 East St	608-435-6666
Residential Care			
Rbi Care LLC House 6 (Adult Family Home)	Sparta	11757 State Hwy 71	(608) 269-0386
Cornerstone (Adult Family Home)	Tomah	622 West Veterans St	(608) 372-0886
Living Well Adult Family Home (Adult Family Home)	Tomah	620 West Veterans Street	(608) 374-5666
Anderson Yeske (Adult Family Home)	Sparta	18441 Icebox Road	(608) 269-2700
Rbi Care LLC House 7 (Adult Family Home)	Sparta	11755 State Hwy 71	(608) 269-0386
New Day Inc 2 (Adult Family Home)	Tomah	31219 Fresno Avenue	(608) 343-2766
Rascals Resort LLC (Adult Family Home)	Kendall	29429 County Highway V	(608) 548-5006

Critical Facility Name	Community	Address	Telephone
Rbi Care LLC House 9 (Adult Family Home)	Sparta	11747 State Highway 71	(608) 269-0386
Rbi Care LLC House 8 (Adult Family Home)	Sparta	11749 State Highway 71	(608) 269-0386
Genesis Adult Family Home (Adult Family Home)	Tomah	218 Nicholas St	(608) 387-6032
Pine Lane Falls Adult Family Home (Adult Family Home)	Sparta	515 Pearl Street	(608) 269-0454
Antony Adult Family Home (Adult Family Home)	Tomah	21470 Hwy 16	(608) 374-5940
Hewuse Family Homes LLC (Adult Family Home)	Tomah	21344 Inshore Ave	(608) 372-7237
New Day Inc (Adult Family Home)	Tomah	31221 Fresno Avenue	(608) 343-2766
Rbi Care LLC House 3 (Adult Family Home)	Sparta	11759 State Hwy 71	(608) 269-2778
Cambria House (Adult Family Home)	Tomah	313 W Elizabeth St	(608) 567-0064
Anderson Yeske (Adult Family Home)	Sparta	18447 Icebox Road	(608) 269-2326
Rbi Care LLC House 5 (Adult Family Home)	Sparta	11765 State Hwy 71	(608) 269-0386
Farm (The) (Community Based Residential Facility)	Wilton	23785 Millstone Ave	(608) 621-2602
Deer Valley Cares LLC (Community Based Residential Facility)	Norwalk	18067 County Highway F	(608) 823-7278
Holton House (Community Based Residential Facility)	Tomah	315 E Holton	(608) 567-0183
Lake Tomah Center (Community Based Residential Facility)	Tomah	321 Butts Avenue	(608) 377-0644
Warrens House (Community Based Residential Facility)	Warrens	611 Colton Ct	(608) 378-3547
Windy Ridge Care Inc Hollister House (Community Based Residential Facility)	Tomah	325 Hollister Ave	(608) 567-0203
Jackson St House (Community Based Residential Facility)	Tomah	300 Butts Avenue	(608) 381-4972
Ann St House (Community Based Residential Facility)	Tomah	321 Ann Street	(608) 381-4972
Hayward House (The) (Community Based Residential Facility)	Tomah	626 Hayward Ave	(612) 790-8734
Schneider House (The) (Community Based Residential Facility)	Tomah	607 Schneider Ave	(612) 790-8734
Oak St House (Community Based Residential Facility)	Sparta	220 Oak St	(608) 343-1177
Bridge Path (Community Based Residential Facility)	Sparta	503 S Water Street	(608) 269-3168
Cranberry Court I LLC (Community Based Residential Facility)	Tomah	1031 Heeler Ave	(608) 372-5070
Liberty Village LLC (Community Based Residential Facility)	Tomah	200 Liberty Place	(608) 374-5005
Cranberry Court LLC Bldg 2 (Community Based Residential Facility)	Tomah	1025 Heeler Ave	(608) 372-5070
Greenfield House (The) (Community Based Residential Facility)	Tomah	21444 Flatiron Avenue	(608) 372-7335
Agape Acres (Community Based Residential Facility)	Warrens	3737 Blueberry Rd	(608) 472-3200

Critical Facility Name	Community	Address	Telephone
Close To Home Inc (Community Based Residential Facility)	Tomah	1206 Mark Ave	(608) 374-5300
Osprey House (Community Based Residential Facility)	Kendall	26004 Osprey Ave	(608) 286-9378
River Road Estates (Community Based Residential Facility)	Sparta	1848 River Road	(608) 633-1276
Meadows (The) (Community Based Residential Facility)	Sparta	14400 County Hwy B	(608) 269-4386
Sun Haven (Community Based Residential Facility)	Tomah	20035 Junco Road	(608) 633-8276
Our Town Tomah (Community Based Residential Facility)	Tomah	1330 N Superior Ave	(608) 317-2571
Morrow Memorial Home (Nursing Home)	Sparta	331 S Water St	(608) 269-3168
Tomah Nursing And Rehabilitation (Nursing Home)	Tomah	1505 Butts Ave	(608) 372-3241
Rolling Hills Rehabilitation Center (Nursing Home)	Sparta	14400 Cty Hwy B	(608) 269-8800
A Touch Of Home (Residential Care Apartment Complex)	Tomah	1211 Mark Avenue	(608) 372-5454
Marycrest Assisted Living (Residential Care Apartment Complex)	Sparta	401 S Water St	(608) 269-3168
Close To Home Inc (Residential Care Apartment Complex)	Tomah	1206 Mark Avenue	(608) 372-2696
Liberty Village RCAC (Residential Care Apartment Complex)	Tomah	200 Liberty Place	(608) 374-5005
Creekside Assisted Living (Residential Care Apartment Complex)	Sparta	325 South Water St	(608) 269-3168
Prairie Hills RCAC (Residential Care Apartment Complex)	Sparta	14350 County Hwy B	(608) 269-8800

Map 3.2 Monroe County Critical Facilities

Hospitals, Clinics, and Residential Care

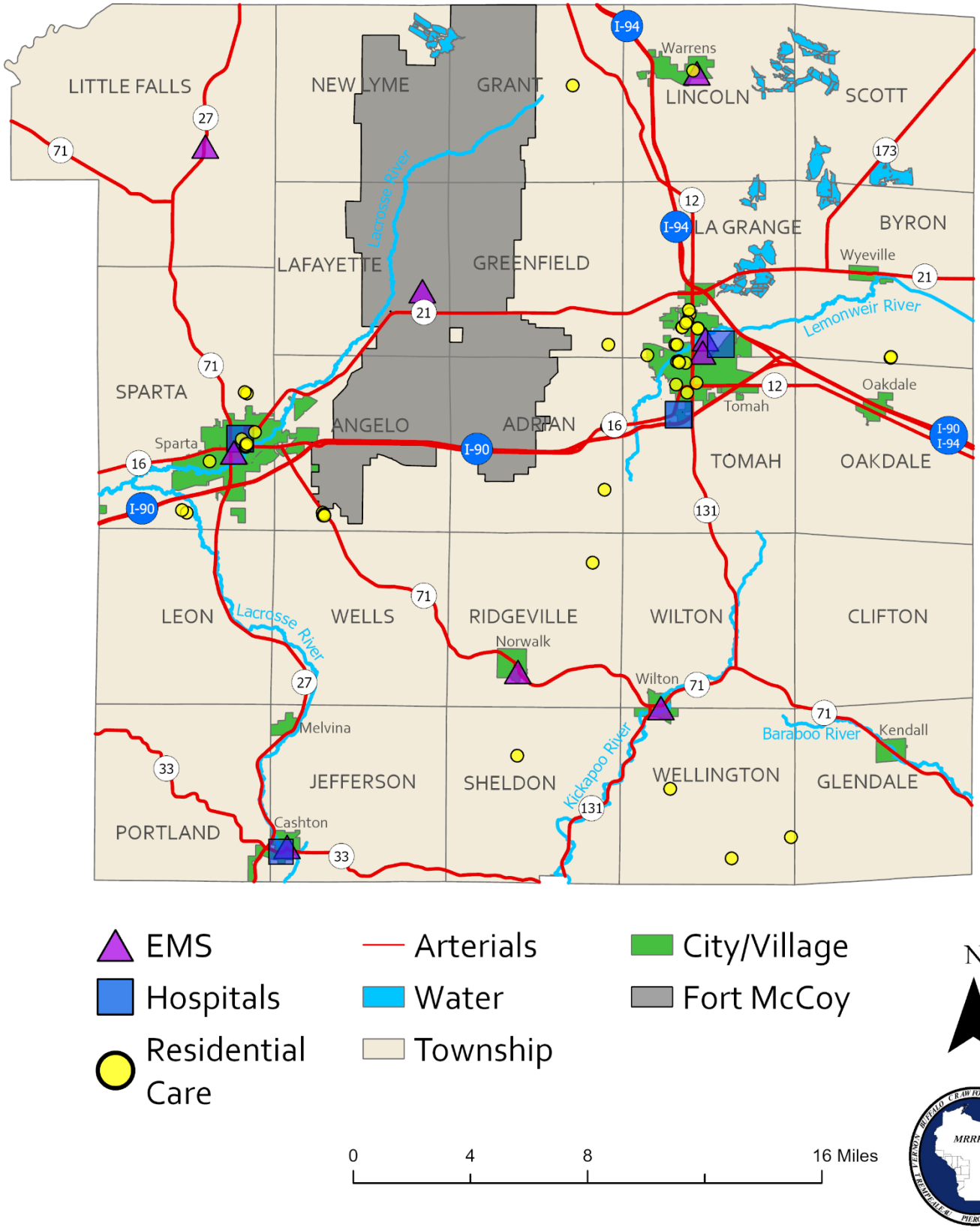


Figure 2.3: Monroe County Hospitals, Clinics, and Residential Care

Table 2-10: Monroe County Police and Fire Facilities

Facilities	Service Areas	Address	Telephone
Fire Departments			
Cashton Fire Department	T. Portland, T. Jefferson, V. Cashton, V. Melvina	545 Front St, Cashton	(608) 654-5601
Kendall Fire Department	T. Clifton, T. Wellington, T. Glendale	120 E. South Railroad St., Kendall	(608) 463-7192
Norwalk Fire Department	T. Wells, T. Ridgeville, T. Sheldon	213 W. South St., Norwalk	(608) 823-7760
Oakdale Fire Department	T. Greenfield, T. LaGrange, T. Byron, T. Adrian, T. Tomah, T. Clifton, T. Oakdale, V. Oakdale, V. Wyeville	230 Ballpark Dr., Oakdale	(608) 372-4915
Sparta Area Fire District Station 2	T. Little Falls, T. Sparta, T. Leon, T. New Lyme, T. Lafayette, T. Angelo, T. Adrian, T. Wells, C. Sparta	118 E. Oak St., Sparta	(608) 487-9223
Sparta Area Fire District Station 1	T. Little Falls, T. Sparta, T. Leon, T. New Lyme, T. Lafayette, T. Angelo, T. Adrian, T. Wells, C. Sparta	202 E. Oak St., Sparta	(608) 269-6333
Sparta Area Fire District Station 3	T. Little Falls, T. Sparta, T. Leon, T. New Lyme, T. Lafayette, T. Angelo, T. Adrian, T. Wells, C. Sparta	4130 County Highway I, Sparta	N/A
Tomah Fire Department	C. Tomah	400 N Glendale Ave, Tomah	608 374-7460
Tomah Northside Station	C. Tomah	316 Arthur St., Tomah	(608) 374-7465
T. Lincoln Fire Department	T. Lincoln, T. Grant, T. Scott, V. Warrens	506 Hartwell Dr., Warrens	(608) 378-4923
Wilton Fire Department	T. Wilton, T. Wellington, V. Wilton	804 Railroad St., Wilton	(608) 435-6898
Fort McCoy Fire Department	Fort McCoy	1941 S C Street, Fort McCoy	(608) 388-2508
Police Departments			
Cashton Police Department	Cashton	811 Main St., Cashton	(608) 654-7828
Fort McCoy Police Department	Fort McCoy	1941 S C St., Fort McCoy	(608) 388-2266
Kendall Police Department	Kendall	219 W South Railroad St., Kendall	(608) 463-7124
Monroe County Sheriff	Monroe County	112 S. Court, Sparta	(608) 269-2117
Wilton Police Department	Wilton	400 East St., Wilton	(608) 435-0046
Norwalk Police Department	Norwalk	208 South Church St., Norwalk	(608) 823-7760
Sparta Police Department	Sparta	121 E. Oak St., Sparta	(608) 269-3122

Tomah Police Department	Tomah	805 Superior Ave., Tomah	(608) 374-7400
Veterans Administration	Tomah	500 E. Veterans St., Tomah	(608) 372-1244

Map 3.3 Monroe County Critical Facilities

Police, Fire Departments, and Hazardous Material Sites

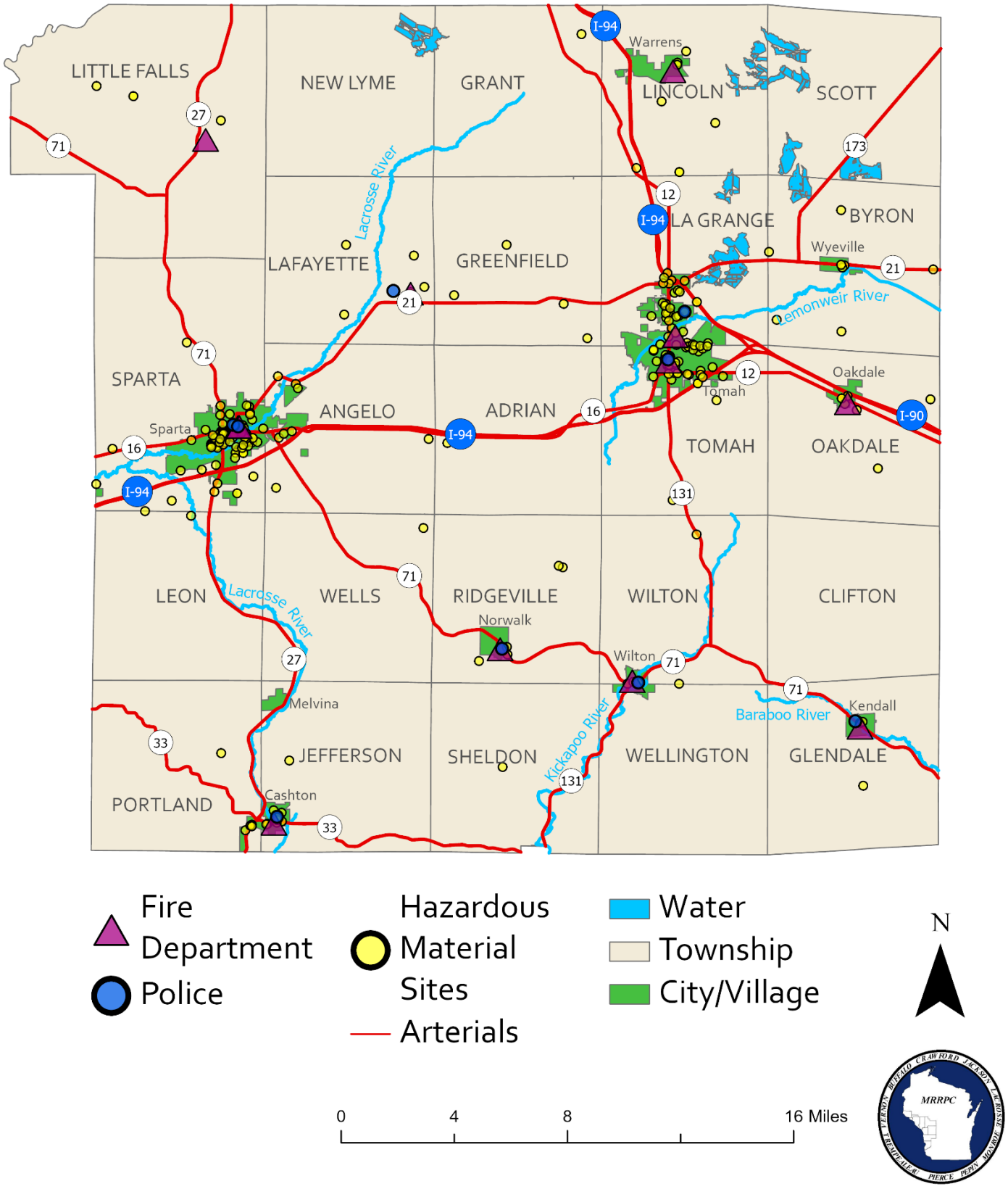


Figure 2.4: Monroe County Critical Facilities - Police, Fire Departments, and Hazardous Material Sites

Table 2-11: Monroe County Schools

School	Municipality	Address	Number
Public Schools			
Camp Douglas Elementary School	Camp Douglas	81 Junction St	608-374-7091
Cashton Elementary School	Cashton	436 Front St	608-654-7377
Cashton High School	Cashton	540 Coe St	608-654-5131
Norwalk-Ontario-Wilton Elementary School	Ontario	28861 State Hwy 131	608-337-4403
Ontario High School	Ontario	28861 Highway 131 N	608-337-4401
Sparta Elementary School	Sparta	925 N Black River St	608-366-3438
Sparta Elementary School	Sparta	1023 Walrath St	608-366-3450
Sparta High School	Sparta	900 East Montgomery St	608-366-3400
Sparta High School	Sparta	506 N Black River St	608-366-3504
Sparta Middle School	Sparta	1225 N Water St	608-366-3497
Tomah Combined Elementary/Secondary School	Tomah	1310 Townline Rd	608-374-7020
Tomah Elementary School	Tomah	600 Straw St	608-374-7057
Tomah Elementary School	Tomah	711 N Glendale Ave	608-374-7847
Tomah Elementary School	Tomah	813 Oak Ave	608-374-7026
Tomah Elementary School	Tomah	217 S Oakwood St	608-374-7081
Tomah Elementary School	Tomah	129 W Clifton	608-374-7027
Tomah High School	Tomah	901 Lincoln Ave	608-374-7358
Tomah Middle School	Tomah	612 Hollister Ave	608-374-7885
Warrens Elementary School	Warrens	409 Main St	608-374-7800
Wyeville Elementary School	Wyeville	225 W Tomah Rd	608-374-7826
Private Schools			
Clinton Amish Schools	Cashton	S611 County Road D	N/A
Oasis Christian School	Tomah	22547 State Highway 21	608-567-9230
Queen of the Apostles School	Tomah	315 W Monroe St	608-372-5765
Sacred Heart School	Cashton	710 Kenyon St	608-654-7733
Saint John's Ev Lutheran School	Sparta	419 Jefferson Ave	608-269-6001
Saint Patrick School	Sparta	100 S L St	608-269-4748
Saint Paul Lutheran School	Tomah	505 Superior Ave	608-372-4542
Tomah Baptist Academy	Tomah	1701 Hollister Ave	608-372-5288

Map 3.4 Monroe County Critical Facilities

Schools

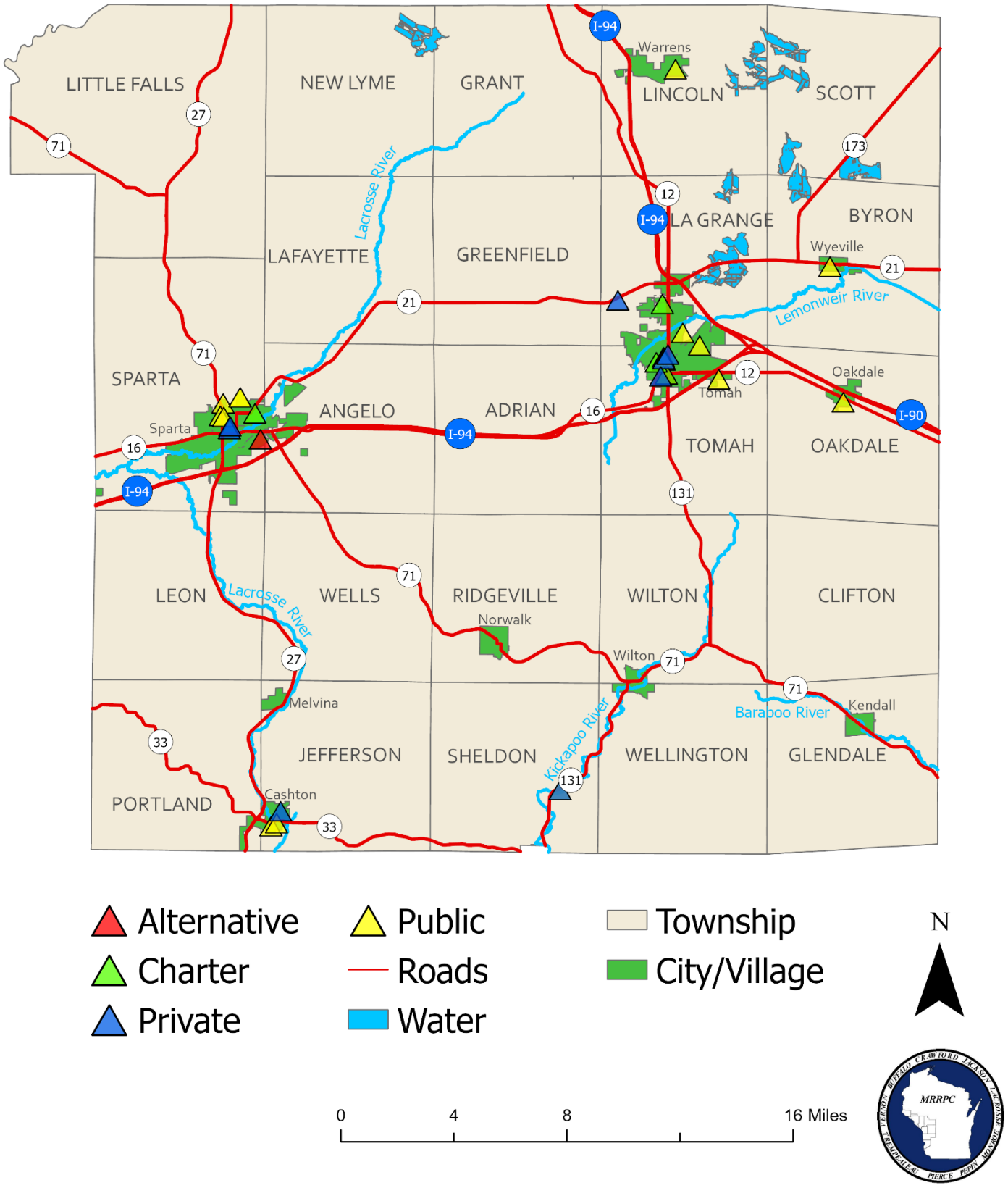


Figure 2.5: Monroe County Schools

Table 2-12: Monroe County Active Municipal Wells

Municipality	Construction Date	Well Bottom (ft)	Static Water Level (ft)
City of Sparta	6/30/1982	75	17
City of Sparta	3/15/1991	286	1.5
City of Sparta	12/2/2006	300	11.5
City of Sparta	3/15/1992	286	0
City of Sparta	1/1/1960	222	69
City of Sparta	1/1/1939	185	47
City of Sparta	1/1/1990	165	54
City of Sparta	1/1/1961	264	69
City of Tomah	6/18/2002	240	10
City of Tomah	1/1/1948	325	36
Town of La Grange	1/28/2016	240	41
Town of Lagrange	12/15/1995	251	33
Town of Ridgeville	5/1/1978	360	131
Town of Tomah	10/7/2004	240	16
Town of Tomah	8/7/2006	240	15
Town of Tomah	5/1/2005	251	40
Village of Cashton	1/1/1962	852	471
Village of Cashton	8/11/1993	860	461
Village of Kendall	1/1/1994	370	14
Village of Norwalk	5/9/2000	350	150.4
Village of Oakdale	10/25/1996	250	8
Village of Ontario	9/1/2016	235	72.2
Village of Warrens	9/10/1975	180	90
Village of Warrens	11/14/2007	380	90
Village of Wilton	1/1/1953	225	31
Village of Wilton	11/18/1982	220	0

Table 2-13: Monroe County Wastewater Treatment Facilities

Wastewater Treatment Plant	Community	Telephone
Cashton Wastewater Treatment Facility	Cashton	(608) 654-5160
Kendall Wastewater Treatment Facility	Kendall	(608) 463-7232
Norwalk Wastewater Treatment Facility	Norwalk	(608) 633-0708

Wastewater Treatment Plant	Community	Telephone
Oakdale Wastewater Treatment Facility	Oakdale	(608) 372-5425
Sparta Wastewater Treatment Facility	Sparta	(608) 269-4340
Tomah Wastewater Treatment Facility	Tomah	(608) 374-7420
US Army Headquarters, Fort McCoy WWTP	Fort McCoy	(608) 388-6546
Warrens Monroe Wastewater Treatment Facility	Warrens	(608) 378-4177
Wilton Wastewater Treatment Facility	Wilton	(608) 387-5105
Wyeville Sewer System	Wyeville	(608) 372-5167
Monroe County Sanitation	Sparta	(608) 269-6511

Table 2-14: Monroe County Dams

Dam Official Name	Dam Size	Hazard Rating	Stream Name
High Hazard Dams			
Coon Creek 25	Large	High	Tr Rulland Coulee Creek
Tomah Lake	Large	High	South Fork Lemonweir River
Tri Creek Number One	Large	High	Tr Morris Creek
Significant Hazard Dams			
Flora Dell	Small	Significant	Flora Creek
Spring Bank	Small	Significant	Spring Creek
Low Hazard Dams			
Alder Lake	Large	Low	La Crosse R
Anderson, Verdell	Small	Low	Unnamed
Angelo	Large	Low	La Crosse River
Barlow Dam	Small	Low	Unnamed
Behrens, Garland	Small	Low	Indian Cr.
Borys	Small	Low	Unnamed
Brey, Earl	Small	Low	Cook Creek
Bunnells	Unknown	Low	Beaver Creek
Burch	Small	Low	Unnamed
Cardoza, Lester	Unknown	Low	Tr Sank Creek
Cataract	Small	Low	Rathbone Creek
Caulum, Lawrence	Unknown	Low	Unnamed
Christensen, Leroy	Unknown	Low	Tr-Bear Creek
City Mills	Unknown	Low	Farmers Valley Creek
Clark	Unknown	Low	Brandy Creek
Cook, Alvin	Small	Low	Unnamed
Cook, Dale	Small	Low	Unnamed
Coon Creek 21	Large	Low	Unnamed
Coon Creek 23	Large	Low	Unnamed
Coon Creek 24	Large	Low	Rullands Coulee Creek
Coon Creek 29	Large	Low	Coon Creek
Coon Creek 29	Large	Low	Coon Creek
Coon Creek 31	Large	Low	Coon Creek
Coon Creek 53	Large	Low	Berge Coulee Creek
Dandy Creek 10	Small	Low	Unnamed
Dandy Creek 11	Large	Low	East Fork Lemonweir River

Dam Official Name	Dam Size	Hazard Rating	Stream Name
Dandy Creek 12	Small	Low	Dead Creek
Dandy Creek 13	Small	Low	Dandy Creek
Dandy Creek 2	Small	Low	Dandy Creek
Dandy Creek 236-A	Unknown	Low	Unnamed
Dandy Creek 236-B	Unknown	Low	Unnamed
Dandy Creek 236-C	Unknown	Low	Unnamed
Dandy Creek 4	Small	Low	Dead Creek
Dandy Creek 5	Small	Low	Dandy Creek
Dandy Creek 6	Large	Low	Unnamed
Dandy Creek 7	Small	Low	Dandy Creek
Dandy Creek 8	Small	Low	Dandy Creek
Dandy Creek 9	Large	Low	Unnamed
Dinsmore	Unknown	Low	La Crosse River
Dobbs, Larry	Small	Low	Tr-Bush Creek
Dobbs, Larry	Small	Low	Unnamed
Donskey, John	Small	Low	No Waterway
Donskey, Raymond	Small	Low	Unnamed
Durbrow	Small	Low	Unnamed
East Silver	Large	Low	Silver Creek
Eckelberg, Loren	Small	Low	Unnamed
Erpenbach, Hubert	Small	Low	Unnamed
Evans Pond	Small	Low	Rathbone Creek
Fort Mc Coy	Unknown	Low	Stillwell C
Fort Mc Coy	Unknown	Low	Tarr Creek
Fort Mc Coy	Large	Low	Squaw C
Friedl, Harry	Small	Low	U/N Tributary To Baraboo R.
Gebhardt, Vern	Small	Low	Whisky Creek
George	Small	Low	Trib To Creek 8-1
Gilman	Unknown	Low	La Crosse River
Gorn, Keith	Small	Low	Unnamed
Habelman	Large	Low	Clear Creek
Habelman	Large	Low	Clear Creek
Habelman	Large	Low	Clear Creek
Habelman, Ray, Etal	Unknown	Low	Stillwell Creek
Haldeman	Large	Low	Tr-Morris Creek
Hall, Fay R.	Unknown	Low	Unnamed
Hans Beigel Pond	Small	Low	Unnamed
Hansen	Small	Low	Unnamed
Hazel Dell Lake	Unknown	Low	La Crosse R
Helming	Small	Low	Brandy Creek
Henderson, John A.	Small	Low	Tr-Bear Creek
Henze, Dale	Small	Low	Unnamed
Hurtz	Small	Low	Unnamed
Jensen	Large	Low	Whisky Creek
Johnson	Large	Low	Lowry Creek
Johnson, Monroe	Small	Low	Tr-Creek 12-15
Jordan, Donald	Small	Low	Farmers Valley Creek
Kelly, John J.	Small	Low	No Waterway
Kickapoo Springs	Small	Low	Tr-East Fork Kickapoo River
Klitzke, Dale	Small	Low	Tr-Council Creek

Dam Official Name	Dam Size	Hazard Rating	Stream Name
Koebernich, K.G.	Small	Low	Tr-Dorset Valley
Kohlhof, Adolf	Unknown	Low	Unnamed
Kotten, Bernard	Small	Low	Unnamed
Laufenberg, Henry	Small	Low	Tr Little La Crosse River
Lee, Howard	Small	Low	Unnamed
Leis, Ernest B.	Small	Low	Tr-Big Creek
Leis, Jerome	Small	Low	Moore Creek
Leon	Unknown	Low	Little La Crosse River
Linton, John	Small	Low	Unnamed
Luethe, Lloyd L.	Small	Low	Unnamed
McCoy	Small	Low	Jenkins Valley Creek
McDaniel	Small	Low	Unnamed
Miller, Eugene F.	Small	Low	Unnamed
Mitchell, Lester	Small	Low	No Waterway
Molstad, George	Small	Low	Unnamed
Moskonas	Small	Low	Unnamed
Muehlenkamp, Glen	Small	Low	Unnamed
Ninneman 3	Unknown	Low	Unnamed
Ninneman Lower	Unknown	Low	Unnamed
Ninnmean Upper	Unknown	Low	Unnamed
Nofsinger, Elmer	Small	Low	No Waterway
North Scott Township	Small	Low	Dead Creek Drainage Ditch
North Tomah Cranberry Co.	Large	Low	Mud Creek
Old Vogel	Unknown	Low	Kickapoo River
Olson, Arnold	Small	Low	Tr Rocky Run
Paper Mill	Large	Low	La Crosse River
Parkhurst	Small	Low	Unnamed
Peterson, Jon	Small	Low	Rullands Coulee Creek
Pinnacle Rock	Small	Low	Unnamed
Potter (Lower Reservoir)	Large	Low	East Fork Lemonweir
Potter (Upper Reservoir)	Large	Low	East Fork Lemonweir
Preuss, George	Small	Low	Unnamed
Rock Garden	Small	Low	Sparta Creek
Rueckheim, Leonard	Small	Low	Unnamed
Rumpe	Small	Low	Unnamed
Selz	Unknown	Low	Sand Creek
Sherk Lower	Unknown	Low	Beltz Creek
Sherk Upper	Unknown	Low	Beltz Creek
Silver Creek	Unknown	Low	Silver Creek
Sletten, Duane	Small	Low	Unnamed
Sparta Creek	Unknown	Low	Sparta Creek
Sparta Rod And Gun Club	Small	Low	Unnamed
Steele, Robert E.	Unknown	Low	Unnamed
Stelter, Gorden	Unknown	Low	Tr-Kreyer Creek
Stillwell Cr	Unknown	Low	Stillwell Creek
Storkel	Small	Low	Sparta Creek
Strozewski	Large	Low	East Fork Lemonweir
Sullivan, Dave	Small	Low	Rathbone Creek
Swamp Pond	Large	Low	Swamp Creek
Teasdale, Howard No. 1	Unknown	Low	Adjacent To Spencer Creek

Dam Official Name	Dam Size	Hazard Rating	Stream Name
Teasdale, Howard No. 2	Unknown	Low	Spencer Creek
Treu, James	Small	Low	Unnamed
Upper Beaver Creek Dam	Unknown	Low	Beaver Creek
Valley Corporation	Large	Low	East Fork Lemonweir River
Valley Corporation	Large	Low	East Fork Lemonweir River
Vieth, Alvin	Small	Low	Moore Creek
Von Ruden, Anton	Small	Low	Unnamed
Waege	Small	Low	Sleighton Creek
Walker, George	Small	Low	Tr Morris Creek
Warsaw, Neil	Small	Low	Little Lemonweir
Water Mill	Large	Low	Mill Creek
Wetherby	Large	Low	East Fork Lemonweir River
Wildes-Schenese-Wiseman	Unknown	Low	Sodder Creek
William Hall	Small	Low	Sparta Creek
Winans, Roger L.	Small	Low	Tr-Morris Creek
Winston, Emanuel	Small	Low	Unnamed
Wolf, Tom	Small	Low	Unnamed
Yager	Unknown	Low	Kickapoo River
Young, Tom No. 1	Small	Low	Unnamed
Young, Tom No. 2	Small	Low	Unnamed

Source: Wisconsin Repository of Dams

According to the Wisconsin Department of Transportation (WisDOT), Monroe County has 281 bridges, a critical part of the county's infrastructure. Bridges are particularly vulnerable to hazards due to their elevation and exposure, making structural failure more dangerous than with roads. Flooding is a primary concern, as many bridges span waterways, and even when a bridge remains intact during a flood, access can still be blocked if the surrounding areas are submerged. This is especially problematic for emergency response times during floods.

Understanding the location and condition of these bridges is essential for effective emergency planning, particularly in flood-prone areas. These considerations will be further explored in the flood risk section and the specific goals for each municipality. The table below outlines the number of bridges in each municipality and highlights those rated below satisfactory. A map on the following page shows the location of these bridges alongside the 100-year floodplain and the county’s transportation network.

Table 2-15: Bridges

Municipality	Number of Bridges
City Of Sparta	14
City Of Tomah	6
Town Of Adrian	12
Town Of Angelo	16
Town Of Byron	13
Town Of Clifton	10
Town Of Glendale	3
Town Of Jefferson	8
Town Of La Fayette	2

Municipality	Number of Bridges
Town Of La Grange	32
Town Of Leon	8
Town Of Lincoln	9
Town Of Little Falls	10
Town Of New Lyme	1
Town Of Oakdale	19
Town Of Portland	7
Town Of Ridgeville	6
Town Of Scott	1
Town Of Sheldon	19
Town Of Sparta	17
Town Of Tomah	23
Town Of Wellington	11
Town Of Wells	5
Town Of Wilton	11
Village Of Kendall	6
Village Of Melvina	1
Village Of Norwalk	4
Village Of Wilton	6
Village Of Wyeville	1
Monroe County	**281**

Source: Personal Communication with Craig Fisher, WisDOT Bridge Inspection Program Manager

Social Vulnerability Index

The following table presents data on various demographic characteristics for every City, Village, and Town in Monroe County, based on the 2022 American Community Survey (ACS) 5-Year Estimates. These characteristics are commonly regarded as indicators of social vulnerability, factors that can significantly influence a community's ability to prepare for, respond to, and recover from hazards. These demographics are further explored in Chapters 3 and 4 as they relate to specific local hazards.

The table includes the percentage of the population in each municipality that lives in mobile homes, is age 65 and over, experiences poverty, lives with a disability, has low English proficiency, or works in agriculture. Each of these variables represents a key aspect of social vulnerability that can affect community resilience. For example, higher rates of mobile home residents may indicate increased risk to severe weather events, while a large percentage of elderly individuals or those with disabilities may require special considerations during emergency evacuations. Agricultural workers and individuals with low English proficiency are also highlighted due to their unique challenges in disaster preparedness and response.

By examining these factors across the municipalities, the table provides a foundation for identifying areas of the county that may face greater challenges during hazard events and may require more targeted mitigation strategies.

Table 2-16: Social Vulnerability Index

Municipality	Percentage of Population by Demographic Group					
	Mobile Homes	Age 65 and Over	Individuals in Poverty	Individuals with Disabilities	Individuals With Low English Proficiency	Agricultural Workers
City of Sparta	10%	16%	11%	14%	1%	6%
City of Tomah	8%	20%	13%	20%	0%	5%
Town of Adrian	8%	18%	13%	21%	0%	11%
Town of Angelo	11%	16%	4%	15%	1%	5%
Town of Byron	19%	18%	23%	16%	2%	6%
Town of Clifton	1%	15%	21%	12%	14%	16%
Town of Glendale	4%	19%	14%	7%	5%	9%
Town of Grant	10%	21%	7%	25%	0%	9%
Town of Greenfield	4%	21%	6%	18%	3%	6%
Town of Jefferson	0%	9%	9%	6%	14%	18%
Town of La Grange	6%	28%	8%	12%	1%	9%
Town of Lafayette	5%	10%	10%	8%	2%	5%
Town of Leon	2%	13%	4%	6%	1%	5%
Town of Lincoln	11%	21%	2%	15%	1%	13%
Town of Little Falls	16%	15%	12%	13%	1%	5%
Town of New Lyme	8%	11%	1%	13%	5%	3%
Town of Oakdale	2%	17%	13%	10%	3%	3%

Municipality	Percentage of Population by Demographic Group					
	Mobile Homes	Age 65 and Over	Individuals in Poverty	Individuals with Disabilities	Individuals With Low English Proficiency	Agricultural Workers
Town of Portland	7%	18%	6%	15%	1%	15%
Town of Ridgeville	3%	19%	9%	12%	1%	19%
Town of Scott	41%	23%	9%	19%	5%	43%
Town of Sheldon	3%	13%	12%	9%	5%	28%
Town of Sparta	4%	19%	10%	8%	2%	1%
Town of Tomah	15%	16%	13%	10%	1%	7%
Town of Wilton	1%	6%	19%	6%	14%	3%
Town of Wellington	5%	23%	14%	9%	2%	13%
Town of Wells	1%	26%	14%	15%	4%	17%
Village of Cashton	21%	19%	17%	8%	8%	5%
Village of Kendall	0%	20%	14%	10%	1%	9%
Village of Melvina	10%	12%	0%	2%	0%	0%
Village of Norwalk	4%	8%	31%	6%	15%	9%
Village of Oakdale	12%	26%	10%	18%	1%	8%
Village of Warrens	0%	13%	8%	13%	3%	5%
Village of Wilton	3%	11%	10%	10%	0%	16%
Village of Wyeville	0%	19%	4%	14%	1%	2%
Median	**5%**	**18%**	**10%**	**12%**	**1%**	**7%**

The following maps build upon the demographic data presented in the previous table by illustrating how different social vulnerability indicators vary spatially across Monroe County. Each map visualizes the distribution of key variables,

including the percentage of workers employed in agriculture, the prevalence of mobile homes, the percentage of individuals with disabilities, those living in poverty, low English proficiency, and the population aged 65 and over.

Communities are divided into five quantiles based on their standing within the county for each variable, with the darkest shade representing the top 20th percentile and the lightest shade representing the bottom 20th percentile.
In addition to these individual maps, an Overall Social Vulnerability Index map is provided. This index aggregates the six variables into a composite score for each community, assigning points based on their quantile rankings (5 points for the top 20th percentile, down to 1 point for the bottom 20th percentile). The resulting scores are then categorized into five quantiles, providing a broader view of overall vulnerability within the county.

These visualizations help highlight areas that may face greater challenges during hazard events due to higher social vulnerability, guiding more targeted mitigation efforts.

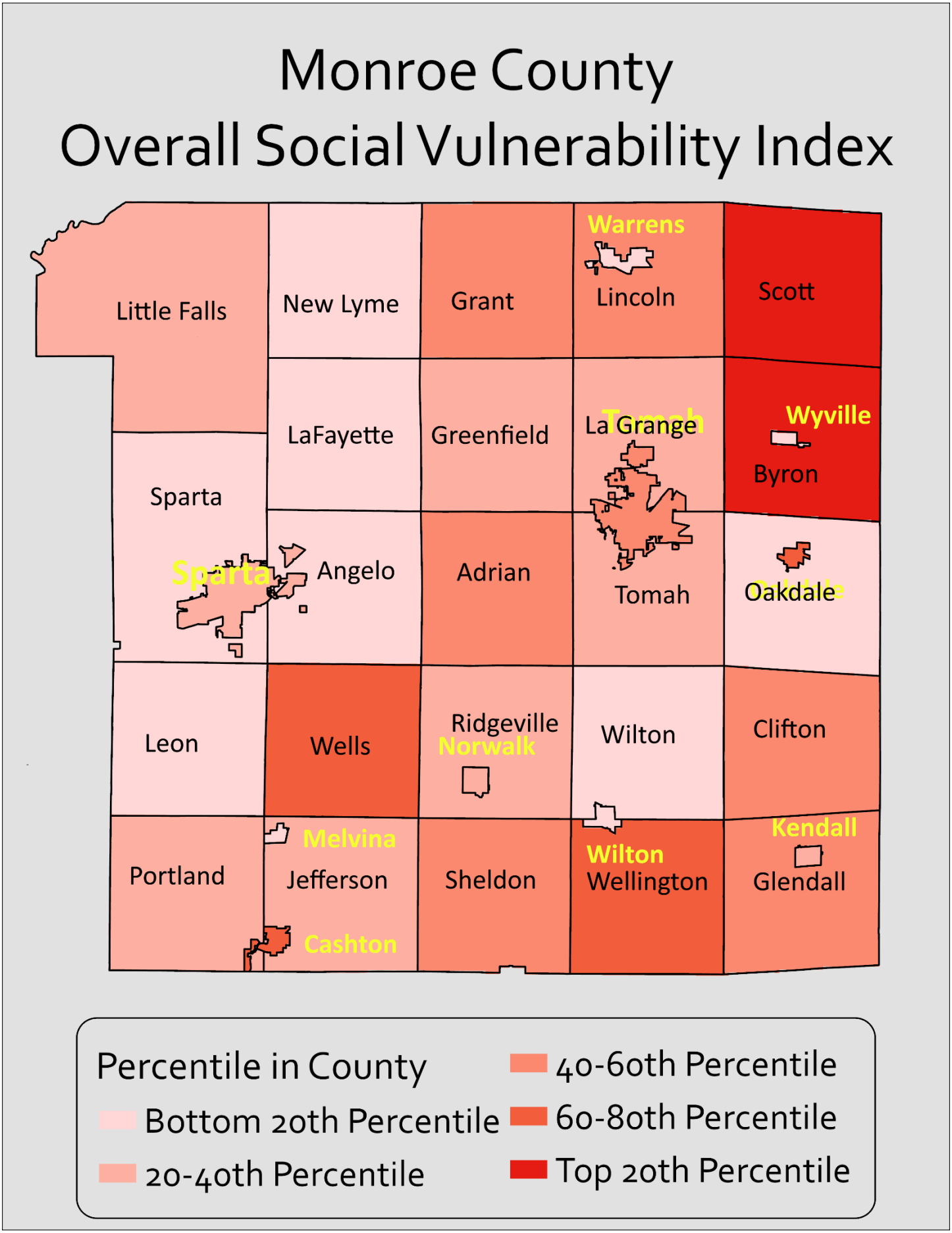


Figure 2.6: Monroe County Social Vulnerability Index

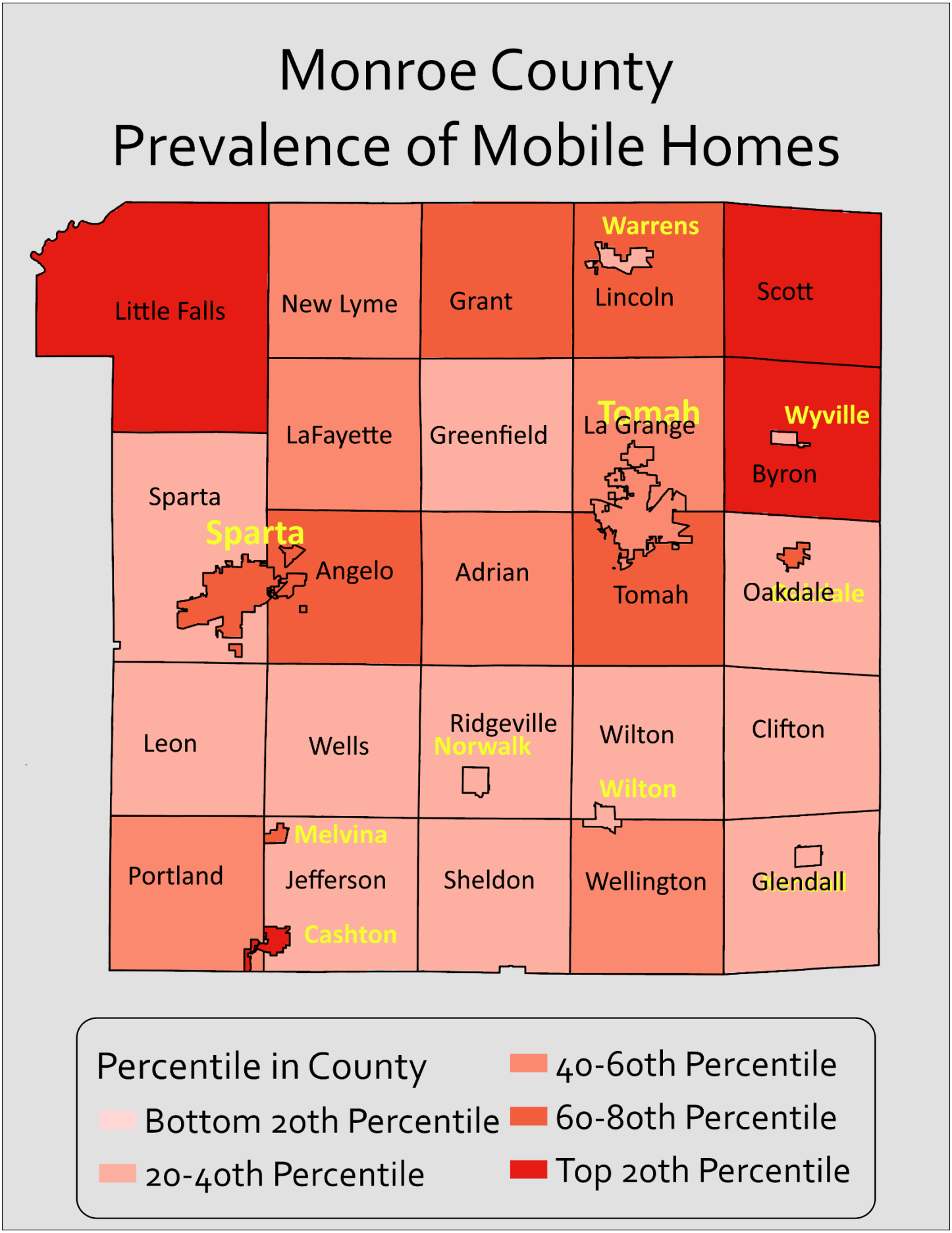


Figure 2.7: Monroe County Prevalence of Mobile Homes

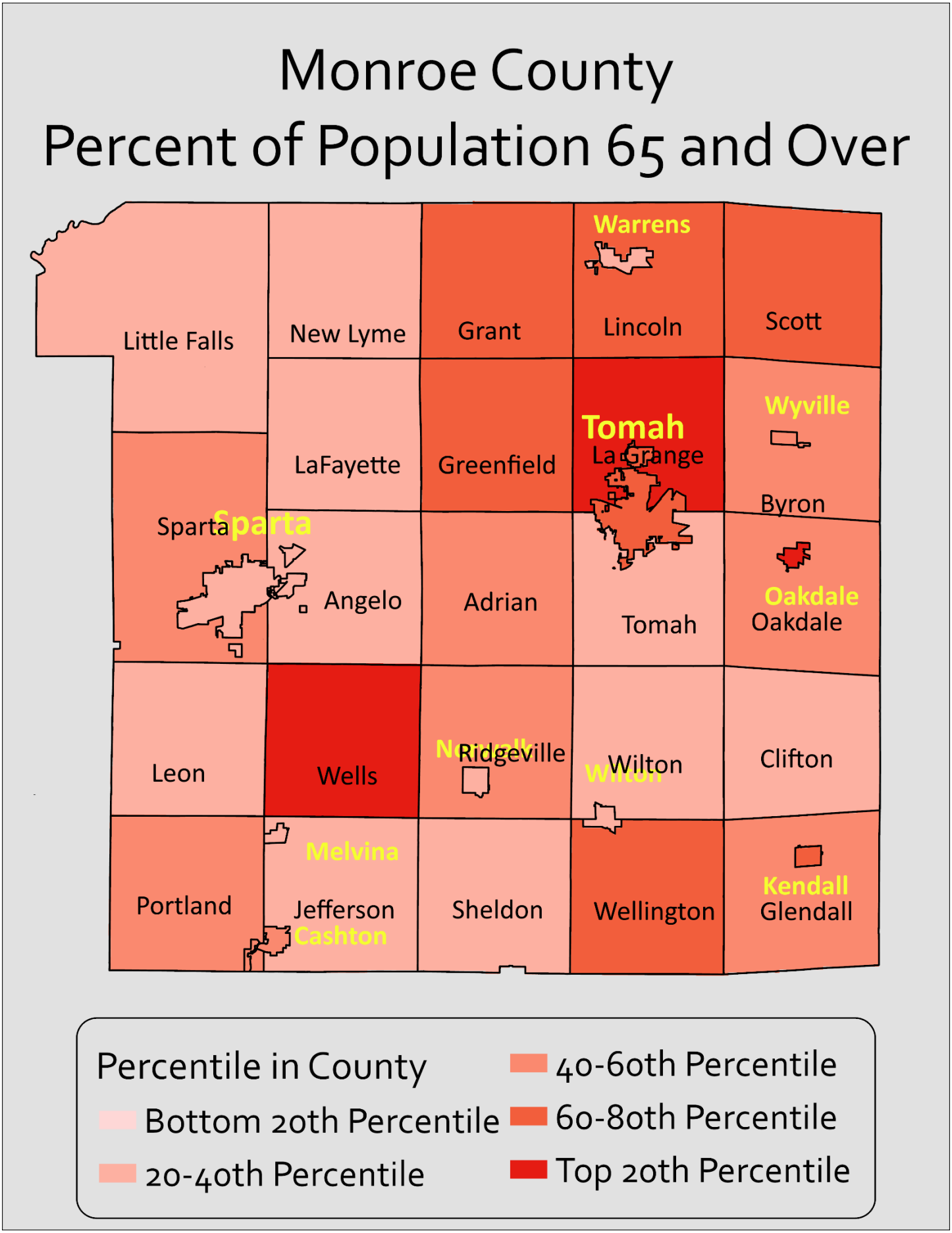


Figure 2.8: Monroe County Percent of Population 65 and Over

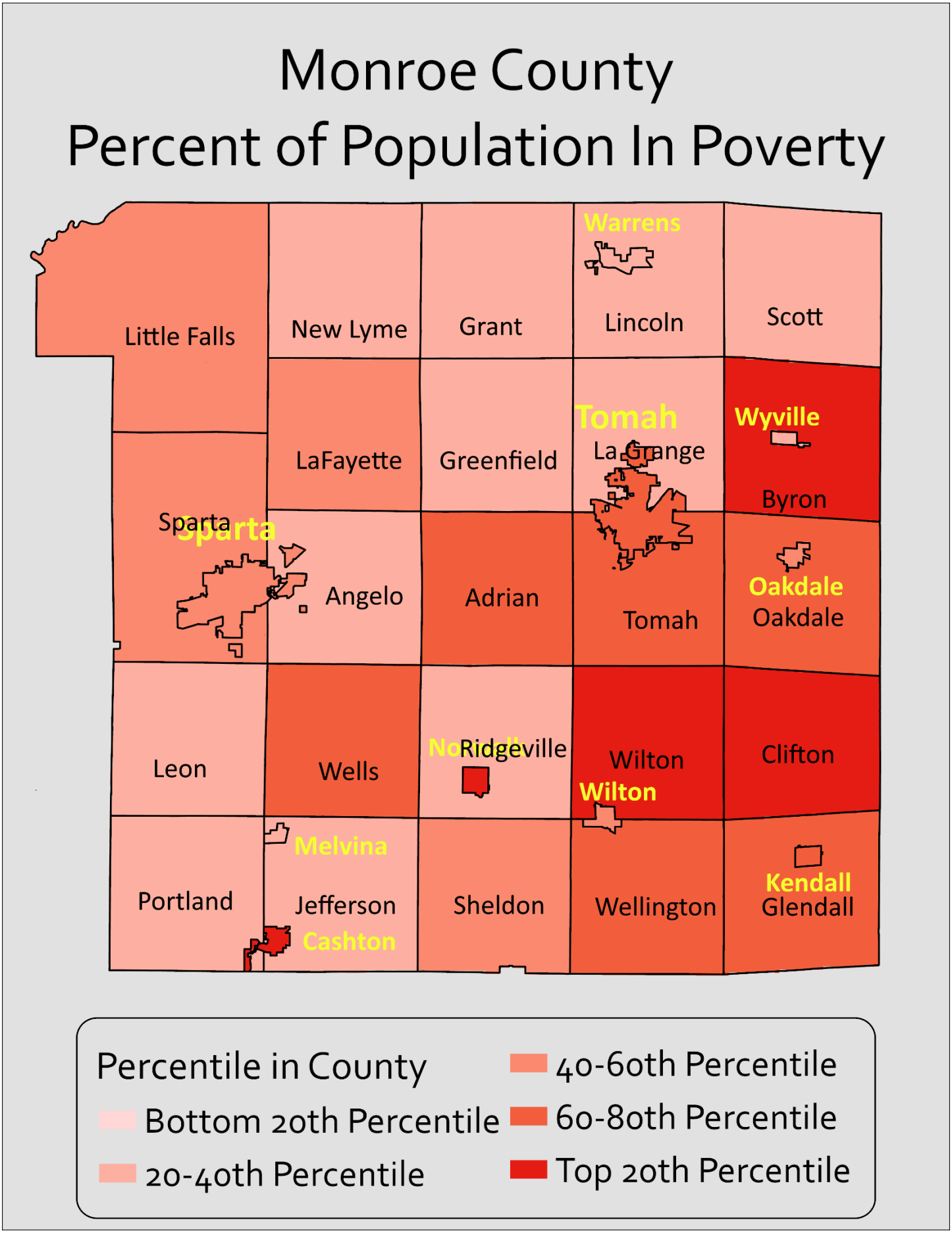


Figure 2.9: Monroe County Percent of Population in Poverty

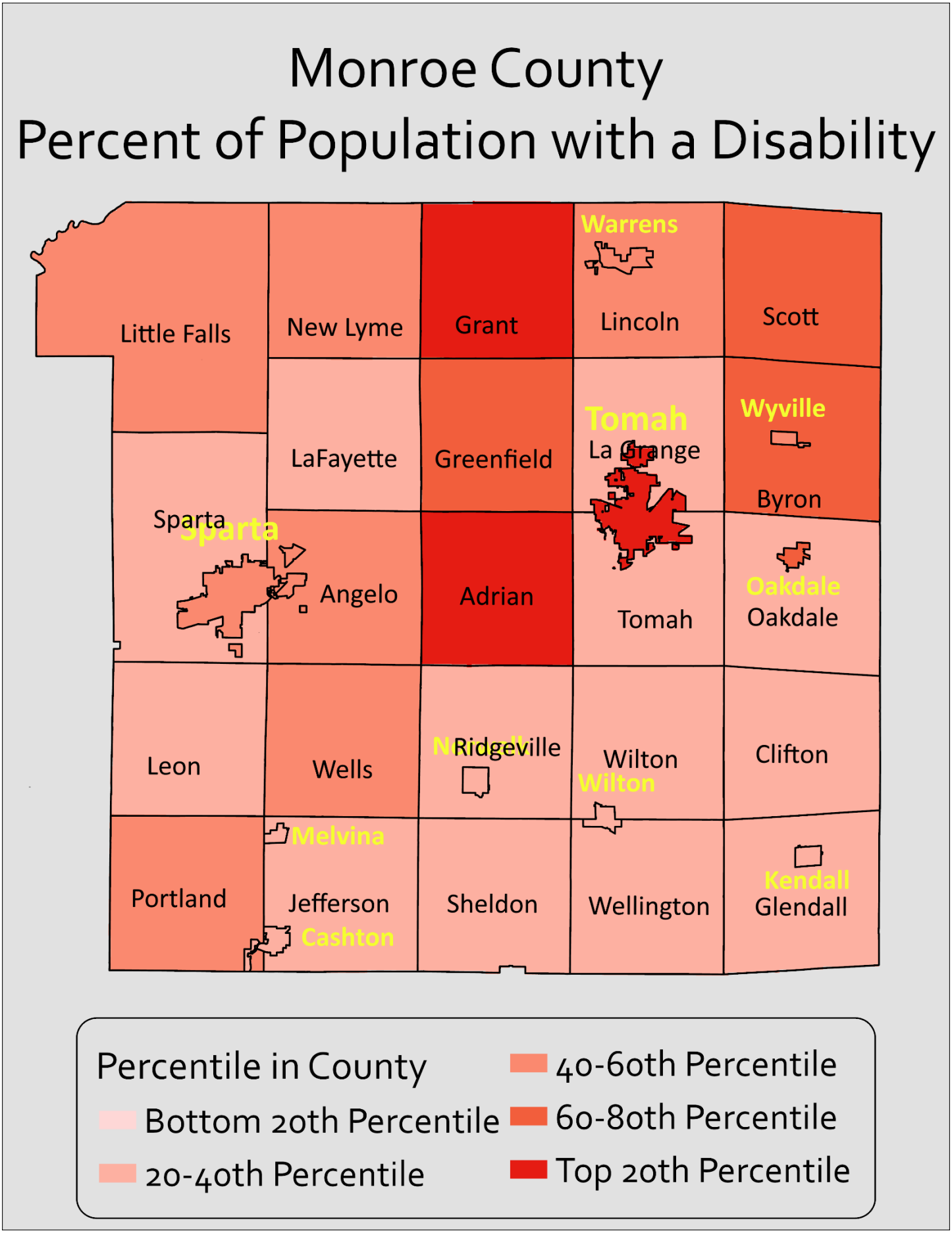


Figure 2.10: Monroe County Percent of Population with a Disability

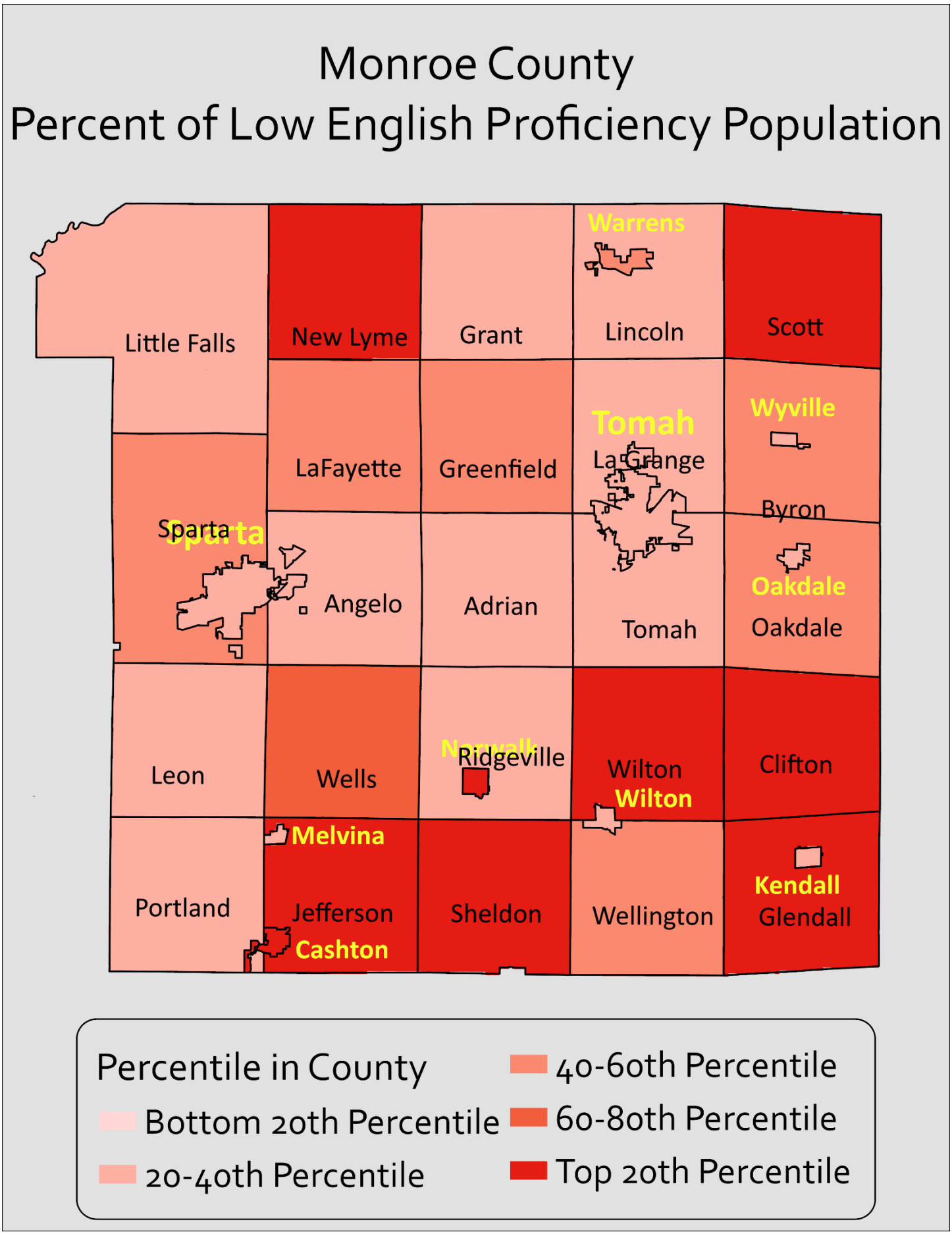


Figure 2.11: Monroe County Percent of Low English Proficiency Population

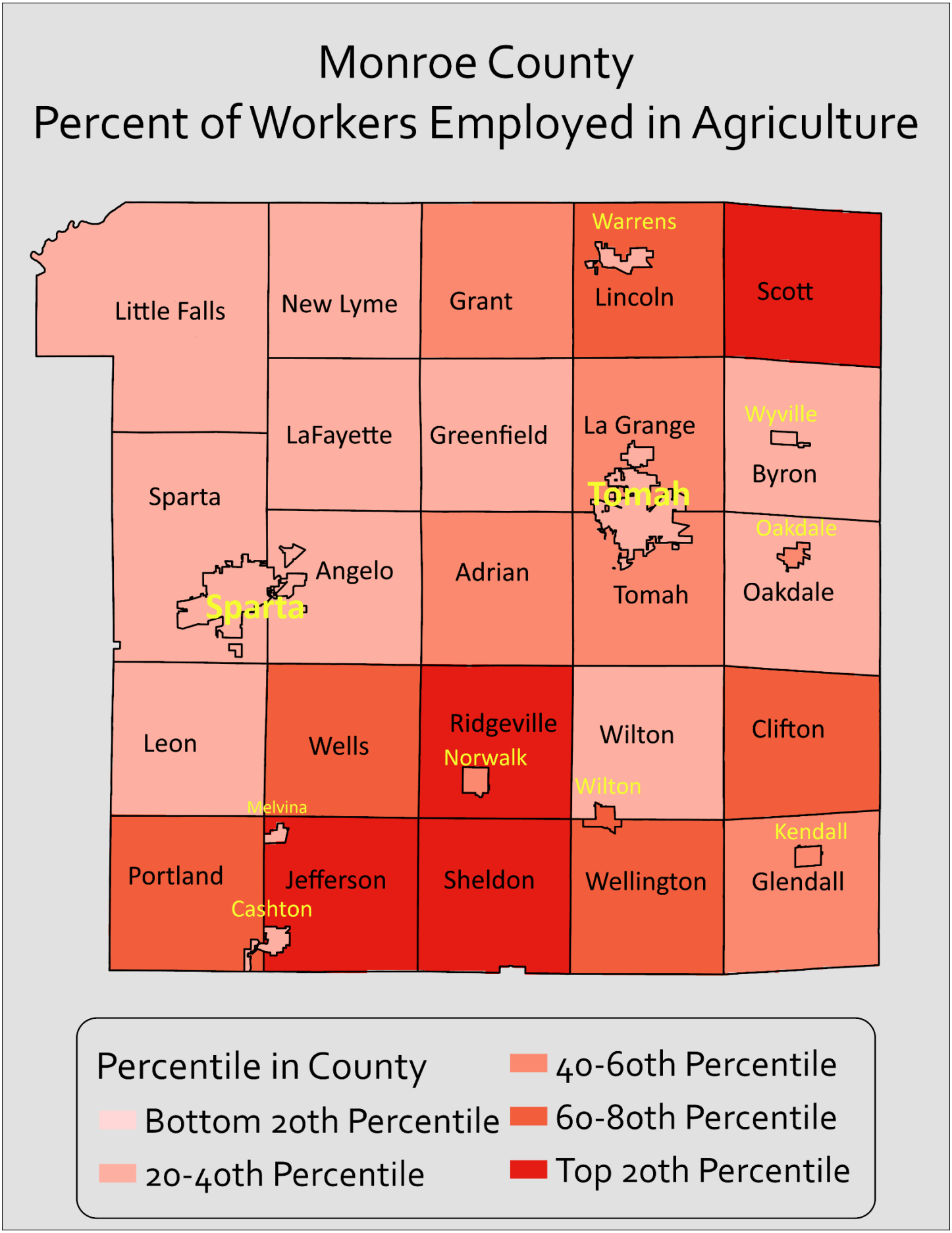


Figure 2.12: Monroe County Percent of Workers Employed in Agriculture

Chapter 3: Risk Assessments

Chapter 3 provides a comprehensive analysis of the various hazards that pose a risk to Monroe County. Each hazard has been systematically assessed to determine its potential impacts on residents, infrastructure, the environment, and the local economy. These risk assessments help the county identify vulnerabilities and prioritize mitigation efforts to reduce the overall risk to the community.

Organization of Hazards
To ensure a logical flow and easier comprehension, hazards in this chapter have been grouped into five categories based on their characteristics and impacts:

1. **Natural Meteorological Hazards**
   These hazards are related to weather patterns and atmospheric conditions. They include storms, temperature extremes, and wind-related events that can impact both urban and rural areas.
   - 3.1 Hailstorm Risk Assessment
   - 3.2 Lightning Storm Risk Assessment
   - 3.3 Thunderstorm Risk Assessment
   - 3.4 Tornado/High Winds Risk Assessment
   - 3.5 Heavy Snowstorm Risk Assessment
   - 3.6 Ice Storm Risk Assessment
   - 3.7 Blizzard Risk Assessment
   - 3.8 Extreme Heat Risk Assessment
   - 3.9 Extreme Cold Risk Assessment
   - 3.10 Fog Risk Assessment
2. **Hydrological Hazards**
   These hazards involve water, including excess precipitation and failures in water management systems. They are often linked to flooding, droughts, or other water-related risks.
   - 3.11 Riverine/Flash Flooding/Storm Water Flooding Risk Assessment
   - 3.12 Dam Failure Flooding Risk Assessment
   - 3.13 Drought Risk Assessment
3. **Geological Hazards**
   These are hazards that stem from the Earth's physical processes. While rare, their potential for sudden, large-scale impact necessitates careful planning and mitigation.
   - 3.14 Earthquake Risk Assessment
   - 3.15 Landslide Risk Assessment
   - 3.16 Subsidence Risk Assessment
4. **Biological Hazards**
   These hazards originate from natural biological sources, including wildfire risks, agricultural challenges, and disease outbreaks. They have the potential to severely affect public health, agriculture, and the natural environment.
   - 3.17 Forest/Wildland Fire Risk Assessment
   - 3.18 Agricultural Risk Assessment
   - 3.19 Pandemic Flu Risk Assessment
5. **Technological and Human-made Hazards**
   These hazards result from human activities, technological failures, or industrial processes. Their impacts can range from transportation accidents to environmental contamination and climate change-related risks.
   - 3.20 Railroad Risk Assessment
   - 3.21 Climate Change Risk Assessment
   - 3.22 Industrial Accidents Risk Assessment
   - 3.23 Groundwater Contamination Risk Assessment

This structure ensures that hazards are logically grouped, allowing for a clearer understanding of the risks faced by Monroe County and the interconnections between these hazards.

Risk Assessment Process

Each risk assessment is conducted using a consistent framework that ensures thorough analysis and comparison of different hazards. The assessments focus on both natural and human-made hazards and are based on the best available data, historical records, scientific research, and input from local stakeholders. The assessments are designed to be both forward-looking and data-driven, taking into account historical occurrences as well as projected changes due to development patterns, climate change, and other influencing factors.

Each risk assessment follows a standard format that includes the following key sections:

1. **Hazard Overview**
   This section defines the hazard, providing a detailed description of how it occurs and its potential to impact the county. It also includes information on the specific nature of the hazard in Monroe County, referencing scientific studies, historical data, or models to explain how the hazard might affect the community. In cases where a hazard is not included in the assessment, the rationale for its omission is provided.
2. **Location and Extent**
   This section identifies the geographic areas most vulnerable to the hazard. It details the areas of the county that are more likely to experience the hazard, including critical infrastructure, residential neighborhoods, and natural features that might influence its behavior. Additionally, it describes the potential intensity or severity of the hazard, using established scientific scales when applicable.
3. **Historical Context**
   Here, the assessment documents previous occurrences of the hazard, including significant historical events, the extent of damage, and the frequency with which the hazard has impacted Monroe County in the past. This section also draws lessons from past events to inform future preparedness and mitigation efforts.
4. **Probability of Future Events**
   This section analyzes the likelihood of the hazard occurring in the future, based on historical patterns, predictive models, and trends such as population growth and climate change. Hazards are categorized as unlikely, likely, or highly likely, with quantified definitions provided. The section also considers how climate change or development trends might alter the frequency or intensity of the hazard.
5. **Community Vulnerability & Impact Assessment**
   This part of the assessment identifies the populations and assets most vulnerable to the hazard, including vulnerable groups such as the elderly, low-income households, and people with disabilities. It also examines critical infrastructure, such as hospitals, schools, and utilities, which may be impacted. Additionally, it assesses environmental and cultural resources at risk and provides an overall evaluation of the potential social, economic, and environmental consequences for the community.
6. **Mitigation Opportunities**
   This section summarizes current and past efforts to mitigate the hazard, including structural measures (e.g., flood control systems, building reinforcements) and non-structural measures (e.g., public awareness campaigns, emergency response plans). It also proposes new mitigation strategies based on local conditions, emphasizing cost-effective solutions that protect vulnerable populations and infrastructure.
7. **Conclusion and Recommendations**
   This final section highlights the key takeaways from the risk assessment, including the most critical risks that need to be addressed. It also outlines recommended next steps for local authorities and stakeholders, such as further studies, community engagement, or grant opportunities to support mitigation efforts.

Purpose and Importance of Risk Assessments

The risk assessments presented in this chapter provide a critical foundation for understanding the potential impacts of various hazards on Monroe County. By identifying vulnerabilities and assessing the likelihood of different hazards, these assessments guide local authorities and stakeholders in making informed decisions about mitigation strategies and preparedness measures. With climate change and development trends evolving, these assessments are an essential tool in building community resilience and ensuring that Monroe County is prepared for both current and future challenges.

Summary of Federal Disaster Declarations

The table below summarizes federal disaster declarations in Monroe County. Under the Stafford Act, there are two types of federal disaster declarations: emergency declarations and major disaster declarations. Both allow the President to provide federal disaster aid but differ in scope and assistance. Emergency declarations address situations requiring immediate federal assistance to support state, local, or tribal efforts, with a funding cap of $5 million. Major disaster declarations cover severe natural or man-made events that overwhelm state and local resources, offering a broader range of federal aid for both emergency response and long-term recovery.

Since the 2019 HMP, Monroe County has experienced three federal disaster declarations: a major disaster for flooding in August 2019, and two declarations in spring 2020 related to the COVID-19 pandemic—an emergency declaration followed by a major disaster declaration. Most federal disaster declarations in Monroe County have been due to flooding and severe storms, especially tornadoes.

Declaration Date	Declaration Type	Incident Type	Declaration Title
4/4/2020	Major Disaster	Biological	COVID-19 Pandemic
3/13/2020	Emergency Declaration	Biological	COVID-19
8/27/2019	Major Disaster	Flood	Severe Storms, Tornadoes, Straight-Line Winds, and Flooding
10/18/2018	Major Disaster	Flood	Severe Storms, Tornadoes, Straight-Line Winds, Flooding, and Landslides
10/7/2017	Major Disaster	Severe Storm	Severe Storms, Straight-Line Winds, Flooding, Landslides, and Mud
10/20/2016	Major Disaster	Flood	Severe Storms, Flooding, and Mudslides
6/14/2008	Major Disaster	Severe Storm	Severe Storms, Tornadoes, and Flooding
9/13/2005	Emergency Declaration	Hurricane	Hurricane Katrina Evacuation
6/18/2004	Major Disaster	Severe Storm	Severe Storms and Flooding
6/24/2000	Major Disaster	Severe Storm	Severe Storms, Tornadoes, and Flooding
7/24/1998	Major Disaster	Severe Storm	Severe Storms, Straight Line Winds, Tornadoes, Rain, and Flooding
7/2/1993	Major Disaster	Severe Storm	Severe Storms, Tornadoes, and Flooding
8/30/1990	Major Disaster	Flood	Severe Storms and Flooding
7/7/1978	Major Disaster	Severe Storm	Severe Storms, Flooding, Hail, and Tornadoes
6/17/1976	Emergency Declaration	Drought	Drought

Source: OpenFEMA Dataset: Disaster Declarations Summaries

Natural Meteorological Hazards

3.1 Monroe County - Hailstorm Risk Assessment

3.1.1 Hazard Overview

Description of Hazard:
Hailstorms are severe weather events characterized by the formation of solid ice balls or irregular lumps of ice, called hail, which fall from the sky during thunderstorms. Hail can range in size from small pellets to large stones over two inches in diameter. In Monroe County, Wisconsin, hailstorms can occur during the warmer months, particularly from late spring through early fall, when thunderstorms are more frequent.

Hailstorms can lead to significant damage to property, crops, vehicles, and infrastructure. Hailstones, especially those larger than one inch in diameter, can break windows, damage roofs, and dent vehicles. Agricultural areas are particularly vulnerable, as large hail can destroy crops, impacting the local economy and food supply. Additionally, hailstorms can disrupt transportation, utilities, and daily life, especially if they are accompanied by other severe weather elements like strong winds or heavy rain.

This hazard is addressed in this assessment due to its historical occurrence and potential for causing property damage and disruption to Monroe County.

3.1.2 Location and Extent

Geographic Areas Affected:
Hailstorms can impact any part of Monroe County, but certain areas may be more vulnerable due to their specific characteristics:

- Residential neighborhoods are at risk of property damage, particularly areas with older or less-reinforced buildings.
- Critical infrastructure, such as hospitals, power stations, and emergency services, are vulnerable to damage that could disrupt essential services.
- Agricultural zones, which are widespread throughout Monroe County, are highly susceptible to hail damage, particularly during growing seasons.
- Geographic features like open plains and areas with minimal shelter can exacerbate the impact of hailstones, increasing damage in rural areas.

Extent of Hazard:
Hailstorms in Monroe County vary in magnitude. Hailstones can range in size from less than a quarter of an inch to more than two inches in diameter. According to the Hailstone Size Classification, hail over 1.75 inches in diameter (golf ball-sized) is considered severe. Historically, Monroe County has experienced hail ranging up to 3 inches in diameter, classified as “destructive.” While hailstorms are generally short-lived, they can cause localized damage across large areas, depending on the storm's path.

3.1.3 Historical Context

Previous Occurrences:
Monroe County has experienced several significant hailstorms in the past two decades.

- **June 11, 2001:** A storm with golf ball-sized hail caused significant damage to local infrastructure and crops.
- **August 23, 2006:** A severe hailstorm hit the area, causing widespread damage, particularly to agricultural crops and residential properties. Hailstones reached up to 2 inches in diameter.
- **April 10, 2011:** A storm producing 1.5-inch hail caused damage to vehicles and rooftops, with total losses exceeding $6.5 million in the City of Tomah. Hail as large as baseballs and wind gusts up to 75 mph were reported across Monroe County, especially along the Interstate 94 corridor near Warrens and Tomah. The repeated

hailstorms caused significant damage to corn, soybean, and cranberry crops, with cranberry plant loss projected at 50%. Hail shattered vehicle windshields, broke windows, and damaged roofs and siding on homes. In Tomah, strong winds flipped large fuel tanks at a gas station and tossed shopping carts onto cars.

Over the last 10 years, Monroe County has experienced hailstorms about 2 to 4 times per year, though not all of these resulted in major damage.

Lessons Learned:
Following previous hailstorms, it became evident that improvements in building materials, such as hail-resistant roofing, and the implementation of early warning systems could reduce damage. The installation of impact-resistant windows and reinforced structures in vulnerable areas has been beneficial. Agricultural sectors have begun adopting more resilient crop protection methods.

3.1.4 Probability of Future Events

Likelihood of Future Occurrences:
Hailstorms in Monroe County are likely to occur in the future, with a probability of around 50% (2-4 events per year). Based on historical data and regional weather patterns, the county is at moderate to high risk for hail events during the warmer months. Severe hailstorms, where hail exceeds 2 inches in diameter, are less frequent but still a concern.

Changes Due to Climate and Development:
Climate change may result in more intense and frequent thunderstorms, which could lead to more severe hailstorms. The warming atmosphere provides more energy for storm formation, potentially increasing the size and severity of hail. Additionally, urban expansion in certain parts of Monroe County may place more people and infrastructure at risk, especially if developments are in areas prone to severe storms.

3.1.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Low-income households and elderly populations may have limited resources to repair damage caused by hail, leading to prolonged recovery times.
- Farmers and the agricultural sector are particularly vulnerable, as hail can destroy crops in a matter of minutes, leading to significant financial losses.
- People with disabilities may face difficulties during recovery if housing or transportation is impacted.

Critical Infrastructure & Assets:
- Hospitals, schools, and fire stations could suffer roof damage or window breakage, leading to operational disruptions.
- Key transportation routes, particularly rural roads and bridges, may be impacted by debris from hailstorms or accompanying wind damage.
- Utilities (e.g., power lines, water systems) are vulnerable to damage, especially in rural areas with less robust infrastructure.

Environmental and Cultural Resources:
- Forests and wetlands could experience damage, especially to foliage and wildlife habitats.
- Cultural or historic sites, such as local landmarks, may suffer damage, particularly if they have older or unreinforced structures.

Potential Consequences for the Community:
- Residents may face displacement due to uninhabitable homes and roof damage, and injuries could occur due to hailstones or damaged infrastructure.
- Economically, businesses may temporarily close due to damage, leading to job loss and decreased local commerce.

- Services such as emergency response could be delayed if infrastructure is damaged, and public utilities like power and water could be disrupted.
- Environmental consequences include increased pollution from damaged structures and debris, along with the destruction of natural habitats.

3.1.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Many homes and businesses have begun using hail-resistant roofing materials. Some community shelters and emergency buildings have been retrofitted with stronger windows and roof reinforcements.
- Non-structural: The county has implemented early warning systems and public education campaigns to raise awareness about the risks of hailstorms.
- Legislative actions: Building codes have been updated in some areas to require more resilient construction materials for new developments.

Proposed Mitigation Strategies:

- Encourage the use of hail-resistant building materials for roofs, windows, and siding in both residential and commercial construction.
- Expand crop insurance programs for farmers to mitigate the financial impacts of hail damage.
- Implement community outreach programs to educate residents about hail-resistant home improvements and available financial assistance.
- Upgrade and maintain early warning systems to provide sufficient notice of approaching storms.

3.1.7 Conclusion and Recommendations

Key Takeaways:

Hailstorms present a consistent risk to Monroe County, particularly in terms of property damage and agricultural losses. Critical infrastructure and vulnerable populations need to be prioritized in mitigation efforts.

Next Steps:

Monroe County should continue monitoring weather patterns and enhancing public awareness about hailstorm risks. The county may also consider seeking state and federal grants for infrastructure improvements and community preparedness programs. Further studies on climate change's impact on hailstorm frequency and severity would also help refine future risk assessments.

3.2 Monroe County - Lightning Storm Risk Assessment

3.2.1 Hazard Overview

Description of Hazard:
Lightning storms are severe weather events that occur during thunderstorms, involving the discharge of electrical energy between clouds, within clouds, or between clouds and the ground. Lightning poses significant dangers to both life and property, with the potential to cause fires, power outages, structural damage, and injuries or fatalities. In Monroe County, lightning storms typically occur during the spring and summer months, often accompanying thunderstorms and other severe weather patterns, including hail and strong winds.

Lightning strikes can cause power outages, damage electronic systems, and spark fires in structures, forests, or grasslands. They can also lead to injuries or fatalities to individuals caught outdoors. The widespread effects of lightning can disrupt daily life, damage infrastructure, and increase the likelihood of secondary hazards such as fires.

This hazard is addressed in this assessment due to its historical presence in Monroe County and the potential risks it poses to both life and infrastructure.

3.2.2 Location and Extent

Geographic Areas Affected:
Lightning storms can impact any area within Monroe County, with varying degrees of vulnerability:

- Urban and residential areas are at risk, particularly where there are tall structures, utility poles, and other objects that can attract lightning strikes.
- Critical infrastructure, such as hospitals, fire stations, and power plants, are vulnerable due to the potential for power outages and equipment damage caused by lightning strikes.
- Forested and rural areas are particularly vulnerable to wildfires ignited by lightning strikes, which can lead to widespread damage in remote locations.

Extent of Hazard:
The strength of lightning cannot be measured directly in the same way as other hazards, but its impacts can be significant. Each bolt of lightning carries millions of volts of electricity and can reach temperatures of 50,000 degrees Fahrenheit. The damage caused by lightning varies depending on the location of the strike and the susceptibility of the target. For instance, a lightning strike to a power station could lead to extensive outages, whereas a strike in an open field may have minimal immediate effects.

3.2.3 Historical Context

Previous Occurrences:
Monroe County has experienced several notable lightning events in recent years, with varying degrees of damage:

- **August 23, 2006:** A lightning storm caused multiple power outages across the county, with lightning strikes leading to at least three house fires. No injuries were reported, but the cost of damage was estimated at $6.31 million.
- **August 10, 2007:** A series of lightning storms hit the county, causing power outages and several small fires. Emergency services responded to a number of incidents related to damaged utility lines and downed trees. One injury was reported in Warrens.
- **December 15, 2021:** An unseasonably late severe thunderstorm brought frequent lightning. The strike also caused significant damage to nearby structures and equipment totaling $75,000.

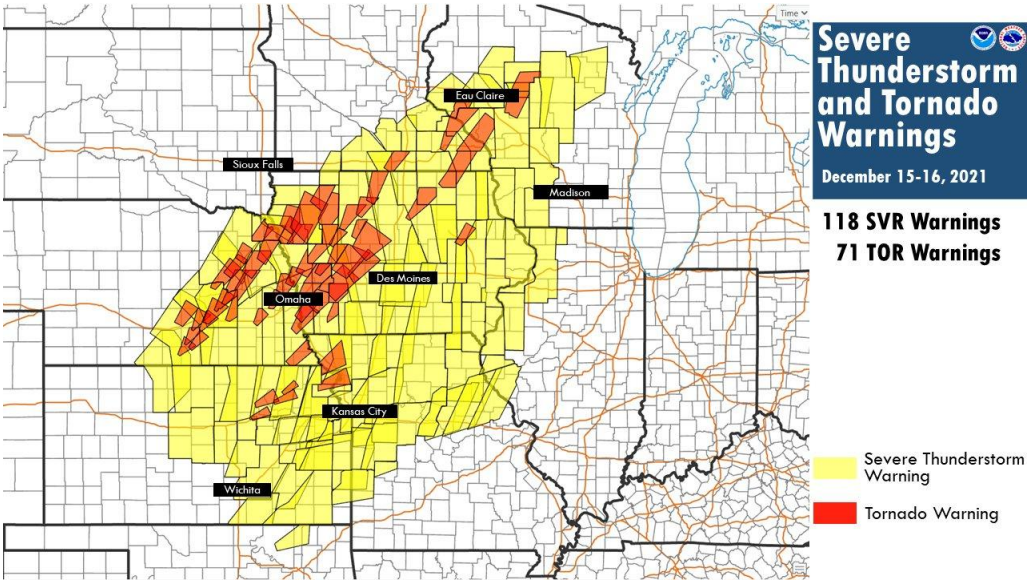


Figure 3.2.3: Severe Thunderstorm and Tornado Warnings from December 15-16, 2021, including Monroe County

Lessons Learned:
From past lightning events, it became clear that reinforcing critical infrastructure and improving public awareness of lightning safety is essential. Enhanced response systems, such as quick dispatch for fire-related lightning strikes, have been developed. Moreover, the installation of lightning rods on public buildings and critical infrastructure has proven effective in mitigating some of the more severe impacts.

3.2.4 Probability of Future Events

Likelihood of Future Occurrences:
Lightning storms in Monroe County are highly likely, with a probability of more than 90% in any given year, particularly during the spring and summer months. Based on historical data, the county can expect several lightning storms each year, with varying degrees of severity. Lightning is a common component of thunderstorms, which are frequent during the warmer months.

Changes Due to Climate and Development:
Climate change may increase the intensity and frequency of thunderstorms, which could lead to more frequent lightning events. The expansion of urban areas and the development of taller buildings and infrastructure may also increase the risk of lightning damage in populated regions. As development continues, power lines, telecommunications systems, and other critical infrastructure may be more exposed to lightning strikes, increasing the need for protective measures.

3.2.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Elderly and disabled populations are at greater risk of harm during lightning storms, particularly if power outages disrupt access to critical services such as medical devices or climate control systems.
- Low-income households may face difficulties repairing damage caused by lightning, such as replacing fried electronics or repairing fire damage.
- Outdoor workers, including farmers, construction workers, and utility personnel, are at higher risk of lightning strikes due to the nature of their work and potential exposure during storms.

Critical Infrastructure & Assets:
- Hospitals, schools, and fire stations could face significant operational challenges if struck by lightning, particularly in the form of power outages or equipment damage.
- Key transportation routes may become hazardous during lightning storms if lighting poles or other infrastructure is damaged. Power outages could also impact traffic control systems, leading to disruptions.

- Utilities, including power grids, water treatment plants, and telecommunications systems, are at risk of lightning strikes causing widespread outages or system malfunctions.

Environmental and Cultural Resources:
- Forests and grasslands are at risk of wildfires sparked by lightning, particularly during dry conditions. These fires could lead to habitat destruction and long-term environmental impacts.
- Cultural or historic sites, particularly older structures, may be vulnerable to lightning damage, especially if they do not have modern lightning protection systems.

Potential Consequences for the Community:
- Residents may face power outages, fire-related displacement, or injuries due to lightning strikes, leading to increased demand for emergency services and temporary shelters.
- Economically, businesses may be disrupted due to power outages or structural damage, potentially leading to temporary closures and financial losses.
- Services such as emergency response and healthcare may be disrupted if power failures or equipment damage impact critical systems.
- Environmental impacts could include wildfires sparked by lightning strikes, leading to habitat loss and increased air pollution from smoke.

3.2.6 Mitigation Opportunities

Current and Past Mitigation Efforts:
- Structural: Some public buildings and critical infrastructure have been fitted with lightning protection systems, including lightning rods and grounding systems to prevent damage from strikes.
- Non-structural: Public education campaigns on lightning safety, particularly for outdoor workers and vulnerable populations, have been implemented. These include programs to encourage taking shelter during storms and avoiding high-risk activities during severe weather.
- Legislative actions: Building codes have been updated to require lightning protection systems in new construction, particularly for critical infrastructure such as power stations and hospitals.

Proposed Mitigation Strategies:
- Expand the installation of lightning protection systems on both public and private buildings, especially in high-risk areas.
- Increase public awareness campaigns to educate the community about lightning risks and safety measures, particularly for outdoor workers and those living in rural areas.
- Develop more comprehensive emergency response plans for power outages and fire incidents caused by lightning storms.
- Explore state and federal grant opportunities to fund lightning protection systems for critical infrastructure, particularly in high-risk rural areas.

3.2.7 Conclusion and Recommendations

Key Takeaways:
Lightning storms present a regular and significant risk to Monroe County, with the potential for widespread damage to critical infrastructure, vulnerable populations, and the environment. Lightning storm risks should be prioritized in emergency planning efforts, particularly regarding fire response, power grid resilience, and public education.

Next Steps:
Monroe County should continue investing in lightning protection systems for critical infrastructure and expanding public education efforts to ensure residents and outdoor workers are aware of lightning safety measures. Securing grants for infrastructure upgrades and enhancing emergency response coordination will also help reduce the impact of future lightning events.

3.3 Monroe County - Thunderstorm Risk Assessment

3.3.1 Hazard Overview

Description of Hazard:
Thunderstorms are localized, often violent, weather events characterized by the presence of lightning, thunder, heavy rain, and sometimes hail, strong winds, and tornadoes. These storms can form quickly and bring intense weather conditions, such as flash floods, wind damage, and lightning-related incidents. Thunderstorms typically occur during the warmer months of the year, especially in spring and summer, when moisture and atmospheric instability are highest.

In Monroe County, thunderstorms can lead to a wide range of impacts, including localized flooding, power outages, road blockages, and damage to infrastructure. High winds can cause downed trees and power lines, leading to transportation disruptions and hazards for residents. Flash floods associated with heavy rainfall can overwhelm drainage systems, especially in urban areas, while rural areas may experience washed-out roads and damaged bridges. Thunderstorms also pose risks to public safety due to lightning strikes and potential property damage.

This hazard is addressed in this assessment due to the frequency of thunderstorms in Monroe County and their potential to cause significant disruption and damage to the community.

3.3.2 Location and Extent

Geographic Areas Affected:
Thunderstorms have the potential to impact any area within Monroe County, though the effects may vary depending on specific local conditions:

- Urban areas, particularly locations with insufficient stormwater management systems, may experience localized flooding during intense rainfall events.
- Rural areas may see widespread impacts, including flooding of roads, crop damage, and downed trees.
- Critical infrastructure, such as power stations, communication systems, and emergency services, is vulnerable to disruption from strong winds, lightning strikes, and flooding.
- Low-lying areas, especially those near rivers and streams, are at heightened risk for flash flooding during heavy rainfall events.

Extent of Hazard:
Thunderstorms in Monroe County vary in intensity and duration. Wind speeds in severe thunderstorms can exceed 60 mph, and rainfall amounts can reach several inches in a short period, leading to flash flooding. Thunderstorms are often classified by their associated wind speeds, rainfall, and severity of lightning. The National Weather Service issues severe thunderstorm warnings when storms are expected to produce wind gusts of 58 mph or greater, hail of at least 1 inch in diameter, or tornadoes.

3.3.3 Historical Context

Previous Occurrences:
Monroe County has experienced numerous thunderstorms, some of which have resulted in significant damage. By far the most significant was the August 23, 2006, storm which caused $1.31 million in damage. Hail as large as baseballs and wind gusts up to 75 mph were reported across Monroe County, especially along the Interstate 94 corridor near Warrens and Tomah. The repeated hailstorms caused significant damage to corn, soybean, and cranberry crops, with cranberry plant loss projected at 50%. Hail shattered vehicle windshields, broke windows, and damaged roofs and siding on homes. In Tomah, strong winds flipped large fuel tanks at a gas station and tossed shopping carts onto cars.

Lessons Learned:
Past thunderstorms have highlighted the need for enhanced stormwater management systems in urban areas to reduce the risk of flooding. The reinforcement of electrical infrastructure and vegetation management along power lines has

helped reduce the duration and severity of power outages. Community awareness and preparedness for thunderstorms, including public education on the dangers of flash floods and lightning, have been key areas of focus in reducing risks.

3.3.4 Probability of Future Events

Likelihood of Future Occurrences:
Thunderstorms are highly likely in Monroe County, particularly during the late spring and summer months. The probability of thunderstorms occurring each year is close to 100%, with an average of 30-50 thunderstorms reported annually. While not all storms reach severe levels, the frequency and regularity of thunderstorms make them a consistent threat.

Changes Due to Climate and Development:
Changes in climate may increase the intensity of thunderstorms due to higher atmospheric moisture levels, leading to more severe rain events and stronger winds. Urban expansion and development may exacerbate stormwater management challenges, especially in areas where impervious surfaces increase runoff. This could heighten the risk of flash flooding in growing communities unless mitigation measures are put in place.

3.3.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Low-income households may struggle to recover from property damage, particularly if flooding or wind damage occurs.
- Elderly residents and those with limited mobility may be at greater risk during thunderstorms, particularly if they need to evacuate due to flooding or power outages.
- Farmers and rural residents are vulnerable to thunderstorm damage, especially in terms of crop loss and infrastructure damage, such as barns or silos being affected by strong winds.

Critical Infrastructure & Assets:

- Hospitals, fire stations, and schools are vulnerable to flooding and power outages during thunderstorms. Disruptions to these critical services could have severe impacts on the community.
- Power lines and telecommunications infrastructure are at risk from wind damage and lightning strikes, which can lead to prolonged outages and communication disruptions.
- Roadways and bridges may be damaged by flash flooding, leading to transportation disruptions and isolation of some rural areas.

Environmental and Cultural Resources:

- Forests, wetlands, and agricultural lands may experience wind and water damage, with flash flooding causing erosion and habitat destruction.
- Cultural and historic sites, particularly those located in low-lying or flood-prone areas, may be damaged by floodwaters or strong winds.

Potential Consequences for the Community:

- Residents may face displacement from flooded homes, and injuries could occur due to downed power lines, debris, and vehicle accidents on slick roads.
- Economically, businesses may close temporarily due to flood damage or power outages, leading to financial losses, particularly for small businesses.
- Services such as emergency response may be delayed if transportation routes are blocked or if power outages impact communications.
- Environmental impacts could include soil erosion, pollution from debris and runoff into local waterways, and the destruction of natural habitats due to floodwaters.

3.3.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has improved stormwater management infrastructure in key urban areas, reinforcing drainage systems to handle intense rainfall events. Additionally, the county has implemented tree-trimming programs to reduce the risk of downed power lines due to high winds.
- Non-structural: Public education campaigns have been developed to raise awareness about the risks of thunderstorms and flash floods, including safety tips for residents during storms.
- Legislative actions: Zoning laws have been updated to discourage development in flood-prone areas, and building codes now require storm-resistant construction materials in some regions.

Proposed Mitigation Strategies:

- Invest in additional stormwater infrastructure improvements, particularly in areas prone to flash flooding.
- Expand public education campaigns to include thunderstorm preparedness, especially focusing on vulnerable populations and outdoor workers.
- Encourage the installation of backup power systems for critical infrastructure, such as hospitals and emergency services, to reduce the impact of power outages.
- Strengthen vegetation management around power lines and key infrastructure to prevent storm-related outages.

3.3.7 Conclusion and Recommendations

Key Takeaways:

Thunderstorms are a frequent and potentially severe hazard in Monroe County, capable of causing widespread damage from flooding, high winds, and lightning. Vulnerable populations and critical infrastructure should be the focus of mitigation efforts, particularly in areas prone to flash flooding.

Next Steps:

Monroe County should continue to invest in stormwater infrastructure improvements, expand public education on thunderstorm safety, and seek funding for reinforcing critical infrastructure. Ongoing monitoring of weather patterns and climate impacts will help the county adapt its mitigation strategies as needed.

3.4 Monroe County - Tornado/High Winds Risk Assessment

3.4.1 Hazard Overview

Description of Hazard:
Tornadoes are violent rotating columns of air extending from a thunderstorm to the ground. Tornadoes are capable of destroying large buildings, uprooting trees, and hurling vehicles and debris hundreds of yards. High winds, while not as intense as tornadoes, can also cause significant damage, particularly in rural and open areas. Monroe County is vulnerable to both tornadoes and high winds, especially during the spring and summer months. Tornadoes are classified on the Enhanced Fujita (EF) Scale based on their wind speeds and the damage they cause, ranging from EF0 (weak) to EF5 (incredibly strong). High winds, typically defined as sustained winds of 40-57 mph, can occur with thunderstorms, tornadoes, or isolated wind events, causing widespread damage to structures, trees, and power lines.

This hazard is addressed in this assessment due to its historical frequency and the significant risk it poses to life and property in Monroe County.

3.4.2 Location and Extent

Geographic Areas Affected:
Tornadoes and high winds can affect any part of Monroe County, though certain areas may be more vulnerable due to specific conditions:

- Rural areas with large open spaces are more vulnerable to high winds and tornadoes as there are fewer structures to break wind patterns, allowing tornadoes and wind gusts to maintain their strength.
- Urban areas are at risk for tornadoes, particularly where tall structures may channel wind flows, increasing wind speeds and the potential for damage.
- Critical infrastructure such as power stations, hospitals, and schools are vulnerable to damage from wind and debris, which can cause power outages and disrupt essential services.
- Agricultural areas are highly susceptible to wind and tornado damage, including the destruction of crops, farm buildings, and livestock.

Extent of Hazard:
Tornadoes in Monroe County have historically ranged from EF0 to EF3 on the Enhanced Fujita Scale, with wind speeds between 65 and 165 mph. High wind events generally involve sustained winds of 40 to 60 mph, though wind gusts in severe storms can exceed 70 mph. The damage from these events can include uprooted trees, damaged roofs, and destroyed infrastructure. The extent of tornado damage depends on the tornado's path, intensity, and the vulnerability of the areas it strikes. Tornado paths are typically narrow but can extend for miles, while high winds can affect a much broader area.

3.4.3 Historical Context

Previous Occurrences:
Monroe County has experienced several significant tornadoes and high wind events over the past few decades:

- **June 23, 2004:** A severe thunderstorm brought high winds of 60-70 mph, causing widespread damage to homes and farm buildings. Three injuries were reported in Warrens. The tornado struck a semi-truck on the Interstate before moving into Jellystone Campground near Warrens. Hundreds of trees were knocked down, and several tents, buildings, campers, and cars were damaged. A man was seriously injured when a tree fell on him during a rescue attempt, leaving him in a coma. Though he survived, he now lives with lasting disabilities.
- **May 22, 2011:** An EF2 tornado touched down Leon and Tunnel City. A house and mobile home were destroyed north of Tomah and another house was significantly damaged northeast of Tomah, as well as extensive tree damage. The tornado resulted in significant economic losses, estimated at $1.42 million.
- **June 15, 2022:** A series of severe thunderstorms produced winds up to 65 mph in Ridgeville. Numerous structures suffered roof damage, with debris blocking roads and hampering emergency response efforts. Total damage is estimated at $700,000.

Figure 3.4.3: Damage from the June 15, 2022, tornado near Tomah

Lessons Learned:
Previous tornado and high wind events have highlighted the importance of reinforcing building structures, improving early warning systems, and strengthening public awareness about tornado and wind safety. Installing safe rooms in homes and community shelters has proven to be an effective mitigation measure. Past events have also underscored the need for better coordination between emergency services and utility companies to restore power and clear debris quickly after severe wind events.

3.4.4 Probability of Future Events

Likelihood of Future Occurrences:
Tornadoes and high wind events are likely to occur in Monroe County. The county typically experiences a few high wind events each year, while tornadoes are less frequent but remain a significant threat, particularly in the spring and summer. Based on historical data, Monroe County can expect 1-2 tornadoes every three to five years, though the severity and path of these events are unpredictable. The occurrence of high winds, especially during thunderstorms, is more frequent, averaging several events per year.

Changes Due to Climate and Development:
Climate change could increase the intensity and frequency of severe weather events, potentially leading to more frequent tornadoes or higher wind speeds in the future. Development patterns, such as the expansion of urban areas, may increase the number of people and infrastructure at risk. The construction of new buildings and infrastructure should incorporate wind-resistant designs and materials to mitigate future risks.

3.4.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Low-income residents may face difficulties repairing homes damaged by tornadoes or high winds, increasing the likelihood of long-term displacement.
- Elderly individuals and people with disabilities may have limited mobility during evacuations, heightening their risk during a tornado or high wind event.

- Farmers and rural residents are particularly vulnerable due to the potential for significant damage to crops, livestock, and buildings, which can result in severe economic losses.
- People living in mobile homes are at higher risk, as these structures are more susceptible to severe damage from tornadoes and high winds.
- Individuals engaged in outdoor recreation or camping—such as those at campgrounds—are especially vulnerable due to limited shelter options and exposure to falling trees or debris during storms.

Critical Infrastructure & Assets:

- Hospitals, emergency response centers, and schools could be severely impacted by tornadoes or high winds, especially if structures are not reinforced to withstand these forces.
- Utilities, particularly power lines and telecommunications infrastructure, are vulnerable to damage from falling trees and debris, potentially leading to widespread power outages and communication breakdowns.
- Roadways and bridges could be blocked or damaged by debris, delaying emergency response and recovery efforts.

Environmental and Cultural Resources:

- Forested areas and agricultural lands are highly susceptible to damage from tornadoes and high winds, with potential long-term environmental impacts, including soil erosion and habitat destruction.
- Cultural and historic sites may be vulnerable to wind damage, particularly older buildings without modern wind-resistant construction.

Potential Consequences for the Community:

- Residents may face displacement due to uninhabitable homes, and injuries or fatalities may occur from flying debris.
- Economic impacts include the destruction of businesses, loss of agricultural production, and costly repairs to damaged infrastructure.
- Public services may be disrupted, especially if emergency response facilities are affected or if roads are blocked by debris.
- Environmental impacts include tree loss, habitat destruction, and water pollution from debris entering local waterways.

3.4.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has taken steps to strengthen critical infrastructure, including the installation of wind-resistant roofs and the use of reinforced materials in public buildings. Additionally, many new developments now include safe rooms or storm shelters to protect residents during tornadoes.
- Non-structural: The county has invested in early warning systems and public education programs to ensure residents are aware of the risks of tornadoes and high winds and know how to seek shelter.
- Legislative actions: Updated building codes now require wind-resistant construction materials and techniques in new buildings, particularly for critical infrastructure and public facilities.

Proposed Mitigation Strategies:

- Expand the construction of community storm shelters and encourage residents to install safe rooms in their homes.
- Continue public education campaigns to ensure residents understand tornado and high wind risks and know how to respond during an event.
- Strengthen vegetation management programs to reduce the risk of trees and debris damaging power lines and infrastructure during wind events.
- Seek state and federal grant opportunities to support the reinforcement of critical infrastructure and the construction of additional shelters.

3.4.7 Conclusion and Recommendations

Key Takeaways:
Tornadoes and high winds present a significant threat to Monroe County, with the potential for widespread damage to homes, businesses, and infrastructure. Vulnerable populations, such as low-income and rural residents, need to be prioritized in mitigation efforts, particularly through public education and the construction of storm shelters.

Next Steps:
Monroe County should continue to enhance early warning systems and seek funding for additional storm shelters and infrastructure improvements. Strengthening building codes to further enhance wind resistance and expanding public outreach on tornado preparedness will help reduce the risks posed by future tornadoes and high wind events.

3.5 Monroe County - Heavy Snowstorm Risk Assessment

3.5.1 Hazard Overview

Description of Hazard:
Heavy snowstorms are severe weather events characterized by intense snowfall, often accompanied by strong winds and freezing temperatures. These storms can lead to widespread disruptions, including road closures, power outages, and transportation delays. In Monroe County, snowstorms are most common during the winter months, typically from November to March, though severe snowfalls can sometimes occur earlier or later. Heavy snow accumulation can range from several inches to over a foot in a single event, depending on storm intensity. These storms can significantly affect daily life by hindering transportation, impeding emergency services, and disrupting utilities.

This hazard is addressed in this assessment due to its regular occurrence in Monroe County and the significant impact heavy snowstorms can have on infrastructure, public safety, and the economy.

3.5.2 Location and Extent

Geographic Areas Affected:
Heavy snowstorms can affect the entire county, but certain areas may be more vulnerable due to local conditions:

- Rural areas may experience isolation due to road closures or impassable routes during significant snow accumulation.
- Urban areas may face traffic congestion and accidents, as well as challenges in clearing snow from streets and sidewalks.
- Critical infrastructure, including hospitals, power stations, and emergency services, can be impacted if roads are blocked or if power outages occur due to heavy snow or ice on power lines.
- Schools, businesses, and public buildings may close due to hazardous conditions, disrupting services and economic activity.

Extent of Hazard:
Snowstorms in Monroe County can vary in severity. Light snowfalls of 2-4 inches may cause minor disruptions, but major snowstorms can produce 6-12 inches or more of snow, particularly when combined with freezing rain or sleet. Blizzards, which are characterized by sustained winds of 35 mph or higher along with heavy snowfall, can lead to whiteout conditions and significantly increase the potential for accidents, property damage, and injuries. The National Weather Service (NWS) issues winter storm warnings when snowfalls of 6 inches or more are expected within a 24-hour period, or when conditions create a high risk of travel hazards and power outages.

3.5.3 Historical Context

Previous Occurrences:
Monroe County has experienced numerous significant snowstorms, some of which have resulted in major disruptions:

- **December 22, 1999**: A heavy snow band produced accumulations of 6 to 8 inches from La Crosse through Tomah to Mauston. A 28-car pileup occurred on Interstate 90-94 near Oakdale, resulting in minor injuries. The storm caused $120,000 in property damage.
- **April 18, 2018**: The third spring storm of April dropped 4 to 7 inches of snow across Monroe County, with the highest total of 7 inches reported in Cashton. The heavy snowfall led to 40 vehicle slide-offs, including a semi-truck rollover that caused a minor injury. Despite the hazardous conditions, rapid snowmelt after the storm cleared roads promptly. The event caused $10,000 in property damage.

Lessons Learned:
These historical snowstorm events emphasized the importance of having adequate snow removal equipment and personnel to clear roads and restore access quickly. Additionally, early warning systems and public communication about storm preparedness have been critical in reducing the impacts on residents and emergency services. Ensuring that

vulnerable populations, such as the elderly or those living in isolated areas, have access to heat and essential supplies during prolonged snow events is also a key concern.

3.5.4 Probability of Future Events

Likelihood of Future Occurrences:
Heavy snowstorms are highly likely in Monroe County, with winter storms occurring annually. The probability of a major snowstorm (with 6 or more inches of snow) happening during the winter season is very high. Severe snowstorms and blizzards, while less frequent, typically occur once every few years. Based on historical patterns, Monroe County can expect several snow events each winter, ranging from light to heavy snowfall, with occasional extreme events causing widespread disruptions.

Changes Due to Climate and Development:
While climate change may lead to warmer winter temperatures in some regions, the potential for intense snowstorms remains due to the increased capacity of the atmosphere to hold moisture. This could result in heavier snowfalls during winter storm events. Development in rural areas may increase the number of people and properties affected by road closures and power outages during heavy snowstorms, underscoring the need for resilient infrastructure and emergency preparedness.

3.5.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Elderly residents and people with disabilities may face heightened risks during snowstorms due to mobility challenges, difficulty accessing essential services, and the potential for isolation during prolonged snow events.
- Low-income households may be more vulnerable due to limited resources for heating and snow removal, as well as difficulties in replacing damaged property or recovering from disruptions caused by power outages.
- Commuters and those dependent on public transportation may experience significant challenges during snowstorms, including delays, cancellations, and increased accident risks.

Critical Infrastructure & Assets:

- Hospitals, fire stations, and emergency response facilities could face operational challenges if snow blocks access routes or causes power outages.
- Power lines and utilities are vulnerable to damage from heavy snow and ice accumulation, potentially leading to widespread and prolonged outages.
- Transportation networks, including major highways, secondary roads, and bridges, may become impassable during heavy snowstorms, affecting emergency response times and isolating rural communities.

Environmental and Cultural Resources:

- Agricultural lands could be impacted by snowstorms, particularly if livestock is unable to access shelter or if supplies cannot reach isolated farms.
- Forests and natural resources may experience tree damage due to the weight of snow and ice, potentially leading to downed trees that block roads or cause power outages.
- Historic buildings and structures could be vulnerable to roof collapses or other damage caused by the accumulation of heavy snow or ice.

Potential Consequences for the Community:

- Residents may face disruptions to daily life, including isolation, power outages, and limited access to essential services. Injuries from snow shoveling, accidents, or hypothermia are common risks during prolonged snow events.
- Economic impacts include business closures, disrupted supply chains, and increased costs for snow removal and infrastructure repairs.
- Public services, such as emergency response, healthcare, and transportation, may be delayed or disrupted by impassable roads and power outages.

- Environmental impacts could include tree damage, soil erosion, and potential flooding during rapid snowmelt following a storm.

3.5.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has invested in snow removal equipment and resources to ensure timely clearing of roads and public spaces during snowstorms. In addition, some critical infrastructure, such as hospitals and emergency shelters, have backup generators to mitigate the impact of power outages during severe winter storms.
- Non-structural: The county has implemented early warning systems and public education programs on snowstorm preparedness, advising residents on how to prepare for and respond to heavy snow events.
- Legislative actions: Winter preparedness regulations have been enacted, requiring property owners to clear sidewalks and driveways promptly and encouraging businesses to develop snowstorm contingency plans.

Proposed Mitigation Strategies:

- Increase snow removal resources and personnel to improve response times during heavy snowstorms, particularly in rural and isolated areas.
- Expand public education campaigns to include information on preventing injuries from snow shoveling and ensuring access to heating and emergency supplies during prolonged winter storms.
- Continue promoting emergency preparedness among residents, including stocking up on essential items, preparing vehicles for winter weather, and ensuring heating systems are in good condition.
- Seek state and federal grant funding to support infrastructure improvements, such as the installation of underground power lines to reduce outages caused by snow and ice.

3.5.7 Conclusion and Recommendations

Key Takeaways:

Heavy snowstorms are a regular occurrence in Monroe County and can lead to significant disruptions to transportation, utilities, and public services. Vulnerable populations, such as the elderly and rural residents, require particular attention during these events to ensure their safety and access to essential services.

Next Steps:

Monroe County should continue to invest in snow removal capabilities, enhance public awareness of winter storm preparedness, and work to improve resilience in critical infrastructure. Expanding emergency response capabilities and ensuring that residents, especially vulnerable populations, are prepared for prolonged winter storm conditions will help reduce the risks posed by future heavy snow events.

3.6 Monroe County - Ice Storm Risk Assessment

3.6.1 Hazard Overview

Description of Hazard:
Ice storms are severe winter weather events characterized by the accumulation of freezing rain, which forms a coating of ice on surfaces such as trees, power lines, roads, and buildings. This buildup of ice can create hazardous conditions, leading to power outages, dangerous travel conditions, and structural damage. In Monroe County, ice storms typically occur during the winter months, often between December and March, when temperatures fluctuate around the freezing point. Ice accumulations as small as a quarter inch can lead to significant disruptions, including downed trees and power lines, while heavier accumulations can cause widespread damage to infrastructure and pose significant risks to public safety.

This hazard is addressed in this assessment due to the regular occurrence of ice storms in Monroe County and the significant impacts these events can have on transportation, utilities, and the economy.

3.6.2 Location and Extent

Geographic Areas Affected:
Ice storms can impact any part of Monroe County, but certain areas are more vulnerable:

- Rural areas, particularly those with overhead power lines and limited road access, are highly susceptible to power outages and road blockages during ice storms.
- Urban areas are vulnerable to ice accumulation on streets, sidewalks, and transportation systems, leading to dangerous travel conditions and increased accident risk.
- Critical infrastructure, including power plants, telecommunications systems, and emergency services, may experience disruptions if ice accumulates on power lines and other utilities.
- Forested areas and regions with dense tree cover are at higher risk of tree damage, which can lead to blocked roads and downed power lines.

Extent of Hazard:
Ice accumulation from storms in Monroe County can range from a thin glaze to over an inch of ice in severe cases. Even a small amount of ice—about a quarter of an inch—can cause significant hazards, including dangerous road conditions, downed trees, and power outages. Ice storms are categorized by the amount of ice accumulation, with moderate storms leading to power outages and minor damage, and severe storms causing widespread disruption, including the potential for roof collapses and prolonged outages. The National Weather Service (NWS) typically issues ice storm warnings when significant ice accumulation is expected to impact transportation and utilities.

3.6.3 Historical Context

Previous Occurrences:
Monroe County has experienced several notable ice storms in recent history:

- **February 26-27, 1996**: A wintry mix of freezing rain and sleet accumulated 1/4 to 1/2 inch of ice, knocking down power lines and creating dangerous driving conditions.
- **January 1-2, 2005**: Freezing rain impacted southwest and central Wisconsin, with 3/8 inches of ice reported at Tunnel City and Warrens. Numerous automobile accidents were reported by law enforcement officials due to the icy conditions, but there were no serious injuries.
- **March 8, 2009**: A wintry mix of freezing rain, sleet, and snow spread across southern Wisconsin, with ice accumulations in Monroe County up to a quarter of an inch. No major accidents or injuries were reported.

Lessons Learned:
These historical ice storms highlighted the vulnerability of Monroe County's power infrastructure and transportation networks. They emphasized the need for timely public communication about storm preparedness and the importance of having backup power systems for critical facilities. Additionally, tree-trimming programs have proven effective in reducing the number of downed power lines caused by falling branches during ice storms.

3.6.4 Probability of Future Events

Likelihood of Future Occurrences:
Ice storms are highly likely to continue affecting Monroe County, with the county typically experiencing one or more ice storms each winter. While severe ice storms with significant ice accumulation are less frequent, even minor ice events can create dangerous conditions. Based on historical data, ice storms are expected to occur every 1-2 years, with varying degrees of severity. Climate change may result in more temperature fluctuations, which could increase the frequency of freezing rain events during the winter months.

Changes Due to Climate and Development:
As climate change leads to more unpredictable winter weather, Monroe County may see an increase in freezing rain events, which could exacerbate the risk of ice storms. Additionally, continued development in rural areas with overhead power lines and limited road access may increase the number of people and infrastructure affected by future ice storms. Efforts to modernize infrastructure and bury power lines could mitigate some of the risks.

3.6.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Elderly residents and those with limited mobility may face increased risks during ice storms due to hazardous travel conditions and the potential for power outages that limit access to heating and essential services.
- Low-income households may struggle to recover from storm-related damage or prolonged power outages, particularly if they rely on electricity for heating.
- Rural residents are especially vulnerable to isolation during ice storms, as road closures and downed power lines can prevent access to emergency services and essential supplies.

Critical Infrastructure & Assets:
- Power lines and utility infrastructure are particularly vulnerable to damage from ice accumulation, which can lead to widespread and prolonged power outages.
- Hospitals, emergency shelters, and fire stations could face operational challenges if power outages occur or if access to these facilities is blocked by ice-covered roads.
- Roadways and bridges are at significant risk during ice storms, as even light accumulations of ice can create hazardous driving conditions, leading to accidents and blocked transportation routes.

Environmental and Cultural Resources:
- Forests and natural resources may experience significant damage from ice storms, particularly if tree limbs snap under the weight of the ice, leading to increased debris and potentially impeding emergency response.
- Historic buildings and structures may be at risk of roof damage or collapse due to ice accumulation, particularly if the buildings are not designed to withstand the additional weight.

Potential Consequences for the Community:
- Residents may face prolonged periods without power, heat, and water, leading to increased health risks, especially for vulnerable populations. Injuries from falls on ice, accidents, or hypothermia are common during ice storms.
- Economic impacts include loss of business activity, increased costs for repairing damaged infrastructure, and higher utility bills due to prolonged power outages and emergency response needs.
- Public services, such as emergency response, healthcare, and transportation, may be delayed or disrupted by icy roads and power outages, complicating recovery efforts.
- Environmental impacts include tree damage, debris, and potential water contamination from runoff caused by melting ice and debris entering water systems.

3.6.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has worked to improve tree-trimming programs and maintain clearance around power lines to reduce the risk of downed lines during ice storms. Critical infrastructure such as hospitals and emergency services have installed backup generators to ensure continued operation during power outages.
- Non-structural: Public education campaigns have been implemented to raise awareness of winter storm preparedness, including how to stay safe during ice storms and how to avoid travel on dangerous roads.
- Legislative actions: Updated building codes now require reinforced roofs on public buildings and critical infrastructure to better withstand the weight of ice and snow.

Proposed Mitigation Strategies:

- Continue improving tree-trimming and vegetation management efforts to reduce the risk of downed power lines during ice storms.
- Explore burying power lines in areas most vulnerable to ice storms to reduce the risk of outages and improve infrastructure resilience.
- Expand public education campaigns on ice storm preparedness, focusing on the importance of having backup heating systems, emergency supplies, and avoiding unnecessary travel during ice events.
- Seek state and federal grant funding to support infrastructure improvements, particularly the installation of backup power systems and modernized utility infrastructure.

3.6.7 Conclusion and Recommendations

Key Takeaways:

Ice storms pose a significant risk to Monroe County, particularly in terms of power outages, hazardous road conditions, and damage to infrastructure. Vulnerable populations, such as the elderly and rural residents, should be prioritized in mitigation efforts to ensure they have access to essential services and support during ice storm events.

Next Steps:

Monroe County should continue to invest in infrastructure improvements, such as tree-trimming programs and the installation of backup power systems, while also expanding public awareness campaigns to ensure that residents are prepared for future ice storms. Seeking grant funding to bury power lines and improve utility resilience will be crucial in reducing the risks posed by future ice storms.

3.7 Monroe County - Blizzard Risk Assessment

3.7.1 Hazard Overview

Description of Hazard:
Blizzards are severe winter storms characterized by strong sustained winds of at least 35 mph, accompanied by heavy snowfall or blowing snow that significantly reduces visibility to a quarter mile or less for an extended period (typically three hours or more). Blizzards can lead to whiteout conditions, dangerous roadways, power outages, and extreme cold temperatures. These conditions make travel hazardous or impossible, and can isolate communities, disrupt essential services, and threaten public safety. In Monroe County, blizzards typically occur during the winter months between December and March, and can severely impact transportation, emergency response, and day-to-day operations.

This hazard is addressed in this assessment due to the potential for blizzards to cause widespread disruption and danger in Monroe County, especially during the winter months.

3.7.2 Location and Extent

Geographic Areas Affected:
Blizzards can affect the entirety of Monroe County, but certain areas are more vulnerable:

- Rural areas are at particular risk of isolation during blizzards due to road closures and impassable routes, especially for farms and communities located far from major highways.
- Urban areas may experience traffic congestion, difficulty in clearing snow, and hazards related to snowdrifts and low visibility.
- Critical infrastructure, including hospitals, emergency services, and power plants, can be impacted by snow accumulation and extreme wind conditions, leading to interruptions in service.
- Key transportation routes, such as highways, railways, and bridges, are highly susceptible to closure during a blizzard, impeding both commercial and emergency travel.

Extent of Hazard:
Blizzards in Monroe County can vary in intensity, with wind speeds typically ranging from 35 to 60 mph and snow accumulations from a few inches to over a foot. The combination of strong winds, heavy snow, and freezing temperatures can result in severe conditions that last for several hours to days. The National Weather Service (NWS) issues blizzard warnings when sustained winds of at least 35 mph and low visibility are expected to last three or more hours. These conditions can create dangerous, life-threatening environments, particularly if temperatures drop significantly, leading to the risk of frostbite or hypothermia.

3.7.3 Historical Context

Previous Occurrences:
Monroe County has experienced several significant blizzards in recent years:

- **January 26-27, 1996**: A strong winter storm blanketed the region with 10 to 18 inches of snow. Blizzard conditions led to drifts of 4 to 8 feet, making travel nearly impossible.
- **February 24-25, 2007**: Blizzard conditions impacted southwest Wisconsin, with winds gusting up to 40 mph causing whiteouts. Drifts reached 4 to 5 feet in some areas, severely impacting visibility and travel.
- **December 11-12, 2010**: A powerful low-pressure system brought 20.8 inches of snow near Warrens, with gusts up to 50 mph. Whiteout conditions caused widespread road closures and stranded motorists, while power outages were reported throughout the area.

Lessons Learned:
Past blizzard events highlighted the importance of early warning systems, adequate snow removal equipment, and preparedness plans to ensure that residents have access to emergency services and essential supplies. Blizzards also demonstrated the need for backup power sources in critical facilities, such as hospitals and emergency shelters, to prevent extended service disruptions during severe winter storms.

3.7.4 Probability of Future Events

Likelihood of Future Occurrences:
Blizzards are likely to occur in Monroe County, with the county typically experiencing several significant winter storms each season. Severe blizzard events are less frequent but are expected to occur every few years based on historical patterns. While snowfall is a regular occurrence in Monroe County during the winter months, blizzards with sustained high winds and whiteout conditions are more sporadic, though they pose a significant threat when they do occur.

Changes Due to Climate and Development:
Climate change may increase the variability of winter weather, with potential for both increased snowfall during certain events and more extreme temperature fluctuations. Development patterns, including increased population and infrastructure in rural areas, may exacerbate the risks associated with blizzards by placing more people and assets at risk, particularly in locations that are difficult to access during severe weather.

3.7.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Elderly residents and people with disabilities may be particularly vulnerable during blizzards due to mobility challenges and potential isolation from services if roads are closed.
- Low-income households may struggle to heat their homes or access supplies during prolonged blizzard events, particularly if power outages occur.
- Commuters and travelers may be stranded by blizzard conditions, especially on highways or rural roads, where visibility and road conditions may become treacherous.

Critical Infrastructure & Assets:

- Power lines and utility systems are vulnerable to damage from high winds and ice accumulation, which can cause widespread power outages during blizzards.
- Hospitals, emergency services, and fire stations could face challenges in responding to emergencies due to blocked roads or power disruptions.
- Transportation infrastructure, including major highways and rail lines, could be severely impacted, leading to transportation delays and isolation of communities in remote areas.

Environmental and Cultural Resources:

- Forests and natural resources may experience damage due to high winds and heavy snow accumulation, particularly if trees fall or snap under the weight of the snow.
- Historic buildings and cultural sites may be at risk of damage from roof collapses or other structural failures due to the weight of snow and ice accumulation.

Potential Consequences for the Community:

- Residents may face isolation, lack of access to emergency services, and life-threatening conditions if they lose power or are unable to heat their homes during a blizzard. Injuries from frostbite, hypothermia, or accidents due to slippery conditions are common risks during prolonged winter storms.
- Economic impacts could include widespread business closures, disruptions to supply chains, and increased costs for snow removal and infrastructure repairs.
- Public services, including transportation, healthcare, and emergency response, may be delayed or interrupted by snow-covered or impassable roads, making it difficult to reach residents in need.
- Environmental impacts include tree damage, soil erosion during snowmelt, and potential flooding in low-lying areas as heavy snow accumulations rapidly melt.

3.7.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has invested in snow removal equipment and expanded the snowplow fleet to ensure roads are cleared quickly during blizzards. Backup generators have been installed at critical infrastructure sites, including hospitals and emergency shelters, to maintain operations during power outages.
- Non-structural: Public education campaigns on blizzard preparedness have been implemented, advising residents on how to stockpile essential supplies and avoid travel during severe weather. Emergency communication systems are in place to alert the public of approaching blizzards and provide guidance on safety measures.
- Legislative actions: Winter storm response protocols have been established, requiring public works departments to prioritize road clearing and utility repair operations during severe snowstorms.

Proposed Mitigation Strategies:

- Continue investing in snow removal equipment and infrastructure to improve response times during blizzards and ensure that major roadways remain accessible.
- Expand public education on blizzard preparedness, focusing on the importance of having backup heating systems, emergency supplies, and avoiding unnecessary travel during severe winter storms.
- Enhance emergency communication systems to ensure residents receive timely and accurate warnings about blizzards and understand how to respond effectively.
- Seek grant funding to further support snow removal operations, invest in resilient infrastructure, and improve community-wide preparedness for severe winter storms.

3.7.7 Conclusion and Recommendations

Key Takeaways:

Blizzards pose a significant risk to Monroe County, particularly in terms of transportation disruptions, power outages, and hazardous road conditions. Vulnerable populations, such as the elderly, rural residents, and those with limited resources, need to be prioritized in mitigation efforts to ensure their safety during severe winter storms.

Next Steps:

Monroe County should continue to invest in snow removal and road maintenance capabilities, enhance public awareness campaigns for winter storm preparedness, and improve backup power and heating systems for critical infrastructure. Seeking funding opportunities to upgrade snow removal and emergency response capabilities will help the county better respond to future blizzards and mitigate their impacts.

3.8 Monroe County - Extreme Heat Risk Assessment

3.8.1 Hazard Overview

Description of Hazard:
Extreme heat events are prolonged periods of excessively high temperatures, often combined with high humidity, which can lead to dangerous health conditions such as heat exhaustion, heatstroke, and dehydration. Extreme heat can strain power grids, increase demand for water, and impact agricultural productivity. In Monroe County, extreme heat events typically occur during the summer months, especially in July and August, when temperatures can rise above 90°F and heat indices reach dangerous levels. The National Weather Service issues heat advisories or warnings when heat indices are expected to exceed 100°F, making outdoor activities risky and creating a significant health threat, particularly for vulnerable populations.

This hazard is addressed in this assessment due to the increasing frequency of extreme heat events in Monroe County, their potential to disrupt daily life, and the serious health risks they pose.

3.8.2 Location and Extent

Geographic Areas Affected:
Extreme heat events can affect the entire county, but certain areas and populations may be more vulnerable:

- Urban areas may experience higher temperatures due to the urban heat island effect, where concrete and asphalt retain heat and elevate local temperatures.
- Rural areas, especially those involved in agriculture, may face increased challenges due to the effects of heat on crops and livestock.
- Critical infrastructure, such as power grids and water systems, may be strained by increased demand for cooling and water, leading to potential outages or shortages.
- Vulnerable populations, including the elderly and those without access to air conditioning, are at higher risk of heat-related illnesses.

Extent of Hazard:
Extreme heat events in Monroe County typically involve daytime temperatures exceeding 90°F and heat indices (a measure of how hot it feels when humidity is factored in) reaching or exceeding 100°F. These events can last for several days, increasing the risk of heat-related illnesses and disrupting public services. The National Weather Service (NWS) issues heat advisories when heat indices are expected to reach 100°F to 105°F for two or more days, and excessive heat warnings when heat indices exceed 105°F.

3.8.3 Historical Context

Previous Occurrences:
Monroe County has experienced several significant extreme heat events in recent years:

- **July 1999:** Between July 4-5, temperatures reached 95 to 100°F, producing heat indices of 105 to 115°F, leading to several cases of heat exhaustion but no fatalities. From July 23-25, another heatwave brought three consecutive days of temperatures in the 90s, with heat indices again peaking between 105 and 115°F, though no deaths or injuries were reported. Finally, from July 28-30, oppressive heat returned with highs of 98 to 100°F and heat indices reaching up to 120°F. Fortunately, no fatalities occurred in Monroe County.
- **July 2011**: A woman with underlying health conditions died from excessive heat on the 23rd, as she did not have air conditioning. Six others were treated for heat-related illnesses. From July 17th to 20th, heat indices ranged from 105 to 110, with overnight lows above 75°F. The highest heat index reached 108°F in Sparta on the 18th, with dew points briefly hitting 80°F.
- **August 2023:** On August 22nd and 23rd, high temperatures and humidity in Monroe County resulted in heat indices ranging from 98 to 114 degrees. The highest heat index was 98°F on Tuesday and 114°F on Wednesday at the Sparta weather station. Fortunately, no fatalities occurred in Monroe County.

Lessons Learned:
These historical extreme heat events underscored the importance of public awareness campaigns to inform residents about the dangers of heat and how to stay safe. The need for cooling centers and adequate shelter for vulnerable populations became evident, as well as the importance of maintaining reliable power infrastructure to prevent outages during periods of high demand.

3.8.4 Probability of Future Events

Likelihood of Future Occurrences:
Extreme heat events are highly likely to continue occurring in Monroe County, particularly during the summer months. Based on historical trends, the county can expect several heat waves each summer, with heat indices exceeding 100°F becoming more frequent due to rising global temperatures. Climate change is likely to increase both the frequency and intensity of extreme heat events, making future occurrences more common and more dangerous.

Changes Due to Climate and Development:
As climate change progresses, rising average temperatures and more frequent heat waves are expected. This will lead to longer, more intense periods of extreme heat in Monroe County. Additionally, continued urban development may exacerbate the urban heat island effect, leading to even higher temperatures in densely populated areas. Increased energy demand due to air conditioning use could further strain power grids and lead to more frequent outages if infrastructure is not modernized.

3.8.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Elderly residents, people with disabilities, and those with chronic health conditions are more susceptible to heat-related illnesses such as heatstroke and dehydration.
- Low-income households may struggle to afford the costs of air conditioning, increasing their risk of exposure to dangerous temperatures.
- Outdoor workers, including farmers and construction workers, face heightened risks of heat exhaustion and heatstroke due to prolonged exposure to extreme temperatures.
- Children are particularly vulnerable to heat-related illnesses, especially when participating in outdoor activities during extreme heat events.
- The following maps display Monroe County's Heat Vulnerability Index (HVI), developed by the Wisconsin Department of Health Services. These maps provide a detailed breakdown of heat vulnerability by census block group, which generally aligns with municipal boundaries, except in the Cities of Sparta and Tomah, where multiple block groups exist within each City. Vulnerability levels are determined by factors such as population density, socioeconomic conditions, environmental influences, and health indicators. Monroe County's HVI, while based on the statewide index, uses a simplified set of health-related indicators specific to the county and is not intended for direct comparison with other counties. These maps serve as a tool to identify populations most at risk from extreme heat events.
    - The index identifies the Cities of Sparta and Tomah, particularly specific areas within each City, as the most vulnerable in Monroe County. Towns west of Sparta and east of Tomah also exhibit high vulnerability. In contrast, central Monroe County shows generally lower vulnerability, while most Villages fall into the moderate vulnerability range.

Monroe County Heat Vulnerability Index

The Monroe County Heat Vulnerability* analysis was created by the Building Resilience Against Climate Effects program within the Wisconsin Department of Health Services. The data displayed in the map is meant to serve as an informational tool to better understand the spatial distribution of human populations most vulnerable to extreme heat related events.

Monroe County Vulnerability (county based quantiles)

by Census Block Group

Heat Vulnerability

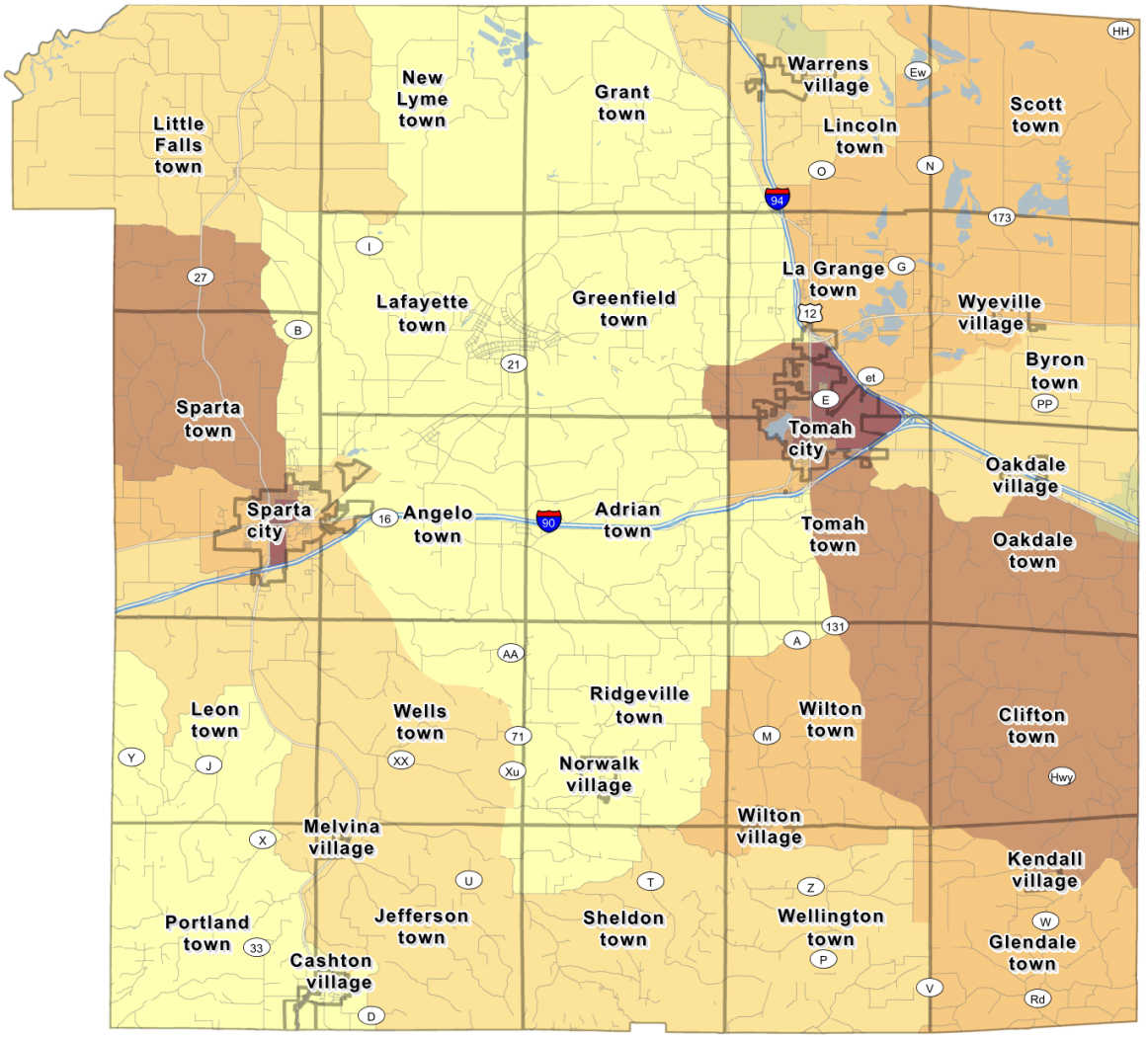
- High (top 20%)
- Moderate High
- Moderate
- Moderate Low
- Low (bottom 20%)

* The Monroe County Heat Vulnerability Index is based on the Wisconsin Heat Vulnerability Index** but has a reduced number of health-related indicators. It is representative of the heat vulnerability in Monroe County, and is not representative of the vulnerability compared to the other counties in Wisconsin.

** The Wisconsin Heat Vulnerability Index is based on multiple indicators associated with risk for heat-related illness and mortality. The index analysis was created as a measure of vulnerability by U.S. Census block groups during an extreme heat event. The measure includes: health factors, demographic and household characteristics, natural and built environment factors (e.g., air quality, temperature, land cover) and population density.

Reference Data

- Park / Forest
- Water
- Municipal Boundary



Map created by the Bureau of Information Technology Services in cooperation with the BRACE Program, Bureau of Environmental & Occupational Health, Division of Public Health, Department of Health Services, State of Wisconsin - P-01084 (8/2015)

Maps and related information are provided as a public service for informational purposes only. We make no warranties on the accuracy of content. Use of information from this document is at your own risk.

Figure 3.8.5.1: Monroe County Heat Vulnerability Index

Monroe County Heat Vulnerability Index Indicators

The Monroe County Heat Vulnerability* analysis was created by the Building Resilience Against Climate Effects program within the Wisconsin Department of Health Services. The data displayed in the map is meant to serve as an informational tool to better understand the spatial distribution of human populations most vulnerable to extreme heat related events.

Monroe County
Vulnerability (county based quantiles)

by Census Block Group

Heat Vulnerability

- High (top 20%)
- Moderate High
- Moderate
- Moderate Low
- Low (bottom 20%)

* The Monroe County Heat Vulnerability Index is based on the Wisconsin Heat Vulnerability Index** but has a reduced number of health-related indicators. It is representative of the heat vulnerability in Monroe County, and is not representative of the vulnerability compared to the other counties in Wisconsin.

** The Wisconsin Heat Vulnerability Index is based on multiple indicators associated with risk for heat-related illness and mortality. The index analysis was created as a measure of vulnerability by U.S. Census block groups during an extreme heat event. The measure includes: health factors, demographic and household characteristics, natural and built environment factors (e.g., air quality, temperature, land cover) and population density.

Reference Data

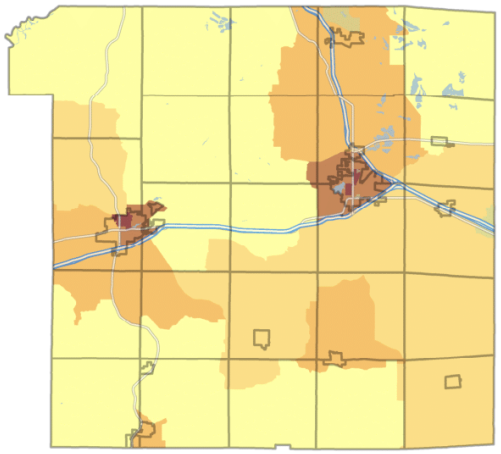
Park / Forest
Water
Municipal Boundary

N

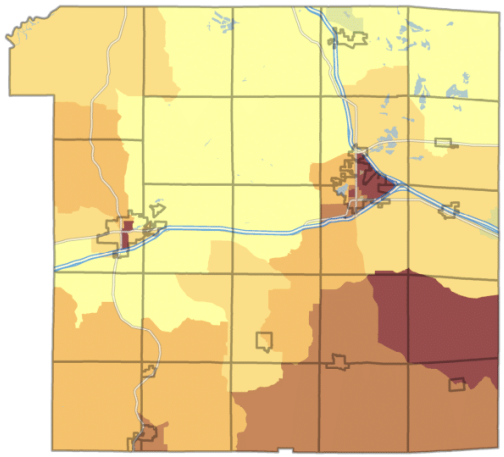
0 4.5

Miles

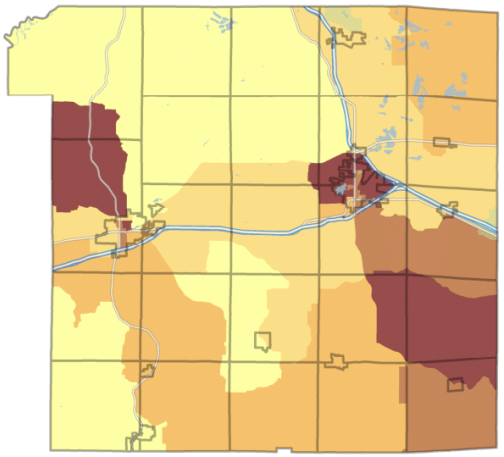
Population Density



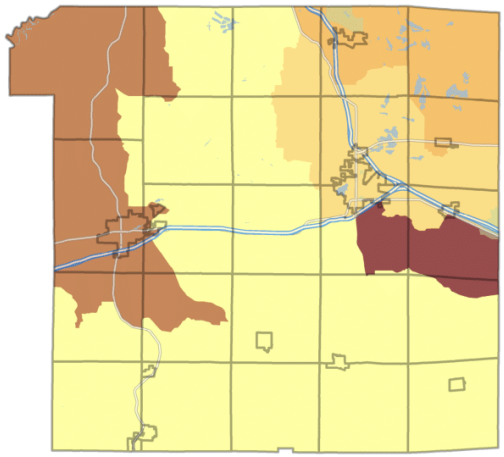
Socioeconomic Factors



Environmental Factors



Health Factors



Map created by the Bureau of Information Technology Services in cooperation with the BRACE Program, Bureau of Environmental & Occupational Health, Division of Public Health, Department of Health Services, State of Wisconsin - P-01084A (8/2015)

Figure 3.8.5.2: Monroe County Heat Vulnerability Index Indicators

Critical Infrastructure & Assets:

- Power grids are vulnerable to overloads during extreme heat events, as air conditioning use spikes and cooling systems are strained. Power outages during heat waves can lead to life-threatening conditions for those without access to cooling.
- Water supply systems may be strained by increased demand for water, both for personal consumption and agricultural use. Prolonged heat waves may lead to water shortages, particularly during drought conditions.
- Transportation systems, including roads and railways, may experience degradation or buckling due to prolonged high temperatures, leading to travel disruptions.

Environmental and Cultural Resources:

- Agriculture is highly vulnerable to extreme heat, with crops and livestock suffering from heat stress. Prolonged high temperatures can lead to reduced yields and economic losses for farmers.
- Natural ecosystems may be affected by extreme heat, with local wildlife and vegetation struggling to survive under prolonged heat stress.
- Cultural and historic sites could be impacted by the long-term effects of heat on building materials, particularly older structures not designed for extreme temperatures.

Potential Consequences for the Community:

- Residents may face serious health risks, including heat exhaustion, heatstroke, and dehydration, particularly if they lack access to air conditioning.
- Economic impacts include increased energy costs, reduced agricultural yields, and potential losses for outdoor industries and tourism.
- Public services, including healthcare and emergency response, may be strained by increased demand during extreme heat events, particularly if heat-related illnesses spike or power outages occur.
- Environmental impacts include damage to crops and livestock, stress on local ecosystems, and reduced air quality due to the formation of ground-level ozone during high heat.

3.8.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has opened cooling centers during extreme heat events to provide relief for residents without access to air conditioning. Public buildings have been equipped with backup power systems to ensure continued cooling during power outages.
- Non-structural: Public education campaigns have been implemented to raise awareness of the dangers of extreme heat, particularly for vulnerable populations. These campaigns emphasize the importance of staying hydrated, avoiding outdoor activities during peak heat, and checking on neighbors and relatives.
- Legislative actions: Heat response protocols have been developed, requiring employers to provide cooling breaks and hydration for outdoor workers during extreme heat conditions.

Proposed Mitigation Strategies:

- Increase the availability of cooling centers in both urban and rural areas, particularly for vulnerable populations, and ensure they are easily accessible during extreme heat events.
- Expand public education campaigns to emphasize the importance of heat safety, hydration, and identifying early signs of heat-related illnesses.
- Invest in modernizing power grids and infrastructure upgrades to reduce the risk of power outages during extreme heat events.
- Promote urban green spaces and tree planting initiatives to reduce the urban heat island effect and lower temperatures in densely populated areas.
- Seek state and federal grant funding for cooling system upgrades in public buildings and critical infrastructure to ensure resilience during extreme heat events.

3.8.7 Conclusion and Recommendations

Key Takeaways:
Extreme heat poses a significant risk to Monroe County, particularly in terms of public health, infrastructure strain, and economic losses. Vulnerable populations, such as the elderly, low-income households, and outdoor workers, need to be prioritized in mitigation efforts to reduce the risks associated with future heat waves.

Next Steps:
Monroe County should continue to expand cooling center accessibility, improve public awareness of heat safety, and invest in infrastructure resilience to ensure power grids and water systems can withstand increased demand during extreme heat events. Seeking grant funding to support cooling system upgrades and community-wide preparedness efforts will help mitigate the impact of future heat waves.

3.9 Monroe County - Extreme Cold Risk Assessment

3.9.1 Hazard Overview

Description of Hazard:
Extreme cold events occur when temperatures drop significantly below average for extended periods, often accompanied by wind chills that exacerbate the effects of cold. These conditions can pose serious health risks, including frostbite and hypothermia, particularly for vulnerable populations. Extreme cold can also strain infrastructure, causing power outages, frozen pipes, and increased demand for heating. In Monroe County, extreme cold events typically occur between November and March, with the coldest periods often accompanied by arctic air masses and high winds, resulting in dangerous wind chills. Temperatures can plunge well below zero, with wind chills making it feel even colder.

This hazard is addressed in this assessment due to the regular occurrence of extreme cold in Monroe County and the significant risks it poses to public health, infrastructure, and the economy.

3.9.2 Location and Extent

Geographic Areas Affected:
Extreme cold can affect the entire county, but certain areas and populations are more vulnerable:

- Rural areas may be more isolated during extreme cold events, with limited access to heating resources and longer response times for emergency services.
- Urban areas with aging infrastructure may experience increased utility demands, which can lead to power outages or heating failures.
- Critical infrastructure, including power plants, water supply systems, and transportation routes, are vulnerable to the effects of extreme cold, such as frozen pipes, power outages, and equipment failures.
- Residential homes, particularly those with poor insulation or inadequate heating systems, may experience significant challenges in maintaining safe indoor temperatures during prolonged cold spells.

Extent of Hazard:
Extreme cold events in Monroe County can involve temperatures dropping below -10°F to -30°F or lower, especially with wind chill factors. The National Weather Service (NWS) issues wind chill warnings when wind chills are forecasted to reach dangerous levels, typically below -25°F, which can result in frostbite on exposed skin within minutes. Extreme cold events can last for several days to weeks, with the coldest periods typically occurring in January and February.

3.9.3 Historical Context

Previous Occurrences:
Monroe County has experienced several extreme cold and wind chill events, some resulting in fatalities. Notable examples include:

- **January 30, 2008**: An arctic cold front brought dangerously cold temperatures to southwest and central Wisconsin, with wind chills ranging from -30°F to -45°F. The cold persisted overnight, but no injuries or damages were reported.
- **February 17, 2015**: A 2-year-old child tragically died after spending the night outdoors in Tomah. Temperatures dropped to single digits above zero, and wind chills ranged from -5°F to -10°F, contributing to the child's death.
- **December 29-31, 2022**: A woman passed away from hypothermia after being last seen leaving a business in Tomah. Air temperatures and wind chills ranged from single digits to the 20s during the final days of December.

Lessons Learned:
These extreme cold events highlighted the importance of having robust heating systems, backup power sources, and emergency preparedness plans for both residents and public services. The need for public education on the dangers of frostbite and hypothermia, as well as ensuring that vulnerable populations are protected during cold waves, has been emphasized in past events.

3.9.4 Probability of Future Events

Likelihood of Future Occurrences:
Extreme cold events are highly likely to occur in Monroe County during the winter months. The county typically experiences several cold spells each winter, with extreme cold events (below -10°F) happening every few years. Based on historical data, Monroe County can expect 2-3 periods of extreme cold each winter, with particularly dangerous wind chill conditions occurring less frequently but still posing a significant threat.

Changes Due to Climate and Development:
While climate change may result in warmer average temperatures globally, it may also increase the likelihood of polar vortex events that bring extreme cold air to the region. Additionally, as development expands into more rural areas, more homes and infrastructure may be affected by extreme cold, particularly if not designed for harsh winter conditions.

3.9.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Elderly residents, people with disabilities, and those with chronic health conditions are particularly vulnerable to the health effects of extreme cold, as they may have limited mobility or access to adequate heating.
- Low-income households may struggle to afford heating costs during extreme cold events, particularly if energy prices spike due to increased demand.
- Homeless individuals face significant risks during extreme cold events and may require additional sheltering services to stay safe.
- Outdoor workers, including farmers and utility repair personnel, are at heightened risk of frostbite and hypothermia during prolonged cold exposure.

Critical Infrastructure & Assets:
- Power lines and utilities may be strained by increased heating demands during extreme cold, leading to power outages and heating disruptions.
- Water supply systems are at risk from frozen pipes, particularly in older homes and public buildings without proper insulation.
- Roadways and bridges may become hazardous due to ice accumulation, and prolonged exposure to cold can degrade road surfaces, leading to potholes and other damage.

Environmental and Cultural Resources:
- Agricultural operations may be significantly impacted, particularly livestock operations that rely on heat and water systems to maintain animal health.
- Natural resources, including lakes and rivers, may experience prolonged ice cover during extreme cold events, affecting water ecosystems and wildlife.
- Historic buildings and cultural sites may be vulnerable to damage from freezing and thawing cycles, particularly if they are not equipped with modern insulation or heating systems.

Potential Consequences for the Community:
- Residents may face increased health risks from frostbite, hypothermia, and respiratory conditions exacerbated by cold weather.
- Economic impacts include higher heating costs, increased demand for emergency services, and potential damage to homes and businesses from frozen pipes or heating system failures.
- Public services, including healthcare and emergency response, may be overwhelmed during extreme cold events, particularly if power outages or road closures limit access to critical services.
- Environmental impacts could include damage to ecosystems, such as the freezing of water sources and impacts on wildlife, as well as damage to trees and vegetation from prolonged freezing conditions.

3.9.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has invested in winterizing public buildings and critical infrastructure to ensure resilience during extreme cold events. This includes insulating water pipes, upgrading heating systems, and ensuring that emergency shelters are equipped to handle cold weather conditions.
- Non-structural: Public education campaigns on cold weather safety have been implemented, advising residents on how to protect themselves from frostbite and hypothermia and encouraging the use of emergency heating sources when necessary.
- Legislative actions: Updated building codes now require the use of cold-resistant materials in new construction, particularly for homes and businesses in rural areas where the risk of extreme cold is higher.

Proposed Mitigation Strategies:

- Increase public education campaigns focused on preparing for extreme cold events, particularly for vulnerable populations, emphasizing the importance of maintaining adequate heating and avoiding prolonged exposure to the cold.
- Expand winterization programs to ensure that homes and businesses are properly insulated and that water and heating systems are prepared for freezing temperatures.
- Invest in backup power systems for critical infrastructure, such as hospitals and emergency shelters, to ensure continuous heating during power outages.
- Seek state and federal grant funding to support cold weather preparedness efforts, including home insulation programs for low-income residents and improvements to public utilities to prevent freezing and power outages.

3.9.7 Conclusion and Recommendations

Key Takeaways:

Extreme cold poses a significant risk to Monroe County, particularly in terms of public health, heating demand, and infrastructure resilience. Vulnerable populations, such as the elderly, rural residents, and low-income households, need to be prioritized in mitigation efforts to ensure they have access to heat, shelter, and medical care during extreme cold events.

Next Steps:

Monroe County should continue to invest in winterization and cold weather preparedness efforts, while expanding public awareness campaigns to ensure residents are prepared for future extreme cold events. Seeking funding opportunities to improve heating infrastructure and protect vulnerable populations will help reduce the risks posed by extreme cold conditions in the future.

3.10 Monroe County - Fog Risk Assessment

3.10.1 Hazard Overview

Description of Hazard:
Fog is a weather condition characterized by the accumulation of water droplets suspended in the air at or near the Earth's surface, reducing visibility to less than a quarter mile. It can significantly impact transportation safety, especially for road, air, and rail travel, by reducing visibility and increasing the risk of accidents. In Monroe County, fog typically occurs during the fall and winter months when the air is cooler, particularly in low-lying areas and near bodies of water. Dense fog can create hazardous driving conditions, cause delays for air travel, and disrupt daily activities. While fog is generally not associated with direct property damage or loss of life, its impact on transportation safety and mobility can be significant.

This hazard is addressed in this assessment due to its frequent occurrence and the risks it poses to transportation and public safety, especially in rural areas where visibility is crucial for travel.

3.10.2 Location and Extent

Geographic Areas Affected:
Fog can affect the entire county, but certain areas are more prone to experiencing foggy conditions:

- Low-lying areas and river valleys are particularly vulnerable to dense fog, especially in the early morning or late evening when temperatures drop and moisture levels rise.
- Rural areas with less street lighting and fewer markers may see more significant impacts from fog, as drivers have fewer visual cues to navigate safely.
- High-traffic roads and highways are susceptible to accidents during foggy conditions due to reduced visibility and high vehicle speeds, which can lead to chain-reaction collisions.
- Airports and rail lines may also be impacted by fog, leading to delays or cancellations due to safety concerns.

Extent of Hazard:
Fog in Monroe County is generally seasonal, occurring most frequently in the fall and winter. Dense fog can reduce visibility to less than a quarter mile and may persist for several hours, typically in the early morning or evening. The National Weather Service (NWS) issues dense fog advisories when visibility is expected to be significantly reduced, particularly during peak travel times. Although fog does not cause physical damage to infrastructure, its impact on transportation safety and the potential for accidents make it a significant public safety concern.

3.10.3 Historical Context

Previous Occurrences:
Monroe County has experienced numerous fog events that have impacted transportation and public safety. Two recent ones include:

- **March 8-11, 2010:** Dense fog affected much of western Wisconsin, with visibility dropping to a quarter mile or less at times. Fog persisted for much of the four days, with most visibilities ranging from a half mile to one mile. Despite the dense fog, no accidents or damages were reported during this period.
- **September 16, 2019:** Dense fog in the early morning of led to a fatal car accident near Cashton, Wisconsin. The crash occurred at approximately 7:20 a.m. when a vehicle failed to yield at a stop sign and collided with a commercial truck. One person died, and three others were injured. Property damage was estimated at $12,000.

Lessons Learned:
Past fog events have demonstrated the importance of public awareness and early warning systems to ensure that residents and travelers are informed about dangerous conditions. Improved signage, reflective road markers, and lighting on key roadways have been identified as critical tools to reduce the risk of accidents during foggy conditions. Additionally, local authorities have emphasized the need for drivers to slow down and maintain safe following distances when traveling in fog.

3.10.4 Probability of Future Events

Likelihood of Future Occurrences:
Fog is highly likely to continue occurring in Monroe County, particularly during the fall and winter months. Based on historical trends, dense fog events are expected several times each year, with the potential for reduced visibility and associated transportation hazards. Fog events may increase during certain weather patterns, particularly when cold air meets warmer, moist air, creating the ideal conditions for fog formation.

Changes Due to Climate and Development:
While fog formation is largely dependent on atmospheric conditions, climate change may lead to changes in weather patterns that could influence the frequency or intensity of fog events. Development in urban and rural areas may also impact fog-related risks, particularly if more roads and highways are constructed in areas prone to fog. Expansion of road networks and increased traffic in rural areas could lead to more fog-related traffic accidents if mitigation measures are not put in place.

3.10.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Drivers on rural roads and highways are most vulnerable to fog-related accidents, especially in areas with limited lighting or visual markers.
- Commuters and travelers who rely on road, rail, or air transport may be affected by delays, accidents, or cancellations during fog events.
- Outdoor workers such as farmers or construction workers who work near roads or rely on transportation for their daily operations may face safety risks during dense fog conditions.

Critical Infrastructure & Assets:
- Roadways and highways are particularly vulnerable to fog-related accidents, especially in high-speed areas where visibility is crucial.
- Airports may face delays or cancellations due to reduced visibility during takeoff and landing.
- Emergency response services may be delayed or hampered by fog, particularly if responders are traveling on rural or fog-prone roads.

Environmental and Cultural Resources:
- Wildlife may be affected by fog, particularly in areas where animal crossings coincide with foggy conditions, increasing the risk of vehicle-animal collisions.
- Cultural or historic sites near fog-prone areas may experience temporary closures or reduced accessibility during fog events, particularly if they are located in rural or low-lying areas.

Potential Consequences for the Community:
- Residents may face increased risks of vehicle accidents, particularly during commutes or travel in areas prone to fog.
- Economic impacts could include delays for shipping and transport, particularly for industries that rely on timely deliveries or air travel.
- Public services, such as emergency response, may be delayed due to reduced visibility and transportation hazards caused by fog, particularly on rural roads.
- Environmental impacts are generally minimal, though fog-related accidents involving vehicles may result in localized pollution or environmental damage from fuel spills or debris.

3.10.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has invested in improved signage, reflective road markers, and lighting systems on high-traffic roads and intersections to reduce fog-related accident risks.
- Non-structural: Public education campaigns have been implemented to raise awareness of fog-related hazards, particularly advising drivers to reduce speed and use low-beam headlights during foggy conditions. Weather monitoring systems provide early warnings about upcoming fog events, allowing residents and travelers to plan accordingly.
- Legislative actions: Speed limits in certain fog-prone areas have been adjusted to encourage safer driving conditions, particularly during times when fog is common.

Proposed Mitigation Strategies:

- Increase the use of fog detection systems and improve weather forecasting capabilities to provide more accurate and timely warnings for fog-prone areas.
- Expand public education campaigns to focus on rural drivers and commuters, ensuring that they are aware of safe driving practices during fog events.
- Invest in additional signage, lighting, and reflective road markers along rural highways and other key transportation routes where fog is most frequent.
- Explore the use of advanced technology such as automated warning systems that alert drivers when entering areas of low visibility due to fog.
- Seek state and federal grant funding to support infrastructure improvements that reduce fog-related hazards on rural roads and key highways.

3.10.7 Conclusion and Recommendations

Key Takeaways:

Fog presents a significant risk to transportation safety in Monroe County, particularly in rural and low-lying areas. Improved public awareness, early warning systems, and road safety infrastructure are critical to reducing the risks associated with future fog events.

Next Steps:

Monroe County should continue to enhance roadway safety measures, expand public education efforts, and improve weather forecasting to ensure timely and accurate warnings for fog events. Seeking grant funding for additional safety infrastructure, such as reflective markers and advanced warning systems, will help mitigate the impact of future fog-related hazards.

Hydrological Hazards

3.11 Monroe County - Flooding Risk Assessment

3.11.1 Hazard Overview

Description of Hazard:
Flooding is one of the most frequent and costly natural hazards affecting Monroe County. It can occur as riverine flooding, flash flooding, or storm water flooding. Riverine flooding happens when rivers or streams overflow their banks due to prolonged rainfall or rapid snowmelt. Flash flooding occurs when intense rainfall overwhelms drainage systems or occurs in areas with poor soil absorption. Storm water flooding results from urban runoff when heavy rainfall exceeds the capacity of stormwater systems. These floods can lead to widespread property damage, disrupt transportation, and pose significant risks to public safety, especially in low-lying areas. In Monroe County, riverine flooding is most common along the Little La Crosse and Kickapoo Rivers, while flash flooding can occur anywhere during intense thunderstorms.

This hazard is addressed in this assessment due to its historical frequency and significant impact on Monroe County communities, infrastructure, and the economy.

3.11.2 Location and Extent

Geographic Areas Affected:
Flooding can affect a wide range of areas in Monroe County, particularly:

- Riverine flooding primarily impacts areas adjacent to rivers, creeks, and streams, with particular vulnerability in low-lying agricultural lands and residential areas near water bodies.
- Urban areas are vulnerable to storm water flooding, especially where stormwater drainage systems are inadequate or outdated.
- Flash flooding can occur anywhere in the county but is particularly problematic in hilly areas, where rapid runoff exacerbates flooding conditions.
- Critical infrastructure such as roads, bridges, and water treatment plants located near floodplains or drainage basins are highly susceptible to flood damage.

Viewing the number of parcels within the FEMA 100-year floodplain and their assessed value by city, village, or township provides a clear estimate of flood risk across Monroe County. This data (found in Table 3.11.2 on the next page) highlights which areas have the highest financial exposure and guides where to prioritize flood mitigation efforts. By identifying vulnerable regions, Monroe County can take action to protect critical infrastructure, homes, and businesses from future flood events. Figure 3.11.2 illustrates the location of the 100-year floodplain within the County.

Chapter 4 also includes maps for each community, illustrating transportation infrastructure alongside FEMA flood classifications. These maps help identify which roads, bridges, and other critical transport routes are most vulnerable to flooding. Additionally, the chapter provides a detailed discussion on which facilities face the highest risks and outlines specific projects each community plans to implement to reduce those vulnerabilities and mitigate flood impacts.

The cities of Tomah and Sparta present the largest financial risk in Monroe County based on their assessed values and number of parcels within the FEMA 100-year floodplain. Tomah leads with an assessed value of $108,169,300 spread across 556 parcels, indicating a significant concentration of assets at risk. Sparta follows with $66,843,200 across 218 parcels. Due to the dense population and infrastructure in these cities, flood impacts could cause substantial economic damage and disrupt critical services. Therefore, these cities should be a priority for targeted mitigation efforts to protect essential infrastructure and minimize potential flood losses.

Among the villages, Wilton, Kendall and Norwalk stand out. The Village of Wilton has an assessed value of $8,524,800 over 23 parcels, while Kendall has $2,908,200 across 69 parcels. Although these values are lower compared to the cities, the villages are still vulnerable to flood impacts, especially considering the limited resources they may have for recovery. These

communities should focus on implementing localized flood mitigation projects to reduce their risk, such as improving stormwater drainage systems and reinforcing flood-prone infrastructure.

For the Towns, Byron, Oakdale, and Little Falls are areas of concern. The Town of Byron has a high assessed value of $43,343,900 across 230 parcels, indicating a significant potential for flood-related losses. Oakdale and Little Falls follow, with assessed values of $37,029,300 and $21,003,400, respectively. While these towns are more rural, the financial exposure combined with their large number of parcels suggests the need for proactive flood mitigation measures, such as floodplain management and improving resilience of key facilities. Ensuring these areas are prepared for flood risks will help protect both agricultural assets and residential properties in Monroe County's more rural regions.

Table 3.11.2: Structures within the FEMA 100-year Floodplain by Municipality (parcels with structures)

Municipality	Assessed Value ($)			Number of Parcels
	Land	Improvements	Total	
City Of Sparta	13,182,500	53,660,700	66,843,200	218
City Of Tomah	15,062,000	93,107,300	108,169,300	556
Town Of Adrian	1,501,700	9,992,400	11,494,100	69
Town Of Angelo	1,613,500	11,240,600	12,854,100	113
Town Of Byron	6,486,600	36,857,300	43,343,900	230
Town Of Clifton	711,100	3,526,900	4,238,000	32
Town Of Glendale	627,400	3,148,900	3,776,300	47
Town Of Greenfield	946,500	3,045,500	3,992,000	25
Town Of Jefferson	348,400	3,149,700	3,498,100	35
Town Of La Grange	4,106,500	19,355,800	23,462,300	153
Town Of Lafayette	507,300	1,662,600	2,169,900	12
Town Of Leon	899,400	6,306,700	7,206,100	51
Town Of Lincoln	1,839,700	4,864,500	6,704,200	64
Town Of Little Falls	4,000,200	17,003,200	21,003,400	101
Town Of New Lyme	754,300	4,408,800	5,163,100	30
Town Of Oakdale	2,506,400	34,522,900	37,029,300	67
Town Of Portland	367,500	986,300	1,353,800	17
Town Of Ridgeville	315,400	3,250,200	3,565,600	16
Town Of Scott	420,500	1,746,400	2,166,900	36
Town Of Sheldon	1,054,700	8,427,400	9,482,100	92
Town Of Sparta	2,655,500	14,410,000	17,065,500	97
Town Of Tomah	1,024,100	5,502,200	6,526,300	56
Town Of Wellington	342,200	1,662,000	2,004,200	25
Town Of Wells	147,400	669,000	816,400	8
Town Of Wilton	511,500	3,923,800	4,435,300	40

Municipality	Assessed Value ($)			Number of Parcels
	Land	Improvements	Total	
Village Of Kendall	358,700	2,549,500	2,908,200	69
Village Of Melvina	227,700	1,201,800	1,429,500	23
Village Of Norwalk	290,100	2,727,900	3,018,000	63
Village Of Oakdale	148,600	130,600	279,200	5
Village Of Warrens	107,900	468,100	576,000	1
Village Of Wilton	393,700	8,131,100	8,524,800	23
Village Of Wyeville	443,500	3,070,200	3,513,700	47
Monroe County Total	**63,902,500**	**364,710,300**	**428,612,800**	**2,421**

Source: Personal Communication with Monroe County Land Information Office

Map 3.6 Monroe County Critical Facilities

FEMA 100-Year Flood Boundary

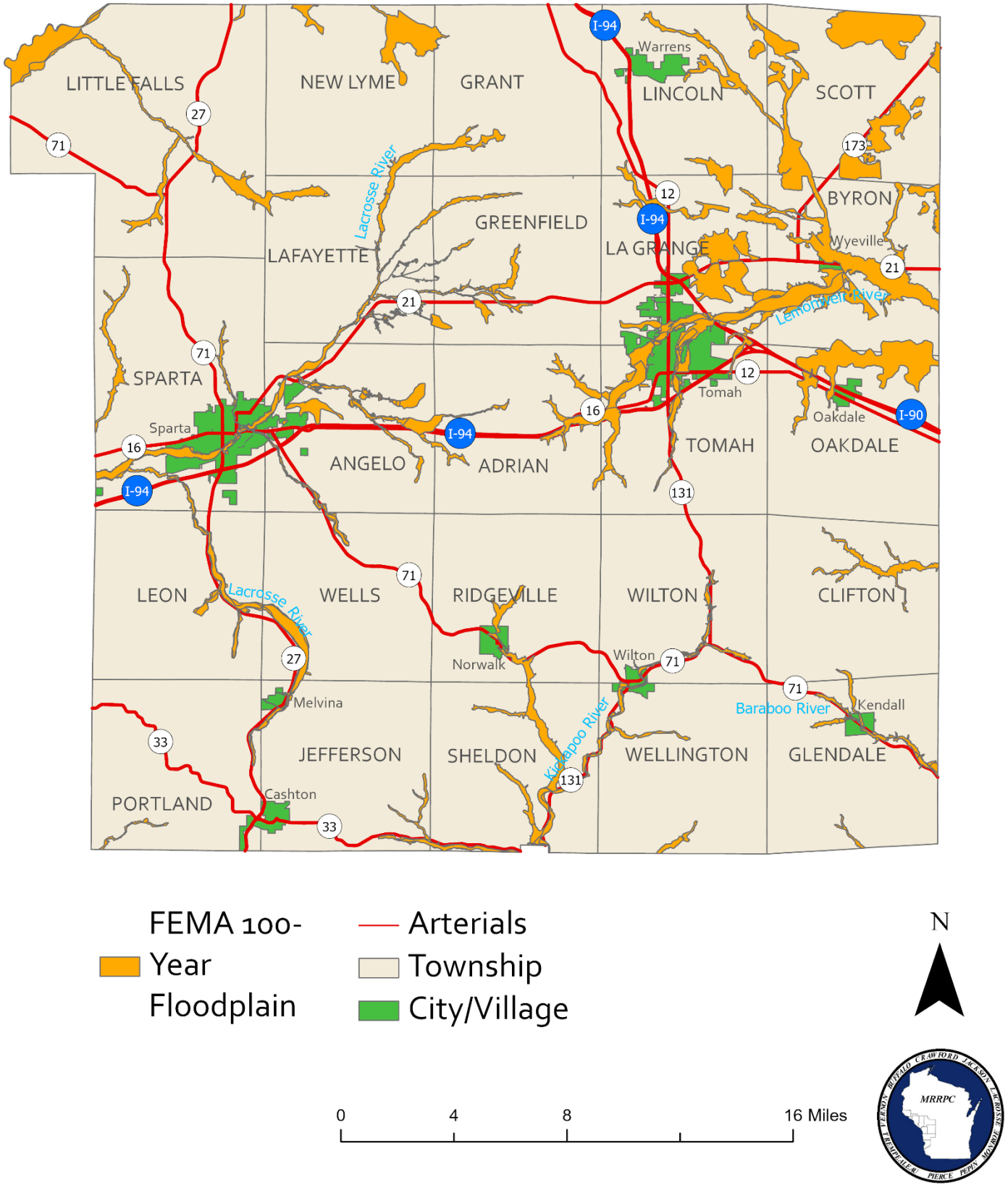


Figure 3.11.2 Monroe County FEMA 100-Year Flood Boundary

Extent of Hazard:
Flooding in Monroe County varies significantly depending on the type and intensity of the event. Riverine floods can result in extensive inundation across floodplains, sometimes lasting days or weeks. Flash floods, on the other hand, are more localized and can occur within minutes or hours of intense rainfall, often subsiding quickly but leaving severe damage. In terms of scale, the National Flood Insurance Program (NFIP) and Flood Insurance Rate Maps (FIRM) classify much of Monroe County as at moderate to high risk, particularly along major rivers. Historical flood depths have ranged from several inches in urban areas to several feet in riverine floodplains.

3.11.3 Historical Context

Previous Occurrences:
Monroe County has experienced several federal disaster declarations related to flooding over the years. Major disaster declarations for flooding occurred on August 27, 2019, October 18, 2018, October 20, 2016, June 14, 2008, June 18, 2004, June 24, 2000, July 24, 1998, July 2, 1993, and August 30, 1990. These incidents involved severe storms, tornadoes, straight-line winds, and flooding. Each event led to significant impacts on the County's infrastructure, requiring federal aid and mitigation efforts.

Figure 3.11.3: Flooding in Monroe County During the August 2018 Flood

Lessons Learned:
Past flood events have emphasized the need for improved stormwater infrastructure in urban areas, enhanced floodplain management, and the importance of public awareness about flood risks. Additionally, flood mitigation measures such as levees, flood walls, and improved riverbank stabilization efforts have helped reduce the impacts of some riverine floods but require ongoing maintenance and improvement.

3.11.4 Probability of Future Events

Likelihood of Future Occurrences:
Flooding is highly likely in Monroe County, with flood events expected on an annual basis. Historical data indicate that Monroe County experiences flooding multiple times a year, with larger, more damaging floods occurring every few years. Riverine flooding is most likely during the spring when snowmelt combines with heavy rainfall, while flash flooding is more common during summer thunderstorms.

Changes Due to Climate and Development:
Climate change may result in more intense and frequent rain events, which could increase both riverine and flash flooding risks. Urban expansion, particularly in areas with insufficient stormwater infrastructure, may exacerbate storm water flooding. Increased development in flood-prone areas could lead to more property damage and economic loss unless adequate mitigation measures are implemented.

3.11.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Low-income households may have difficulty recovering from flood damage, particularly in areas where flooding is frequent.
- Elderly and disabled populations may struggle with evacuation during flash floods and could face significant health risks if essential services are disrupted.
- Farmers and rural residents are vulnerable to riverine flooding, particularly given the potential for crop loss and damage to critical farm infrastructure such as barns and grain storage facilities.

Critical Infrastructure & Assets:

- Hospitals, emergency response centers, and schools located in flood-prone areas are at risk of disruption during flood events, which could hamper the county's ability to respond effectively.
- Bridges, roadways, and culverts are particularly vulnerable to flood damage, which can isolate communities and impede emergency response and recovery efforts.
    - Figure 3.11.5 on the next page illustrates arterial road segments located in the FEMA 100-year floodplain. Many arterial roads in the county, including significant sections, are situated within floodplains. Highway 131 is of particular concern, especially in the Towns of Wilton, Wellington, and Sheldon, as well as the Village of Wilton, where it runs along the Kickapoo River.
- Water treatment plants and sewage systems are at risk during flooding, particularly if systems are overwhelmed by heavy rainfall or riverine flooding.

Environmental and Cultural Resources:

- Wetlands, forests, and agricultural lands could suffer from flood-related damage, including erosion, sedimentation, and habitat loss. Flooding may also lead to water pollution from runoff, carrying chemicals and debris into local water sources.
- Cultural and historic sites located in floodplains or near rivers may be damaged by floodwaters, particularly if these structures are not floodproofed.

Potential Consequences for the Community:

- Residents may face displacement, property damage, and health risks due to contaminated water or mold growth in flood-damaged homes.
- Economically, businesses may experience temporary closures, and agricultural sectors could see significant losses in both crops and livestock.
- Public services such as transportation and utilities may be interrupted, particularly in areas where roads, bridges, or power lines are damaged by floodwaters.
- Environmental impacts include long-term damage to ecosystems, water pollution, and the potential for increased erosion and loss of topsoil in agricultural areas.

Map 3.7 Monroe County Arterials

With High Flood Risk

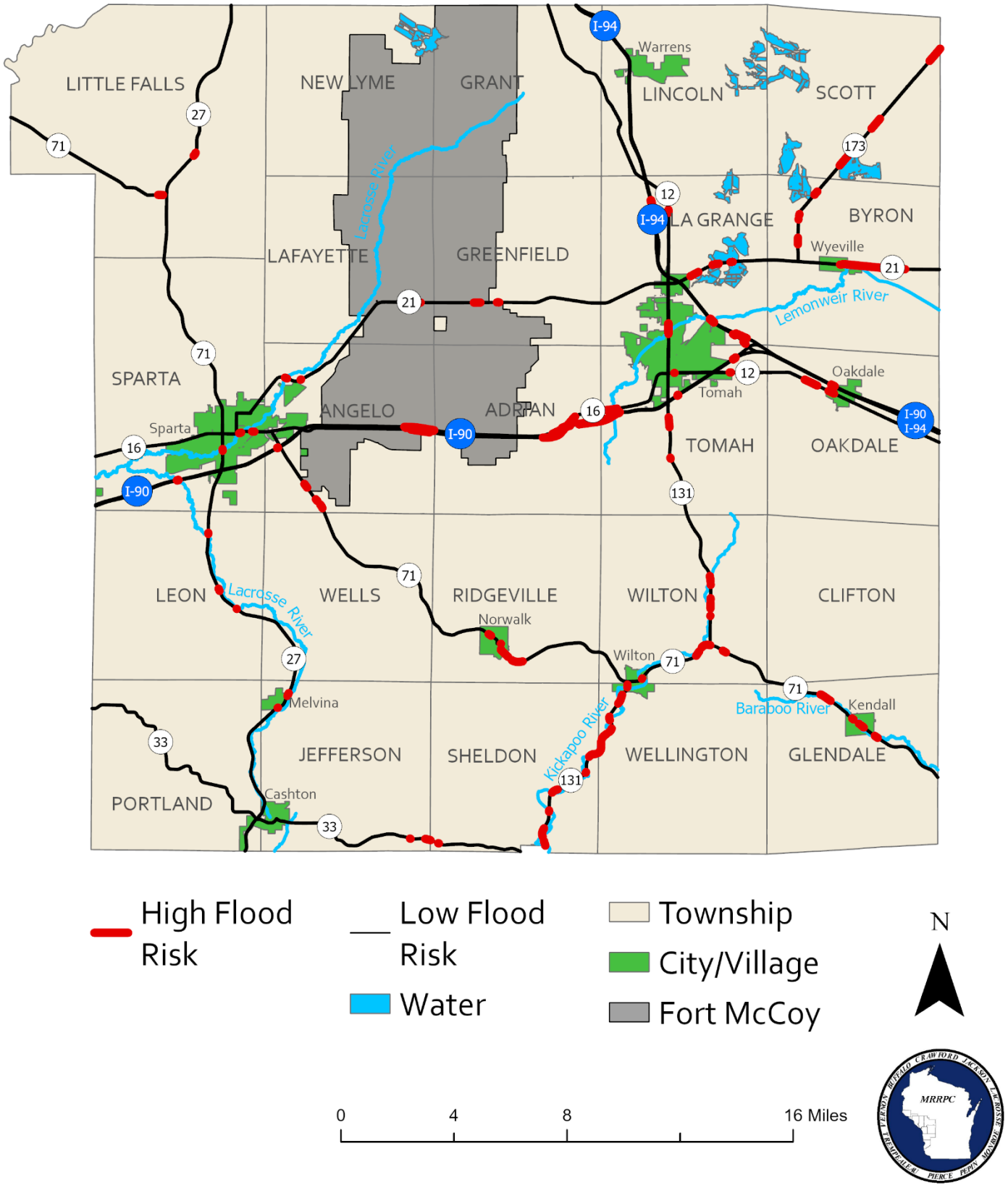


Figure 3.11.5 Monroe County Arterials with High Flood Risk

3.11.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has invested in levee systems, improved culverts, and flood walls in areas prone to riverine flooding. In urban areas, stormwater management systems have been upgraded to handle larger volumes of rainfall.
- Non-structural: Floodplain management policies have been strengthened to limit development in high-risk areas, and public awareness campaigns have been launched to educate residents about flood risks and evacuation procedures.
- Legislative actions: Zoning laws and building codes have been updated to include flood-resistant construction materials and designs in new developments located in flood-prone areas.
- National Flood Insurance Program (NFIP): The NFIP is a federal program that allows property owners in participating communities to purchase flood insurance. In return, these communities adopt state and local floodplain regulations to reduce future flood damage. Participation is voluntary.
    - All Wisconsin counties, except Menominee, Rusk, Taylor, and Vilas, participate in the NFIP. While towns are included through county participation, incorporated areas must apply separately. The Wisconsin Department of Natural Resources (WisDNR) and FEMA offer support for the application process.
    - Monroe County and most of its incorporated areas are part of the NFIP, except for the Villages of Melvina and Warrens. The Village of Cashton's participation status is currently unclear based on available FEMA records.
        - The Villages of Melvina and Warrens, as well as the Village of Cashton, do not currently participate in the National Flood Insurance Program (NFIP). While the reasons for this lack of participation remain unclear, inquiries were made to these villages during the development of this plan to understand their rationale. Unfortunately, no responses were received. Additionally, the Village of Cashton’s participation status appears uncertain based on available FEMA records, further complicating efforts to assess their engagement in flood risk management.
    - Monroe County has adopted the minimum floodplain management criteria required by the National Flood Insurance Program (NFIP) through the provisions detailed in Chapter 50 of its zoning ordinance. This chapter was established pursuant to Wisconsin Statutes §§ 59.69, 59.692, 59.694, and 87.30, which authorize counties to adopt zoning regulations that manage floodplains to mitigate risks to public health, safety, and welfare. The ordinance specifies regulations designed to reduce the adverse effects of uncontrolled floodplain development, meeting NFIP criteria.
        - Incorporated areas within Monroe County are subject to the county’s floodplain zoning provisions at the time of annexation, which remain in effect until the municipality adopts its own ordinance that complies with Wisconsin Administrative Code NR 116 and the NFIP. These areas are shown on the municipality's official zoning map, including flood elevations and floodway locations. NFIP compliance in these incorporated areas ensures that new developments are managed to reduce flood risks. Specific details of NFIP compliance for each municipality are outlined in the summaries of municipalities in Chapter 4.
    - The implementation and enforcement of these floodplain management regulations in Monroe County are executed through a comprehensive permitting process. The county requires permits for any development within Special Flood Hazard Areas (SFHAs), which include areas designated as A, AE, AH, and AO zones on the Flood Insurance Rate Map (FIRM). These regulations ensure that new construction or substantial improvements are designed to withstand flood forces and that they are built with materials resistant to flood damage. The Zoning Administrator is responsible for reviewing applications, ensuring compliance with these regulations, and enforcing the provisions set forth in the ordinance.
    - Monroe County has appointed its Zoning Administrator as the designee responsible for implementing the commitments and requirements of the NFIP. This individual ensures that development within floodplain areas complies with the zoning regulations and collaborates with state and federal agencies, such as the Wisconsin Department of Natural Resources (DNR) and FEMA, when necessary.

Table 3.11.6: NFIP Participation in Monroe County

Community Name	Participating Community
Monroe County	Yes
City of Sparta	Yes
City of Tomah	Yes
Monroe County	Yes
Village of Cashton	**Unknown**
Village of Kendall	Yes
Village of Melvina	**No**
Village of Norwalk	Yes
Village of Oakdale	Yes
Village of Ontario	Yes
Village of Rockland	Yes
Village of Warrens	**No**
Village of Wilton	Yes
Village of Wyeville	Yes

Source: FEMA Community Status Book

Proposed Mitigation Strategies:

- Continue to upgrade stormwater drainage systems in urban areas to reduce the risk of flash flooding.
- Implement additional floodplain buyouts or relocation programs for homes and businesses located in high-risk flood zones.
- Expand public education efforts to ensure that residents understand the risks of flooding and know how to respond during a flood event.
- Seek grant opportunities to fund further infrastructure improvements, such as levee upgrades, and invest in green infrastructure solutions like rain gardens and permeable pavements to reduce urban runoff.

3.11.7 Conclusion and Recommendations

Key Takeaways:

Flooding is a significant and recurring hazard in Monroe County, with riverine, flash, and stormwater flooding presenting regular risks to both rural and urban communities. Critical infrastructure, particularly in flood-prone areas, and vulnerable populations such as low-income and rural residents should be prioritized in mitigation efforts.

Next Steps:

Monroe County should continue to improve flood mitigation infrastructure, enhance floodplain management, and pursue funding for public education and infrastructure improvements. Regular monitoring of climate impacts on flooding patterns and community engagement will help ensure the county is prepared for future flood events.

3.12 Monroe County - Dam Failure Flooding Risk Assessment

3.12.1 Hazard Overview

Description of Hazard:
Dam failure flooding occurs when a dam's structure is compromised, leading to the rapid and uncontrolled release of stored water. This sudden release can result in catastrophic flooding downstream, affecting communities, infrastructure, and ecosystems. Dam failures can be caused by a variety of factors, including structural deficiencies, improper maintenance, extreme weather events, or seismic activity. While dam failures are rare, the consequences can be severe, leading to loss of life, property damage, and environmental degradation. In Monroe County, many small dams exist, primarily used for water management, recreation, and irrigation. While the focus on dam failure is on larger dams with a higher risk of failure, the potential for failure still exists with any dam and could pose a threat to downstream communities. To see a full list of dams in the County, reference Table 2-14.

The dams with the highest hazard ratings in the County are:

- High Hazard Dams
    - Coon Creek 25: Large size, located on Tr Rulland Coulee Creek
    - Tomah Lake: Large size, located on South Fork Lemonweir River
    - Tri Creek Number One: Large size, located on Tr Morris Creek
- Significant Hazard Dams
    - Flora Dell: Small size, located on Flora Creek
    - Spring Bank: Small size, located on Spring Creek

Monroe County has seven PL566 dams in the Coon Creek Watershed and one in the Kickapoo River Watershed, built in the 1960s under the Watershed Protection and Flood Prevention Act. These dams provide flood control by holding water during floods but are vulnerable because everyday issues like seepage are hard to detect. Rainy day failures can occur during excessive precipitation when floodwater overwhelms the dam, while sunny day failures result from maintenance issues or vandalism. The dams have been maintained for 50-60 years with assistance from the NRCS, with the county covering 30% of the installation and maintenance costs.

This hazard is addressed due to the potential for severe consequences in the event of a dam failure, despite the rarity of such events in Monroe County.

3.12.2 Location and Extent

Geographic Areas Affected:
The areas most vulnerable to dam failure flooding in Monroe County are those located downstream of the county's dams. These include:

- Communities near rivers and streams where dams are located, particularly those downstream from water retention structures.
- Rural areas where agricultural lands are located near dams, as the failure of these dams could result in the rapid flooding of farmland, leading to crop loss and infrastructure damage.
- Critical infrastructure, including roadways, bridges, and utility systems located in floodplains downstream from dams, are at risk in the event of a dam failure.
- Recreational areas and natural habitats located near water bodies impounded by dams may also be at risk, particularly during heavy rainfall events when dam reservoirs are full.

Figure 3.12.2 on the next page illustrates the location of dams in Monroe County.

Map 3.5 Monroe County Critical Facilities

DNR Listed Dams

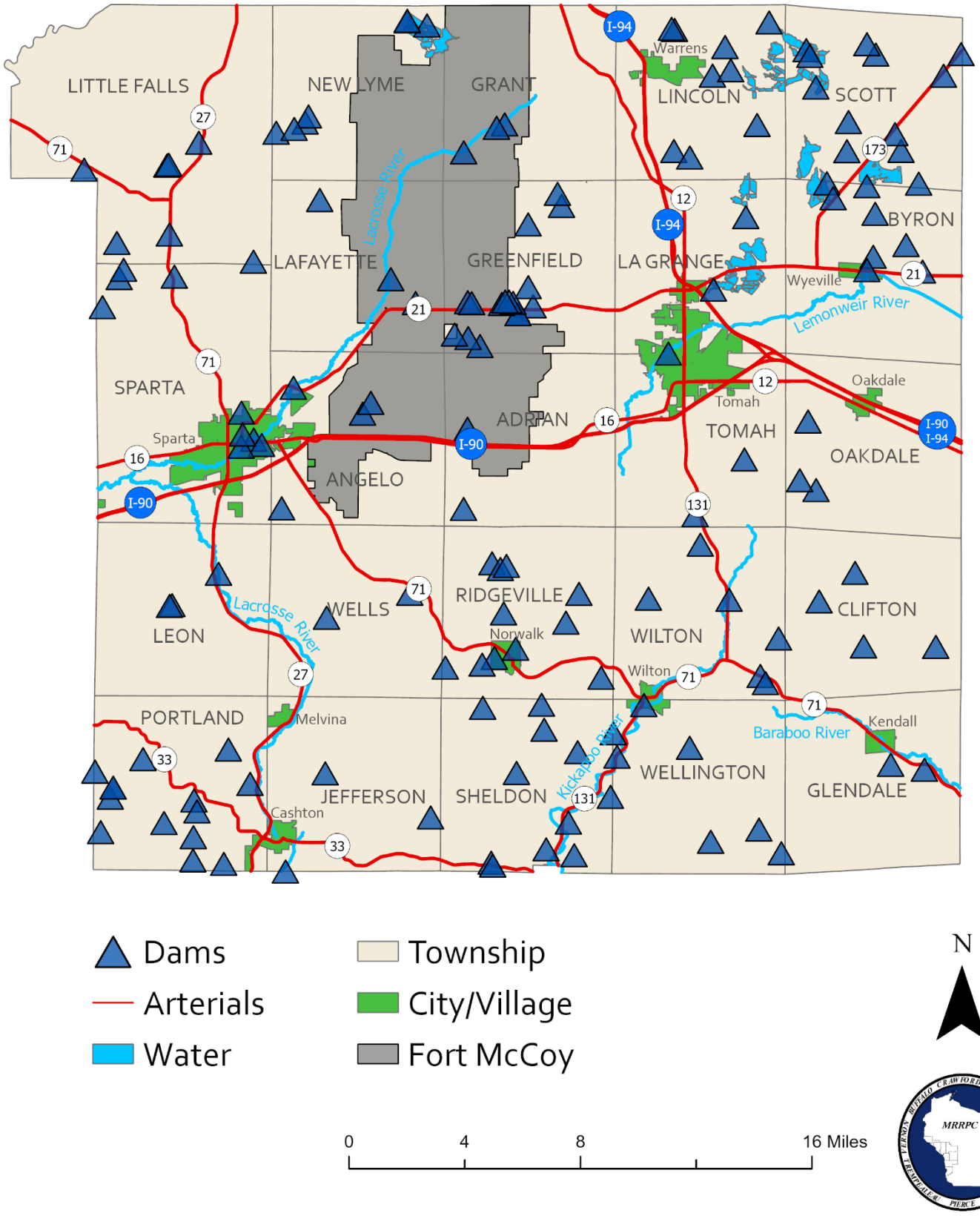


Figure 3.12.2 Monroe County Dams

Extent of Hazard:
The severity of flooding caused by dam failure depends on the size of the dam, the volume of water stored, and the topography of the surrounding area. Monroe County's dams are relatively small, but their failure could still cause localized flooding, particularly along rivers and streams. Floodwaters from a dam failure can travel rapidly, overwhelming nearby communities and infrastructure with little warning. Flood depths can range from a few feet to several feet, depending on the dam's size and the volume of water released. Flooding could extend for miles downstream, affecting both rural and urban areas, with the potential for long-lasting environmental and economic impacts.

3.12.3 Historical Context

Previous Occurrences:
On August 28, 2018, a storm dropped 12-13 inches of rain in under six hours, causing six PL566 dams to overtop, with three (Luckassen, Blihovde, & Korn) breaching. Other dams suffered spillway damage. Repairs are underway for three damaged structures, while the breached dams are being stabilized pending a decision on their future. Monroe, La Crosse, and Vernon Counties are seeking watershed study funding, which will take 18 months to two years to complete before decisions on the dams' future are made.

Lessons Learned:
The August 28, 2018, storm in Monroe County, which caused six PL566 dams to overtop and led to three dam breaches, underscores the critical need for proactive dam maintenance, emergency planning, and community awareness. Regular inspections and proper upkeep, especially during periods of heavy rainfall, are essential to prevent dam failures. The stabilization efforts for breached dams highlight the importance of being prepared for such events. Additionally, clear communication and evacuation plans for communities downstream of these dams are vital to reducing potential loss of life and property damage in the event of future emergencies

3.12.4 Probability of Future Events

Likelihood of Future Occurrences:
The probability of a dam failure in Monroe County is unlikely, given the county's relatively small and well-maintained dams. However, the possibility remains, particularly in the case of severe weather events that could stress dam structures. Changes in rainfall patterns due to climate change could increase the likelihood of dam failures in the future, especially during prolonged periods of heavy rain or sudden extreme rainfall events. Regular inspections and proper maintenance reduce the probability, but the risk cannot be completely eliminated.

Changes Due to Climate and Development:
Climate change may lead to more intense rainfall events, which could increase the stress on dams and the likelihood of overtopping or failure. Additionally, development in floodplains downstream from dams could increase the potential consequences of a dam failure by placing more people, property, and infrastructure at risk.

3.12.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Residents living downstream from dams, particularly in low-lying areas, would be at immediate risk during a dam failure due to the rapid onset of flooding.
- Elderly and disabled populations may have difficulty evacuating in the event of a dam failure, particularly if warning times are short.
- Farmers and rural residents living near small dams may be vulnerable to crop loss and infrastructure damage, especially if agricultural lands are located in floodplains.

Critical Infrastructure & Assets:
- Roadways, bridges, and transportation routes located downstream from dams could be washed out or damaged by flooding, isolating communities and impeding evacuation and emergency response efforts.

- Utilities such as power lines, water treatment plants, and telecommunications systems located near floodplains could be damaged, leading to widespread service disruptions.
- Emergency services, including hospitals and fire stations, could be compromised if key access routes or power supplies are affected by flooding.

Environmental and Cultural Resources:

- Wetlands, rivers, and ecosystems downstream of dams could experience significant habitat destruction and water quality issues due to sedimentation and debris from dam failure flooding.
- Cultural and historic sites located in low-lying areas downstream of dams could be damaged by floodwaters, especially if they are not equipped to withstand flood conditions.

Potential Consequences for the Community:

- Residents may face displacement, loss of life, and significant property damage due to the rapid and often unexpected nature of dam failure flooding.
- Economically, businesses and agricultural operations downstream from dams could suffer extensive losses, with flood damage to crops, equipment, and structures.
- Public services, particularly emergency response and healthcare, may be disrupted due to road washouts, power outages, and communication failures.
- Environmental impacts could include the long-term degradation of ecosystems, including loss of vegetation and wildlife habitat, and increased water pollution from debris and sediment.

3.12.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has implemented routine dam inspections and maintenance programs to ensure that dam structures remain safe and effective. Small upgrades and reinforcements to key dams have been made in recent years to improve their resilience.
- Non-structural: The county has worked to increase public awareness of dam failure risks and has developed emergency action plans (EAPs) for communities located downstream of dams. These EAPs include evacuation routes and shelter locations to protect residents in the event of a failure.
- Legislative actions: Monroe County follows state and federal regulations regarding dam safety, ensuring compliance with inspection and maintenance requirements for all dams within the county.

Proposed Mitigation Strategies:

- Continue routine dam inspections and invest in the reinforcement of aging dam infrastructure to ensure that dams can withstand extreme weather conditions.
- Expand public education campaigns to ensure that residents living downstream from dams understand the risks and know how to respond in the event of a dam failure.
- Develop or improve emergency communication systems, such as sirens or text alerts, to provide timely warnings to residents in at-risk areas.
- Seek state and federal funding to enhance dam infrastructure, particularly for flood control dams that could be at higher risk due to climate change.

Dam Abandonment and Removal: (https://dnr.wisconsin.gov/topic/dams/DamRemovalAbondonement.html)
Dams do not last forever. Dam records indicated that approximately 900 dams that were built on rivers in the state have been removed. Economic, social, legal and environmental factors all play a significant role in the decision whether to maintain or remove dams.

Reasons for removal
Several major issues can lead to dams needing to be removed in Wisconsin.

- Removal of an unsafe structure under Section 31.19, Wis. Stats. If a dam is found to be unsafe, usually after an inspection, the owner of the dam is offered the option of repairing the dam to meet current standards or abandoning the permits for the dam and removing it from the waterway.
- Sec. 31.187, Wis. Stats., charges the Wisconsin DNR with removing "abandoned" dams when no owner is found or the owner or owners are not able to maintain or repair their dam for a significant period of time essentially abandoning the dam.
- In a few cases, it has been proposed to remove dams that have a significant environmental impact. Many of those are on Wisconsin DNR properties.
- The dam was not authorized prior to construction and no entity is willing to be responsible for the safe operation and maintenance or complete the authorization process.

Environmental impacts and benefits

Dams can provide many benefits to their owners and the general public including hydroelectric generation, recreational opportunities, fishing opportunities and water supply for industrial and agricultural purposes. However, dams can also have a negative impact on the waterways they impound. In general, carp prefer the warm waters of an impoundment, yet when a dam is removed the cool water species such as trout and bass, generally preferred by anglers, can move back into the river and repopulate.

The most significant benefits of dam removal can include:

- reconnection of important seasonal fish habitat;
- normalized temperature regimes;
- improved water clarity (in most cases);
- improved dissolved oxygen concentrations;
- normalized sediment and energy transport; and
- improved biological diversity.

3.12.7 Conclusion and Recommendations

Key Takeaways:

Dam failure, while unlikely in Monroe County, could result in significant flooding and damage, particularly to communities and infrastructure located downstream of dams. Ensuring regular inspections, proper maintenance, and public preparedness is critical to minimizing the risks associated with dam failure.

Next Steps:

Monroe County should continue to prioritize dam maintenance and inspections to prevent potential failures. The county should also work on enhancing public awareness of dam failure risks and improving emergency action plans to ensure that residents are prepared in the event of an emergency. Securing funding for infrastructure improvements and investing in floodplain management will also be important to reducing future risks.

3.13 Monroe County - Drought Risk Assessment

3.13.1 Hazard Overview

Description of Hazard:
A drought is a prolonged period of abnormally low precipitation that results in water shortages, reduced soil moisture, and impaired water supplies for agriculture, industry, and residential use. Droughts can have serious impacts on agriculture, water availability, and public health, especially in rural areas that depend on rain-fed agriculture and groundwater resources. In Monroe County, droughts can reduce crop yields, increase the risk of wildfires, and strain local water resources, including rivers, lakes, and reservoirs. The agricultural sector is particularly vulnerable to drought, as reduced water availability can lead to crop failures, livestock deaths, and long-term soil degradation.

This hazard is addressed in this assessment due to its potential to significantly affect Monroe County's agricultural productivity, water resources, and the overall economy, especially in the context of climate change and increasing variability in weather patterns.

3.13.2 Location and Extent

Geographic Areas Affected:
Droughts can affect the entire county, though certain areas and industries are more vulnerable depending on water use and availability:

- Agricultural areas are most vulnerable to drought, especially farms that rely on rain-fed crops or have limited access to irrigation infrastructure.
- Rural areas that depend on groundwater for drinking water or irrigation may experience water shortages if drought persists.
- Forest and grassland areas are at increased risk of wildfires during drought conditions, as dry vegetation can easily ignite and spread fire.
- Municipal water supplies can be strained during prolonged droughts, leading to restrictions on water use and impacting both urban and rural populations.

Extent of Hazard:
Droughts in Monroe County can last for weeks, months, or even years, with impacts intensifying the longer the drought continues. The U.S. Drought Monitor classifies droughts into categories ranging from abnormally dry to exceptional drought, depending on severity. Droughts may lead to reduced crop yields, livestock deaths, and increased competition for limited water resources. Additionally, prolonged droughts can exacerbate environmental degradation, reduce water quality, and increase the risk of wildfires.

3.13.3 Historical Context

Previous Occurrences:
Monroe County has experienced several significant drought events in recent history:

- **June 1988 Drought:** A major drought affected the Midwest, including Monroe County, where dry conditions persisted for months. Farmers experienced significant losses in crop production, and water shortages impacted both rural and urban areas.
- **July 2012 Drought:** One of the worst droughts in recent decades, this event severely impacted agricultural production across Monroe County. Crop yields for corn and soybeans were significantly reduced, and many farmers struggled with water shortages for livestock. The drought also increased the risk of wildfires and led to restrictions on water use in some areas.
- **2023 Drought:** In 2023, Monroe County faced a prolonged period of drought, part of a larger trend affecting the Midwest. The drought led to substantial reductions in agricultural yields, particularly for corn, soybeans, and hay. Water levels in local rivers and lakes dropped significantly, straining water resources for both farming and daily use. Some farmers faced challenges in securing adequate water supplies for livestock, and the risk of wildfires

increased due to the extremely dry conditions. Many parts of the county implemented water conservation measures to manage shortages.

Lessons Learned:
These historical droughts have highlighted the need for improved water management practices and drought preparedness in Monroe County. Farmers have increasingly adopted irrigation systems, drought-tolerant crops, and water conservation techniques to reduce their vulnerability to future droughts. In addition, the importance of drought monitoring and early warning systems has become clear, allowing farmers and local governments to take proactive measures to mitigate the effects of drought.

3.13.4 Probability of Future Events

Likelihood of Future Occurrences:
Droughts are likely to occur in Monroe County in the future, with an increasing frequency and intensity due to climate change. The county typically experiences periods of dry weather every few years, though not all dry spells lead to severe drought conditions. However, as climate change continues to alter weather patterns, the risk of more frequent and prolonged droughts is expected to increase. Based on historical data and climate projections, Monroe County can expect drought conditions to develop every 5-10 years, with potentially severe impacts on agriculture and water resources.

Changes Due to Climate and Development:
Climate change is expected to lead to more extreme weather variability, including longer and more intense droughts. As temperatures rise and precipitation patterns shift, Monroe County may experience more frequent droughts, particularly during the summer months. Additionally, increased urbanization and agricultural development may place additional stress on water resources, making the county more vulnerable to water shortages during drought conditions.

3.13.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Farmers, particularly those without access to irrigation or financial resources to mitigate drought impacts, are highly vulnerable to drought-related crop failures and livestock losses.
- Low-income households may struggle to afford higher food and water costs during drought conditions, especially if water restrictions lead to increased utility bills.
- Rural communities dependent on groundwater for drinking water may experience shortages during prolonged droughts, increasing the risk of water contamination or depletion.

Critical Infrastructure & Assets:
- Irrigation systems and water supply networks are critical for maintaining agricultural productivity during droughts but are vulnerable to depletion if water resources run low.
- Power generation facilities, particularly those that rely on water for cooling, may be strained during droughts, leading to reduced efficiency or power outages.
- Transportation infrastructure, particularly roads and bridges, may be impacted if drought leads to soil subsidence or other changes in the stability of the ground.

Environmental and Cultural Resources:
- Forests, wetlands, and water bodies are particularly vulnerable to drought, which can lead to reduced water levels, loss of habitat, and long-term ecosystem degradation.
- Cultural and historic sites that rely on water for irrigation, landscaping, or preservation may be impacted by water shortages during droughts.

Potential Consequences for the Community:
- Residents may face increased water restrictions, higher utility bills, and reduced availability of locally grown food during droughts.

- Economic impacts include reduced agricultural output, job losses in the farming sector, and increased costs for water management and disaster response.
- Public services, such as emergency response and healthcare, may be strained during prolonged droughts, especially if water supplies are compromised or if wildfires occur as a secondary hazard.
- Environmental impacts include reduced water levels in rivers, lakes, and reservoirs, leading to habitat loss, poor water quality, and increased wildfire risk.

3.13.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County farmers have invested in irrigation systems and water storage infrastructure to improve their ability to manage water during droughts. Additionally, soil conservation practices have been promoted to reduce erosion and maintain soil health during dry conditions.
- Non-structural: Public education campaigns on water conservation and drought preparedness have been implemented, particularly during periods of dry weather. Monroe County has also participated in state and federal drought monitoring programs to ensure timely responses to developing drought conditions.
- Legislative actions: Water management policies have been enacted to restrict non-essential water use during droughts and promote the sustainable use of water resources in both urban and rural areas.

Proposed Mitigation Strategies:

- Expand the use of drought-tolerant crops and promote crop diversification to reduce the agricultural sector's reliance on water-intensive crops.
- Invest in rainwater harvesting systems and on-farm water storage to help farmers capture and store water during periods of rainfall for use during droughts.
- Strengthen public education on drought preparedness and water conservation, ensuring that residents and businesses understand how to reduce water use and protect water supplies during drought conditions.
- Promote the development of sustainable water management plans, including measures to protect groundwater resources and ensure long-term water availability for agriculture, industry, and residents.
- Seek state and federal grant funding to support the construction of drought-resilient infrastructure, including expanded irrigation systems, water storage facilities, and improved soil management practices.

3.13.7 Conclusion and Recommendations

Key Takeaways:

Droughts pose a significant and growing risk to Monroe County, particularly in terms of agriculture, water availability, and ecosystem health. As droughts are expected to become more frequent and intense due to climate change, it is essential that the county's agricultural sector and water management systems are prepared to cope with future drought conditions.

Next Steps:

Monroe County should continue to invest in irrigation improvements, water conservation practices, and drought-resilient infrastructure. Expanding public education efforts and seeking grant funding to support these initiatives will help ensure the community is prepared to withstand future droughts and protect vital agricultural and water resources.

Geological Hazards

3.14 Monroe County - Earthquake Risk Assessment

3.14.1 Hazard Overview

Description of Hazard:
An earthquake is a sudden, rapid shaking of the ground caused by the movement of the Earth's tectonic plates. Earthquakes can cause significant damage to buildings, infrastructure, and utilities, and can lead to secondary hazards such as landslides and fires. While Wisconsin is not located near major seismic zones, minor earthquakes can still occur, and the state has experienced occasional seismic activity. Monroe County is considered to have a low risk for earthquakes; however, the potential for ground shaking, while rare, cannot be entirely dismissed. Earthquake preparedness is important, particularly in ensuring that structures and critical infrastructure are built to withstand even small seismic events.

This hazard is addressed in this assessment due to the potential, albeit low, risk of earthquakes and the need for general preparedness, even though Monroe County is not located near a significant seismic zone.

3.14.2 Location and Extent

Geographic Areas Affected:
While the risk of significant earthquakes in Monroe County is low, certain areas could be more vulnerable to even minor seismic activity:

- Older buildings, particularly those not designed with seismic resilience in mind, are more vulnerable to structural damage during an earthquake, even minor shaking.
- Critical infrastructure, such as bridges, water systems, and utilities, may be vulnerable to damage from ground movement, especially if not retrofitted or reinforced for seismic events.
- Rural areas with unreinforced masonry structures may also be at risk of damage during even minor seismic events.

Extent of Hazard:
The extent of earthquake hazards in Monroe County is generally limited, as the area is not located in a high seismic activity region. Historically, seismic events in Wisconsin have registered low on the Richter scale, typically ranging from 2.0 to 3.5, which is considered minor and unlikely to cause significant damage. However, ground shaking from these events can still be felt and could potentially lead to minor structural damage, particularly to older buildings and infrastructure not designed to withstand seismic activity.

3.14.3 Historical Context

Previous Occurrences:
Although Wisconsin is not known for frequent seismic activity, there have been a few notable events in the state's history, though none have caused significant damage in Monroe County:

- **May 6, 1947:** A magnitude 4.0 earthquake struck southern Wisconsin, centered near the Illinois border. While no significant damage was reported in Monroe County, the event was felt across the region and serves as a reminder of the potential for seismic activity in the area.
- **March 24, 2012:** A series of minor tremors were recorded in southeastern Wisconsin, with magnitudes ranging from 1.5 to 2.5. These were barely felt by residents, but the events highlight the occasional nature of seismic activity in the state.

Lessons Learned:
Although seismic activity in Wisconsin has historically been minor, these events underscore the importance of ensuring that critical infrastructure and buildings, especially older structures, are assessed for seismic vulnerabilities. While large-scale earthquakes are highly unlikely, even small tremors can cause damage if preparedness measures are not in place.

3.14.4 Probability of Future Events

Likelihood of Future Occurrences:
The likelihood of a significant earthquake occurring in Monroe County is considered unlikely. Based on historical data and the county's distance from major fault lines, the probability of a damaging earthquake is extremely low. However, minor tremors may still occur, and while the frequency of such events is low, they are possible. The probability of a small seismic event (less than magnitude 3.5) happening in Monroe County is considered low but possible over a long time frame.

Changes Due to Climate and Development:
There is no strong evidence to suggest that climate change will significantly impact seismic activity in Monroe County. However, urban development and the construction of critical infrastructure in areas with seismic vulnerability should take into account the potential for ground shaking, even if the risk is low. Earthquake-resistant design can help mitigate any potential damage from future seismic events.

3.14.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Elderly residents and those with limited mobility may be at greater risk during an earthquake due to challenges in quickly evacuating or seeking safety.
- Low-income households may be more vulnerable if they live in older homes or buildings that have not been retrofitted for seismic safety.
- Residents living in older structures, particularly those built before modern building codes, may be more susceptible to injuries or displacement due to structural damage.

Critical Infrastructure & Assets:
- Bridges, highways, and water infrastructure may be vulnerable to damage from ground shaking, particularly if they have not been designed with seismic resilience in mind.
- Hospitals, emergency response facilities, and schools could face operational challenges if even a minor earthquake causes disruptions to utilities or transportation access.
- Power lines and gas infrastructure could be impacted by seismic activity, potentially leading to power outages or leaks.

Environmental and Cultural Resources:
- Natural resources, such as rivers, lakes, and hillsides, could experience secondary effects from an earthquake, such as landslides or changes in water flow.
- Cultural or historic sites may be vulnerable to damage during even minor seismic events, particularly if they are not reinforced to withstand ground movement.

Potential Consequences for the Community:
- Residents may experience minor structural damage to homes, injuries from falling objects, and disruptions to utilities and services in the event of an earthquake.
- Economic impacts could include the cost of repairing damaged infrastructure, homes, and businesses, particularly if seismic preparedness has not been incorporated into construction.
- Public services, such as emergency response and healthcare, may be delayed or disrupted if roads are damaged or if critical infrastructure is affected.
- Environmental impacts could include landslides, soil erosion, or minor flooding due to changes in watercourses following seismic activity.

3.14.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has implemented building codes that ensure new structures are built with seismic considerations, although the low risk of earthquakes means that retrofitting older buildings is not widespread. Some critical infrastructure has been assessed for potential seismic vulnerabilities.
- Non-structural: Public awareness campaigns have focused on general disaster preparedness, which includes earthquake safety, though these efforts are not as extensive as they are in high-seismic-risk regions.
- Legislative actions: While there are no specific legislative measures in place for earthquake risk, Monroe County follows statewide building codes that incorporate general standards for structural resilience, including seismic considerations.

Proposed Mitigation Strategies:

- Encourage seismic assessments of older buildings and critical infrastructure to identify vulnerabilities and ensure they can withstand minor ground shaking.
- Continue expanding public education efforts on earthquake preparedness, focusing on general safety measures such as drop, cover, and hold on techniques and securing heavy furniture and objects in homes.
- Strengthen emergency response plans to include protocols for responding to minor seismic events, ensuring that public services are prepared to quickly restore utilities and assess damage.
- Seek state and federal funding for infrastructure improvements to mitigate even low-level seismic risks, especially for critical infrastructure such as bridges, hospitals, and emergency response centers.

3.14.7 Conclusion and Recommendations

Key Takeaways:

While the risk of a significant earthquake in Monroe County is very low, minor seismic events are possible and could cause damage to older structures and infrastructure. The county should prioritize public education and seismic assessments of critical infrastructure to ensure resilience in the event of ground shaking.

Next Steps:

Monroe County should continue to incorporate seismic considerations into building and infrastructure projects, while also working to improve public awareness of earthquake safety measures. Seeking grant opportunities to fund structural assessments and potential retrofits for older buildings would help reduce the risks associated with future seismic events, no matter how minor.

3.15 Monroe County - Landslide Risk Assessment

3.15.1 Hazard Overview

Description of Hazard:
Landslides are the movement of rock, soil, or debris down a slope due to gravity. They can occur suddenly or develop over time, often triggered by factors such as heavy rainfall, rapid snowmelt, erosion, or human activity like construction or deforestation. Landslides can cause significant damage to property, infrastructure, and natural resources, and pose a threat to public safety, especially in hilly or mountainous regions. In Monroe County, landslides are most likely to occur in areas with steep terrain, particularly after heavy rain or rapid snowmelt, when the soil becomes saturated and unstable. Landslides can block roads, damage homes, and disrupt water systems, making them a serious concern for rural and hilly areas of the county.

This hazard is addressed in this assessment due to the risks landslides pose to transportation, infrastructure, and public safety in certain parts of Monroe County, particularly in areas with steep slopes and significant erosion.

3.15.2 Location and Extent

Geographic Areas Affected:
Landslides in Monroe County are most likely to occur in areas with significant elevation changes and steep slopes, particularly:

- Hilly regions in the western and southern parts of the county are most vulnerable to landslides, especially where slopes are steep and vegetation cover is minimal.
- Roads and highways that traverse hilly areas are at risk of being blocked or damaged by landslides, particularly after heavy rainfall or snowmelt.
- Residential areas located on or near hillsides may experience property damage due to landslides, particularly where erosion control measures are lacking or where past landslide activity has occurred.
- Rivers and streams may be impacted by landslides, particularly if sediment and debris are washed into water systems, potentially leading to contamination and increased flooding risks.

Extent of Hazard:
The severity of landslides in Monroe County can vary greatly depending on the amount of soil or rock displaced and the speed at which the material moves. Landslides can range from small, localized events that cause minor damage to more significant landslides that block roads or damage multiple properties. Heavy rainfall and rapid snowmelt are common triggers for landslides, as they saturate the soil and increase the likelihood of slope failure. The risk of landslides is heightened in areas with steep slopes, minimal vegetation cover, or where previous landslide activity has destabilized the ground.

3.15.3 Historical Context

Previous Occurrences:
Landslides in Monroe County are rare and typically result in only minor damage. As a result, there is no documented history of significant landslide activity in the area. However, minor landslides were reported following periods of heavy rainfall in 2007, 2008, 2013, and 2018.

Lessons Learned:
Previous landslide events have highlighted the importance of early detection and warning systems, especially in areas susceptible to landslides, such as roadways and residential zones. Erosion control efforts, including the use of retaining walls and reforestation, have been effective in reducing landslide risks in specific locations. Public awareness initiatives have also played a key role in educating residents and property owners about the dangers of landslides and the need to maintain stable slopes around their homes and properties.

3.15.4 Probability of Future Events

Likelihood of Future Occurrences:
Landslides are likely to occur in Monroe County, particularly during periods of heavy rainfall or rapid snowmelt. While the frequency of landslides varies, the county typically experiences several small to moderate landslides each year, particularly in areas with steep terrain. Climate change, which is expected to increase the frequency and intensity of heavy rainfall events, may lead to a higher likelihood of landslides in the future, as soil saturation and erosion become more common.

Changes Due to Climate and Development:
Climate change is expected to increase the likelihood of heavy rain events and intense storms, which can trigger landslides. Additionally, deforestation, construction, and other forms of development on or near hillsides can destabilize slopes, increasing the risk of landslides. Development in landslide-prone areas should be carefully managed to reduce the risk to properties and infrastructure.

3.15.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Residents living in hilly areas are particularly vulnerable to landslides, especially if their homes are located on or near unstable slopes.
- Rural communities that rely on roadways through hilly terrain may be isolated if landslides block access routes.
- Farmers with land on or near hillsides may experience crop loss and property damage if landslides occur on their property.

Critical Infrastructure & Assets:
- Roadways and bridges are highly vulnerable to landslides, particularly in areas with steep terrain or where erosion has already weakened the ground. Landslides can block major transportation routes, causing delays and disrupting emergency response services.
- Utilities, including water lines, sewer systems, and power lines, may be damaged by landslides, particularly if they are located near unstable slopes.
- Waterways can be impacted by landslides, particularly if sediment and debris wash into rivers or streams, increasing the risk of flooding and water contamination.

Environmental and Cultural Resources:
- Forests and natural habitats may be damaged by landslides, particularly if large areas of soil and vegetation are displaced. This can lead to long-term impacts on local ecosystems and wildlife.
- Cultural and historic sites located in landslide-prone areas may be at risk of damage, particularly if erosion or slope instability affects the foundations of buildings or structures.

Potential Consequences for the Community:
- Residents may face property damage, injuries, or displacement due to landslides, particularly in areas with steep slopes or poor erosion control.
- Economic impacts include the costs of clearing debris, repairing damaged roads, and restoring infrastructure affected by landslides. Property values may also decline in areas with a history of landslide activity.
- Public services, such as emergency response, may be delayed or disrupted if landslides block key transportation routes or damage infrastructure.
- Environmental impacts include soil erosion, habitat destruction, and water contamination, particularly if landslides affect rivers or wetlands.

3.15.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has invested in retaining walls, drainage systems, and other erosion control measures in areas prone to landslides, particularly along roadways and in residential areas.
- Non-structural: The county has implemented public awareness campaigns to educate residents about the risks of landslides and the importance of maintaining stable slopes on their properties. In addition, early warning systems have been established in areas with a high risk of landslides, allowing residents to evacuate or take precautions when conditions are favorable for landslides.
- Legislative actions: Zoning laws and building codes in certain areas of Monroe County now require geotechnical assessments before construction is permitted on steep slopes or in landslide-prone areas.

Proposed Mitigation Strategies:

- Continue to invest in slope stabilization projects in high-risk areas, particularly along major roadways and near residential developments.
- Expand reforestation efforts and promote sustainable land management practices to reduce erosion and improve slope stability in rural and forested areas.
- Strengthen early warning systems and improve landslide detection through the use of geospatial technologies and remote sensing to monitor changes in slope stability.
- Increase public education efforts on landslide risks, including how residents can protect their properties and respond to early warnings.
- Seek state and federal grant funding to support landslide mitigation projects, particularly for improving infrastructure resilience in landslide-prone areas.

3.15.7 Conclusion and Recommendations

Key Takeaways:

Landslides pose a significant risk to certain areas of Monroe County, particularly where steep slopes, heavy rainfall, and erosion are present. Improved slope stabilization, early warning systems, and public awareness are critical to reducing the risk of future landslides and protecting property and infrastructure.

Next Steps:

Monroe County should continue to invest in erosion control measures, public education, and infrastructure improvements to reduce the impact of landslides on transportation, property, and public safety. Expanding reforestation and sustainable land management practices will also help reduce the risk of future landslides. Seeking grant funding for additional mitigation projects will ensure the county is prepared to manage and reduce landslide risks.

3.16 Monroe County - Subsidence Risk Assessment

3.16.1 Hazard Overview

Description of Hazard:
Subsidence is the gradual settling or sudden sinking of the ground surface due to the removal of underground material such as water, oil, natural gas, or minerals, or the collapse of subterranean voids. In Monroe County, subsidence can occur as a result of natural processes like the dissolution of limestone or human activities such as mining, groundwater extraction, or construction. Subsidence can cause structural damage to buildings, roads, bridges, and utilities, and may lead to the formation of sinkholes. It can also disrupt drainage systems, causing localized flooding. Although subsidence is relatively rare in Monroe County, areas with a history of mining or where karst topography is present may be more vulnerable.

This hazard is addressed in this assessment due to the potential risk to infrastructure and property, particularly in areas with underlying geological vulnerabilities or where human activities increase the risk of subsidence.

3.16.2 Location and Extent

Geographic Areas Affected:
Subsidence risks in Monroe County are localized but can be significant in certain areas:

- Areas with karst topography, where limestone or dolomite rock formations are present, are at greater risk of subsidence and sinkholes due to the dissolution of rock by water over time.
- Former mining areas, particularly those with underground tunnels or shafts, may be prone to subsidence if old mines collapse or deteriorate.
- Urban and rural areas that rely heavily on groundwater extraction may experience subsidence due to the depletion of underground aquifers, which can lead to surface sinking.
- Infrastructure such as roads, bridges, and pipelines may be at risk in subsidence-prone areas, particularly if they are built over unstable ground.

Extent of Hazard:
Subsidence in Monroe County can range from minor settling that affects individual properties to more severe events that lead to significant damage to infrastructure, including roads, buildings, and utilities. In areas with karst topography, sinkholes can form suddenly, creating dangerous voids that can collapse roads or damage structures. In mining areas, subsidence is typically more gradual but can still cause long-term damage to the surface and structures above.

3.16.3 Historical Context

Previous Occurrences:
Subsidence events in Monroe County have been relatively uncommon, and no significant incidents have been documented within the County. However, other regions with similar karst topography have experienced major subsidence events, highlighting the potential risk in areas like Monroe County.

Lessons Learned:
These events in other areas highlight the need for geotechnical assessments in areas prone to subsidence in Monroe County, particularly before construction or development. Improved monitoring and early detection systems have been recommended to identify subsidence risks before they lead to significant damage. Public awareness campaigns have also been critical in educating residents about the signs of subsidence and the importance of proper land use management in vulnerable areas.

3.16.4 Probability of Future Events

Likelihood of Future Occurrences:
Subsidence events in Monroe County are considered unlikely but possible in specific areas, particularly those with karst topography or a history of mining activity. Groundwater extraction in rural areas could also increase the likelihood of future subsidence if aquifers are depleted. While large-scale subsidence events are rare, small sinkholes or gradual surface sinking could occur in areas where the underlying geological conditions are prone to collapse.

Changes Due to Climate and Development:
Climate change may increase the likelihood of subsidence in Monroe County by intensifying rainfall events, which can accelerate the erosion of underground rock in areas with karst topography. Additionally, increased development in rural areas could exacerbate subsidence risks if construction takes place on unstable ground or if groundwater extraction increases to meet growing demand.

3.16.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Residents living in areas with karst topography or near former mining sites are most vulnerable to subsidence and sinkhole formation, particularly if their homes or properties are built on unstable ground.
- Farmers and landowners in rural areas may experience land subsidence that impacts crop production, livestock, or the stability of farm infrastructure.
- Low-income households may be less able to afford repairs or mitigation measures if their homes are damaged by subsidence or sinkholes.

Critical Infrastructure & Assets:
- Roads and bridges built over subsidence-prone areas may experience damage or collapse, leading to transportation disruptions and expensive repairs.
- Water and sewer lines, as well as other utilities, may be damaged by ground shifting or sinkholes, leading to service interruptions or contamination risks.
- Buildings and homes, particularly those without foundation reinforcements, may experience structural damage or collapse due to subsidence.

Environmental and Cultural Resources:
- Natural landscapes in areas with karst topography may experience changes due to subsidence, including the formation of sinkholes and altered drainage patterns.
- Historic and cultural sites located in subsidence-prone areas could be at risk of damage if the ground shifts or collapses, potentially leading to the loss of valuable heritage.

Potential Consequences for the Community:
- Residents may face displacement, property damage, or injuries due to subsidence events, particularly if sinkholes form suddenly or if gradual subsidence affects homes and infrastructure.
- Economic impacts include the cost of repairing roads, utilities, and buildings damaged by subsidence, as well as potential decreases in property values in affected areas.
- Public services, such as emergency response and infrastructure repair, may be delayed or disrupted if subsidence affects key transportation routes or utility networks.
- Environmental impacts include changes to soil stability, water quality issues from sinkholes affecting water supplies, and potential loss of agricultural productivity due to shifting ground.

3.16.6 Mitigation Opportunities

Current and Past Mitigation Efforts:
- Structural: Monroe County has undertaken geotechnical assessments and soil stabilization projects in areas identified as vulnerable to subsidence, particularly near former mining sites and areas with karst topography.

- Non-structural: Public education campaigns have been launched to inform residents about the risks of subsidence and how to recognize early warning signs of ground instability, such as cracks in the ground or sudden changes in land elevation.
- Legislative actions: Zoning laws and building codes in certain areas of Monroe County now require geotechnical evaluations before construction, particularly in subsidence-prone regions.

Proposed Mitigation Strategies:

- Expand monitoring programs to include ground-penetrating radar or other technologies to identify areas at risk of subsidence before it occurs.
- Promote the development of sinkhole insurance or subsidence-related insurance for property owners in high-risk areas.
- Increase public awareness campaigns to ensure residents understand the risks of subsidence and how to identify early warning signs.
- Encourage the use of alternative water management practices in areas dependent on groundwater, to reduce the risk of subsidence due to aquifer depletion.
- Seek state and federal funding to support geotechnical studies, infrastructure reinforcement, and remediation efforts in areas at risk of subsidence.

3.16.7 Conclusion and Recommendations

Key Takeaways:

While subsidence is relatively rare in Monroe County, it poses a significant risk in areas with karst topography, mining history, or heavy groundwater use. Enhanced monitoring, public education, and geotechnical evaluations are critical to reducing the risk of future subsidence events and protecting infrastructure and property.

Next Steps:

Monroe County should continue to invest in subsidence monitoring systems, expand geotechnical assessments for new developments, and enhance public awareness about the risks of subsidence. Securing grant funding to support these efforts will help ensure that Monroe County is prepared to manage and mitigate future subsidence risks.

Biological Hazards

3.17 Monroe County - Forest/Wildland Fire Risk Assessment

3.17.1 Hazard Overview

Description of Hazard:
Forest and wildland fires are uncontrolled fires that occur in forested, brush, or grassland areas. These fires can spread rapidly, particularly during dry, windy conditions, and can cause significant damage to property, wildlife, and natural resources. Wildland fires are often ignited by natural causes, such as lightning, but human activity, such as campfires, discarded cigarettes, or equipment use, can also lead to fire outbreaks. In Monroe County, the risk of wildland fires is highest during dry periods in late spring, summer, and early fall, especially in areas with dense forests and underbrush. These fires can threaten rural communities, destroy agricultural and forested lands, and severely impact air quality and public health.

This hazard is addressed in this assessment due to the potential for forest and wildland fires to cause extensive environmental damage and pose a threat to public safety in Monroe County.

3.17.2 Location and Extent

Geographic Areas Affected:
Forest and wildland fires can affect large portions of Monroe County, particularly:

- Heavily forested areas, particularly in state parks, wildlife reserves, and rural lands, are most vulnerable to wildfires, especially during dry seasons.
- Rural communities near forested areas and farmland are at higher risk of fire spreading from wildland to residential properties.
- Critical infrastructure, including transportation routes, power lines, and emergency services, may be impacted by fires that block roads or disrupt utilities.
- Agricultural lands adjacent to wildland areas are also at risk, with potential loss of crops, livestock, and farm structures during wildfires.

The Wisconsin Department of Natural Resources assesses the risk of each community for forest and wildland fires. Figure 3.17.2 on the following page shows these risk assessments. Communities in northern Monroe County are almost universally considered areas of concern, with the exception of the City of Tomah. In southern Monroe County, only the Town of Sheldon and the Village of Melvina are identified as areas of concern. This is expected, as these areas are more heavily forested than other areas of the County.

Map 3.8 Monroe County Communities
With Concern of Wildfire

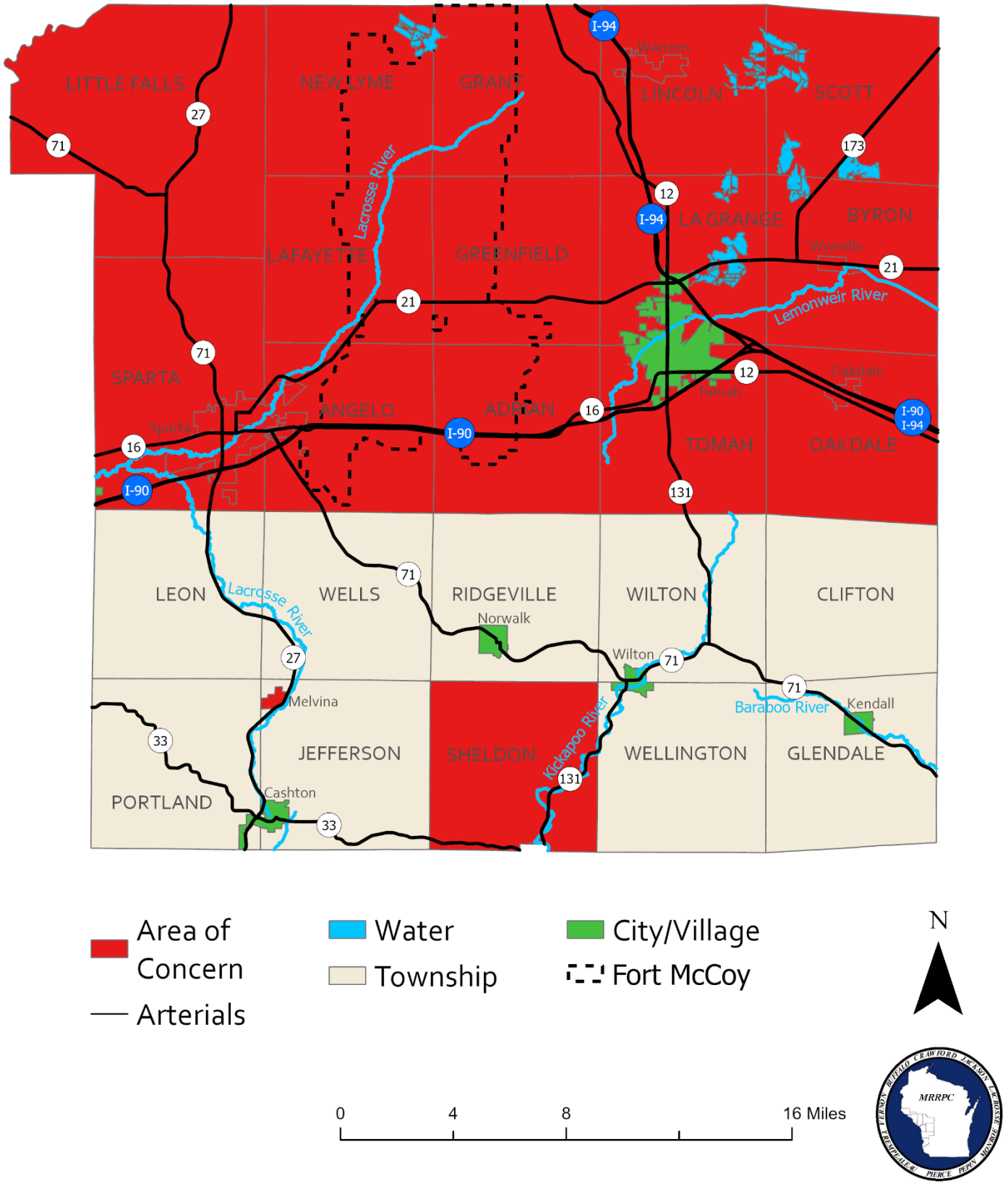


Figure 3.17.2 Monroe County Communities with Concern of Wildfire

Extent of Hazard:
The severity of forest and wildland fires depends on several factors, including the type of vegetation, weather conditions, and topography. Fires in Monroe County can range from small, localized grass fires to large forest fires that spread over hundreds or even thousands of acres. Wildfires can destroy homes, infrastructure, and crops while also leading to the evacuation of communities. Fire intensity can be measured using the National Fire Danger Rating System (NFDRS), which categorizes the potential for fire spread based on current weather and vegetation conditions. During extreme drought conditions, fire risks are high, and large fires can rapidly spread, overwhelming firefighting resources.

3.17.3 Historical Context

Previous Occurrences:
Monroe County has experienced several wildland fire events over the past few decades:

- **April 2000:** A wildfire in the Town of Little Falls, driven by strong northwest winds with gusts up to 55 mph, burned nearly 800 acres. While homes were evacuated, no structures were damaged, and firefighters were able to contain the blaze.
- **September 2012:** A wildfire in the Necedah National Wildlife Refuge caused severe smoke that led to two severe car crashes in Monroe County, killing one woman and seriously injuring another. The fire, which burned nearly 57 acres, was started by a hawk tangled in power lines. Crews from the Warrens Fire Department, Wisconsin DNR, and U.S. Fish and Wildlife contained the fire within four hours, though it wasn't fully extinguished until mid-October. State Highway 173 was closed for several days due to poor visibility caused by the smoke.
- **April 2023:** A 3,168-acre wildfire occurred across Monroe County, with 109 acres outside of Fort McCoy boundaries. Roughly 150 personnel were involved in the firefighting effort and were eventually able to 100% contain the fire.

Figure 3.17.3: Scene from the April 2023 Wildfire

Lessons Learned:
Past wildland fire events have highlighted the importance of maintaining firebreaks and reducing fuel loads through controlled burns and forest management practices. The rapid spread of fire during dry, windy conditions has also demonstrated the need for more robust public warning systems and improved firefighting capabilities in rural areas. Cooperation between local fire departments and state forestry services has been essential for coordinating effective fire suppression efforts.

3.17.4 Probability of Future Events

Likelihood of Future Occurrences:
Wildland fires in Monroe County are likely to occur in the future, particularly during periods of dry weather. Based on historical data, small grassfires and brushfires occur almost every year, while larger wildfires affecting forested areas happen less frequently but are still a significant concern. The risk of wildland fires increases during drought conditions or in the presence of high winds, and climate change may exacerbate these risks by prolonging dry periods and increasing the frequency of extreme weather events.

Changes Due to Climate and Development:
Climate change may lead to longer dry periods and increased temperatures, which would heighten the risk of wildland fires in Monroe County. Additionally, urban development in forested areas, particularly near the wildland-urban interface, could increase the number of people and structures at risk from future fires. Proper land-use planning and fire-resistant building practices will become increasingly important as development expands into areas vulnerable to wildland fires.

3.17.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Rural residents living near heavily forested areas are most at risk during wildland fires, particularly those in isolated communities where emergency response may be delayed.
- Elderly and disabled populations may have difficulty evacuating quickly in the event of a rapidly spreading fire.
- Farmers are vulnerable to fire-related losses, particularly the destruction of crops, livestock, and essential infrastructure such as barns, fences, and equipment.

Critical Infrastructure & Assets:
- Power lines and utilities running through forested areas are vulnerable to fire damage, leading to power outages and disruptions in essential services.
- Roadways and bridges may be damaged or blocked by fire, impeding evacuation efforts and emergency response.
- Water sources, including rivers, lakes, and reservoirs, could be impacted by runoff from burned areas, leading to water quality issues.

Environmental and Cultural Resources:
- Forests, wildlife habitats, and wetlands are particularly vulnerable to damage from wildland fires, which can lead to habitat loss, soil erosion, and long-term degradation of ecosystems.
- Cultural or historic sites located near forested areas could be damaged or destroyed during wildland fires, particularly if they are not fire-resistant.

Potential Consequences for the Community:
- Residents may be displaced, and there may be loss of life, property, and livelihoods due to wildland fire.
- Economic impacts could include significant losses to agriculture, forestry, and tourism, particularly if large areas of forested land are destroyed.
- Public services, including firefighting, emergency response, and healthcare, may be overwhelmed during major fire events, particularly if transportation routes or utilities are affected.
- Environmental impacts include destruction of ecosystems, loss of wildlife, and reduced air and water quality due to smoke and ash from fires.

3.17.6 Mitigation Opportunities

Current and Past Mitigation Efforts:
- **Structural:** Monroe County has invested in firebreaks and controlled burns to reduce the risk of wildland fires spreading in high-risk areas. In addition, local fire departments have acquired new firefighting equipment to improve their ability to respond to rural wildfires.

- **Non-structural:** Public education programs on wildfire prevention have been implemented to raise awareness about safe fire practices, including responsible campfire use and debris burning.
- **Legislative actions:** Zoning laws have been updated to encourage fire-resistant building materials and defensible space around homes and businesses located near forested areas.

Proposed Mitigation Strategies:

- Increase the use of controlled burns and vegetation management to reduce fuel loads in forested areas.
- Strengthen public education on fire prevention and evacuation procedures, especially for residents living near forests and rural areas.
- Invest in improving firefighting infrastructure, such as water storage systems in remote areas and enhanced equipment for local fire departments.
- Continue promoting fire-resistant building practices and defensible space guidelines for homeowners in at-risk areas.
- Seek state and federal grant funding for wildfire mitigation projects, including equipment upgrades and fuel reduction programs.

3.17.7 Conclusion and Recommendations

Key Takeaways:

Wildland fires pose a significant risk to Monroe County's rural communities, forests, and agricultural lands. Proper land management, fire prevention education, and improved firefighting capabilities are essential to reducing the risk and impact of future fires.

Next Steps:

Monroe County should continue to enhance public awareness of fire risks, improve fire management practices, and expand firebreaks and controlled burns in high-risk areas. Securing grant funding for firefighting infrastructure and public education campaigns will be crucial to improving fire preparedness and response capabilities in the county.

3.18 Monroe County - Agricultural Risk Assessment

3.18.1 Hazard Overview

Description of Hazard:
Agriculture is a critical component of Monroe County's economy and rural life. However, it is vulnerable to a wide range of hazards, including extreme weather events (drought, floods, extreme heat, and cold), pest infestations, crop diseases, and market fluctuations. These hazards can lead to reduced crop yields, loss of livestock, soil degradation, and significant financial losses for farmers. The risk to agriculture in Monroe County is particularly acute during extreme weather events, which are becoming more frequent and intense due to climate change. These hazards can disrupt planting and harvesting cycles, damage infrastructure, and lead to long-term degradation of farmland.

This hazard is addressed in this assessment due to the economic and social importance of agriculture in Monroe County and the significant risks posed by both natural and economic factors to the agricultural sector.

3.18.2 Location and Extent

Geographic Areas Affected:
Agricultural risk can impact the entire county, but certain areas and farms are more vulnerable depending on the type of hazard:

- Low-lying areas are particularly vulnerable to flooding, which can damage crops and erode soil.
- Hilly regions may experience increased soil erosion during heavy rainfall or drought, affecting both crops and livestock operations.
- Crop and livestock farms are vulnerable to extreme weather events, pests, and disease outbreaks, all of which can lead to reduced yields or the loss of livestock.
- Rural infrastructure, including roads, irrigation systems, and barns, may be vulnerable to damage from severe weather, impacting the transportation and storage of agricultural products.

Extent of Hazard:
Agricultural risks in Monroe County vary in severity depending on the type of hazard. Droughts can lead to severe reductions in crop yields and water shortages, while floods can destroy crops and wash away valuable topsoil. Pest infestations and plant diseases can spread rapidly, affecting large portions of farmland. Economic risks, such as market fluctuations, trade disruptions, or changes in commodity prices, can compound natural hazards, leading to financial stress for farmers. The USDA monitors these risks through programs that provide farmers with information on weather patterns, pest activity, and market conditions.

3.18.3 Historical Context

Previous Occurrences:
Monroe County has experienced several significant agricultural losses due to natural hazards and economic factors:

- **July 2012 Drought:** One of the worst droughts in decades severely affected Monroe County, leading to significant crop losses, particularly for corn and soybeans. Livestock operations were also affected due to reduced availability of feed and water. The drought led to the declaration of a federal disaster area, allowing farmers to access emergency aid.
- **August 2018 Flooding:** Heavy rains caused widespread flooding across Monroe County, leading to waterlogged fields and the destruction of crops. The event also caused significant soil erosion and damaged farm infrastructure, including barns and irrigation systems. This flooding led to a federal disaster area.

Lessons Learned:
These events have highlighted the importance of risk management in agriculture, including the need for crop insurance, disaster preparedness, and infrastructure resilience. Investments in drainage systems, irrigation improvements, and soil conservation practices have helped some farmers mitigate the impacts of future weather-related hazards. Additionally, farmers have turned to diversification of crops and livestock as a strategy to spread risk.

3.18.4 Probability of Future Events

Likelihood of Future Occurrences:
Agricultural risks in Monroe County are highly likely to continue. Extreme weather events, such as droughts, floods, and extreme temperatures, are becoming more frequent due to climate change. Pest infestations and plant diseases are also expected to become more problematic as climate change alters growing conditions. Economic risks related to market volatility, trade disputes, and changing consumer demand are also ongoing concerns for farmers.

Changes Due to Climate and Development:
Climate change is expected to increase both the frequency and intensity of extreme weather events, including heat waves, droughts, and heavy rainfall, all of which pose significant risks to Monroe County's agricultural sector. Changes in development patterns, including the expansion of urban areas, may place additional pressure on farmland, reducing available agricultural land and increasing competition for resources such as water.

3.18.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Small-scale farmers are particularly vulnerable to economic risks, as they may lack the resources to recover from crop losses or price fluctuations.
- Low-income agricultural workers may face challenges if extreme weather or economic conditions lead to job losses or reduced wages.
- Livestock operations are vulnerable to extreme heat and cold, which can threaten animal health and lead to losses if adequate shelter and water are not available.

Critical Infrastructure & Assets:
- Farm buildings, including barns, grain storage facilities, and greenhouses, are vulnerable to damage from extreme weather events, such as high winds, heavy snow, and flooding.
- Irrigation systems and water supply networks are critical to maintaining agricultural productivity during droughts and heat waves but are vulnerable to disruption or damage during floods or other severe weather events.
- Transportation networks are essential for moving agricultural products to market, and any damage to roads, bridges, or railways can severely disrupt the agricultural supply chain.

Environmental and Cultural Resources:
- Soil health is a critical resource for agriculture, and soil erosion caused by heavy rainfall or drought can reduce the long-term productivity of farmland.
- Water resources are essential for both crops and livestock, and extreme drought conditions can deplete water supplies, leading to shortages for farms and communities.
- Forested areas and wildlife habitats that are integrated with or adjacent to farmland may be negatively impacted by changes in agricultural practices, such as increased pesticide use or land clearing.

Potential Consequences for the Community:
- Farmers may face significant financial losses due to crop failure, livestock deaths, or damage to infrastructure. This could lead to increased debt, farm closures, or reduced agricultural output.
- Economic impacts could extend beyond the agricultural sector, affecting the broader community as the local economy is closely tied to farming activities. Reduced yields can lead to higher prices for consumers and decreased income for farm-dependent businesses.
- Environmental consequences include loss of topsoil, degradation of water quality due to runoff, and long-term impacts on the local ecosystem.
- Public services, such as emergency response and infrastructure repair, may be strained during major agricultural disasters, especially if roads, power lines, or water systems are damaged.

3.18.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Farmers in Monroe County have invested in drainage systems, irrigation technology, and windbreaks to protect crops and reduce the impact of extreme weather.
- Non-structural: Participation in crop insurance programs and disaster relief programs has helped many farmers recover from losses. Monroe County has also promoted sustainable farming practices such as crop rotation, cover cropping, and no-till farming to improve soil health and resilience.
- Legislative actions: The Monroe County Land Conservation Department works with state and federal agencies to support agricultural resilience programs and environmental conservation initiatives, such as farmland preservation efforts, which help farmers protect agricultural land and promote sustainable land management practices.

Proposed Mitigation Strategies:

- Encourage more farmers to participate in federal crop insurance programs and explore new insurance options for livestock and specialty crops.
- Promote soil conservation techniques, such as no-till farming, cover crops, and erosion control practices, to protect the long-term productivity of Monroe County's farmland.
- Expand irrigation infrastructure to better prepare for droughts and heat waves and invest in drainage improvements to reduce the impact of flooding on farmland.
- Strengthen public education campaigns to help farmers and agricultural workers understand the risks of climate change and adopt more resilient farming practices.
- Seek state and federal funding to support infrastructure improvements, such as the reinforcement of barns, irrigation systems, and transportation networks, to withstand severe weather events.

3.18.7 Conclusion and Recommendations

Key Takeaways:

Agricultural risks in Monroe County are significant and likely to increase as a result of climate change, extreme weather events, and economic volatility. Monroe County's farmers need to prioritize resilience strategies to protect crops, livestock, and infrastructure from these ongoing threats.

Next Steps:

Monroe County should continue to support sustainable farming practices, improve irrigation and drainage systems, and expand education and insurance programs to help farmers prepare for and recover from agricultural risks. Additionally, working to secure grant funding for infrastructure improvements will be key to protecting the county's agricultural sector from future hazards

3.19 Monroe County - Pandemic Flu Risk Assessment

3.19.1 Hazard Overview

Description of Hazard:
A pandemic flu is a global outbreak of a new influenza virus that causes widespread illness due to a lack of immunity in the population. Pandemic flu can spread rapidly, leading to significant illness, hospitalizations, and death, as well as disruptions to daily life, the economy, and healthcare systems. Unlike seasonal flu, which occurs annually, pandemic flu is unpredictable in its occurrence, severity, and duration. Monroe County, like other communities, would face serious challenges during a pandemic flu, including overwhelmed healthcare services, shortages of medical supplies, disruptions to essential services, and economic impacts. A pandemic flu could have long-lasting effects on public health and the local economy if not properly managed.

This hazard is addressed in this assessment due to the significant health, social, and economic risks posed by pandemic flu, particularly in light of the global experiences with pandemics such as the 2009 H1N1 flu and the COVID-19 pandemic.

3.19.2 Location and Extent

Geographic Areas Affected:
A pandemic flu can affect the entire county, with certain areas and populations at higher risk of severe impacts:

- Urban areas and high-density communities may experience faster transmission rates due to closer contact among individuals.
- Healthcare facilities may become overwhelmed by a surge in patients, particularly if a pandemic flu strain causes severe illness.
- Elderly populations, long-term care facilities, and individuals with preexisting health conditions are at greater risk of severe complications or death from pandemic flu.
- Rural areas may experience challenges accessing healthcare and medical resources, particularly if transportation and supply chains are disrupted during a pandemic.

Extent of Hazard:
A pandemic flu could have wide-ranging impacts on public health, with illness rates potentially affecting a significant portion of the population. Hospitalization and mortality rates would depend on the severity of the flu strain and the availability of medical resources. Pandemic flu could also disrupt essential services, such as transportation, education, and commerce, due to illness among workers or public health restrictions to limit transmission. The Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) typically issue alerts and guidelines to manage pandemic flu, but the exact extent of the hazard would depend on the specific characteristics of the virus and the effectiveness of public health measures.

3.19.3 Historical Context

Previous Occurrences:
Several global and national pandemic flu events have affected the United States and could serve as a reference for potential impacts in Monroe County:

- **1918 Spanish Flu:** The most severe pandemic flu in modern history, the Spanish Flu caused an estimated 50 million deaths worldwide, including hundreds of thousands in the United States. It disproportionately affected young, healthy adults and overwhelmed healthcare systems across the country.
- **2009 H1N1 Influenza Pandemic:** This pandemic flu outbreak resulted in widespread illness across the United States, including in Wisconsin. The H1N1 virus caused mild to moderate illness in most people, but there were significant hospitalizations and deaths among young children, pregnant women, and people with underlying health conditions.
- **COVID-19 Pandemic:** While caused by a coronavirus and not influenza, the COVID-19 pandemic provides important lessons for pandemic preparedness. Monroe County, like much of the world, experienced significant

disruptions to public health services, the economy, and daily life, highlighting the importance of pandemic planning and response measures.

Lessons Learned:
Past pandemics have shown the importance of early detection, rapid public health response, and the availability of medical supplies, including vaccines, antivirals, and personal protective equipment (PPE). Public communication is critical to ensuring that residents understand the risks and follow safety guidelines such as social distancing, mask-wearing, and vaccination campaigns. Coordination between local, state, and federal health agencies is essential to managing healthcare resources and ensuring that vulnerable populations receive necessary care.

3.19.4 Probability of Future Events

Likelihood of Future Occurrences:
Pandemic flu is considered likely to occur again in the future, although the timing and severity of such an event are unpredictable. The World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) consider pandemic flu to be a recurring global health threat. Given historical trends, another flu pandemic is expected, though the specific strain, its transmissibility, and the severity of the illness will vary. Advances in vaccine development, public health infrastructure, and surveillance systems may help reduce the impact of future pandemics, but the risk remains.

Changes Due to Climate and Development:
While climate change may not directly influence the emergence of pandemic flu, increased global travel, urbanization, and population density could increase the speed and scale of transmission. Additionally, global trade and supply chain dependencies could exacerbate shortages of medical supplies, food, and other essentials during a pandemic.

3.19.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Elderly residents and individuals with chronic health conditions are at the highest risk for severe illness or death from pandemic flu.
- Healthcare workers are vulnerable due to their increased exposure to infected individuals and may experience high levels of illness or burnout during a pandemic.
- Low-income households may face greater challenges accessing medical care, vaccines, and basic supplies during a pandemic, particularly if they lack health insurance or transportation to healthcare facilities.
- Rural populations may be more vulnerable due to limited access to healthcare services, particularly if hospitals are overwhelmed by patients or if transportation networks are disrupted.

Critical Infrastructure & Assets:
- Hospitals and healthcare facilities will likely face significant strain during a pandemic, particularly if large numbers of patients require intensive care or ventilator support.
- Pharmacies and supply chains for essential medical goods, including vaccines, antivirals, and PPE, may be disrupted, leading to shortages.
- Public services, including emergency response, law enforcement, and utilities, may be affected if workers become ill or if quarantine measures disrupt normal operations.
- Schools, businesses, and government offices may experience closures or reduced operations during a pandemic, particularly if public health measures require physical distancing or if illness rates are high.

Environmental and Cultural Resources:
- Environmental impacts of a pandemic flu are likely to be minimal, though wildlife and livestock populations may be affected if the virus spreads between animals and humans (zoonotic transmission).
- Cultural events, public gatherings, and religious services may be canceled or restricted during a pandemic to limit transmission, potentially affecting community cohesion and mental health.

Potential Consequences for the Community:

- Residents may face serious illness or death from pandemic flu, particularly if they are part of vulnerable populations or do not have access to healthcare.
- Economic impacts could include significant losses for businesses due to closures, reduced consumer demand, or supply chain disruptions. Local government revenues may decline as a result of decreased economic activity and increased spending on public health measures.
- Public services could be severely disrupted if large numbers of workers fall ill or if quarantine and isolation measures limit the availability of staff.
- Social impacts include increased stress, anxiety, and isolation, particularly if public health measures require physical distancing or prolonged shelter-in-place orders.

3.19.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has developed pandemic response plans and participated in public health preparedness exercises to improve the ability to respond to future pandemics. Healthcare facilities have expanded stockpiles of medical supplies and PPE to reduce shortages during pandemics.
- Non-structural: Public education campaigns on flu prevention, vaccination, and hygiene practices have been implemented to reduce the spread of infectious diseases. Pandemic surveillance systems have been established to monitor and detect emerging flu strains and other infectious diseases.
- Legislative actions: Monroe County follows state and federal public health guidelines for pandemic response, including mandates for vaccination campaigns, isolation and quarantine measures, and emergency declarations.

Proposed Mitigation Strategies:

- Increase investment in public health infrastructure, including expanded hospital capacity and intensive care units, to better handle surges in patients during pandemics.
- Strengthen vaccine distribution systems and ensure that priority populations, such as the elderly and healthcare workers, receive timely access to vaccines during a pandemic.
- Expand public health education on the importance of vaccination, social distancing, and hygiene practices to reduce transmission during flu outbreaks.
- Promote continuity of operations planning for businesses, schools, and government agencies to ensure essential services continue during pandemics, even if employees are working remotely or in reduced numbers.
- Seek state and federal funding to support pandemic preparedness, including stockpiling of critical medical supplies, strengthening surveillance systems, and expanding public health services.

3.19.7 Conclusion and Recommendations

Key Takeaways:

Pandemic flu poses a serious threat to Monroe County, particularly in terms of public health, economic stability, and the capacity of the healthcare system. Preparing for future pandemics requires investment in public health infrastructure, public education, and coordinated response plans.

Next Steps:

Monroe County should continue to enhance pandemic preparedness efforts, including vaccine distribution, public health surveillance, and emergency response planning. Expanding public education and securing grant funding for pandemic mitigation efforts will be key to protecting the community from future pandemics.

Technological and Human-made Hazards

3.20 Monroe County - Railroad Risk Assessment

3.20.1 Hazard Overview

Description of Hazard:
Railroads play a vital role in Monroe County's transportation network, moving freight, agricultural products, and other goods. Monroe County is served by two major rail lines. The Canadian Pacific line runs east-west through the center of the county, passing through Rockland, Sparta, Fort McCoy, Tomah, and Oakdale before following Interstate 94 out of the county. The Union Pacific operates in the northeast, with two track routes: one starting in Oakdale north of I-94, running northwest through Wyeville and Warrens, and exiting the county near Grant; the other extending from Wyeville west to Tunnel City.

However, railroad operations also present risks, including derailments, collisions, hazardous material spills, and accidents at railway crossings. Train derailments can lead to severe environmental damage, fires, explosions, and loss of life, particularly if hazardous materials are involved. Additionally, accidents at rail crossings pose safety risks for motorists and pedestrians. Monroe County's proximity to key rail corridors increases the risk of these events, especially near residential areas, schools, and major roads. Effective mitigation strategies, public safety education, and infrastructure upgrades are critical to managing railroad-related hazards in the county.

This hazard is addressed in this assessment due to the potential risks that railroads pose to public safety, infrastructure, and the environment, especially in the event of derailments or hazardous material spills.

3.20.2 Location and Extent

Geographic Areas Affected:
Railroad hazards can affect various areas in Monroe County, particularly those in close proximity to the two active rail lines:

- Urban and residential areas located near railway tracks, where train derailments or accidents at crossings could lead to injuries, property damage, or fatalities.
- Agricultural regions, where train derailments could impact fields or livestock if hazardous materials are released.
- Highway-railroad crossings are particularly vulnerable, as collisions between vehicles and trains at crossings can result in severe injuries and fatalities.
- Waterways and natural areas near rail lines, where derailments could lead to contamination of rivers, streams, or ecosystems due to hazardous material spills.

Extent of Hazard:
Railroad-related accidents can range from minor incidents at crossings to catastrophic derailments involving multiple cars and hazardous materials. Train derailments can lead to fires, explosions, and toxic releases that may affect large areas, while collisions at crossings can result in loss of life and damage to vehicles and infrastructure. The severity of the hazard depends on the speed and type of train, the nature of the cargo, and the proximity to population centers or sensitive environmental areas. In particular, trains carrying hazardous chemicals, such as oil, gases, or corrosive materials, pose a heightened risk to public safety and the environment.

While these risks are significant, it's notable that the only deaths observed in Monroe County related to railroad accidents so far have been from suicide, underscoring the complexity of safety concerns surrounding railways.

3.20.3 Historical Context

Previous Occurrences:
Monroe County has experienced several railroad-related incidents in recent history:

- **December 3, 2003:** A rail incident occurred near Sparta, Wisconsin, when a westbound train triggered a dragging equipment detector and went into emergency mode. Upon inspection, one car was found derailed with no hazardous materials involved, and there were no injuries. Another car was discovered to have detached about a mile east of the derailment. The cause was attributed to truck hunting, resulting in $58,000 in total damage.
- **January 7, 2017:** A train shoved 42 empty and 38 loaded cars in an eastward direction near Tomah. The train approached a crossover switch that was not properly aligned, causing the engineer to apply emergency braking. Despite these efforts, the train passed through the crossing, leading to a collision with two loaded sand cars. Fortunately, no derailment or track damage was reported. The total damage resulting from the incident amounted to $48,014.
- **November 11, 2021:** A train on the Union Pacific Railroad pulling 39 loaded sand cars eastward derailed five cars due to a broken rail near the close to Wyeville, Wisconsin. The incident resulted in $296,232 in total damages. This is the most damage reported in a single incident in recent history.

Lessons Learned:
Past railroad accidents in Monroe County have demonstrated the importance of railroad crossing safety and the need for early detection systems to identify derailments and mitigate the risks associated with hazardous materials. The county has also recognized the importance of emergency response training for rail-related accidents, particularly those involving hazardous materials. Public awareness campaigns about railroad safety, especially at crossings, have proven essential in reducing the risk of accidents.

3.20.4 Probability of Future Events

Likelihood of Future Occurrences:
Railroad-related accidents are considered likely to occur in Monroe County, given the frequency of train operations through the region. Train derailments, while relatively rare, remain a possibility, particularly during severe weather or due to mechanical failures. Collisions at crossings are a more frequent occurrence and are expected to continue unless safety measures are improved. The probability of accidents involving hazardous materials is lower but presents a significant risk due to the potentially severe consequences of a spill or fire.

Changes Due to Climate and Development:
As climate change leads to more extreme weather events, such as heavy rain or flooding, the likelihood of track damage or washouts may increase, raising the risk of derailments. Development patterns, including the expansion of urban areas or increased rail traffic, may also exacerbate the risks, particularly if new housing or infrastructure is built close to railway lines. Increased freight transport through Monroe County could lead to a higher likelihood of accidents if adequate safety measures are not implemented.

3.20.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Residents living near rail lines are at heightened risk of injury or death in the event of a derailment, hazardous material spill, or collision at a crossing.
- Drivers and pedestrians who frequently cross railway tracks, particularly at unmarked or rural crossings, face greater risks of accidents.
- Emergency responders are vulnerable during derailments involving hazardous materials, as they may be exposed to toxic chemicals, fires, or explosions.
- Schools and other community facilities located near railway tracks may be vulnerable in the event of a major rail accident or hazardous materials spill.

Critical Infrastructure & Assets:

- Roads and highways near railroad tracks are vulnerable to closures or damage following derailments, particularly if hazardous materials are spilled or if rail cars block crossings.
- Waterways may be affected by hazardous material spills from derailed trains, leading to contamination of rivers and streams, which can affect both drinking water and local ecosystems.
- Utilities such as gas lines, water lines, and power cables near rail lines may be damaged during derailments or accidents, leading to service disruptions.

Environmental and Cultural Resources:

- Natural habitats near rail lines may be severely impacted by hazardous material spills, particularly if chemicals seep into soil, rivers, or wetlands.
- Historic or cultural sites located near railways could be at risk of damage in the event of a derailment or hazardous materials spill.

Potential Consequences for the Community:

- Residents may face injuries, loss of life, or displacement due to railroad-related accidents, particularly if hazardous materials are involved.
- Economic impacts include delays in freight transport, the costs of cleaning up hazardous spills, and repairs to damaged infrastructure. Local businesses may also suffer if rail transport is disrupted.
- Public services, including emergency response and healthcare, may be overwhelmed by the scale of a derailment or hazardous material spill, particularly if multiple injuries occur or if residents must be evacuated.
- Environmental impacts could include long-term contamination of soil and water, harm to local wildlife, and destruction of natural habitats.

3.20.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has implemented railroad crossing upgrades, including the installation of lights, gates, and signals at high-risk crossings. Additionally, track maintenance and inspection programs have been prioritized to reduce the risk of derailments.
- Non-structural: The county has participated in public safety campaigns to raise awareness about the dangers of rail crossings and has partnered with rail companies to conduct safety drills for first responders. Railway emergency response training is provided to local fire and police departments to better prepare them for potential derailments and hazardous material spills.
- Legislative actions: Monroe County follows federal and state regulations for rail safety, including standards for track maintenance, crossing safety, and hazardous material transport.

Proposed Mitigation Strategies:

- Increase investment in railroad crossing safety, particularly in rural areas, by installing additional signals, lights, and gates to reduce the risk of collisions.
- Promote public education campaigns focused on railroad safety, especially for drivers, pedestrians, and schoolchildren, to ensure residents understand the risks at crossings.
- Strengthen collaborative partnerships with railroad companies to ensure track inspections and rail car safety are regularly conducted, particularly for trains carrying hazardous materials.
- Develop a more robust hazardous material response plan, including expanded training programs for emergency responders to better handle derailments involving toxic chemicals.
- Seek state and federal grant funding to support infrastructure upgrades, crossing improvements, and emergency response equipment for rail-related accidents.

3.20.7 Conclusion and Recommendations

Key Takeaways:
Railroad-related hazards pose a significant risk to Monroe County, particularly in terms of derailments, hazardous material spills, and accidents at crossings. Improving crossing safety, expanding public education efforts, and enhancing emergency response preparedness are essential to reducing the risk of future accidents.

Next Steps:
Monroe County should continue to invest in railroad infrastructure improvements, expand safety measures at crossings, and strengthen collaboration with rail companies to ensure track safety and hazardous material handling. Securing grant funding for these initiatives will help the county reduce the risks posed by railroad operations.

3.21 Monroe County - Climate Change Risk Assessment

3.21.1 Hazard Overview

Description of Hazard:
Climate change refers to long-term shifts in temperatures and weather patterns, primarily driven by human activities such as the burning of fossil fuels, deforestation, and industrial processes. For Monroe County, the impacts of climate change are expected to manifest in more frequent and severe weather events, including extreme heat, heavier rainfall, flooding, and more intense droughts. Additionally, climate change may exacerbate other risks such as wildfire, agricultural disruption, and public health issues. These impacts can strain infrastructure, affect economic stability, disrupt ecosystems, and lead to significant changes in the local environment. Adaptation and mitigation strategies are essential to manage the risks posed by climate change and reduce its long-term impact on the community.

This hazard is addressed in this assessment due to the widespread and long-term implications of climate change on Monroe County's economy, environment, and public health.

3.21.2 Location and Extent

Geographic Areas Affected:
Climate change can affect all areas of Monroe County, but certain regions and sectors are more vulnerable to specific climate-related hazards:

- Low-lying areas and floodplains are vulnerable to increased flooding due to heavier rainfall and more frequent storm events.
- Agricultural regions may experience more frequent droughts, heat stress, and crop failure due to rising temperatures and changing precipitation patterns.
- Forest and grassland areas are at higher risk of wildfires and pest infestations due to warmer and drier conditions.
- Urban areas may experience higher temperatures due to the urban heat island effect, putting stress on public health, infrastructure, and energy systems.

Extent of Hazard:
Climate change is expected to have wide-ranging impacts on Monroe County's natural environment, economy, and infrastructure. The effects include:

- Rising temperatures leading to more frequent heatwaves and warmer winters.
- Heavier precipitation events, leading to flash flooding and riverine flooding, particularly during extreme storm events.
- Prolonged droughts that could reduce water availability for agriculture and increase the risk of wildfires.
- Shifts in ecosystems, including the migration of plant and animal species, as well as disruptions to traditional agricultural cycles.

3.21.3 Historical Context

Previous Occurrences:
While climate change is a long-term hazard, its effects are already being felt in Monroe County through more extreme weather patterns and changes in local conditions:

- **July 2012 Drought:** One of the worst droughts in recent history affected Monroe County, leading to significant crop failures and water shortages, a result of increasingly erratic weather patterns linked to climate change.
- **August 2018 Flooding:** Unusually heavy rainfall resulted in widespread flooding throughout Monroe County, damaging homes, roads, and farmland. This event was exacerbated by more frequent and intense storms, a trend associated with climate change.
- **July 2020 Heat Wave:** Record-breaking temperatures during the summer of 2020 caused heat-related illnesses and stress on the county's energy systems due to high demand for cooling.

Lessons Learned:
These events have emphasized the importance of adaptation strategies to address the increased risks posed by climate change, including improved flood control measures, water conservation, and public health preparedness for extreme heat. They have also underscored the need for long-term planning to ensure the community's resilience to a changing climate.

3.21.4 Probability of Future Events

Likelihood of Future Occurrences:
Climate change is a certain and ongoing process. Monroe County will continue to experience the effects of climate change, including:

- Increased frequency of extreme weather events, such as heatwaves, floods, and droughts.
- Warmer average temperatures, particularly in the summer months, leading to more intense heatwaves.
- More frequent and intense rainfall, increasing the likelihood of flash flooding.
- Changes in agricultural patterns, affecting crop yields and the economic stability of the farming sector.

Changes Due to Climate and Development:
Climate change will likely lead to further urbanization and infrastructure expansion, which may exacerbate some of the effects, such as urban heat islands and stormwater management challenges. Additionally, development in flood-prone areas may increase the risk of damage from more frequent and severe flooding events.

3.21.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Elderly residents, children, and those with preexisting health conditions are particularly vulnerable to heat-related illnesses and poor air quality caused by rising temperatures.
- Low-income households may struggle to adapt to rising energy costs associated with increased demand for cooling or to recover from flood or storm damage.
- Farmers and agricultural workers are vulnerable to climate change's effects on crop yields and livestock due to heat stress, drought, and changing weather patterns.

Critical Infrastructure & Assets:

- Stormwater drainage systems, particularly in low-lying and flood-prone areas, may be overwhelmed by more frequent and intense rainfall, leading to flooding and infrastructure damage.
- Energy grids may be strained during extreme heat events due to increased demand for cooling, potentially leading to power outages.
- Water supply systems could face shortages during prolonged droughts, affecting both agricultural operations and residential needs.

Environmental and Cultural Resources:

- Forests and wetlands are vulnerable to shifting climate conditions, which could lead to changes in local ecosystems, including the loss of native species and the spread of invasive species.
- Cultural and historic sites may be affected by increased flooding or erosion, potentially damaging these important landmarks.

Potential Consequences for the Community:

- Public health risks include increased incidence of heat-related illnesses, respiratory issues due to poor air quality, and the spread of vector-borne diseases as warmer temperatures allow mosquitoes and ticks to thrive.
- Economic impacts could include reduced agricultural productivity, increased costs for disaster recovery, and rising energy costs due to the demand for cooling during hotter summers.
- Public services may be disrupted due to extreme weather events, particularly if flooding or heatwaves strain emergency services, transportation networks, and utilities.
- Environmental impacts include long-term damage to ecosystems, loss of biodiversity, and increased erosion, potentially leading to soil degradation and water quality issues.

3.21.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has invested in flood control infrastructure, including levees and improved drainage systems, to manage the risks of increased rainfall and flooding. Energy efficiency programs have been promoted to reduce the strain on the electrical grid during heatwaves.
- Non-structural: The county has implemented public education campaigns to raise awareness about climate change adaptation, water conservation, and heat safety measures. Agricultural extension services are also helping farmers adapt to changing growing conditions.
- Legislative actions: Monroe County follows state and federal guidelines for climate change adaptation and has incorporated sustainability goals into its long-term planning efforts, including promoting renewable energy and carbon reduction initiatives.

Proposed Mitigation Strategies:

- Expand green infrastructure projects, such as the development of urban green spaces, tree planting programs, and rain gardens, to reduce the urban heat island effect and manage stormwater runoff.
- Promote renewable energy development and energy efficiency programs to reduce greenhouse gas emissions and ensure the county's energy system is resilient to increased demand during heatwaves.
- Strengthen climate resilience planning for vulnerable populations, ensuring access to cooling centers during heatwaves and emergency response services during floods.
- Improve agricultural resilience by encouraging the use of drought-resistant crops, conservation tillage, and water-saving irrigation techniques.
- Seek state and federal grant funding to support climate change mitigation projects, including infrastructure improvements, public health preparedness, and renewable energy development.

3.21.7 Conclusion and Recommendations

Key Takeaways:

Climate change poses a significant risk to Monroe County, particularly in terms of extreme weather, public health, agricultural productivity, and infrastructure resilience. Adapting to the long-term effects of climate change will require ongoing investment in infrastructure, public health, and sustainable practices.

Next Steps:

Monroe County should continue to enhance climate resilience, invest in green infrastructure, and promote renewable energy to reduce the risks associated with climate change. Expanding public education efforts and seeking grant funding for infrastructure upgrades will help protect the county from the future impacts of climate change.

3.22 Monroe County - Industrial Accidents Risk Assessment

3.22.1 Hazard Overview

Description of Hazard:
Industrial accidents involve the unintended release of hazardous materials or the malfunction of industrial processes, which can result in fire, explosions, toxic chemical spills, or other dangerous events. Monroe County has several industrial operations, including manufacturing, agricultural processing, and storage facilities that handle chemicals, fuel, and other hazardous materials. Industrial accidents can lead to widespread health impacts, environmental damage, and disruptions to the local economy. The risks posed by these accidents extend to nearby communities, workers, and emergency responders. Given the nature of some industries in the county, including those involved in chemical storage and processing, the potential for industrial accidents poses a significant risk that requires comprehensive safety measures, emergency preparedness, and public awareness.

As part of its industrial accident risk assessment, Monroe County includes facilities subject to the Emergency Planning and Community Right-to-Know Act (EPCRA). These facilities, which handle extremely hazardous substances (EHSs), are required to participate in emergency planning with the Local Emergency Planning Committee (LEPC) and State Emergency Response Commission (SERC). While individual EPCRA facilities are not publicly listed for security reasons, their potential risks have been thoroughly assessed in coordination with local emergency services to ensure adequate safety measures and emergency preparedness are in place.

This hazard is addressed in this assessment due to the serious public health, environmental, and economic risks posed by industrial accidents, particularly in communities located near industrial facilities.

3.22.2 Location and Extent

Geographic Areas Affected:
Industrial accidents can impact multiple areas within Monroe County, particularly those in close proximity to industrial sites:

- Industrial zones where manufacturing plants, chemical storage facilities, and processing plants are located are at the highest risk for accidents, including chemical spills, explosions, and fires.
- Residential areas located near industrial facilities may be at risk if accidents lead to the release of toxic chemicals or hazardous materials into the air, soil, or water.
- Transportation routes, including highways and railroads used to transport hazardous materials, present risks for spills or accidents during transit.
- Waterways and wetlands near industrial sites may be vulnerable to contamination from spills or leaks of hazardous substances, particularly if containment measures fail.

Extent of Hazard:
The extent of industrial accidents can vary significantly based on the type of incident and the materials involved. Minor spills or equipment malfunctions may have localized impacts, while larger events, such as explosions or chemical releases, can affect entire neighborhoods, disrupt transportation routes, and contaminate natural resources. Fires, explosions, and toxic gas releases are the most severe risks associated with industrial accidents. The severity of the hazard is influenced by the type of materials stored or used at a facility, the proximity to residential areas, and the effectiveness of emergency response and containment measures.

3.22.3 Historical Context

Previous Occurrences:
Monroe County has experienced several industrial accidents, highlighting the risks associated with its industrial sector. A list of these is not included in this plan due to confidentiality and security concerns.

Lessons Learned:
These incidents emphasized the need for strong safety protocols at industrial facilities, including proper storage and handling of hazardous materials and regular maintenance of equipment. The events also highlighted the importance of emergency preparedness, including the availability of personal protective equipment (PPE), evacuation plans, and coordination between local authorities and industrial operators. Public awareness campaigns have been shown to be effective in educating nearby residents about the risks and appropriate responses to industrial accidents.

3.22.4 Probability of Future Events

Likelihood of Future Occurrences:
Industrial accidents are considered likely to occur in Monroe County, given the presence of multiple industrial facilities and the ongoing transportation of hazardous materials through the region. While significant events such as explosions or large chemical releases are less frequent, smaller incidents like spills or fires are more common. The likelihood of future industrial accidents will depend on factors such as safety standards, maintenance practices, and the type of materials handled at industrial sites. As Monroe County continues to develop and expand its industrial sector, the risk of accidents may increase if appropriate safety measures are not implemented.

Changes Due to Climate and Development:
Climate change may exacerbate the risk of industrial accidents, particularly if extreme weather events such as flooding, heatwaves, or heavy rainfall lead to equipment malfunctions, structural failures, or chemical spills. Additionally, increased urban development near industrial areas could put more people at risk in the event of an accident, particularly if residential neighborhoods are built close to facilities handling hazardous materials.

3.22.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:
- Residents living near industrial zones are particularly vulnerable to the effects of industrial accidents, including exposure to toxic chemicals, fires, and explosions.
- Industrial workers are at higher risk of injury or death during an accident, particularly if they work with hazardous materials or heavy machinery.
- Emergency responders, such as firefighters and hazardous material teams, are vulnerable to injury or exposure to toxins during response operations.
- Schools, hospitals, and community centers located near industrial facilities may be at risk during an accident, particularly if evacuation or shelter-in-place measures are required.

Critical Infrastructure & Assets:
- Industrial facilities are vulnerable to accidents that can damage equipment, disrupt production, and lead to significant financial losses.
- Transportation infrastructure, particularly highways and railways used to transport hazardous materials, may be affected by spills or accidents that result in road closures or damage to bridges and rail lines.
- Water and sewer systems located near industrial facilities are vulnerable to contamination from chemical spills, which could disrupt water supplies and harm public health.

Environmental and Cultural Resources:
- Rivers, lakes, and groundwater resources are vulnerable to contamination from industrial accidents, particularly if chemicals or hazardous substances leak into water sources.
- Forested areas and wildlife habitats near industrial sites may be damaged by spills or fires, leading to long-term environmental degradation.
- Cultural or historic sites located near industrial areas could be at risk of damage during accidents, particularly if fire or explosions occur.

Potential Consequences for the Community:

- Public health risks include exposure to toxic chemicals, smoke inhalation, and injuries from fires or explosions. Long-term exposure to hazardous materials can lead to chronic health conditions, including respiratory issues and cancer.
- Economic impacts include the cost of repairing damaged industrial facilities, lost production, cleanup costs, and the potential for job losses in industries affected by accidents.
- Public services, including emergency response and healthcare, may be overwhelmed during a major industrial accident, particularly if hazardous materials are involved and evacuation or decontamination efforts are required.
- Environmental impacts include water contamination, soil degradation, and harm to local ecosystems, which can lead to long-term damage to natural resources and loss of biodiversity.

3.22.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has implemented containment systems at industrial facilities, such as secondary containment for chemical storage tanks and fire suppression systems to reduce the risk of explosions and chemical spills.
- Non-structural: The county has participated in emergency response drills involving industrial accidents to improve coordination between local authorities, industrial operators, and emergency responders. Public education campaigns on how to respond to industrial accidents have been implemented in areas near industrial zones.
- Legislative actions: Monroe County enforces state and federal safety regulations related to the handling and storage of hazardous materials, including guidelines for industrial facility inspections and reporting requirements for accidents and spills.

Collaboration with EPCRA Planning Facilities:

Monroe County will continue its collaboration with EPCRA facilities to ensure they comply with all safety and reporting requirements. EPCRA facilities are vital to the county's industrial safety measures, given their potential to handle large quantities of hazardous materials. Through regular inspections, safety audits, and emergency response drills, the county ensures that these facilities are prepared to minimize the risks of accidental releases. Ongoing public education efforts also ensure that communities near these facilities understand how to respond in the event of an emergency.

Proposed Mitigation Strategies:

- Expand safety audits and inspections of industrial facilities to ensure compliance with state and federal safety standards, particularly in facilities handling hazardous materials.
- Increase public awareness campaigns to educate residents and workers about the risks of industrial accidents and how to respond during emergencies, including evacuation or shelter-in-place procedures.
- Strengthen emergency response coordination, ensuring that fire departments, hazardous materials teams, and local law enforcement are well-trained and equipped to respond to industrial accidents.
- Promote the use of advanced safety technology, such as real-time monitoring systems for hazardous materials and early warning systems to detect equipment failures or chemical leaks.
- Seek state and federal funding to support safety improvements at industrial facilities and to enhance the capabilities of emergency responders to manage industrial accidents effectively.

3.22.7 Conclusion and Recommendations

Key Takeaways:

Industrial accidents present a significant risk to Monroe County, particularly in areas near industrial facilities that handle hazardous materials. Improving safety standards, enhancing emergency preparedness, and increasing public awareness are essential to reducing the risks posed by industrial accidents.

EPCRA Planning Facilities Consideration:

While this plan does not directly list specific EPCRA Planning Facilities, these facilities were taken into account during the risk assessment and planning process. Under the Emergency Planning and Community Right-to-Know Act (EPCRA),

facilities that handle certain extremely hazardous substances (EHSs) are required to coordinate with local emergency planning efforts. This coordination ensures that emergency responders are aware of the potential chemical hazards in their jurisdictions and that appropriate measures are in place to mitigate the impact of any accidental releases.

Due to confidentiality and security concerns, particularly surrounding the storage and use of hazardous substances, a public registry of these facilities is not included in this plan. However, Monroe County works closely with the Local Emergency Planning Committee (LEPC) and the State Emergency Response Commission (SERC) to maintain up-to-date information on EPCRA facilities. This information is critical for emergency response coordination, safety audits, and community preparedness.

Next Steps:
Monroe County should continue to invest in industrial safety audits, expand emergency response training, and implement public education programs to reduce the risks associated with industrial accidents. Securing grant funding for these initiatives will help the county enhance its preparedness and protect public health, the environment, and the local economy.

3.23 Monroe County - Groundwater Contamination Risk Assessment

3.23.1 Hazard Overview

Description of Hazard:
Groundwater contamination occurs when harmful substances such as chemicals, pathogens, or pollutants infiltrate the groundwater supply, making it unsafe for consumption or use. In Monroe County, where many rural residents rely on private wells for drinking water, groundwater contamination poses a significant risk to public health. Sources of contamination can include agricultural runoff, improper disposal of industrial chemicals, leaking underground storage tanks, and failing septic systems. Groundwater contamination can lead to long-term health effects, such as cancer, gastrointestinal illnesses, and other chronic diseases. Additionally, contamination can disrupt agricultural operations, degrade natural ecosystems, and increase costs for water treatment and remediation.

This hazard is addressed in this assessment due to the critical importance of groundwater as a drinking water source for Monroe County and the potential health, environmental, and economic impacts of contamination.

3.23.2 Location and Extent

Geographic Areas Affected:
Groundwater contamination can affect multiple areas within Monroe County, particularly rural regions that depend on private wells for water:

- Agricultural areas where the use of fertilizers, pesticides, and livestock waste management practices can lead to contamination of groundwater supplies.
- Industrial zones where improper storage or disposal of hazardous chemicals, or spills, can infiltrate the groundwater.
- Residential areas with older or failing septic systems that may leak contaminants into groundwater.
- Flood-prone areas where contaminated floodwaters can seep into the groundwater, especially near landfills or hazardous waste sites.

Extent of Hazard:
The extent of groundwater contamination depends on the source and type of contaminant, as well as the geology of the area. Contaminants such as nitrates, pesticides, herbicides, volatile organic compounds (VOCs), and pathogens can seep into the groundwater through agricultural runoff, industrial waste, or failing septic systems. Contamination can spread widely through underground aquifers, potentially affecting wells and water systems across large areas. Private wells are particularly vulnerable, as they may lack regular testing and treatment, leaving rural residents at greater risk of exposure to contaminated water.

3.23.3 Historical Context

Previous Occurrences:
Monroe County has experienced several incidents of groundwater contamination, typically related to agricultural and industrial activities. There is an exhaustive list of these incidents available from the Wisconsin DNR, but the following example is a typical and recent example that illustrate the trend. In May 2024, a manure spill in the village of Norwalk caused a fish kill over a mile long in Moore Creek and a nearby tributary. The Wisconsin DNR linked the incident to a mechanical failure on the farm, but the exact amount of manure spilled, and the number of fish killed are unknown.

Figure 3.23.3: Moore Creek, Prior to the Manure Spill

Lessons Learned:
These incidents underscored the need for regular groundwater monitoring, particularly in agricultural and industrial areas, as well as public awareness regarding the importance of well testing for rural residents. Additionally, improved waste management and containment systems for agricultural runoff and industrial waste are essential to preventing future contamination. Wellhead protection programs have also been identified as a critical strategy for safeguarding groundwater resources.

3.23.4 Probability of Future Events

Likelihood of Future Occurrences:
Groundwater contamination is considered highly likely in Monroe County, given the significant agricultural activity, the reliance on private wells, and the presence of industrial operations. The use of fertilizers and pesticides in farming increases the risk of contamination from agricultural runoff, while industrial spills and failing septic systems contribute additional risks. Without continued monitoring, regulation, and remediation efforts, contamination of groundwater supplies will likely continue to occur.

Changes Due to Climate and Development:
Climate change may exacerbate groundwater contamination risks by increasing the frequency of heavy rainfall events, which can lead to more runoff from agricultural fields and increased flooding, potentially spreading contaminants. Additionally, urban development and the expansion of industrial activities near rural areas could place greater pressure on groundwater resources, leading to higher risks of contamination.

3.23.5 Community Vulnerability & Impact Assessment

Vulnerable Populations:

- Rural residents who rely on private wells for drinking water are particularly vulnerable to groundwater contamination, as these wells may not be regularly tested or treated for contaminants.
- Farmers and agricultural workers are vulnerable if contaminated groundwater affects irrigation systems or livestock, potentially leading to crop damage or livestock illness.
- Low-income households may lack the resources to install water filtration systems or test wells regularly, putting them at greater risk of exposure to contaminated water.
- Children and pregnant women are more susceptible to health impacts from certain contaminants, such as nitrates, which can cause blue baby syndrome and other serious health conditions.

Critical Infrastructure & Assets:

- Private wells are vulnerable to contamination from agricultural runoff, industrial spills, or septic system failures, potentially affecting the water supply for entire households or communities.
- Water treatment facilities may face increased costs and operational challenges if contaminants infiltrate public water supplies or if additional treatment is required to ensure safe drinking water.
- Agricultural systems that rely on groundwater for irrigation may be impacted if contamination affects the quality of water used for crops or livestock, potentially leading to economic losses.

Environmental and Cultural Resources:

- Aquifers and groundwater-dependent ecosystems are vulnerable to contamination, which can degrade water quality and harm local wildlife, plants, and aquatic habitats.
- Cultural and historic sites that rely on groundwater for preservation or public use, such as parks or historic farmlands, may be affected if contamination spreads to these areas.

Potential Consequences for the Community:

- Public health risks include exposure to contaminants such as nitrates, VOCs, pesticides, and pathogens, which can cause a range of illnesses, including cancer, gastrointestinal problems, and reproductive health issues.
- Economic impacts include the costs of treating contaminated water, lost agricultural productivity, and potential declines in property values for homes with contaminated wells.
- Public services may be strained by the need for emergency water supplies, cleanup efforts, and long-term monitoring of contaminated groundwater.
- Environmental impacts include the degradation of water quality, loss of biodiversity, and long-term damage to ecosystems that rely on clean groundwater for survival.

3.23.6 Mitigation Opportunities

Current and Past Mitigation Efforts:

- Structural: Monroe County has implemented wellhead protection programs to reduce the risk of contamination near private wells. The county also monitors groundwater quality through regular testing programs and has established buffer zones around agricultural areas to reduce runoff into nearby water sources.
- Non-structural: Public education campaigns have been launched to encourage regular well testing for residents, and information on how to identify and address contamination risks has been provided. The county has also worked with farmers to promote best management practices (BMPs) that reduce fertilizer and pesticide runoff.
- Legislative actions: Monroe County enforces state and federal regulations regarding water quality, including requirements for the proper disposal of hazardous materials and the maintenance of septic systems.

Proposed Mitigation Strategies:

- Expand groundwater monitoring programs to include more frequent testing of private wells and public water sources in high-risk areas, particularly near agricultural or industrial zones.
- Promote the use of best management practices (BMPs) in agriculture, including buffer strips, cover cropping, and precision farming techniques to reduce nutrient runoff and prevent groundwater contamination.
- Strengthen public education efforts to ensure that residents understand the importance of regular well testing and the risks associated with groundwater contamination, particularly for vulnerable populations.
- Develop incentive programs for the installation of advanced filtration systems for private well users to help mitigate contamination risks, especially for households in high-risk areas.
- Seek state and federal funding to support groundwater remediation efforts, well testing, and the installation of containment systems at industrial and agricultural sites to prevent contamination.

3.23.7 Conclusion and Recommendations

Key Takeaways:
Groundwater contamination poses a significant risk to Monroe County, particularly for rural residents who rely on private wells. Regular monitoring, public education, and best management practices in agriculture and industry are essential to reducing the risk of contamination and protecting public health and the environment.

Next Steps:
Monroe County should continue to invest in groundwater protection programs, expand well testing efforts, and implement public awareness campaigns to ensure residents understand the importance of protecting groundwater resources. Securing grant funding for remediation and prevention programs will help safeguard the community from the long-term risks of groundwater contamination.

To ensure the opportunity for inclusion of all municipalities and organizations into the planning process a Risk Assessment Survey was administered to the; village presidents, town chair, mayors, county supervisors, chiefs of police, the county sheriff, fire chiefs, the county zoning administrator. The Risk Assessment survey asked the 21 respondents to rank natural hazards on a high, medium, or low scale based upon their opinion of a given hazards threat to their community's health and public safety. The results of this survey are shown in Table 3-1. Copies of these surveys can be found in Appendix B.

Table 3-1: Monroe County Local Official's Hazard Risk Assessment Survey Results

Hazard	Mean	Median	Standard Deviation
Heavy Snow/Ice Storm	3.7	3	1.0
Extreme Cold	3.5	3	1.3
Tornadoes/High Winds	3.4	3	0.8
Thunderstorms and Lightning	3.4	3	1.3
Blizzard	3.0	3	1.3
Hail	2.9	3	1.2
Fog	2.6	3	0.8
Flooding	2.5	3	1.5
Forest Fires and Wildland Fires	2.4	3	1.3
Drought	2.3	3	1.2
Climate Change	2.1	1	1.4
Train Derailment	2.1	1	1.5
Extreme Heat	1.8	1	1.0
Pandemic Flu	1.6	1	1.0
Cyberterrorism	1.3	1	0.7
Terrorism and Bioterrorism	1.1	1	0.5
Earthquake/Landslide, Subsidence	1.0	1	0.0

n=21

Chapter 4: Mitigation Strategy

Introduction

Chapter 4 outlines a comprehensive approach to mitigating risks across Monroe County, providing a structured plan for reducing vulnerability to hazards. This chapter begins by presenting high-level guiding goals, which serve as the foundation for all mitigation efforts, ensuring that actions taken are aligned with the overall objective of reducing risk to life, property, and infrastructure.

Next, the chapter breaks down specific goals for each identified hazard, such as floods, tornadoes, and extreme weather, to address the unique risks posed by each. These goals are tailored to target the distinct vulnerabilities within Monroe County.

Each municipality in the county is then examined, beginning with a description of its physical setting and demographics. Following this, the chapter provides an evaluation of each municipality's specific vulnerabilities to various hazards, using historical data and risk assessments. For each municipality, there is also a status update on the mitigation projects and actions identified in the previous hazard mitigation plan, detailing what has been completed, what is ongoing, and what has not yet been addressed.

In addition to reviewing past actions, the chapter proposes new mitigation projects and actions for each municipality, designed to address gaps or emerging threats identified since the last plan.

The chapter also includes a summary of county-wide actions and projects from the previous plan. These actions are broken down by department or responsible person, offering a clear overview of which departments are tasked with implementing and maintaining specific mitigation efforts. Finally, new county-wide actions are proposed, ensuring that Monroe County continues to strengthen its resilience to future hazards.

Monroe County's Guiding Goals

- Goal 1: Strengthen Community Resilience Across All Hazards
    - Foster a culture of preparedness in Monroe County by empowering residents, businesses, and local governments to take proactive steps against natural and man-made hazards. This includes improving public education, expanding access to resources, and building stronger social networks for faster recovery.
- Goal 2: Protect Critical Infrastructure and Essential Services
    - Prioritize the protection and adaptation of Monroe County's essential infrastructure—including healthcare, transportation, power, and emergency services—against increasing risks. By modernizing systems and ensuring redundancy, the county will safeguard its ability to maintain operations during and after disasters.
- Goal 3: Invest in Sustainable and Resilient Land Use Planning
    - Implement land-use policies that reduce vulnerability to hazards while promoting environmental sustainability. By protecting natural buffers like wetlands and forests, and guiding future development away from high-risk areas, Monroe County can mitigate the impact of disasters and promote long-term resilience.
- Goal 4: Enhance Coordination and Collaboration for Emergency Response
    - Strengthen partnerships across government, private sector, and non-profits to improve emergency planning, response, and recovery efforts. Better coordination will ensure that Monroe County's communities are prepared to act quickly, share resources effectively, and recover efficiently after disasters.
- Goal 5: Foster Climate Adaptation and Environmental Stewardship
    - Recognize the increasing threat of climate change and integrate climate adaptation strategies into all hazard mitigation efforts. Focus on reducing greenhouse gas emissions, protecting natural resources, and building infrastructure that is adaptable to changing climate conditions.

Monroe County Hazard Specific Goals

1. **Hailstorm:** Strengthen Monroe County's agricultural and structural resilience to hailstorms by promoting impact-resistant materials and developing rapid-response systems to protect crops and property.

2. **Lightning Storm:** Protect Monroe County's residents and infrastructure from lightning strikes by expanding the use of lightning protection systems and enhancing emergency response coordination for power outages.

3. **Thunderstorm:** Improve Monroe County's stormwater systems and public safety measures to mitigate the risks of thunderstorms, focusing on flood prevention and community preparedness initiatives.

4. **Tornado/High Winds:** Safeguard Monroe County communities from tornadoes and high winds by enforcing wind-resistant building codes, establishing community safe shelters, and improving early warning systems.

5. **Heavy Snowstorm:** Enhance Monroe County's ability to maintain essential services and safe roadways during heavy snowstorms by upgrading snow removal equipment and ensuring robust emergency planning.

6. **Ice Storm:** Reduce the impact of ice storms in Monroe County by reinforcing power grid infrastructure, improving tree maintenance around power lines, and increasing public education on winter storm safety.

7. **Blizzard:** Strengthen Monroe County's emergency response and public safety infrastructure to ensure continuity during blizzards, focusing on vulnerable populations and critical services.

8. **Extreme Heat:** Protect Monroe County residents from extreme heat by expanding access to cooling centers, promoting energy-efficient cooling systems, and increasing public awareness about heat safety.

9. **Extreme Cold:** Ensure Monroe County is prepared for extreme cold events by improving insulation in public buildings, enhancing public education on cold weather preparedness, and reinforcing critical heating infrastructure.

10. **Fog:** Reduce fog-related transportation hazards in Monroe County by implementing advanced fog detection systems, improving road signage, and enhancing public awareness on safe driving practices.

11. **Flooding (Riverine/Flash/Storm Water):** Protect Monroe County's communities from flood risks by upgrading stormwater drainage systems, improving floodplain management, and promoting public education on flood preparedness.

12. **Dam Failure:** Minimize risks from dam failures in Monroe County by conducting regular dam inspections, ensuring emergency response readiness, and reinforcing downstream communities' evacuation plans.

13. **Drought:** Enhance Monroe County's resilience to droughts by promoting water conservation practices, expanding the use of drought-resistant crops, and improving irrigation systems across agricultural sectors.
14. **Earthquake:** Prepare Monroe County's infrastructure and emergency services for potential earthquakes by updating building codes, conducting public drills, and improving response capabilities for seismic events.

15. **Landslide:** Protect Monroe County's infrastructure and residents from landslides by identifying high-risk areas, enforcing land-use regulations, and promoting slope stabilization projects.

16. **Subsidence:** Mitigate subsidence risks in Monroe County by monitoring groundwater extraction levels, educating landowners on soil stability practices, and ensuring infrastructure is adaptable to subsidence threats.

17. **Forest/Wildland Fire:** Reduce Monroe County's vulnerability to forest and wildland fires by expanding controlled burn programs, improving firebreaks, and educating communities about fire-safe practices.

18. **Agricultural Risks:** Strengthen Monroe County's agricultural sector by promoting sustainable farming practices, expanding access to crop insurance, and supporting farm diversification to mitigate the impacts of climate variability.

19. **Pandemic Flu:** Protect Monroe County's public health during pandemics by improving coordination between healthcare providers, enhancing vaccination outreach, and expanding preparedness training for emergency health responses.

20. **Railroad Risk:** Increase Monroe County's safety along railroad corridors by upgrading railway crossing infrastructure, conducting regular safety drills, and improving communication regarding hazardous material transport.

21. **Climate Change:** Build Monroe County's resilience to climate change by investing in renewable energy projects, expanding green infrastructure, and promoting community education on sustainability and climate adaptation.

22. **Industrial Accidents:** Improve Monroe County's preparedness for industrial accidents by conducting regular safety inspections, enhancing emergency response protocols, and educating the public about hazardous material risks.

23. **Groundwater Contamination:** Safeguard Monroe County's water quality by enforcing stricter regulations on agricultural runoff, expanding groundwater monitoring programs, and promoting wellhead protection initiatives.

Changes in Priorities and Development Since 2019

County-wide, priorities for hazard mitigation have shifted somewhat over the past few years, influenced heavily by the COVID-19 pandemic. The pandemic diverted significant resources and attention away from proactive mitigation efforts, as focus shifted toward immediate damage control and public health response. While the top hazards identified in 2019 remain priorities, there is a growing recognition of the impacts of climate change, with more emphasis on addressing its observable effects. Additionally, this plan places greater focus on man-made hazards compared to the 2019 plan, reflecting an increased awareness of technological and human-caused risks alongside natural threats.

The pace of development in Monroe County has remained steady and manageable, allowing for thoughtful growth that aligns with hazard mitigation goals. Existing regulations have been effective in guiding development away from hazard-prone areas, reducing exposure to risks such as flooding and storm damage. This proactive approach has helped maintain a balance between growth and safety, ensuring that new development does not exacerbate existing vulnerabilities.

Existing Capabilities

Monroe County possesses a range of existing capabilities that support hazard mitigation efforts, encompassing legal authorities, policies, programs, and resources. These capabilities provide a framework for identifying risks, implementing mitigation measures, and ensuring community resilience. The county leverages these tools to address both natural and man-made hazards effectively.

Authorities such as zoning ordinances and building codes play a critical role in hazard mitigation. Monroe County and its municipalities enforce zoning regulations that guide land use and ensure that development occurs outside of hazard-prone areas, such as floodplains. Building codes are in place to promote safe construction practices, particularly in areas vulnerable to extreme weather events, ensuring structures are better equipped to withstand hazards.

Key programs and policies also underpin the county's mitigation efforts. The county's Emergency Management Department coordinates mitigation planning and response, while partnerships with state and federal agencies, WEM and FEMA, provide additional support. The county's floodplain management program is particularly noteworthy, as it helps regulate development in high-risk areas and reduces flood damage through prevention and preparedness measures.

Funding and resources are crucial for supporting mitigation initiatives, though they remain a significant challenge for some municipalities. Monroe County benefits from grant programs such as FEMA's Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) funding, which have been instrumental in advancing mitigation projects. Local budgets also contribute, though constraints often limit the scope of projects in smaller communities. Partnerships with organizations like the Mississippi River Regional Planning Commission provide technical expertise and additional resources, aiding in plan development and implementation.

The DPWs in the cities and villages of Monroe County are also key partners in hazard mitigation efforts. These departments play a vital role in maintaining infrastructure, managing stormwater systems, and ensuring the resilience of critical facilities. Their expertise in infrastructure management helps mitigate risks such as flooding, erosion, and other weather-related impacts. Collaboration with DPWs ensures that mitigation strategies are grounded in practical, on-the-ground knowledge, enhancing the effectiveness of projects such as drainage improvements, road safety measures, and the upkeep of municipal utilities. Their involvement is crucial to implementing and sustaining mitigation actions across the county.

Monroe County also benefits from regional collaboration and community involvement. Regular updates to the Hazard Mitigation Plan engage local governments, emergency services, and residents, ensuring that strategies reflect current risks and needs. Public education and outreach programs further enhance resilience by increasing awareness of hazards and encouraging preventative measures at the individual and community levels.

Township Mitigation Strategies

Overall, limited progress has been made by the townships on the projects and actions identified in the 2019 Hazard Mitigation Plan. The most commonly cited barrier has been a lack of funding, which has stalled even highly desired initiatives. Many of these projects face significant legal and regulatory challenges, further compounding the difficulties of implementation. Despite these obstacles, several projects remain priorities for the townships, underscoring their importance to local hazard mitigation efforts.

Town of Adrian

The Town of Adrian, located in central Monroe County between the Cities of Sparta and Tomah, is intersected by Interstate 90 and Highway 16. A significant portion of the Town lies within the boundaries of Fort McCoy. According to the 2020 US Census, Adrian has a population of 733.

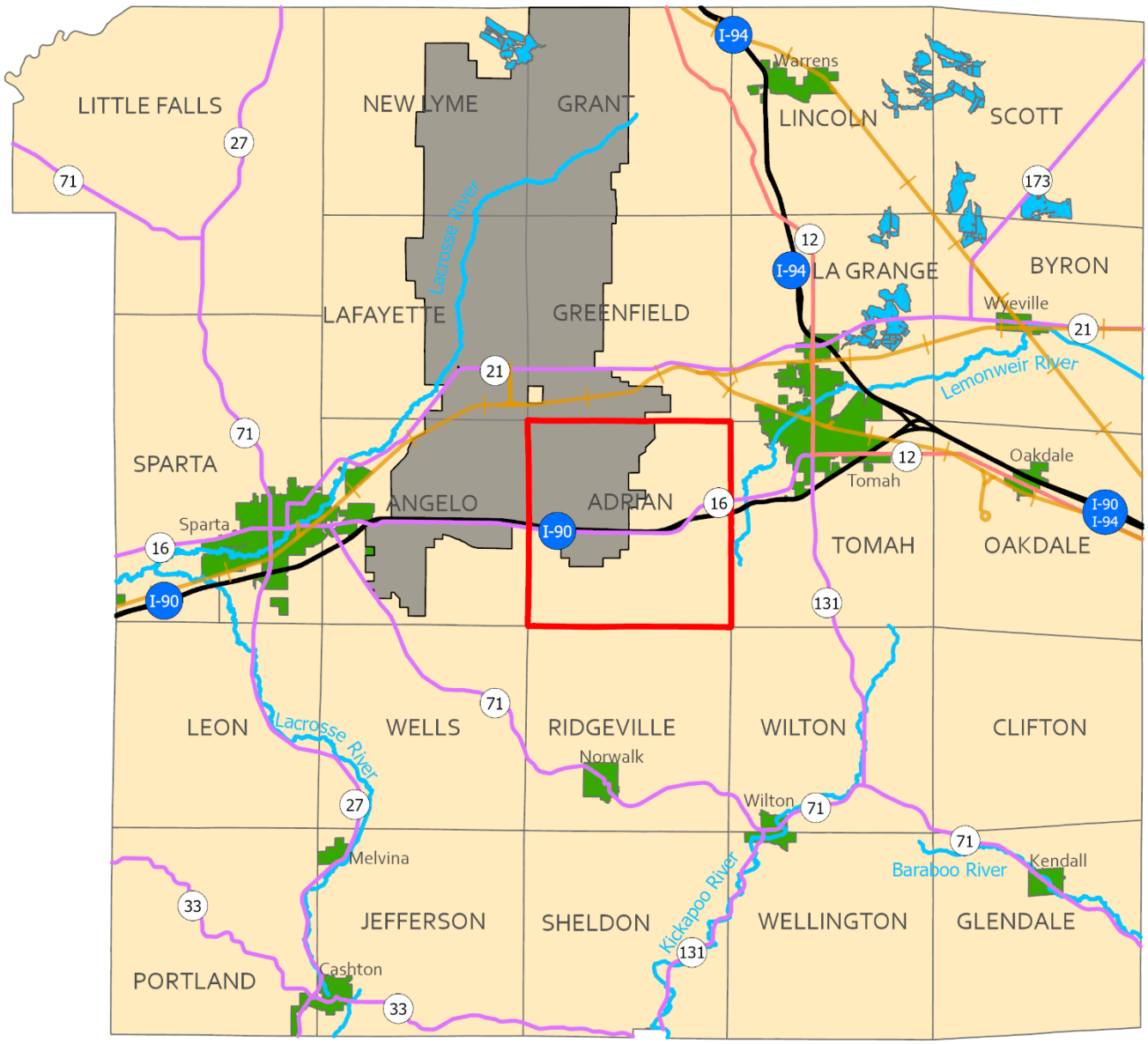
The Town faces several risks from natural hazards, particularly flooding, with 69 parcels situated in the FEMA-designated 100-year floodplain. These parcels have improvements valued at $9,992,400. In addition to flood risks, the area is vulnerable to thunderstorms, hail, and tornadoes, which can impact both agricultural and residential areas.

Adrian is predominantly an agricultural community with some residential development. Social vulnerability in the Town falls between the 40th and 60th percentile within Monroe County. The Town has higher-than-average proportions of mobile homes, individuals with disabilities, and agricultural workers compared to the county overall.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Adrian. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Adrian, Monroe County

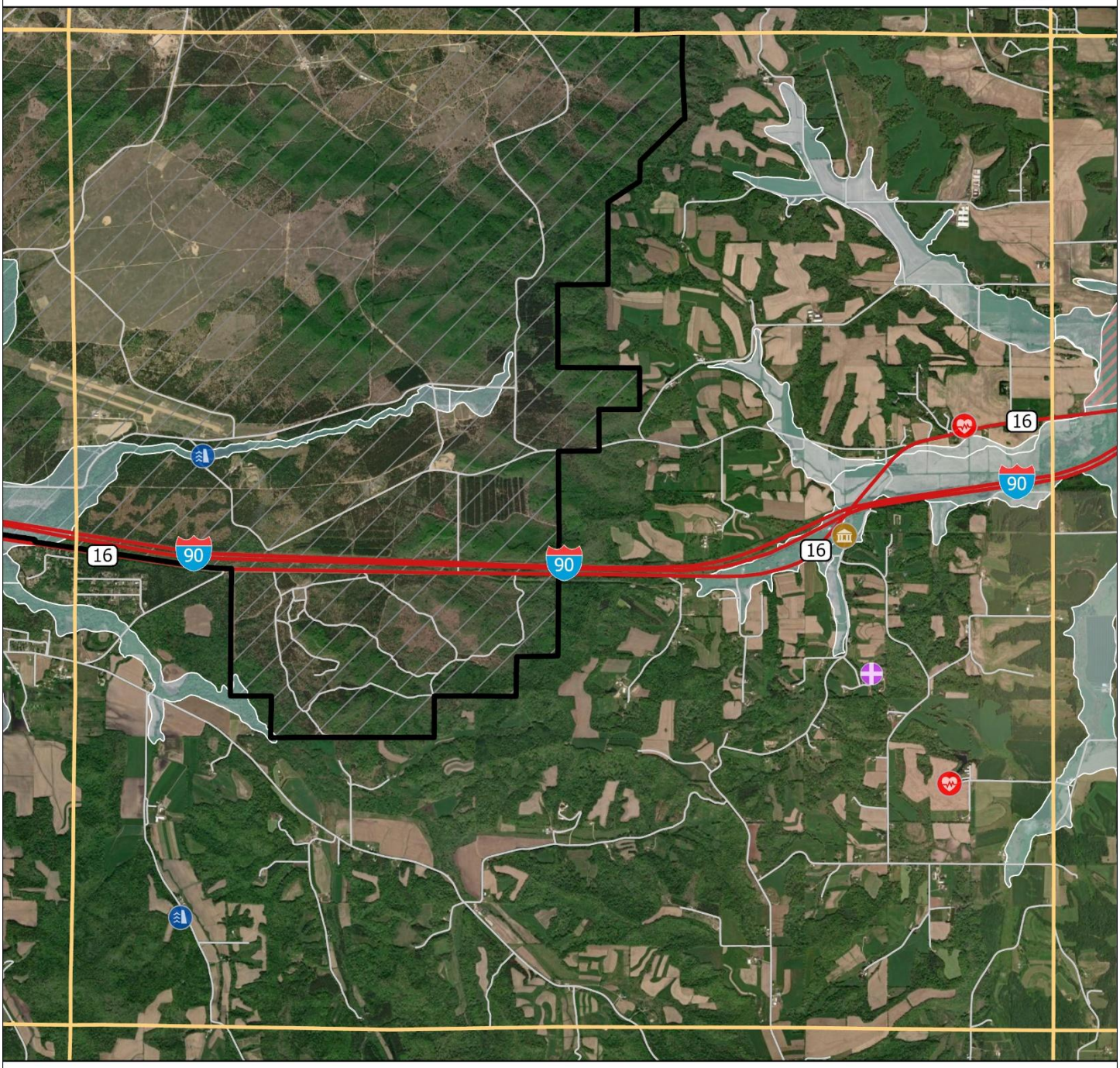


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Adrian

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Adrian



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
City, Village, or Town Hall
Fort McCoy
Healthcare
Dam
Well
N
0
1
2
Miles

Town of Angelo

The Town of Angelo, with a population of 1,697 according to the 2020 US Census, is located just east of the City of Sparta. A large portion of the Town falls within the boundaries of Fort McCoy. Angelo is particularly vulnerable to flooding from the La Crosse River and nearby wetlands, with 113 parcels situated in the FEMA-designated 100-year floodplain. The assessed value of improvements on these parcels is $11,240,600.

In addition to flooding, the Town faces risks from severe thunderstorms, hail, and snowstorms, which can disrupt transportation and cause prolonged power outages. While Angelo's social vulnerability is in the bottom 20th percentile within Monroe County, it still has notable vulnerabilities, including more than double the County's median proportion of mobile homes.

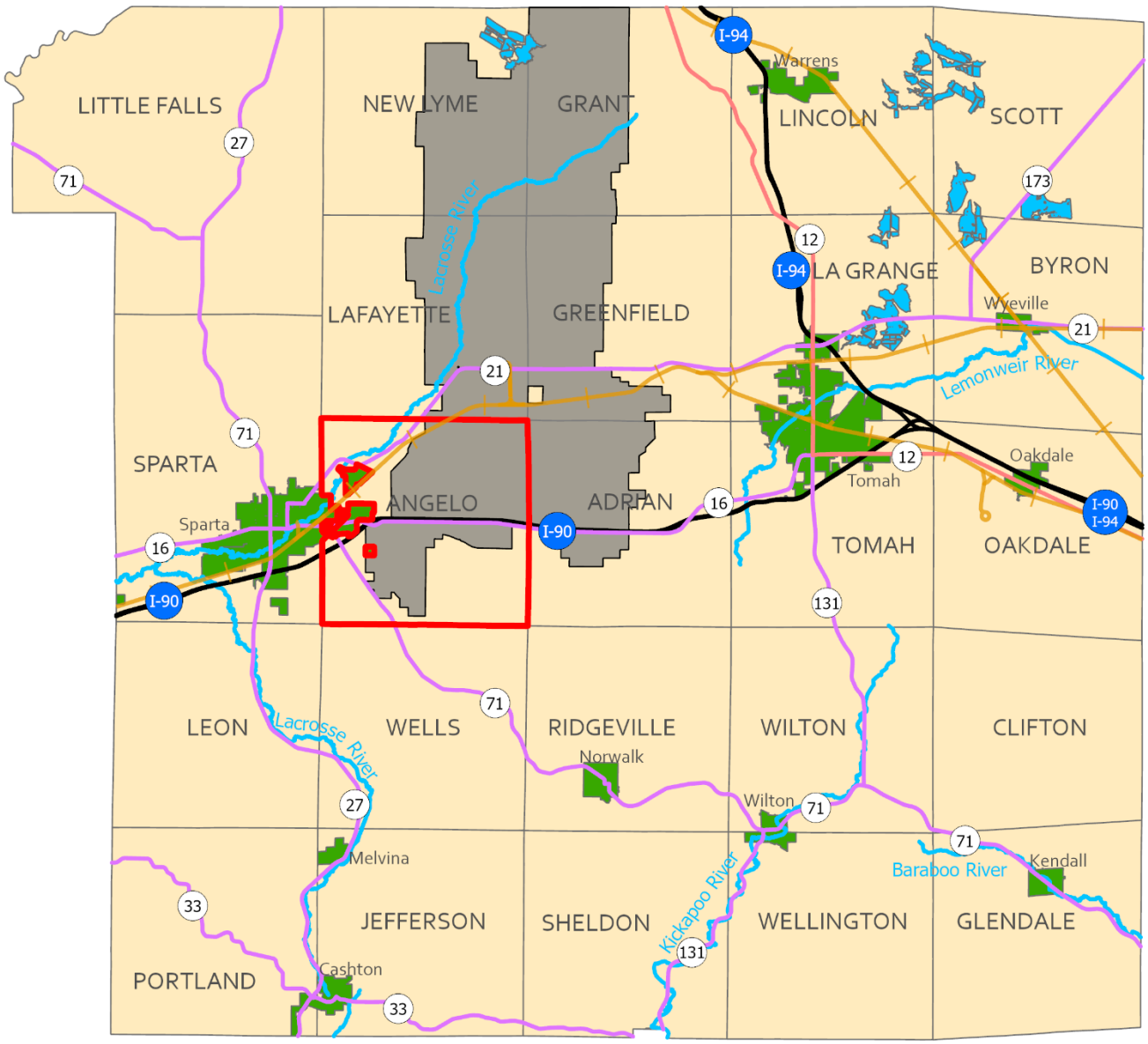
Although the Town has significant residential development, agriculture continues to play an important role in its economy and landscape.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Angelo. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Angelo, Monroe County

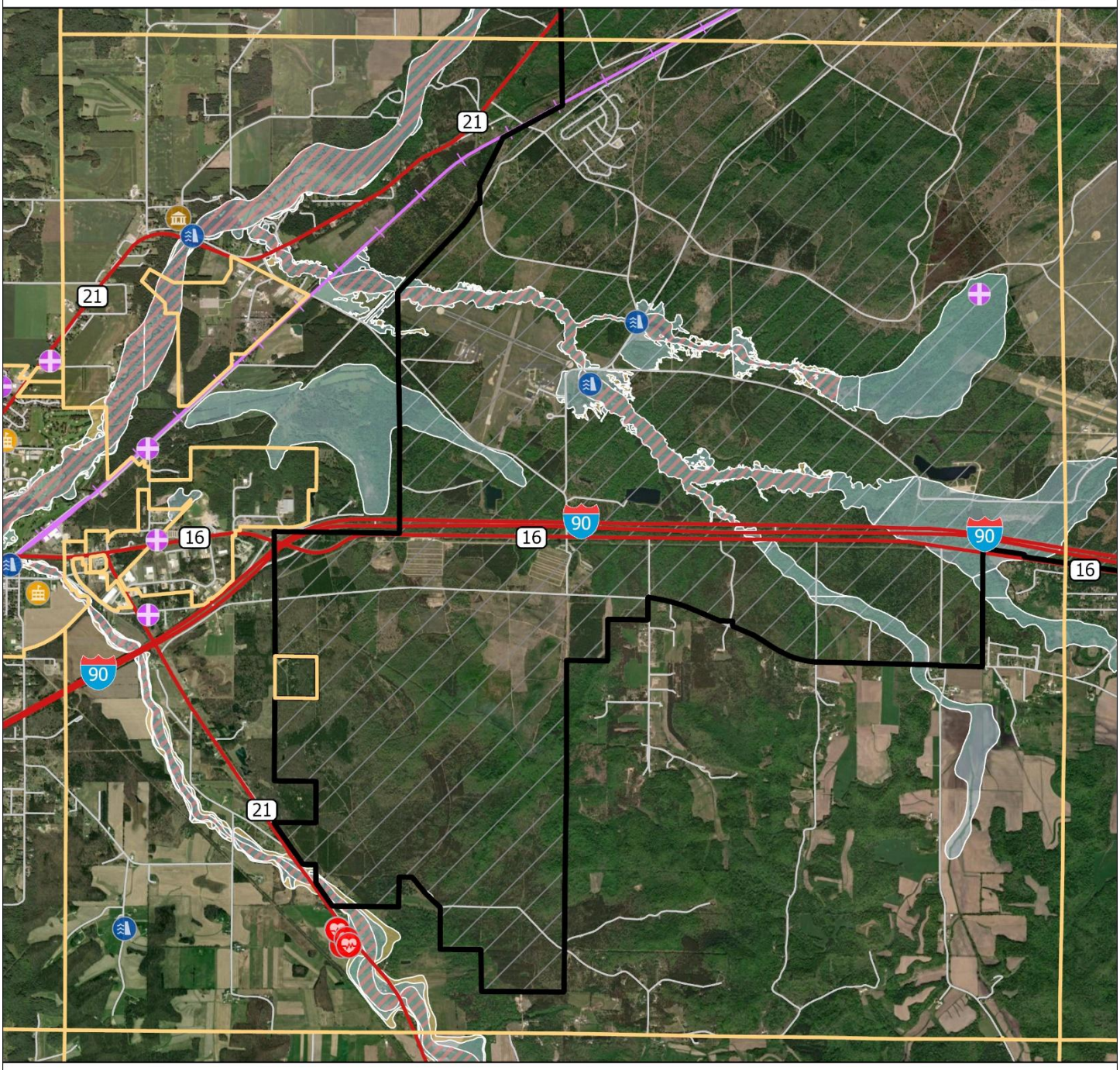


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Angelo

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Angelo



Town of Byron

The Town of Byron, with a population of 1,234 according to the 2020 US Census, is located in northeast Monroe County, surrounding the Village of Wyeville. This area is largely rural and agricultural. The Town faces significant hazards from tornadoes, high winds, and flooding, with a substantial portion of its land falling within the FEMA-designated 100-year floodplain. There are 230 parcels in the floodplain, with improvements valued at $36,857,300. Agricultural operations in Byron are also vulnerable to hail and lightning strikes.

Byron's social vulnerability ranks in the top 20th percentile within Monroe County, with about four times the median proportion of mobile homes, more than double the median county poverty rate, and a slightly higher rate of individuals with disabilities.

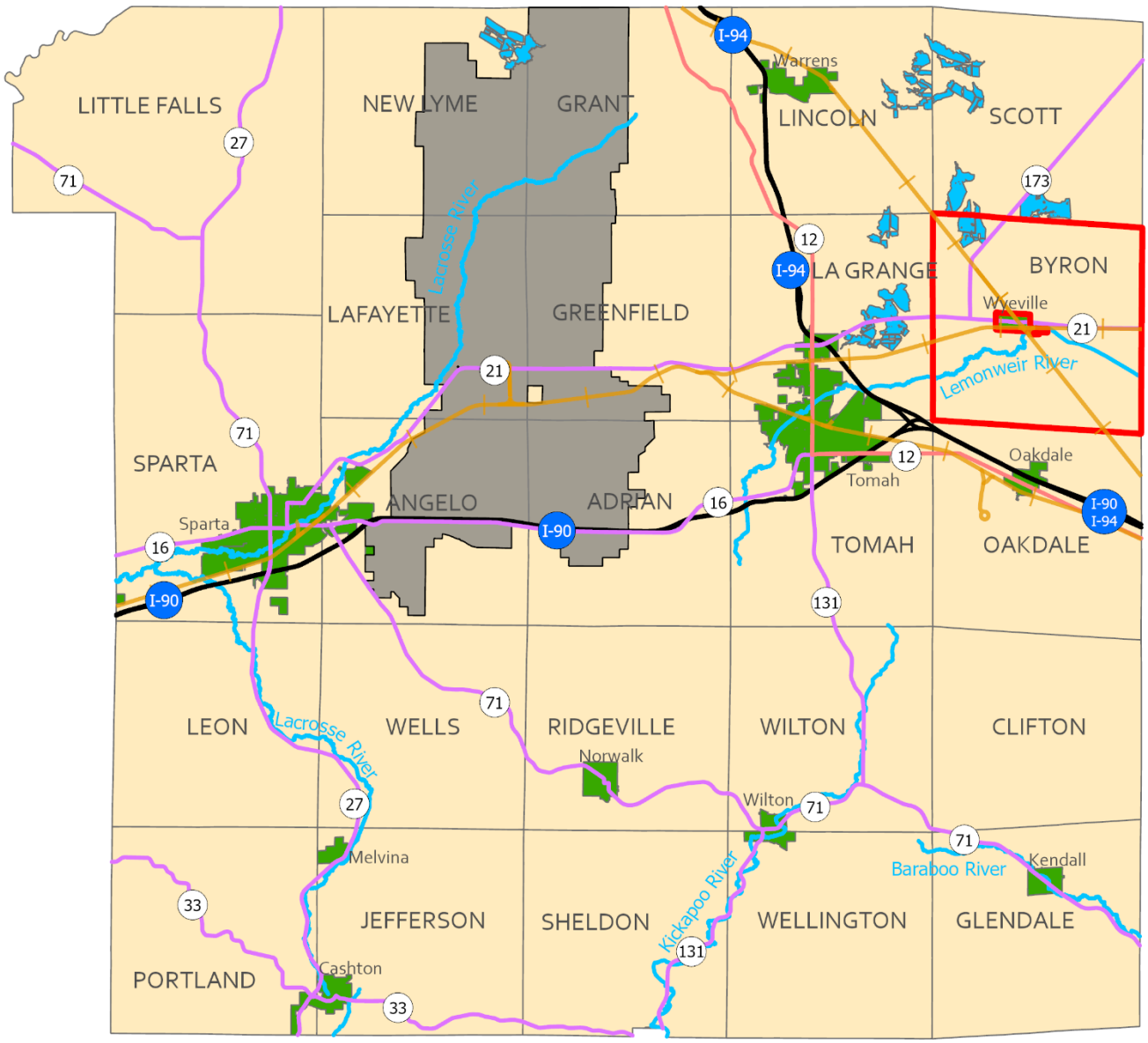
Two major highways, 173 and 21, as well as two railroads, run through the Town, presenting additional risks related to rail traffic. The presence of numerous dams in the area also adds to the Town's vulnerability to flooding and other water-related hazards.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Byron. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Byron, Monroe County

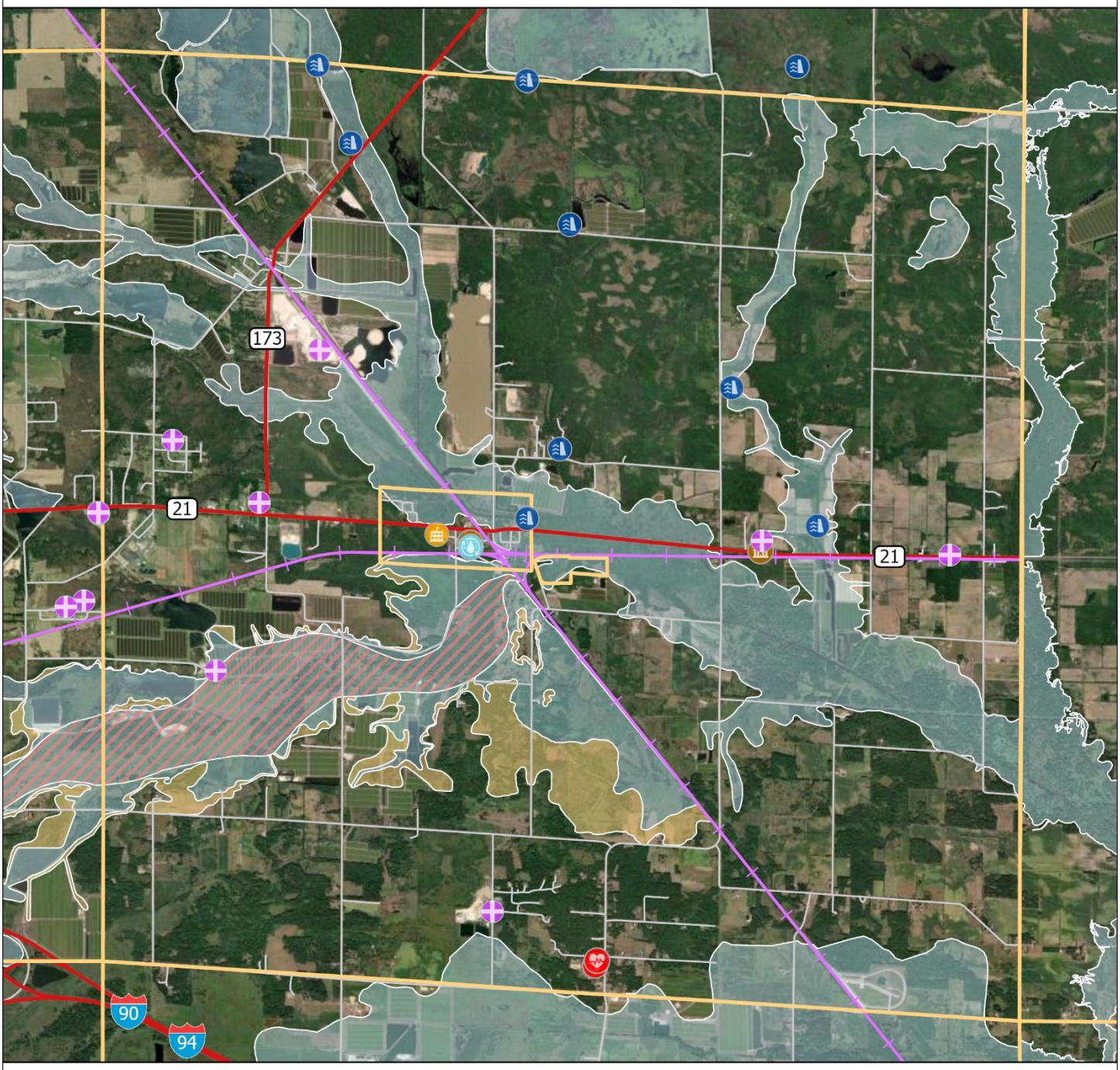


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Byron

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Byron



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary

Arterials
Road Centerline
Railroad
City, Village, or Town Hall
Wastewater Treatment Facility

Well
Healthcare
School
Dam

N

0 1 2
Miles

Town of Clifton

The Town of Clifton, located in southwest Monroe County, is home to 733 residents as of the 2020 US Census. It is situated in a hilly area, making it vulnerable to landslides and flash floods during heavy rain events. In winter, the Town faces snowstorms and ice storms, which can lead to transportation disruptions and power outages. The northern part of Clifton lies within a floodplain, though only 32 parcels are affected, with a total assessed value of $3.5 million.

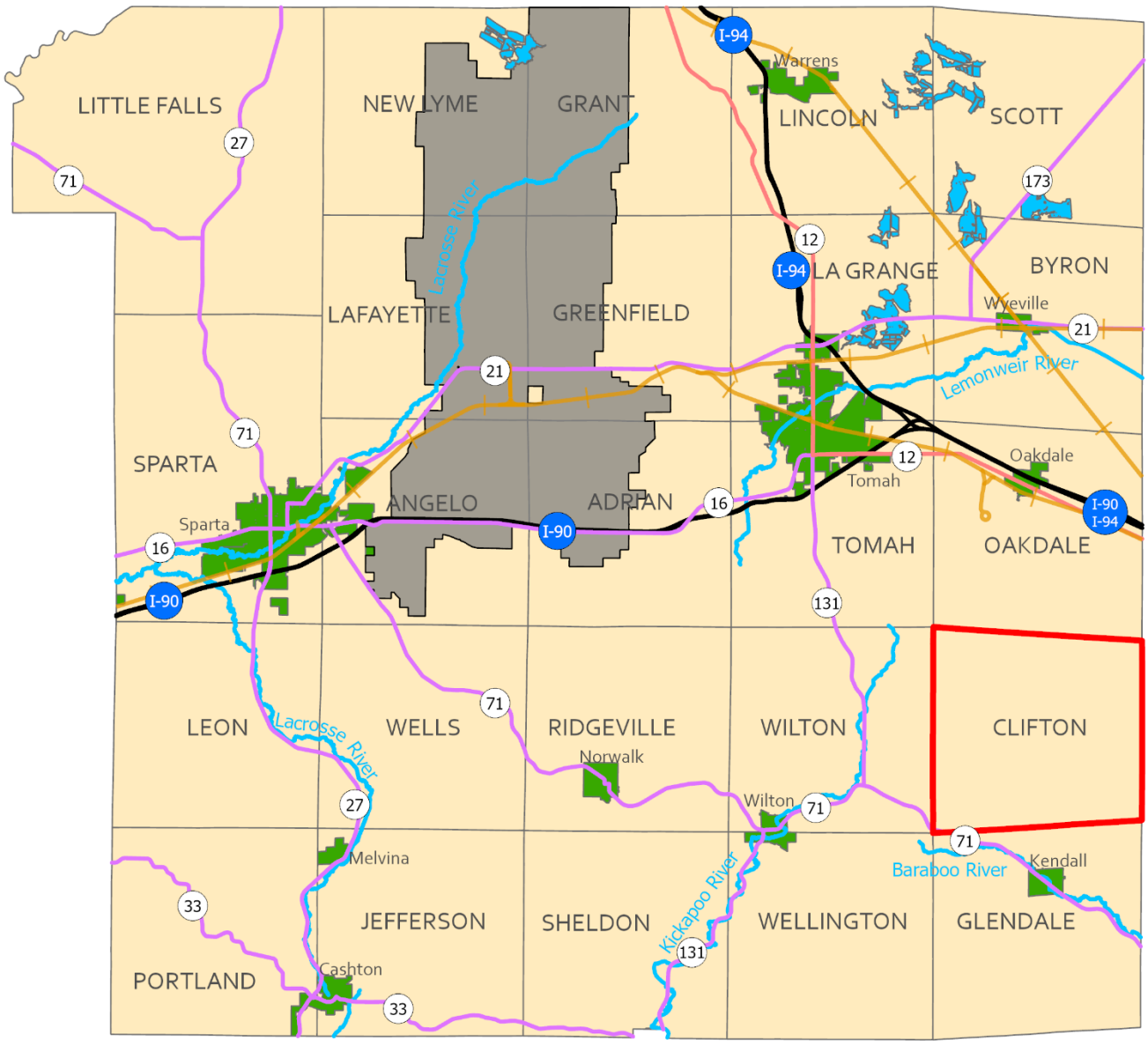
Clifton is a very rural area with limited residential development and few major roads. A small portion of Highway 71 runs through the southwest corner of the Town. Social vulnerability in Clifton is average, falling between the 40th and 60th percentile within Monroe County. While tornado and high wind risks are lower due to the very few mobile homes, the Town has a high poverty rate—double the County median. Additionally, 14% of residents have limited English proficiency, compared to the County median of just 1%, and the Town has more than twice the County's median proportion of agricultural workers. These factors contribute to its overall social vulnerabilities.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Clifton. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Clifton, Monroe County

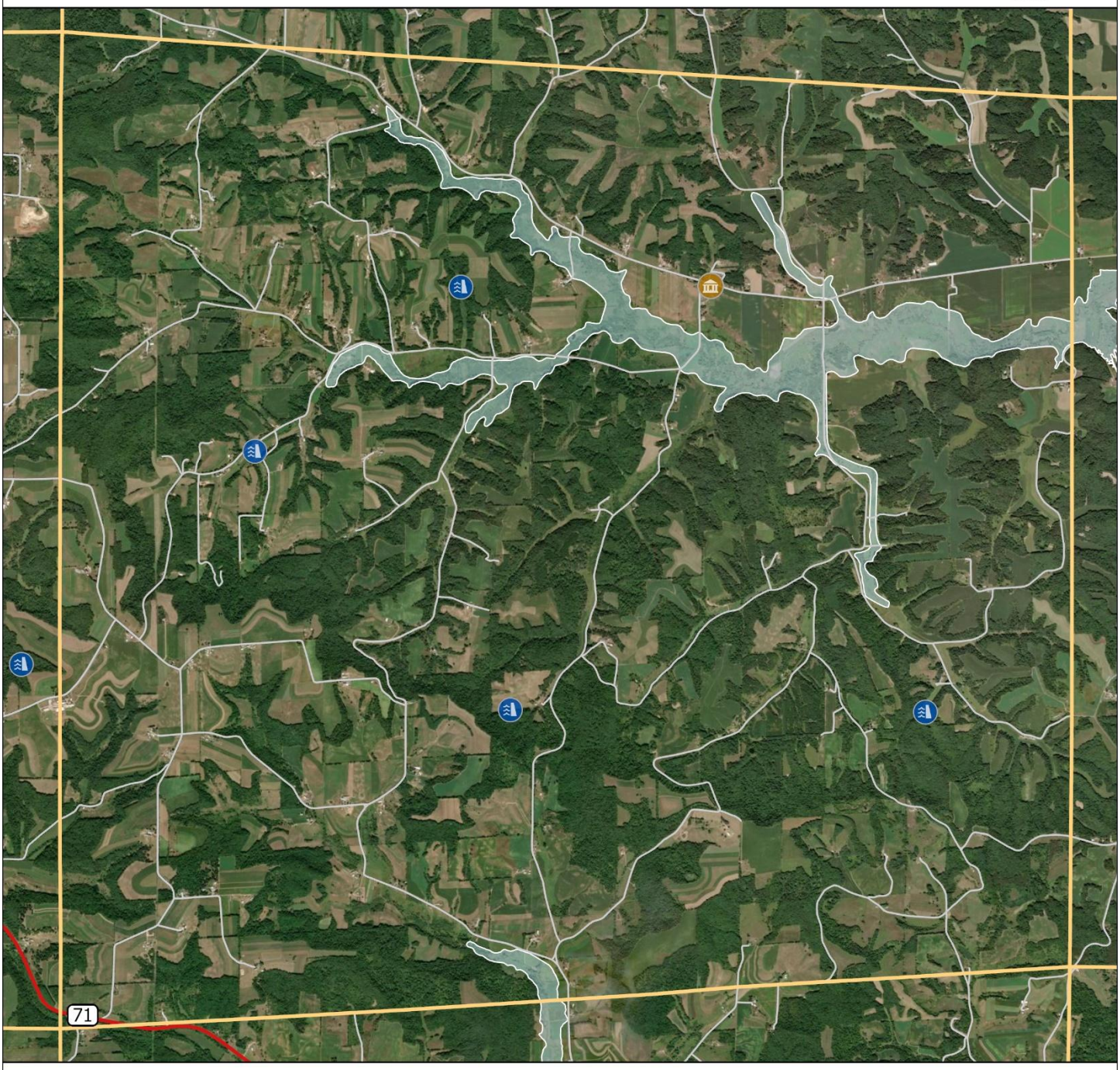


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Clifton

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Clifton



100 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
City, Village, or Town Hall
Dam
N
0
1
2
Miles

Town of Glendale

The Town of Glendale, with a population of 663 as of the 2020 US Census, is a very rural and predominantly agricultural community with limited residential development. Located in the southeast corner of Monroe County, the Town completely surrounds the Village of Kendall. It frequently experiences flooding along its rivers and streams during heavy rains. Windstorms, tornadoes, and hail also pose significant threats to both agricultural and residential areas.

Highway 71 runs from the northwest corner of the Town to the southeast, following the path of the Baraboo River. Portions of the highway, particularly in the floodplain, are vulnerable to flooding. There is also a small section on the south-central edge of the Town in the floodplain. There are 47 parcels located in the floodplain, with assessed improvements valued at $3.1 million.

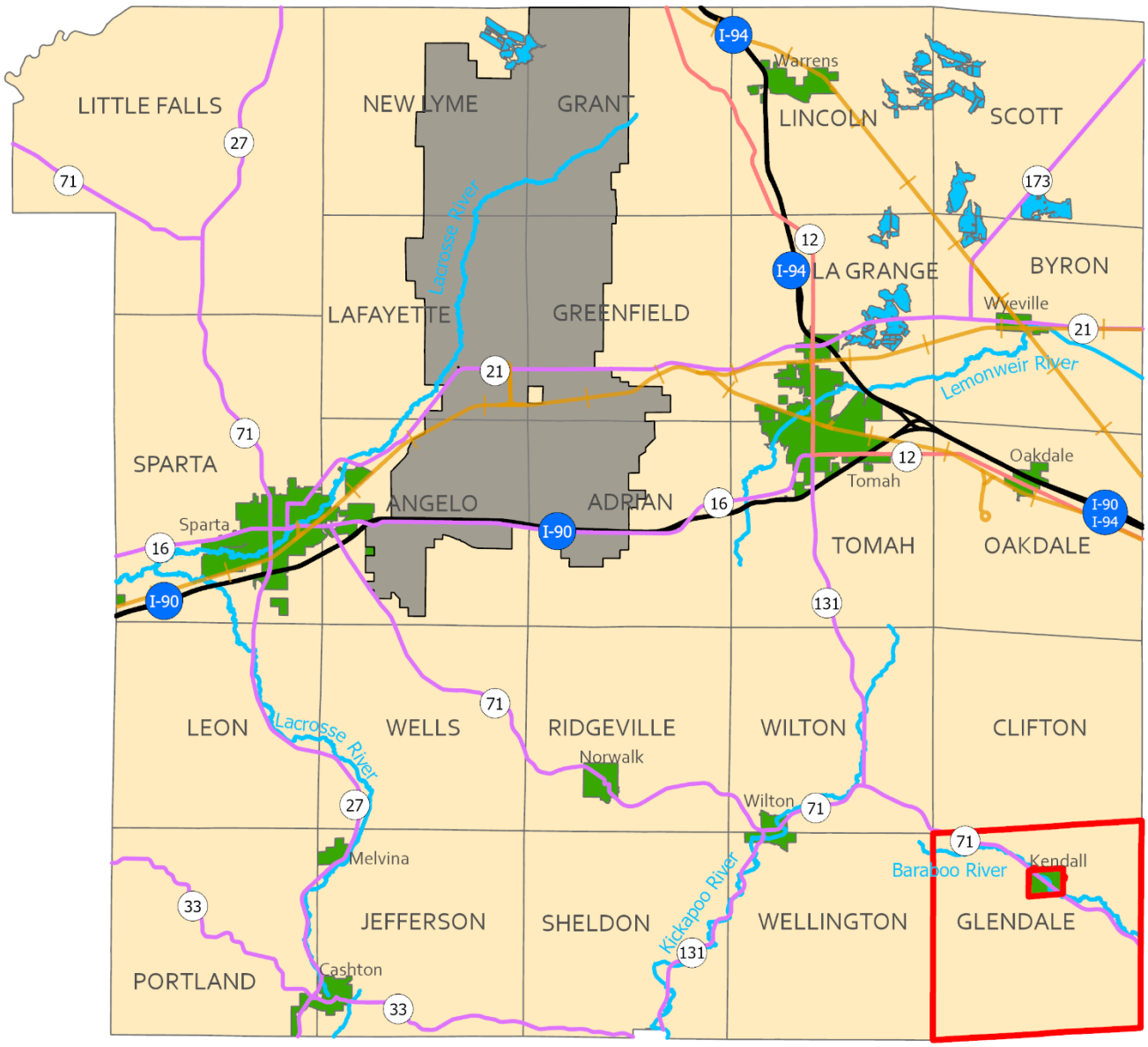
Social vulnerability in Glendale is average, falling between the 40th and 60th percentile within the County. The overall markers of social vulnerability are also close to average, with the most notable deviation being a slightly higher proportion of residents with limited English proficiency.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Glendale. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Glendale, Monroe County

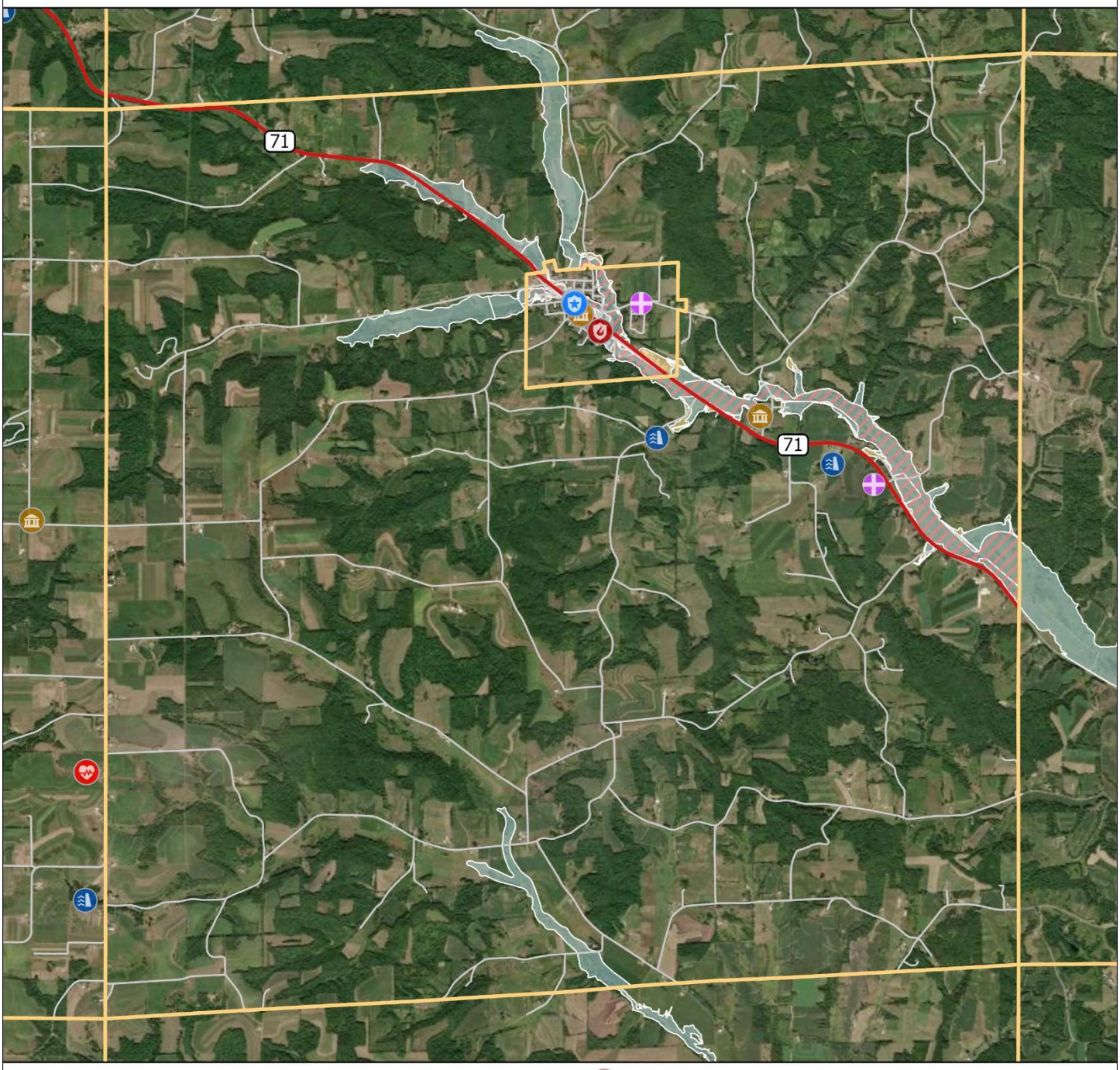


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Glendale

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Glendale



Town of Grant

The Town of Grant, located along the northern border of Monroe County, with a population of 469 according to the 2020 US Census, is a rural and heavily agricultural community located in Monroe County. It faces significant risks from severe thunderstorms, tornadoes, and hail, which can cause damage to crops and disrupt power supplies. The presence of numerous mobile homes in the area exacerbates the Town's vulnerability to tornadoes. Additionally, the Town has a disability rate that is double the County's average, contributing to its social vulnerability, which falls within the 40th to 60th percentile.

The La Crosse River flows through a portion of the Town, creating a potential flood risk. However, all of the floodplain is located within Fort McCoy, which occupies the western half of the Town; no parcels outside the military base are located within the floodplain. The northeastern corner of the Town is traversed by Interstate 94, Highway 12, and a railroad, adding risks related to transportation and rail traffic.

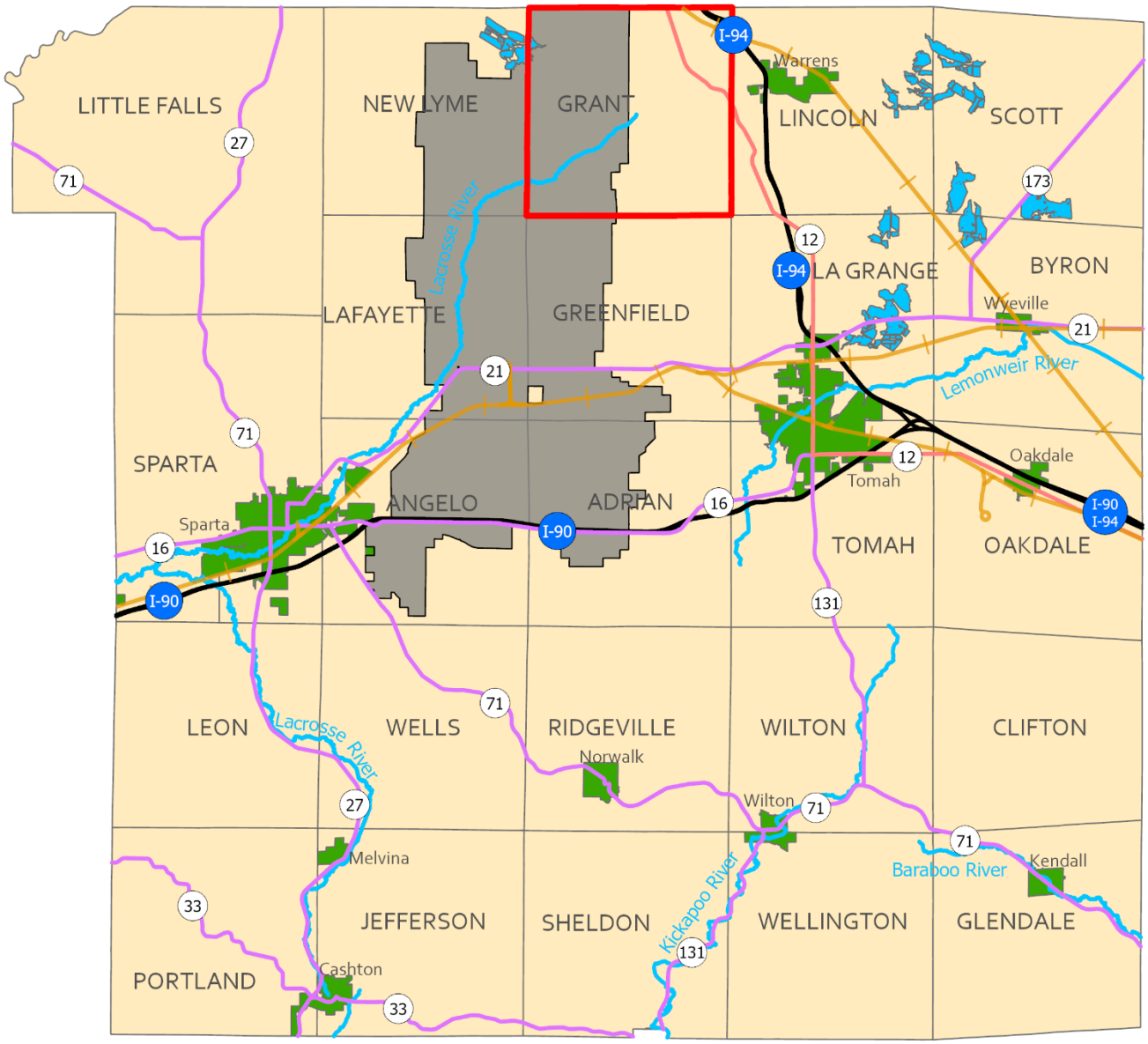
Grant is a very rural and forested area with limited development and few roads, further emphasizing its agricultural character. While the rural setting limits some risks, the community remains vulnerable to both natural and man-made hazards.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
The 2019 HMP identified two projects for the Town: road repairs and upgrades, as well as culvert repairs. These projects remain a priority for the Town, but no progress has been made since 2019. No other mitigation activities have been undertaken by the Town since 2019.

- **Road repairs and upgrades to Blueberry, Cherrystone, Cheyenne, Charcoal, Chariot, and Blazer Roads**
  - *Hazard*: Flooding, Stormwater Management
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Culvert repairs on Charcoal, Clay Cinder, and Charcoal Roads**
  - *Hazard*: Flooding, Stormwater Management
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan

New Projects and Actions
No new projects are desired by the Town at this time.

Town of Grant, Monroe County

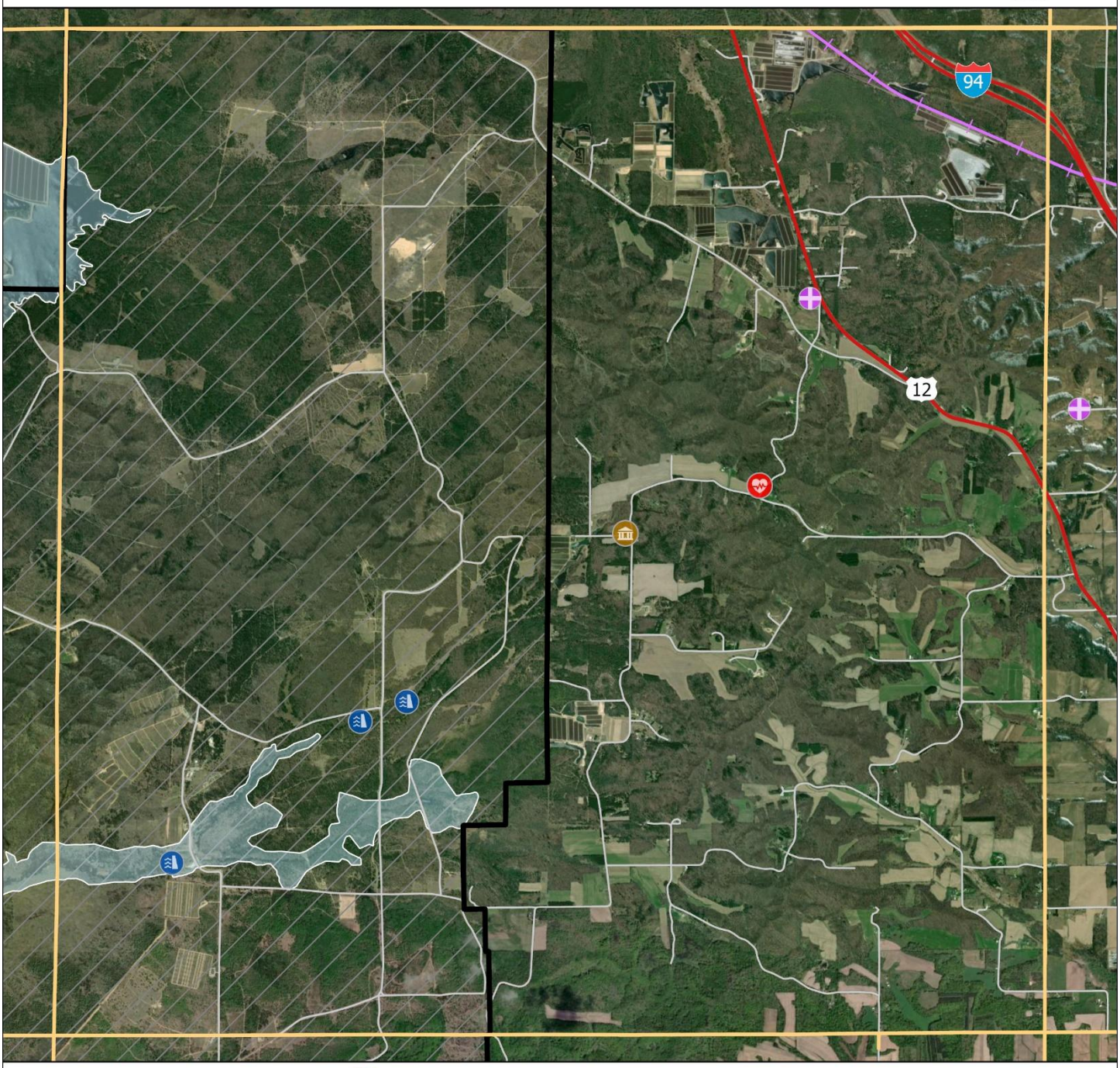


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Grant

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Grant



100 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
Railroad

City, Village, or Town Hall
Well
Healthcare
Dam
Fort McCoy

N

0 1 2
Miles

Town of Greenfield

The Town of Greenfield, located in central Monroe County just north of the I-90 corridor, has a population of 677 according to the 2020 U.S. Census. It faces risks from windstorms, hail, thunderstorms, snowstorms, and ice storms, which can result in transportation accidents and power outages. Social vulnerability in the town falls within the 20th to 40th percentile, with a notably higher percentage of residents with disabilities (18% compared to the county median of 12%).

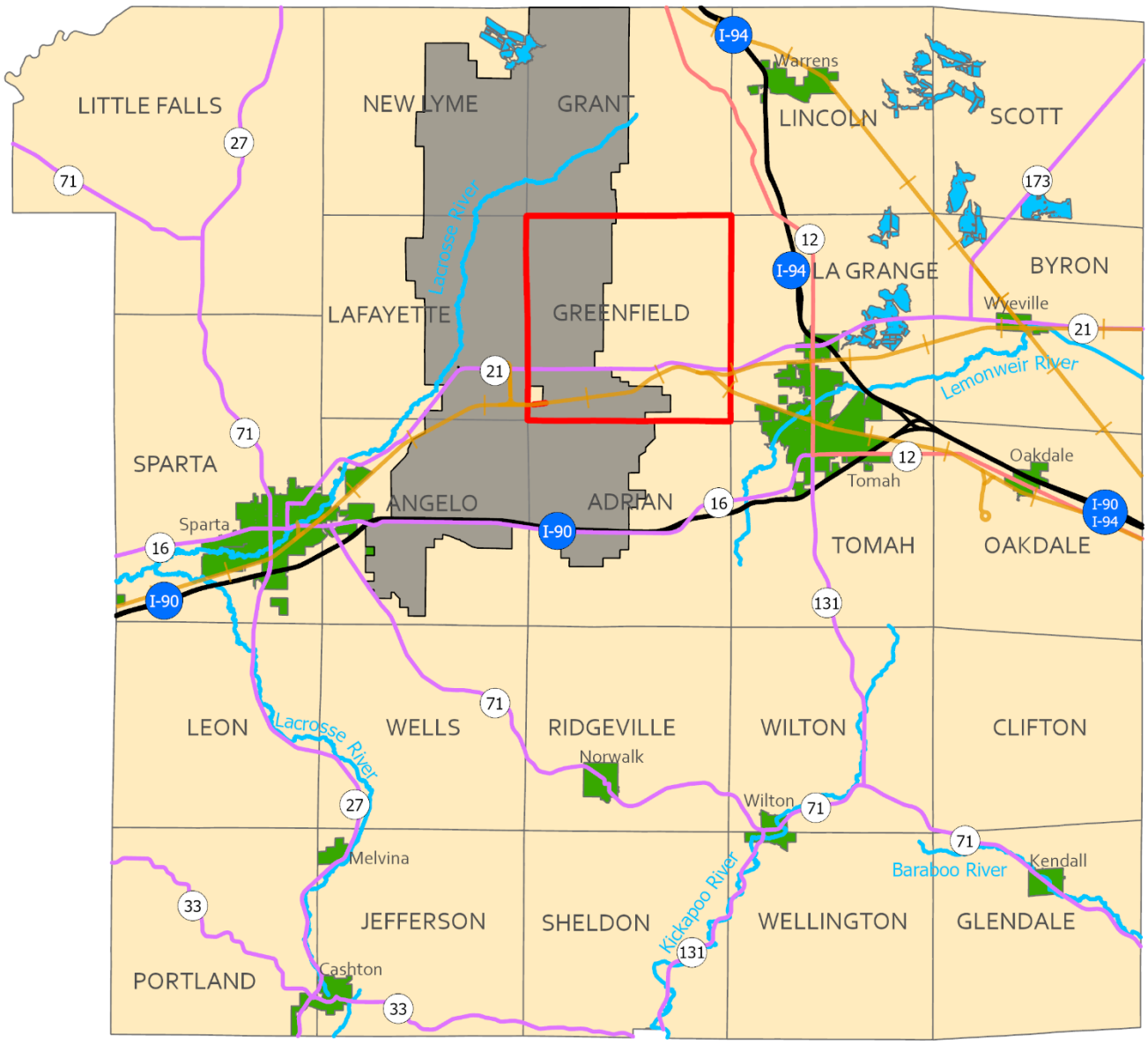
Greenfield is primarily agricultural and rural, with Fort McCoy occupying much of the western part of the town. The fort area is more developed. Railroads and Highway 21 run through the Town. There are also floodplain areas, including within Fort McCoy and in the center of the township, with multiple dams present. The total assessed improvements in the town amount to $3,045,500 across 25 parcels.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Greenfield. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Greenfield, Monroe County

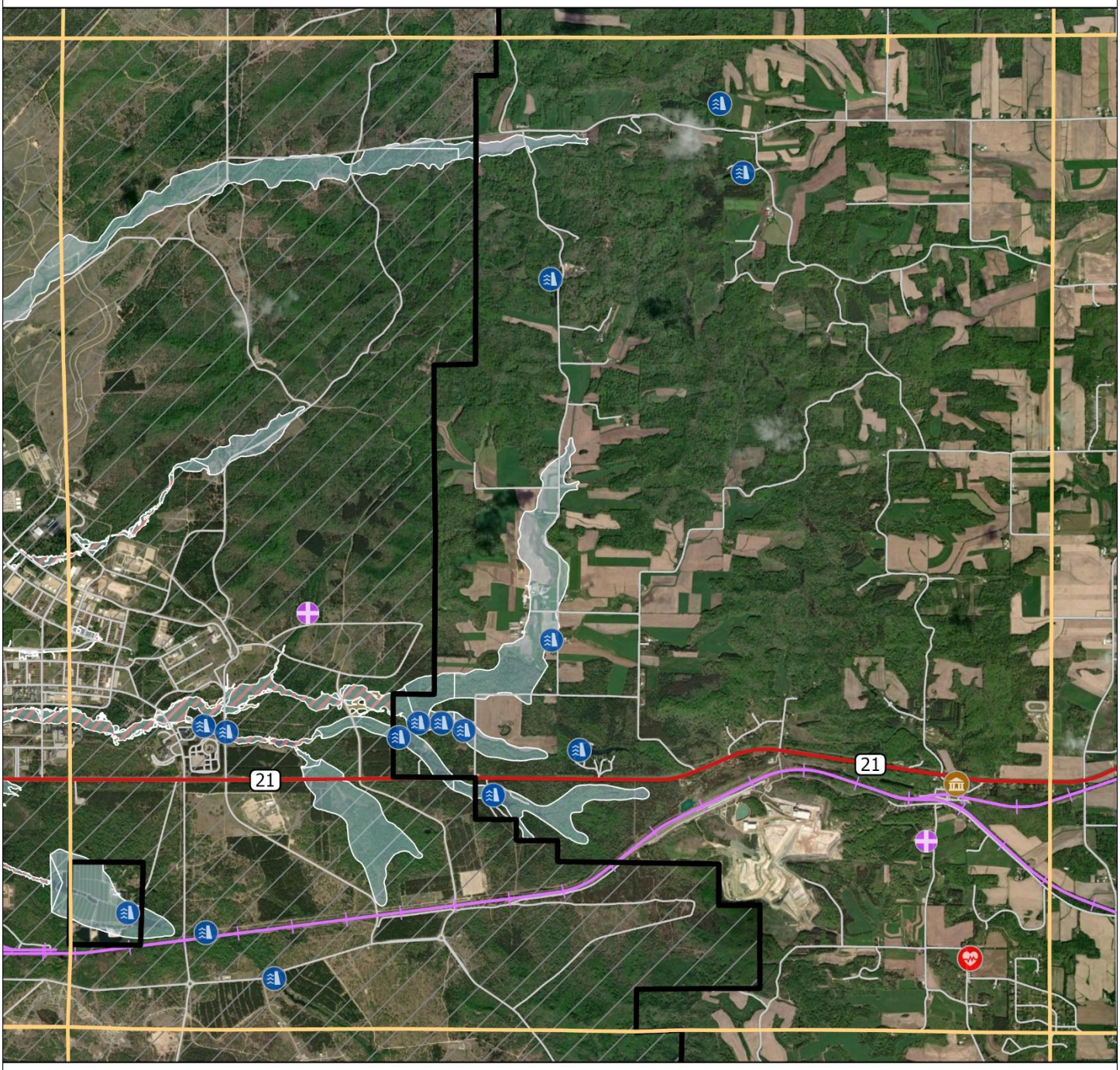


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Greenfield

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Greenfield



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary
Fort McCoy
Road Centerline
Railroad
Arterials
Well
Healthcare
Dam
City, Village, or Town Hall
N
0
1
2
Miles

Town of Jefferson

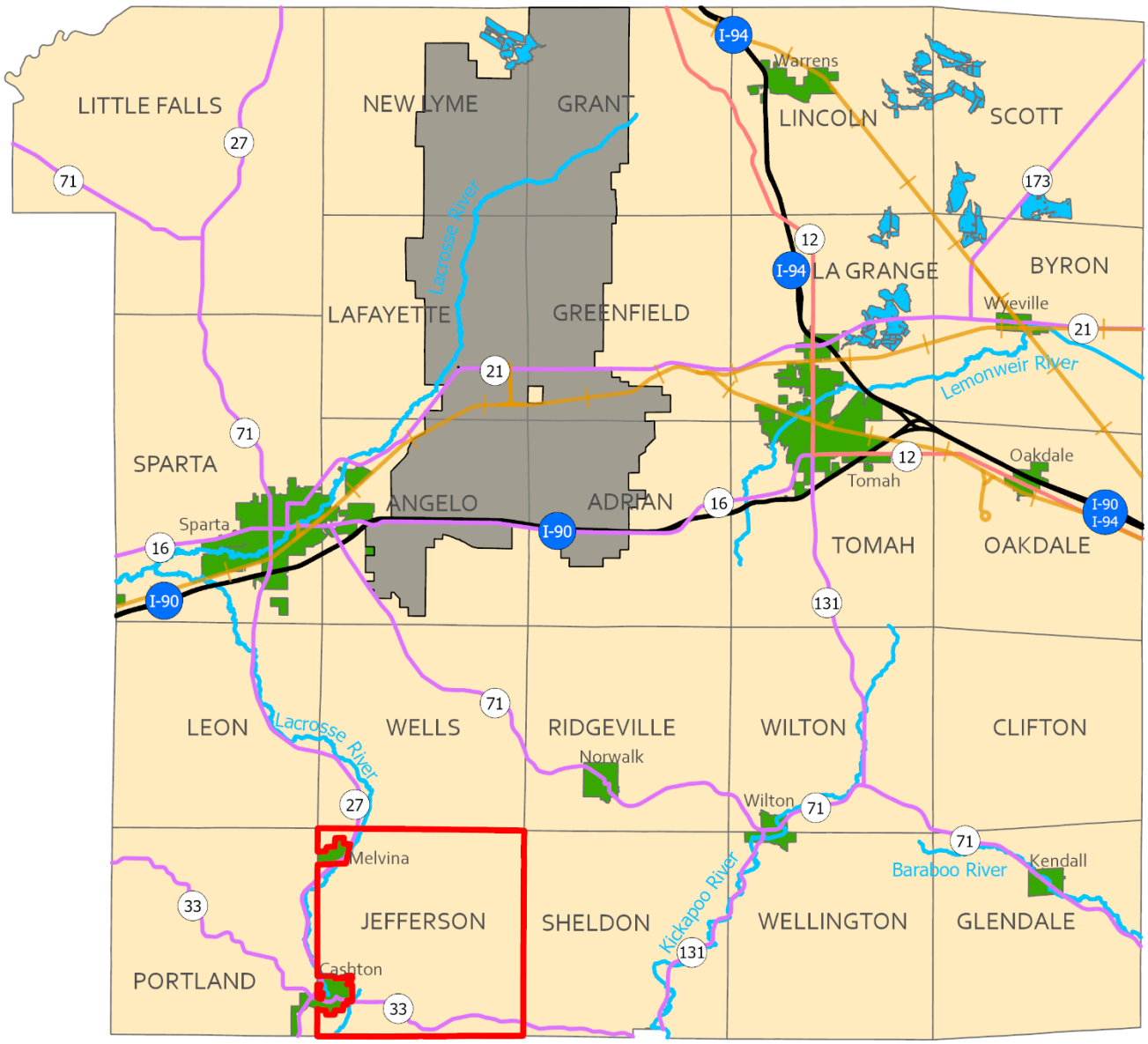
The Town of Jefferson, with a population of 841 as of the 2020 U.S. Census, faces risks from flooding and severe storms, particularly near its rivers and streams. Snowstorms and blizzards are common in winter. Located in southwest Monroe County, the town is adjacent to the villages of Melvina and Cashton. Highway 27 passes briefly through the town, while Highway 33 runs east-west across it. The town is largely rural and agricultural, with most residential development located in the nearby villages. There are few critical facilities within the township itself.

Jefferson has a relatively small floodplain area and $3,149,700 in assessed improvements across 35 parcels. Social vulnerability falls between the 40th and 60th percentile, with notable populations with limited English proficiency (14%, compared to the county median of 1%) and a significant agricultural worker population (18%, compared to the county median of 7%). The town also has a younger population, with only 9% over the age of 65, compared to the county median of 18%.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
Two projects were identified for the Town in the 2019 HMP, relating to improvements on Nevada, Omaha, and Oneida roads. During the writing of this plan, multiple attempts were made to contact the Town to gather information on the status of those projects, as well as any other mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

- **Repair and upgrade flood-damaged Nevada and Omaha roads**
    - *Hazard*: Flooding
    - *Funding Source(s)*: Grants and Town Budget
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: As funding becomes available
    - *Status*: Carried over from previous plan
- **Repair/Upgrade bridges on Oneida and Nevada Roads**
    - *Hazard*: Flooding
    - *Funding Source(s)*: Grants and Town Budget
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: As funding becomes available
    - *Status*: Carried over from previous plan

Town of Jefferson, Monroe County

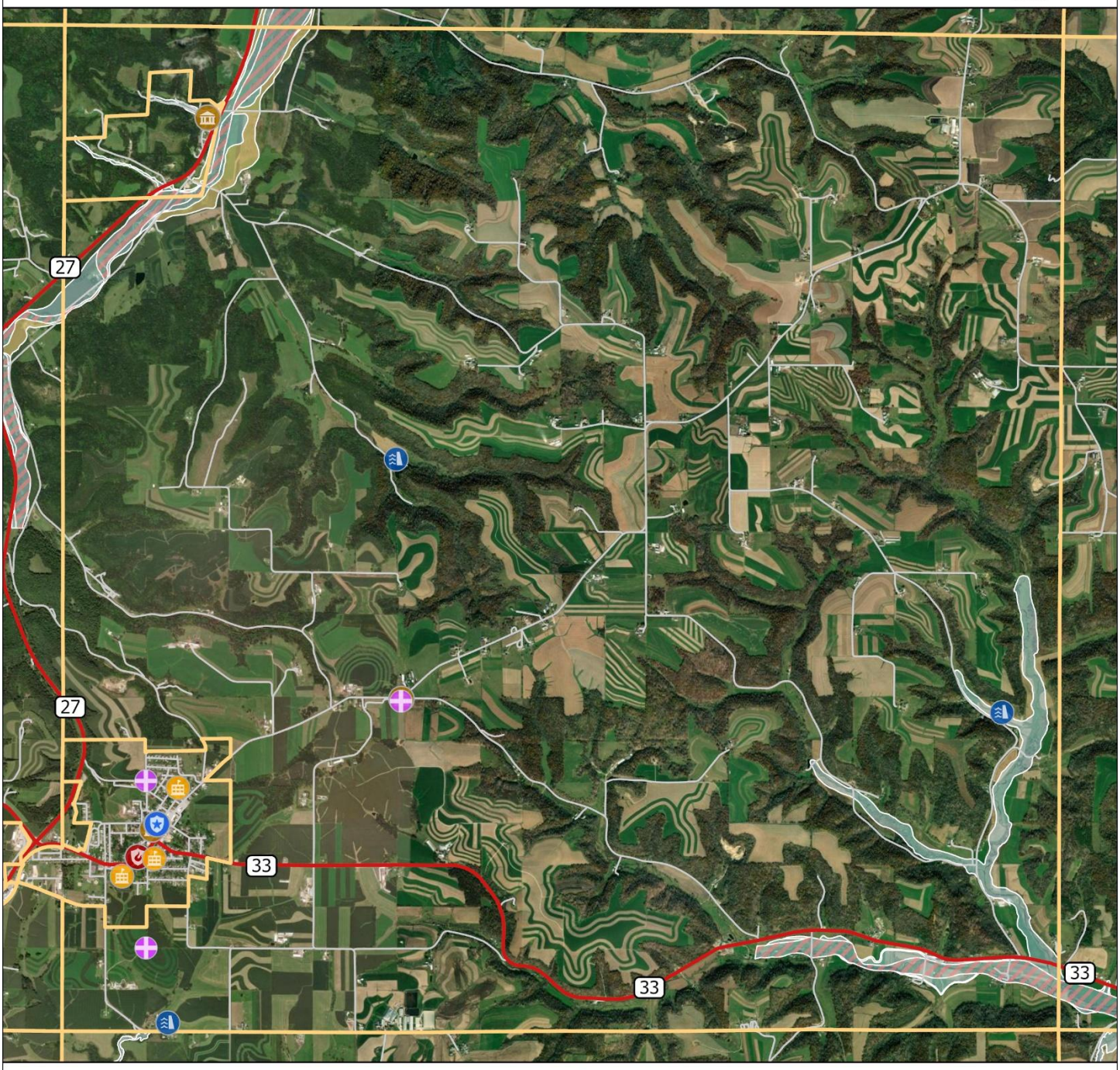


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Jefferson

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Jefferson



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary

Arterials
Road Centerline
City, Village, or Town Hall
Wastewater Treatment Facility
Well

Healthcare
Fire Department
Police
School
Dam

N

0 1 2
Miles

Town of Lafayette

The Town of Lafayette, home to 447 residents according to the 2020 U.S. Census, is located in central Monroe County. The eastern part of the town falls within Fort McCoy, and the La Crosse River flows through the area. The town experiences windstorms and tornadoes, with Highway 21 and a railroad running through it. Only 12 parcels lie within the floodplain, with a total of $1,662,600 in assessed improvements.

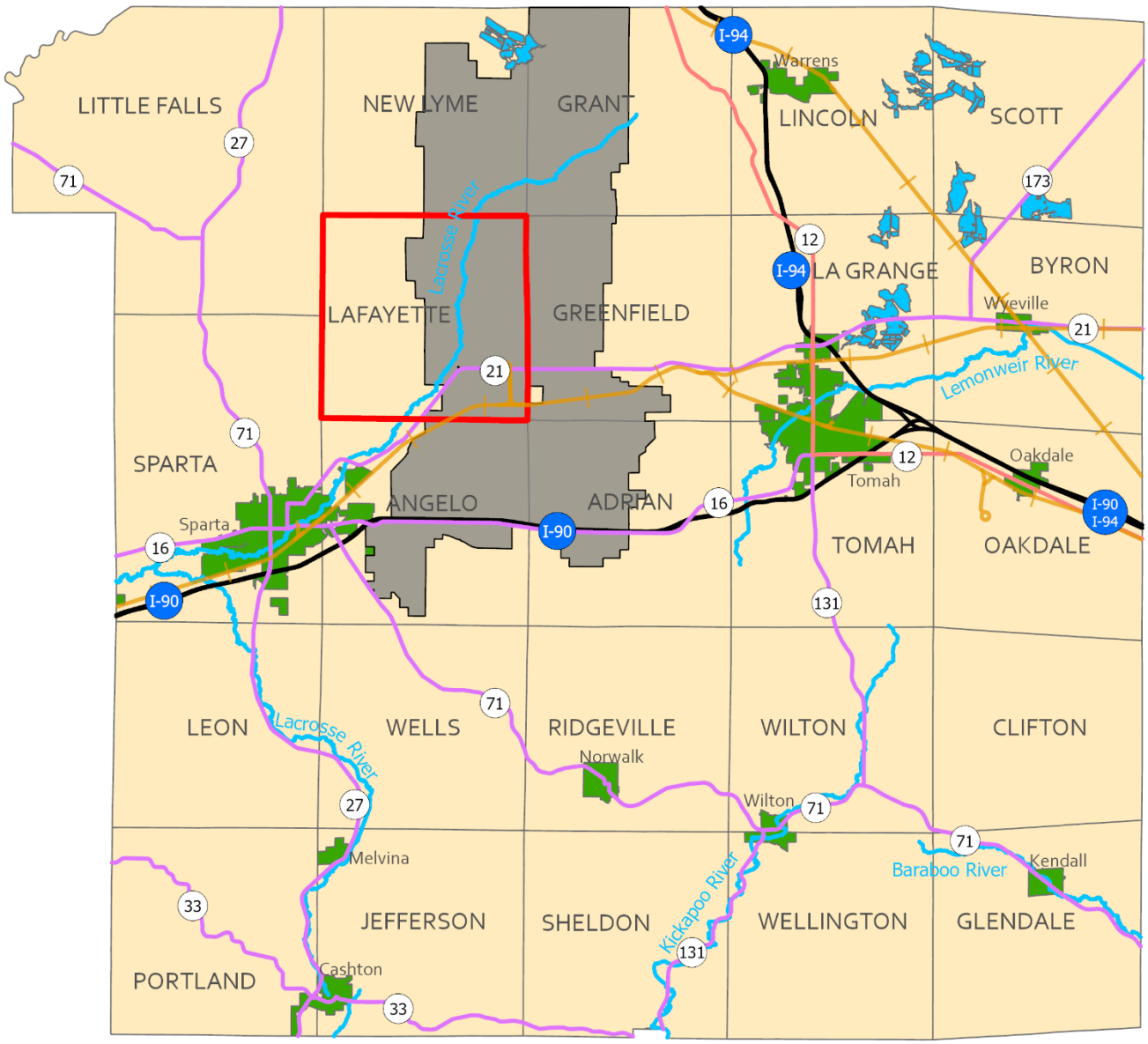
Outside of Fort McCoy, Lafayette is predominantly rural and agricultural, with very limited residential development. The northern part of the town features steep, mostly undeveloped slopes. Social vulnerability is low, ranking in the bottom 20th percentile, with most factors at or below county medians. The only exception is a slightly higher rate of limited English proficiency at 2%, compared to the county median of 1%.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
The 2019 HMP identified two projects for the Town: construction of a new bridge and stabilization of a hillside. These projects remain a priority for the Town, but no progress has been made since 2019. No other mitigation activites have been undertaken by the Town since 2019.

- **Construct a new bridge over Bailey Creek**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Stabilize hillside alongside CTH Q**
  - *Hazard*: Landslide
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project

New Projects and Actions
No new projects are desired by the Town at this time.

Town of Lafayette, Monroe County

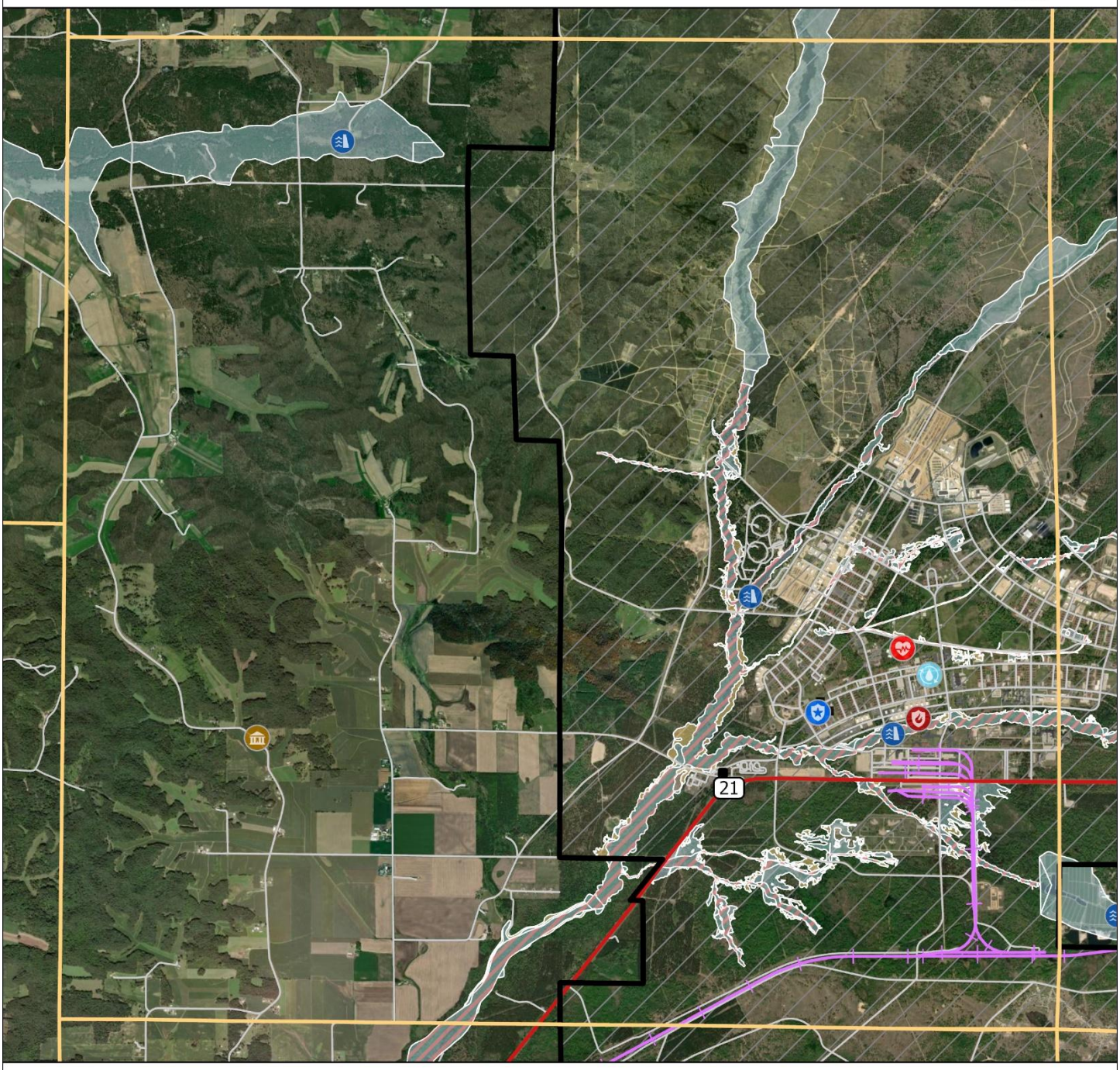


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Lafayette

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Lafayette



- Floodway
- 100 Year Floodplain Boundary
- 500 Year Floodplain Boundary
- Town Boundary
- Arterials
- Road Centerline
- Railroad
- Military
- City, Village, or Town Hall
- Wastewater Treatment Facility
- Fire Department
- Police
- Healthcare
- Dam
- Fort McCoy

N

0 1 2

Miles

Town of La Grange

The Town of La Grange, with a population of 1,948 as of the 2020 U.S. Census, is located in central Monroe County, just north of Tomah along the I-90 corridor. The town is vulnerable to flooding, as well as to severe thunderstorms and tornadoes. A significant portion of the town lies within the floodplain. There are 153 parcels in the town, with assessed improvements totaling $19,355,800.

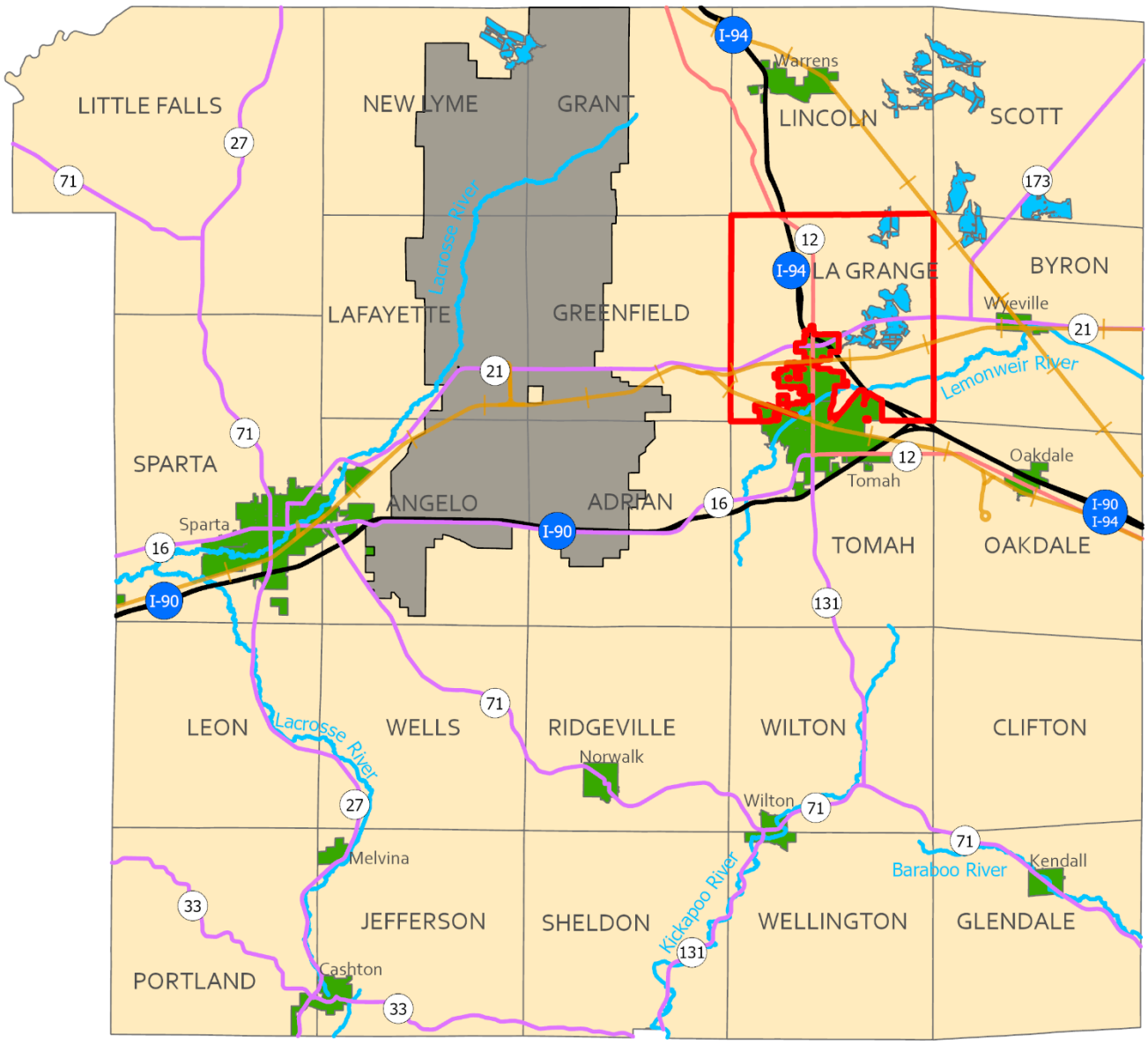
La Grange is more developed than most towns in Monroe County, featuring subdivisions and a higher level of residential development. Despite this, the town remains rural and agricultural, with a focus on cranberry farming, particularly in the eastern part of the town. Several major transportation routes, including I-94, Highway 12, Highway 21, and railroads, run through La Grange. Social vulnerability falls in the 20th to 40th percentile, with a notably older population—28% of residents are over 65, compared to the county median of 18%.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of La Grange. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of La Grange, Monroe County

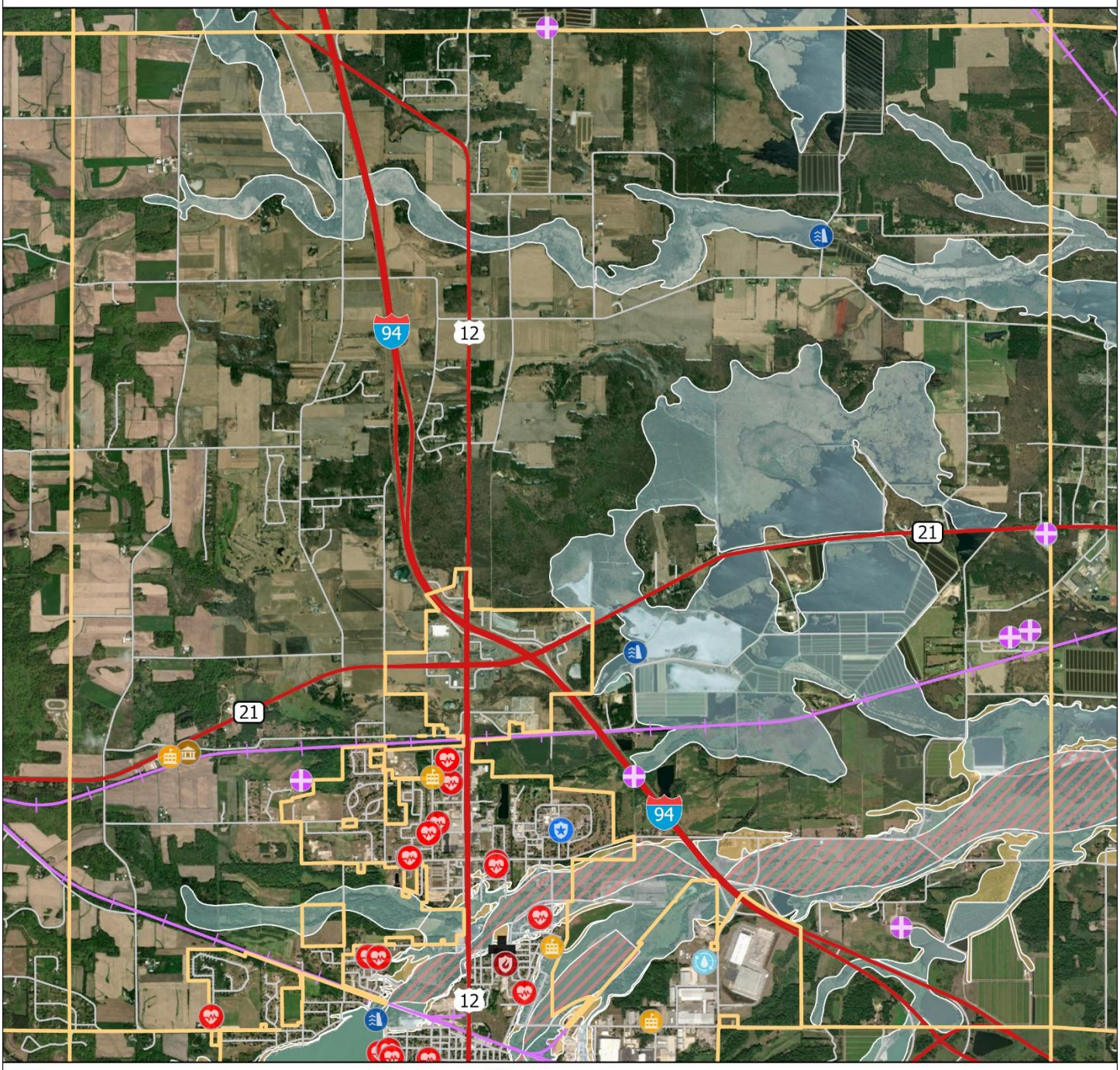


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
La Grange

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of La Grange



Town of Leon

The Town of Leon, with a population of 1,391 as of the 2020 U.S. Census, is located in western Monroe County, just south of Sparta. The town faces hazards from flooding, tornadoes, and hailstorms, which pose risks to its primarily agricultural landscape, making it vulnerable to crop damage. While still largely rural, Leon is one of the more developed towns in the county, with common residential development.

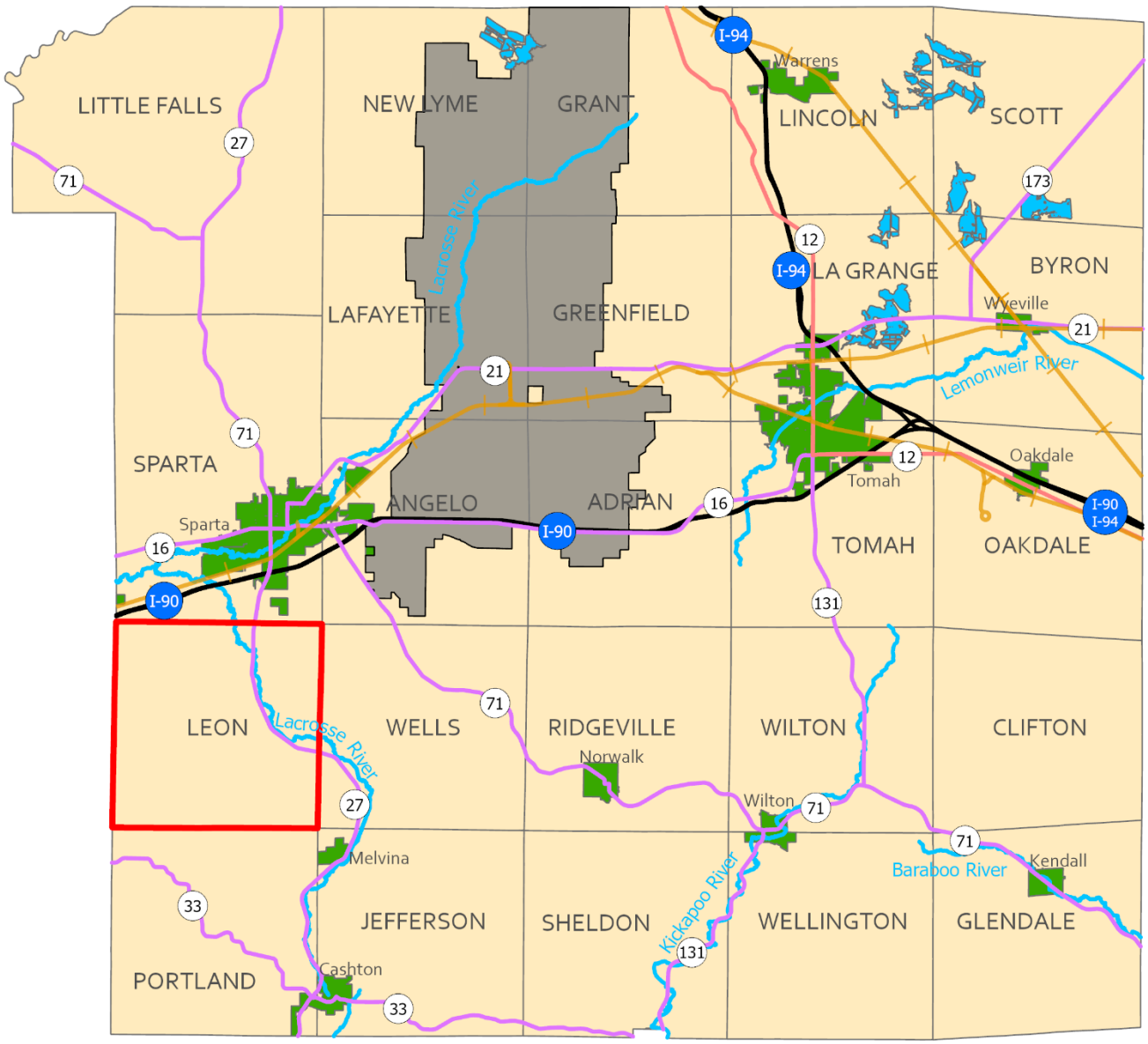
Highway 27 runs through the northeastern part of the town, which lies in the floodplain along the La Crosse River. There are 51 parcels in the floodplain, with assessed improvements totaling $6,306,700. Social vulnerability in Leon is low, ranking in the bottom 20th percentile, with all components of the index at or below the county median.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Leon. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Leon, Monroe County

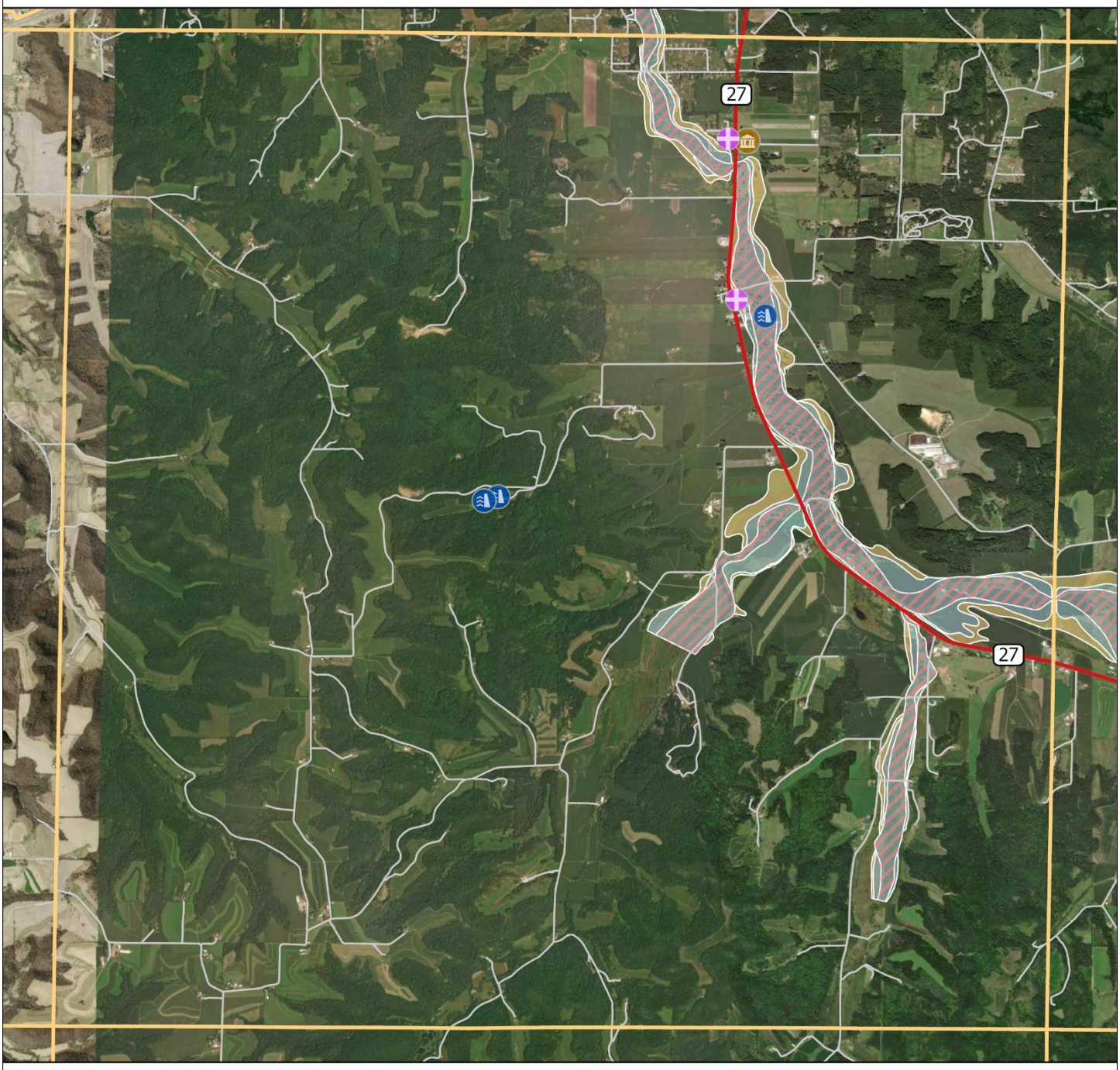


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Leon

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Leon



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
City, Village, or Town Hall
Well
Dam
N
0
1
2
Miles

Town of Lincoln

The Town of Lincoln, with a population of 864 as of the 2020 U.S. Census, is located in northeast Monroe County along the county line, surrounding the Village of Warrens. This rural, agriculture-focused community is prone to flooding, thunderstorms, and hailstorms, which pose risks to its agricultural operations from lightning strikes and wind damage. The town is located in cranberry country and relies heavily on farming. Major transportation routes, including Highway 12, I-94, and a railroad, run through the area.

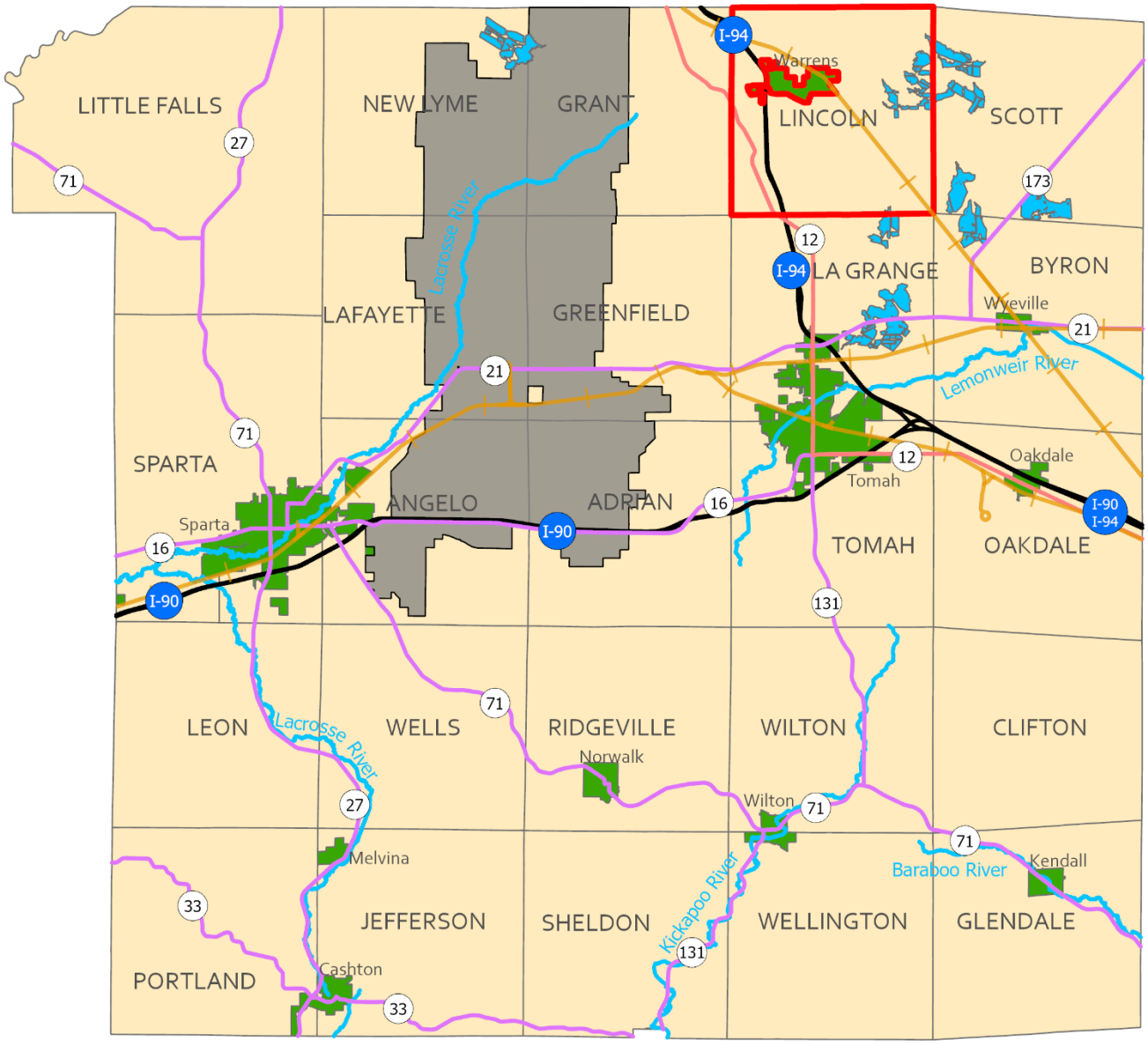
Lincoln has 64 parcels in the floodplain, with assessed improvements totaling $4,864,500. Social vulnerability falls within the 40th to 60th percentile, with 11% of homes being mobile, more than double the county median. The town also has a high percentage of agricultural workers (13%, compared to the county median of 7%) but a very low poverty rate, at just 2%, compared to the county median of 10%.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Lincoln. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Lincoln, Monroe County

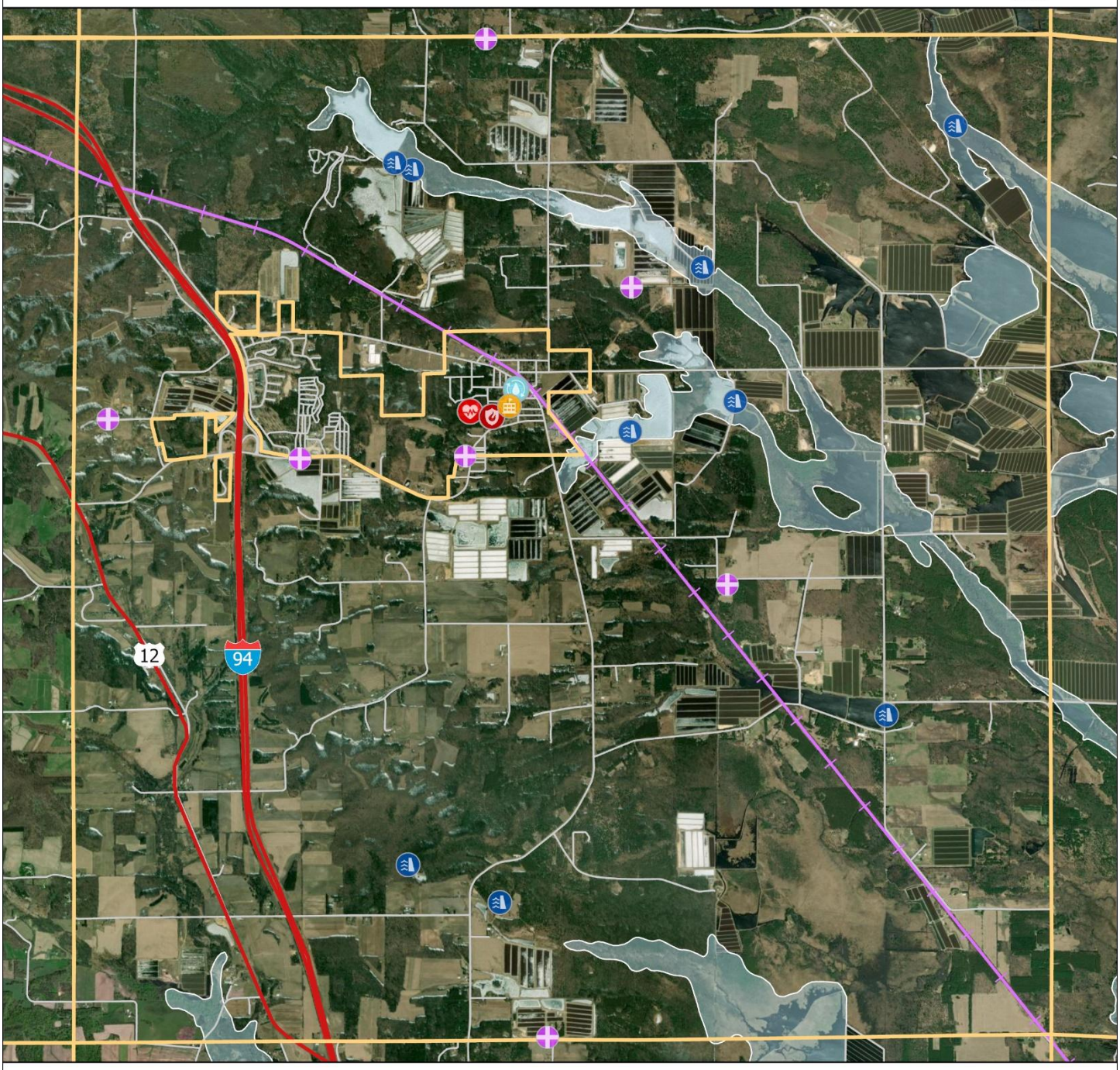


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Lincoln

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Lincoln



100 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
Railroad
City, Village, or Town Hall
Wastewater Treatment Facility
Fire Department
Healthcare
School
Dam
Well
N
0
1
2
Miles

Town of Little Falls

The Town of Little Falls, with a population of 1,697 as of the 2020 U.S. Census, is located in the northwest corner of Monroe County. The town faces significant flooding risks, along with hazards from tornados, thunderstorms, and hail. Little Falls is primarily rural and agricultural but includes some residential development within the Census Designated Places (CDPs) of Cataract and Four Corners.

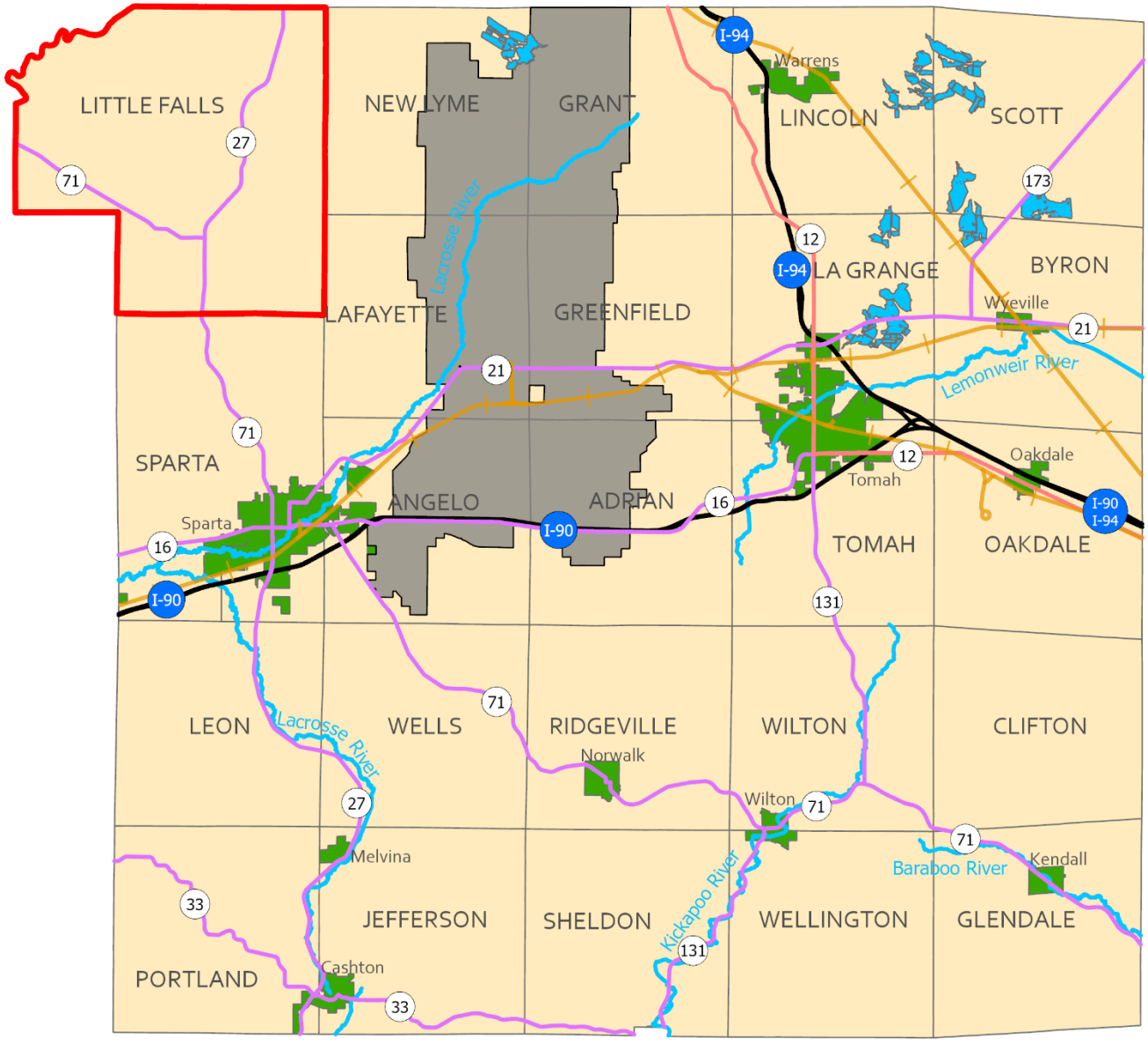
There are 101 parcels in the floodplain, with assessed improvements totaling $17,003,200. Social vulnerability is in the 20th to 40th percentile, with a notably high percentage of mobile homes—16%, compared to the county median of 5%—posing an increased concern during tornadoes. The town is also served by Highways 27 and 71.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Little Falls. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Little Falls, Monroe County

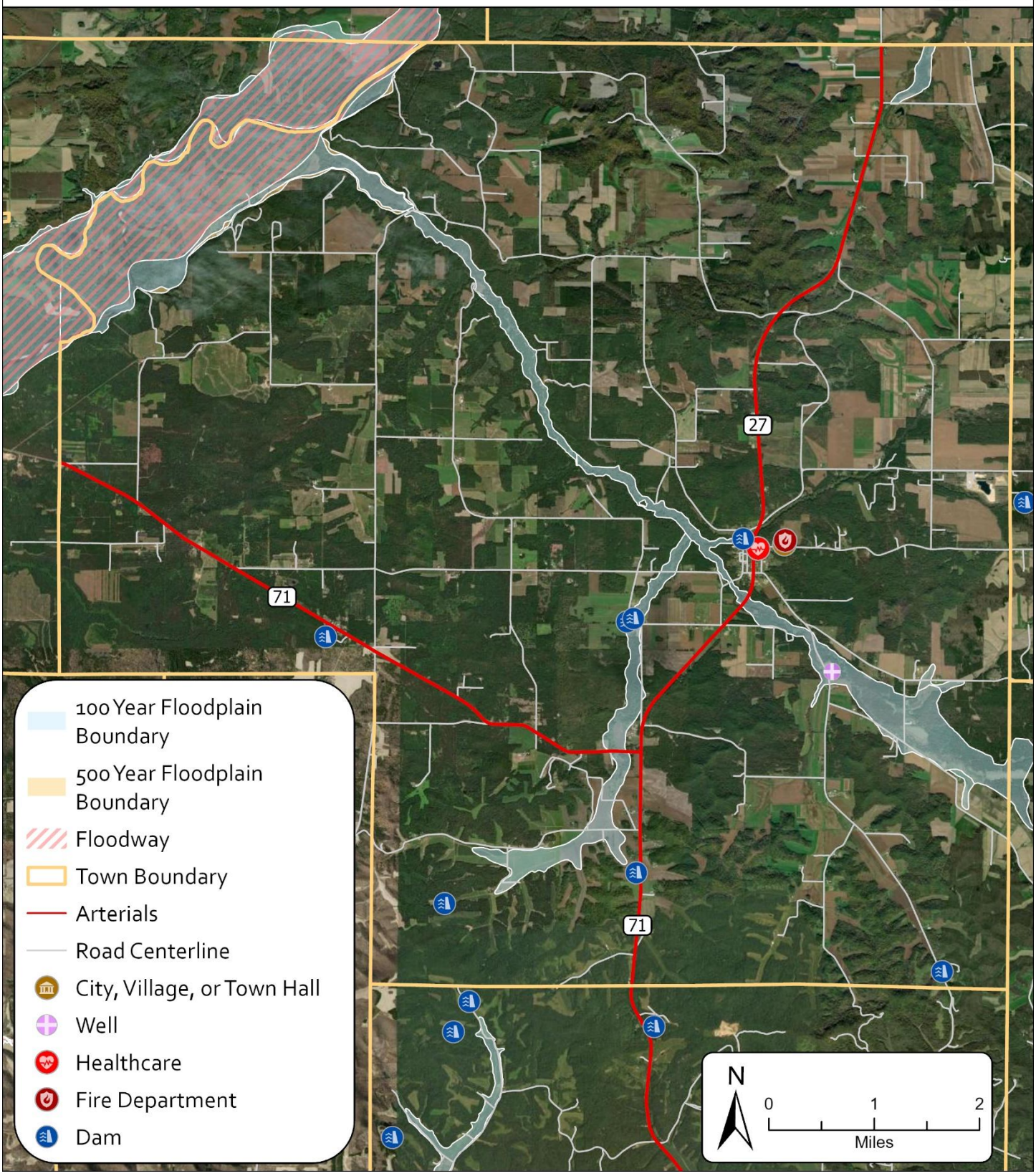


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Little Falls

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Little Falls



Town of New Lyme

The Town of New Lyme, with a population of 245 according to the 2020 U.S. Census, is vulnerable to flooding, high winds, and tornadoes. Winter weather events, such as blizzards and ice storms, present significant challenges due to the town's small size and lack of arterial roads. Located in northern Monroe County, The eastern half of the town lies within Fort McCoy, and most of the floodplain areas are within its boundaries. There are 30 parcels in the floodplain, with assessed improvements totaling $4,408,800.

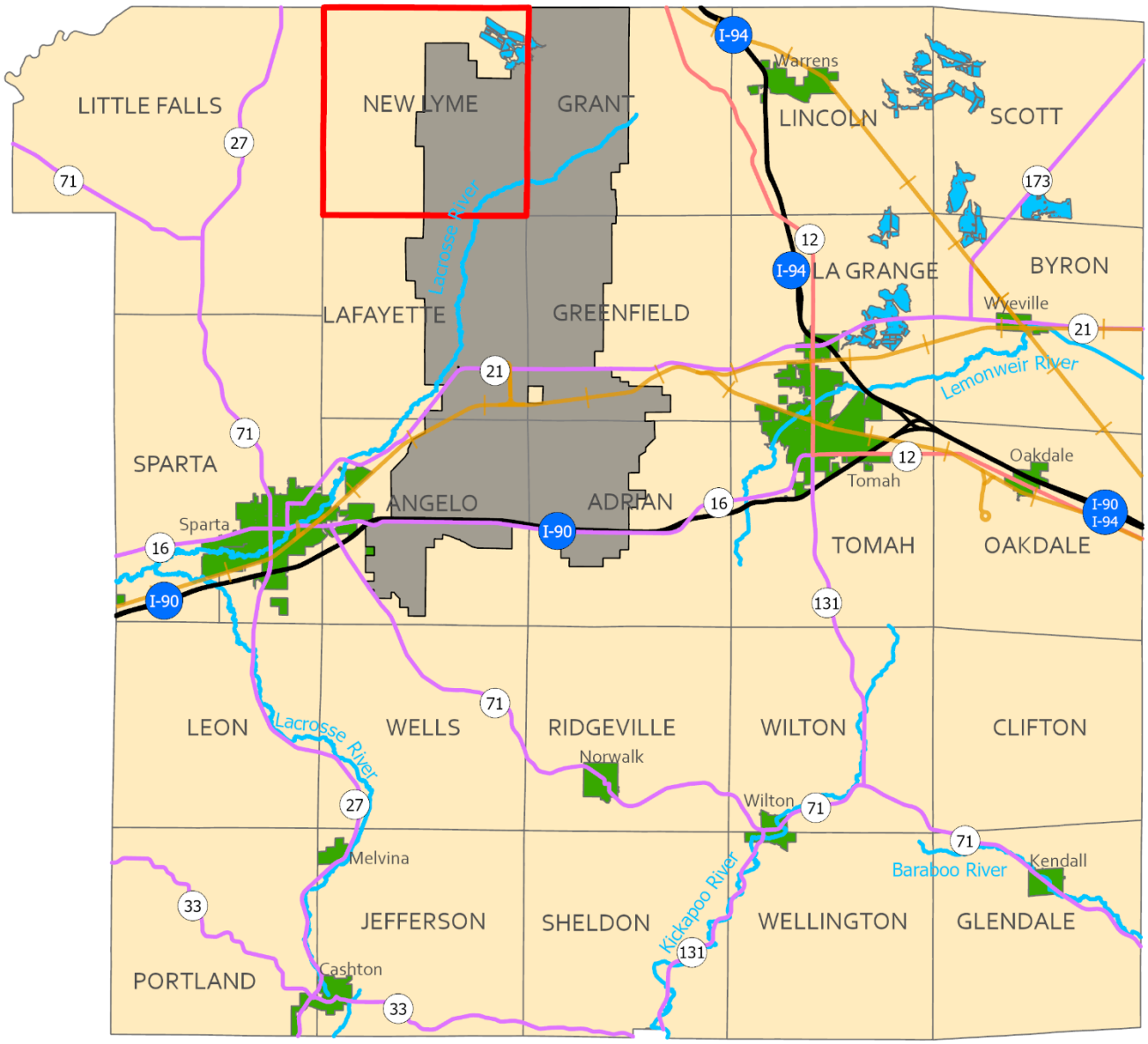
New Lyme is a very rural, agricultural community with limited residential development and significant topographical challenges. Social vulnerability ranks in the bottom 20th percentile, though the town has a slightly higher percentage of mobile homes (8% compared to the county median of 5%) and limited English proficiency (5% compared to the county median of 1%).

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of New Lyme. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of New Lyme, Monroe County

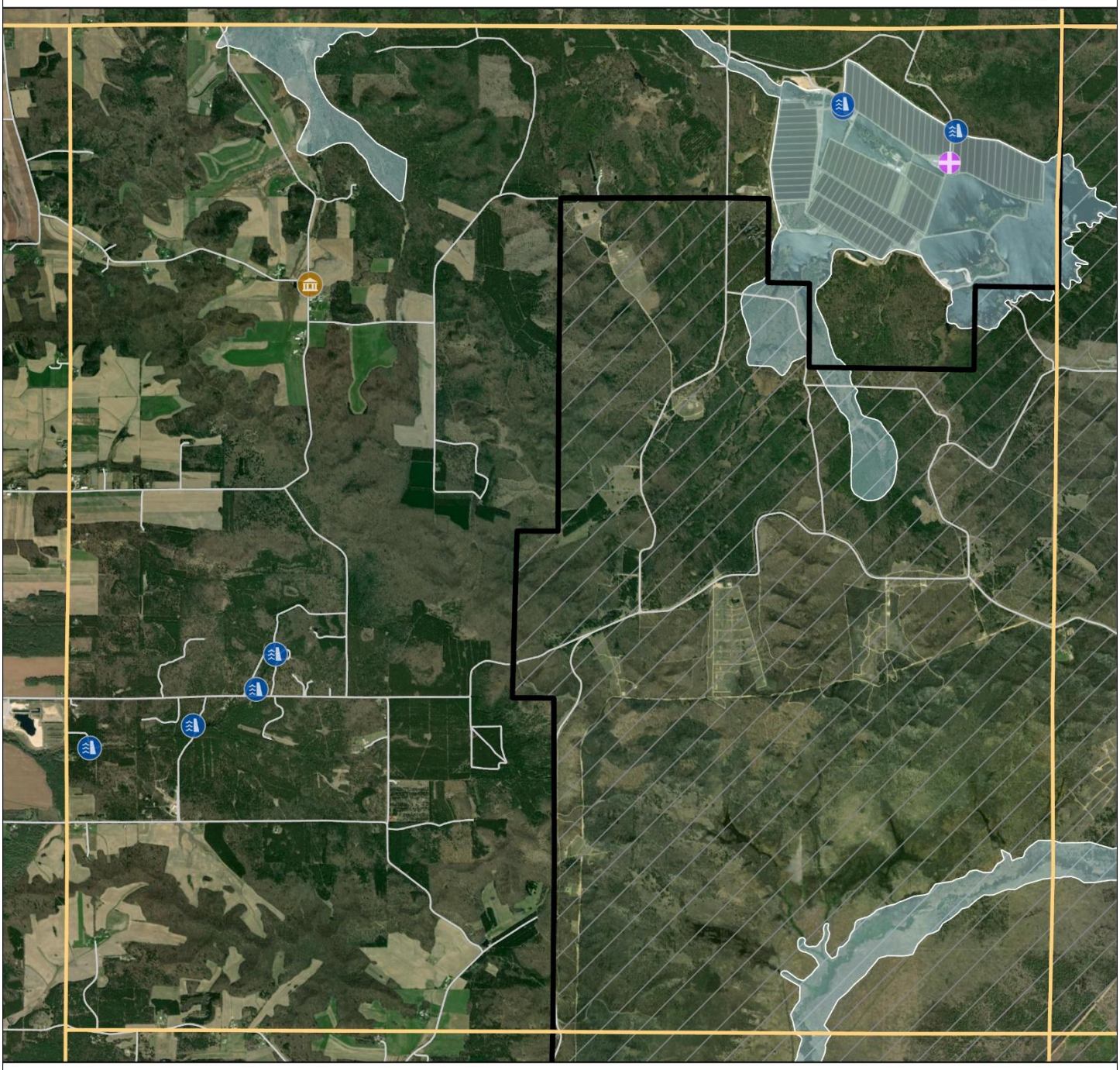


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
New Lyme

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of New Lyme



Town of Oakdale

The Town of Oakdale, with a population of 847 as of the 2020 U.S. Census, is located on the eastern edge of Monroe County along the central I-90 corridor. The town is traversed by I-90/94, Highway 12, and a railroad, increasing the risk of transportation-related accidents involving hazardous materials. In addition to these risks, the town faces hazards from flooding, severe thunderstorms, and tornadoes. Oakdale completely surrounds the Village of Oakdale, where most of the development is concentrated, while the town itself remains largely rural and agricultural.

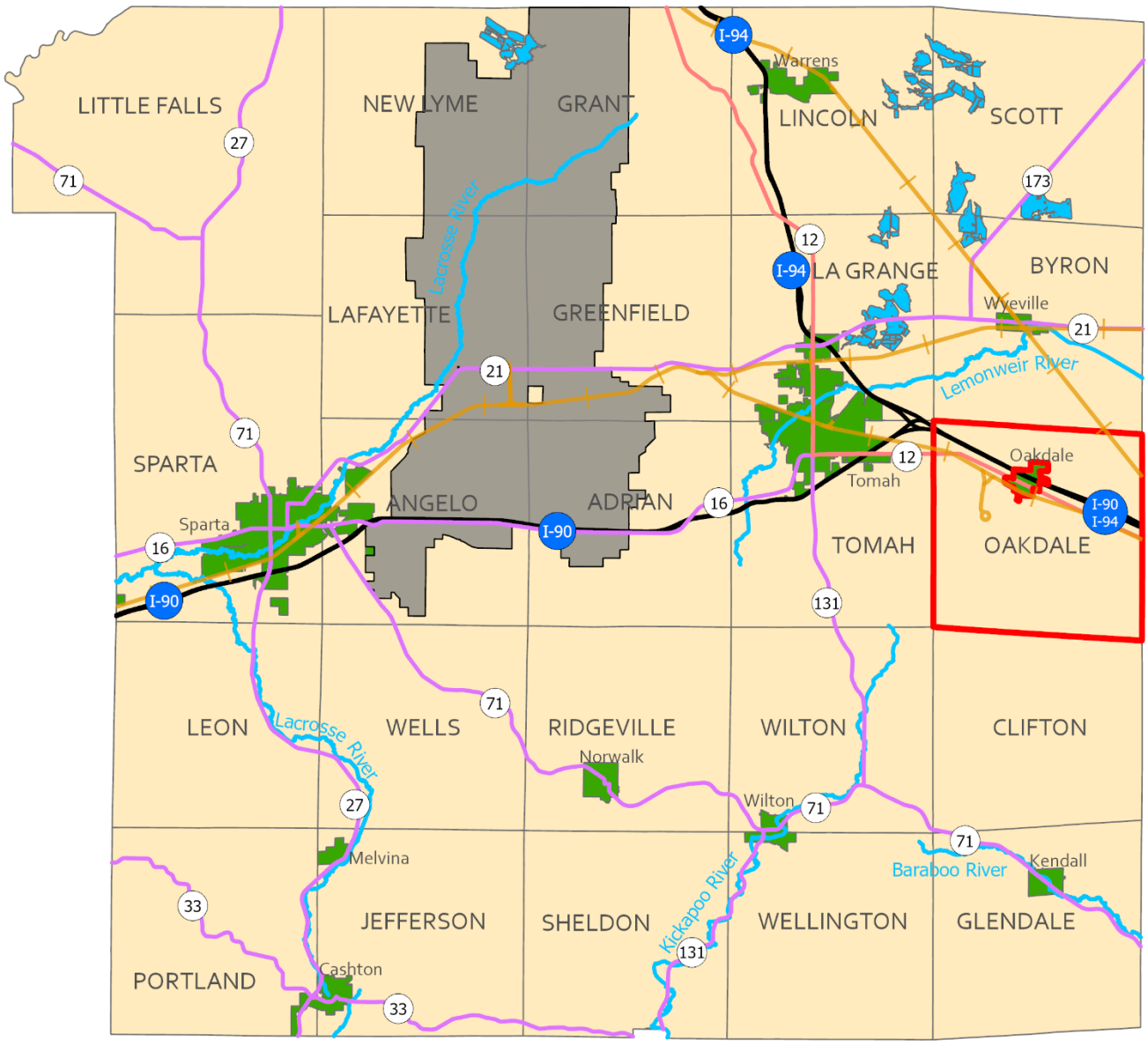
The northern part of the town contains a significant floodplain, with 67 parcels in flood-prone areas and assessed improvements totaling $34,522,900. West of the village, there is a major mining operation. Social vulnerability is in the bottom 20th percentile, and the town's demographics are similar to Monroe County medians, though Oakdale has a slightly lower poverty rate (2% compared to the county median of 5%).

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Oakdale. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Oakdale, Monroe County

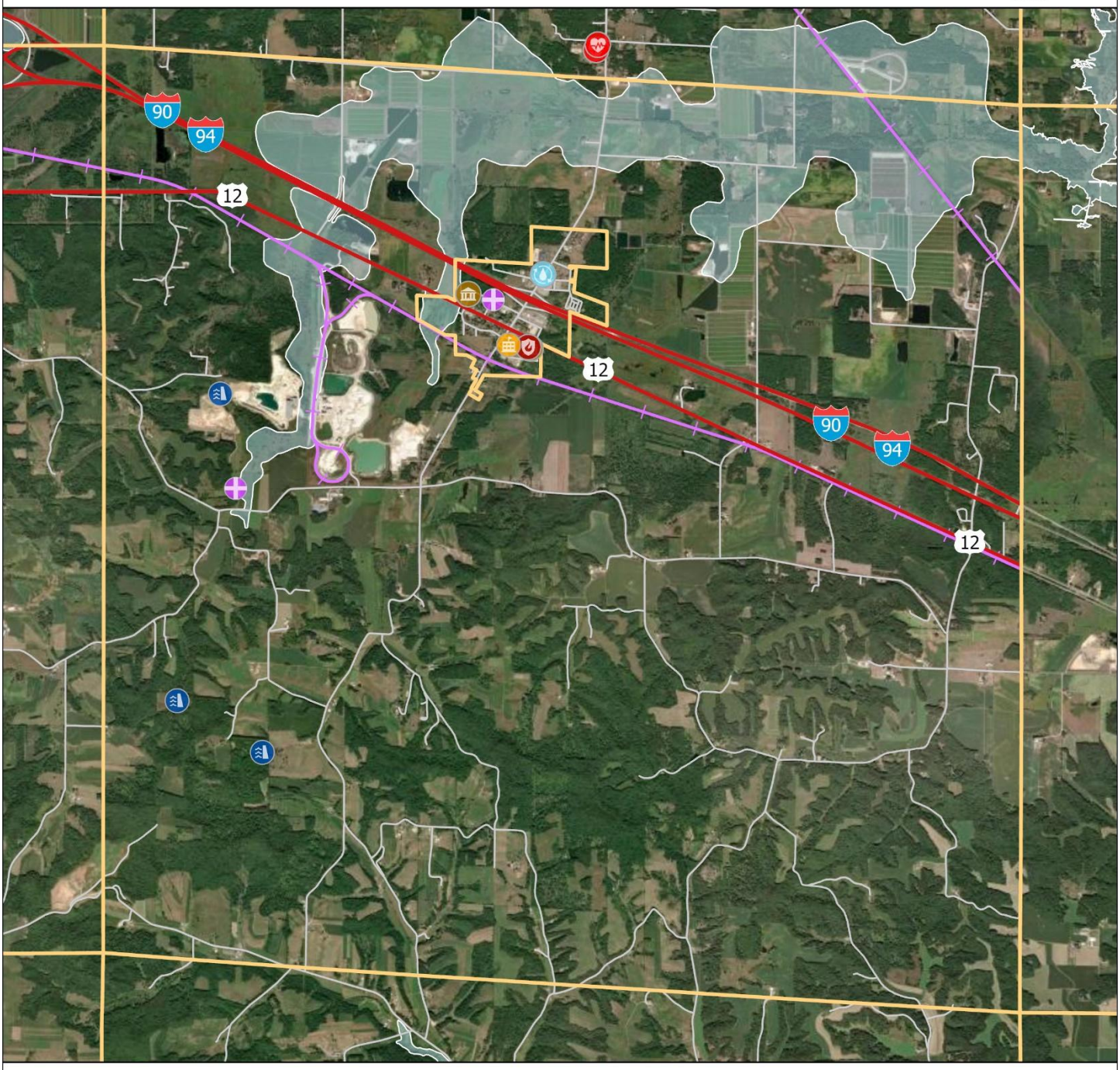


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Town of Oakdale

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Oakdale



100 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
Railroad
City, Village, or Town Hall
Wastewater Treatment Facility
Healthcare
Fire Department
School
Dam
Well
N
0
1
2
Miles

Town of Portland

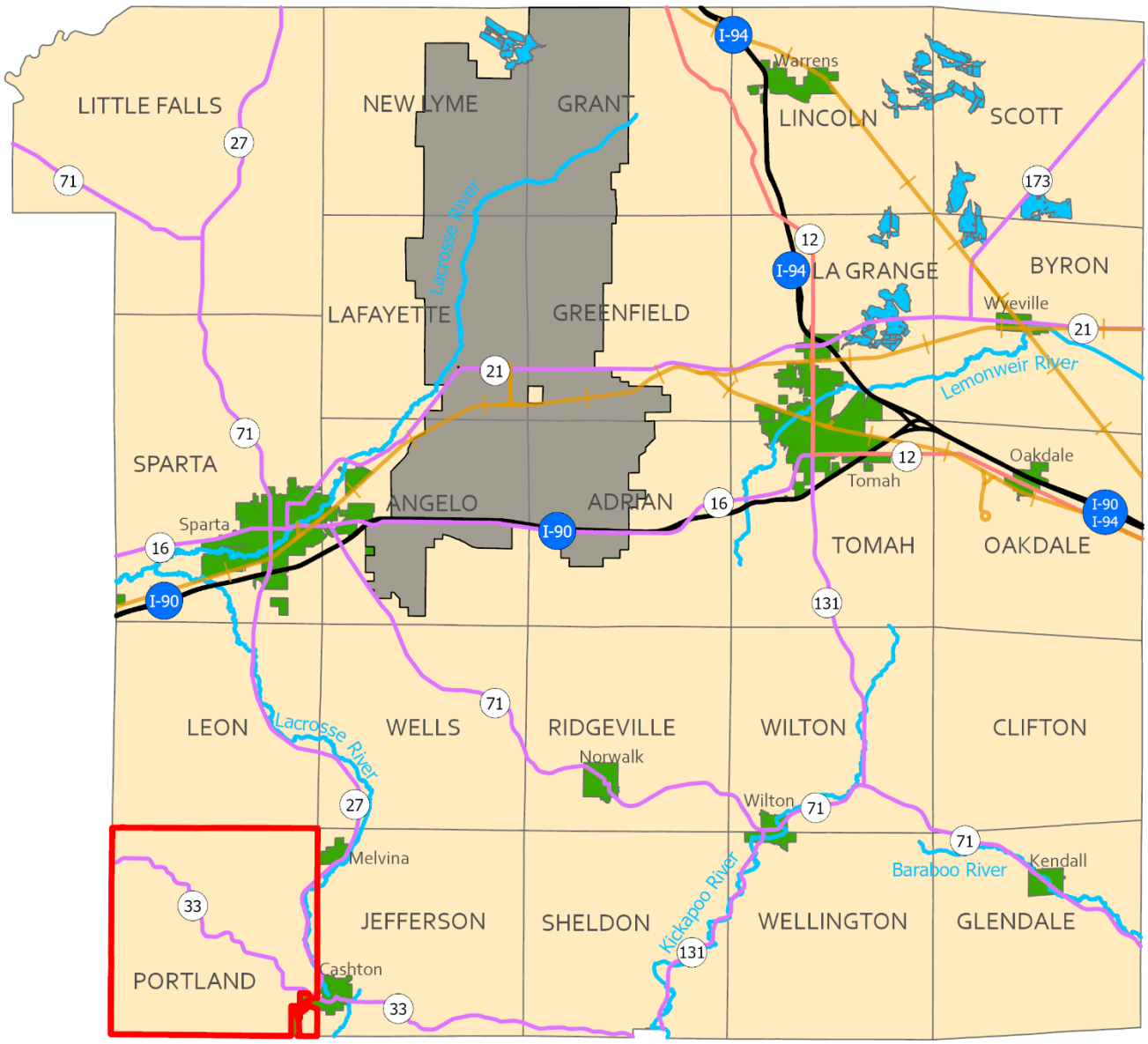
The Town of Portland, with a population of 616 as of the 2020 U.S. Census, is a rural agricultural community located in the southwest corner of Monroe County. The town is vulnerable to severe thunderstorms, tornadoes, and flooding, with agricultural lands particularly at risk from hail and wind damage. Highway 33 runs through the town from northwest to southeast, and Highway 27 follows the eastern edge of the town, running north to south.

Flooding risks are limited to two small floodplain areas in the southwest part of the town and along Highway 27 on the eastern edge, with 17 parcels in the floodplain and assessed improvements totaling $986,300. Social vulnerability is in the 20th to 40th percentile, with a notable percentage of agricultural workers—15%, compared to the county median of 7%.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
Four projects were identified for the Town in the 2019 HMP. During the writing of this plan, multiple attempts were made to contact the Town to gather information on the status of those projects, as well as any other mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

- **Rebuild dams which failed during flooding of 2018**
  - *Hazard*: Dam Failure, Flooding
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Replace Oakland Bridge**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Add fencing or construct a containment wall at waste disposal site**
  - *Hazard*: Flooding, Contamination
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Develop and implement a plan to clear brush and trees on town road rights-of-way**
  - *Hazard*: Windstorms, Wildfire
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project

Town of Portland, Monroe County

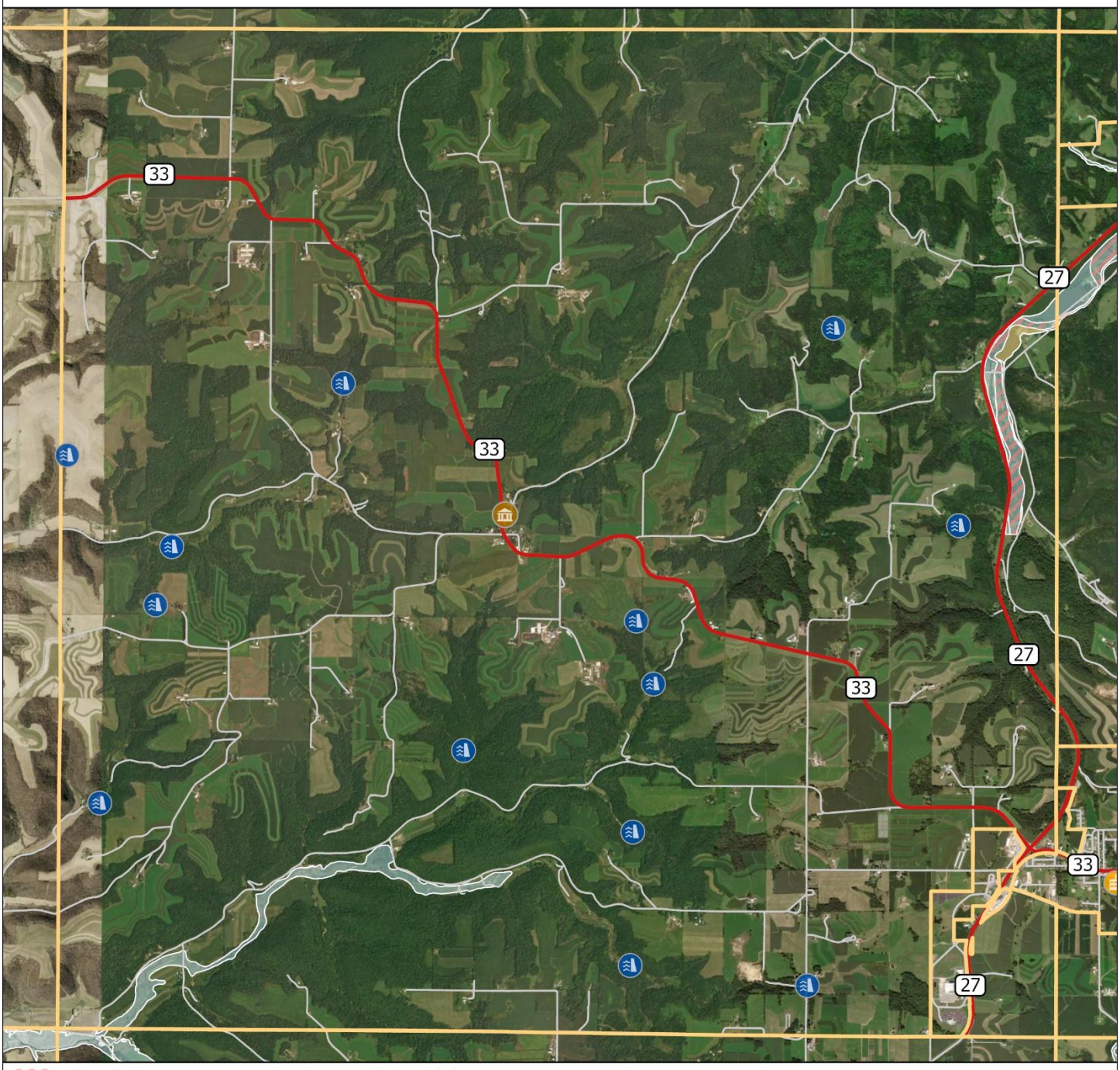


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Portland

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Portland



Town of Ridgeville

The Town of Ridgeville, with a population of 502 as of the 2020 U.S. Census, is a rural, agricultural community located in central Monroe County. The town faces significant risks from flooding, severe thunderstorms, and winter storms, with its proximity to rivers and creeks increasing the likelihood of flash floods. There is one floodplain area in the center of the town, with 16 parcels in the floodplain and assessed improvements totaling $3,250,200.

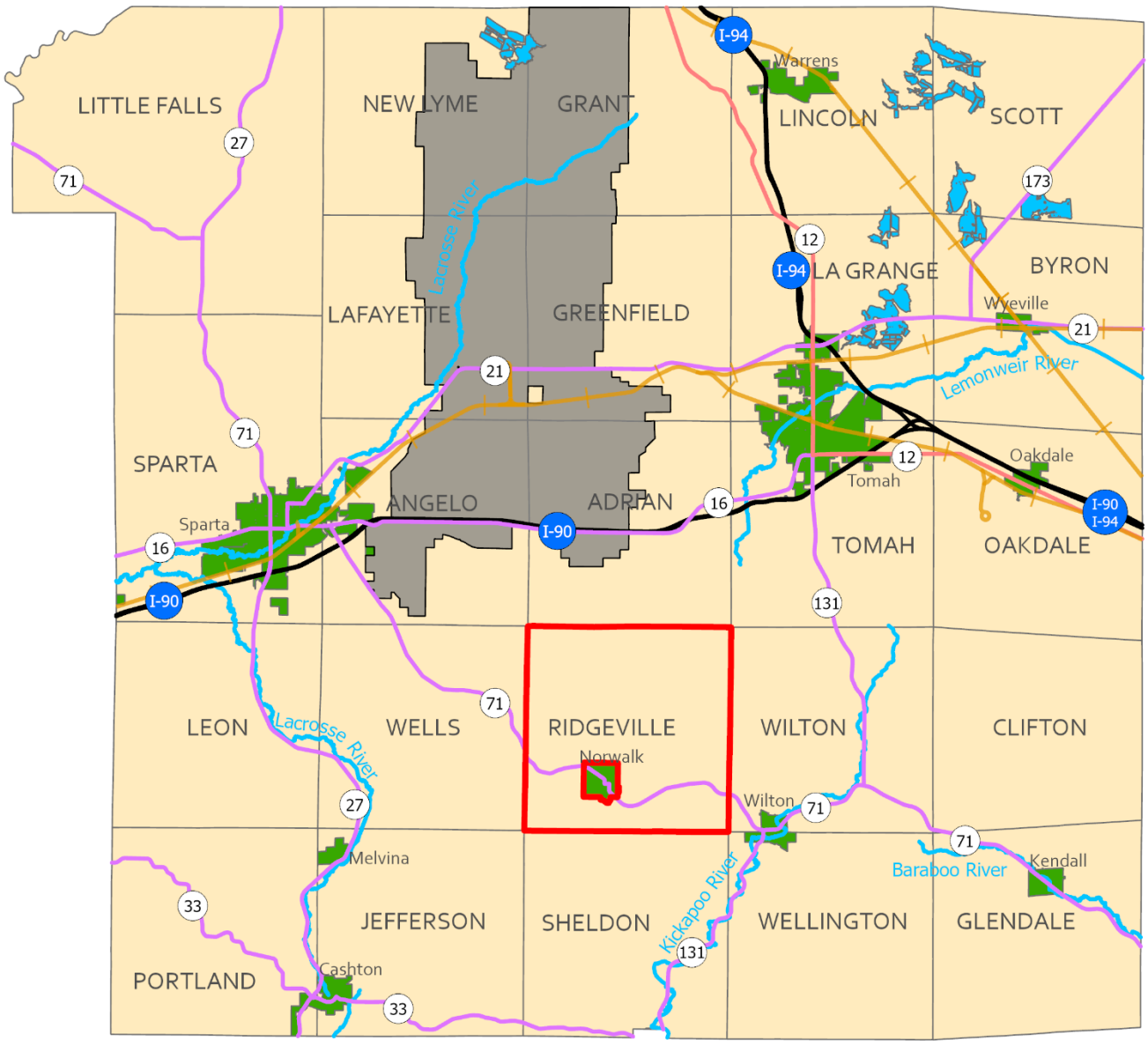
Highway 71 runs east-west through the southern part of Ridgeville, which surrounds the Village of Norwalk. Social vulnerability in the town is in the 20th to 40th percentile, and it has a notable percentage of agricultural workers—19%, compared to the county median of 7%.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Ridgeville. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Ridgeville, Monroe County

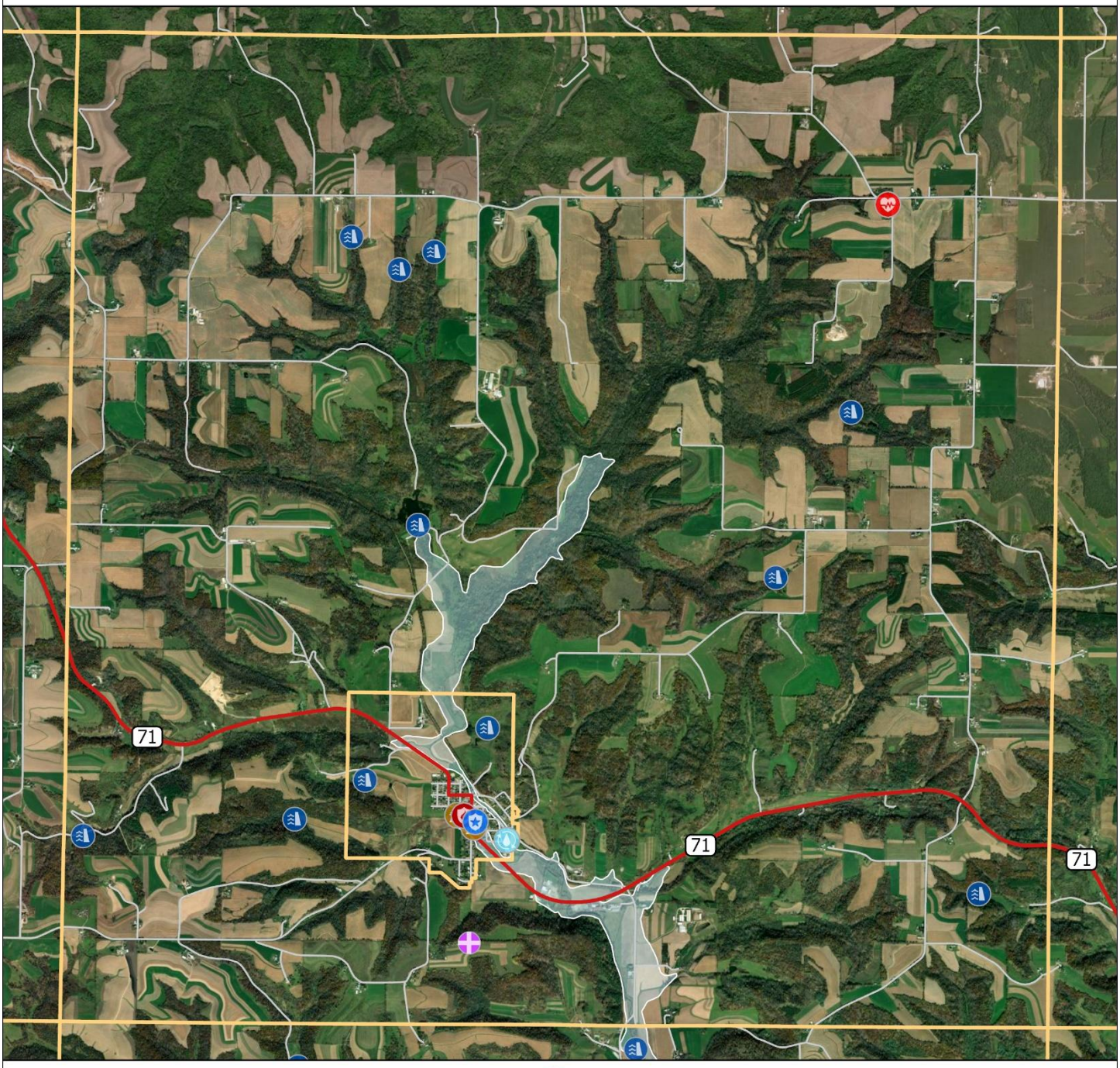


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Ridgeville

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Ridgeville



Town of Scott

The Town of Scott, with a population of 193 as of the 2020 U.S. Census, is a highly rural and agricultural community located in the northeast corner of Monroe County. The town is vulnerable to tornadoes, hailstorms, and severe thunderstorms, which pose significant risks to its agricultural areas, often resulting in crop damage.

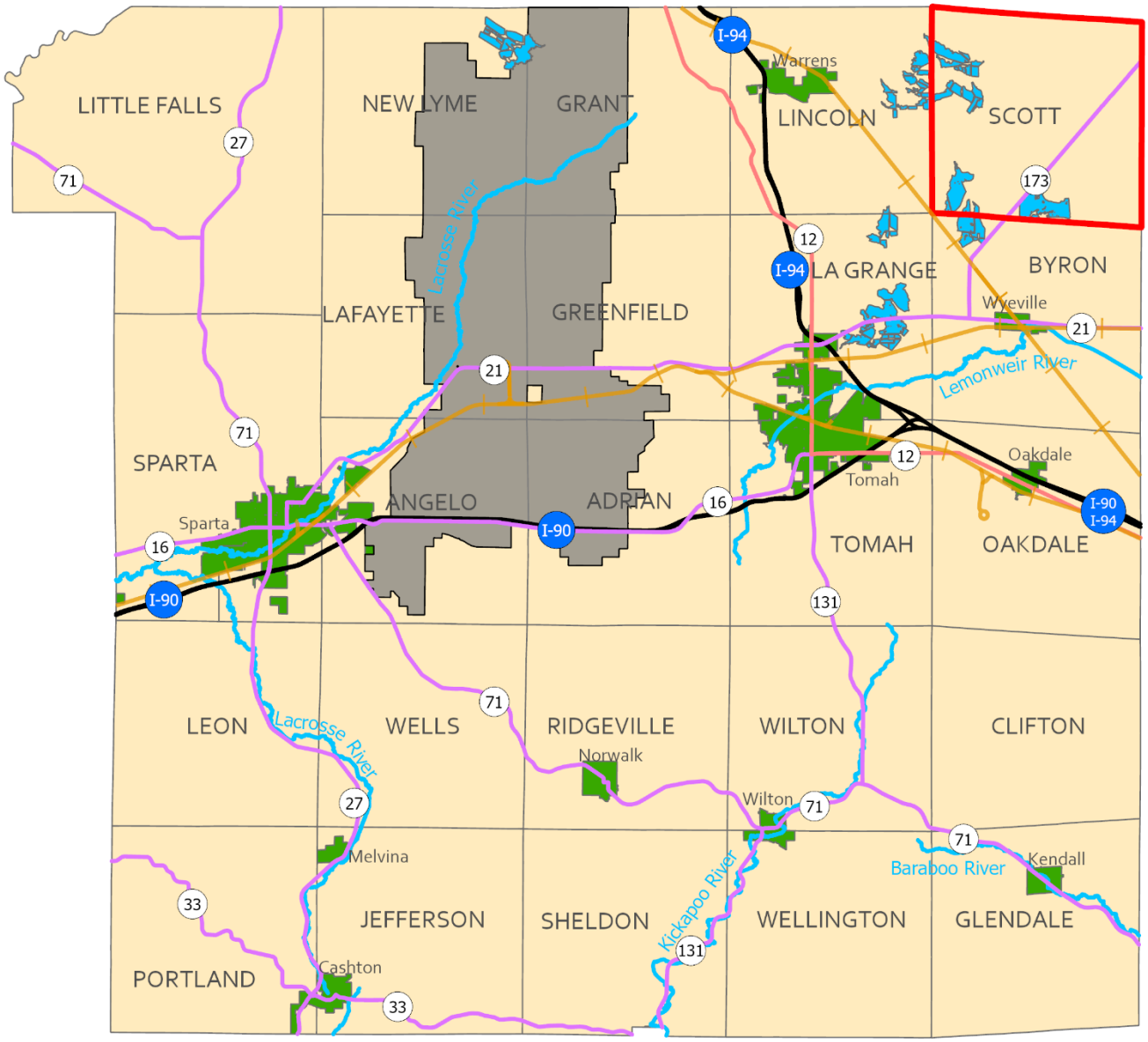
There are 36 parcels in the floodplain, with assessed improvements totaling $1,746,400. Social vulnerability is in the top 20th percentile, with 41% of homes being mobile, compared to the county median of 5%, and 19% of the population working in agriculture, compared to the county median of 7%. Highway 173 runs through the town, which is known for its cranberry farming. Unlike the rest of Monroe County, Scott is part of a flatter geographic area outside the Driftless Region.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Scott. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Scott, Monroe County

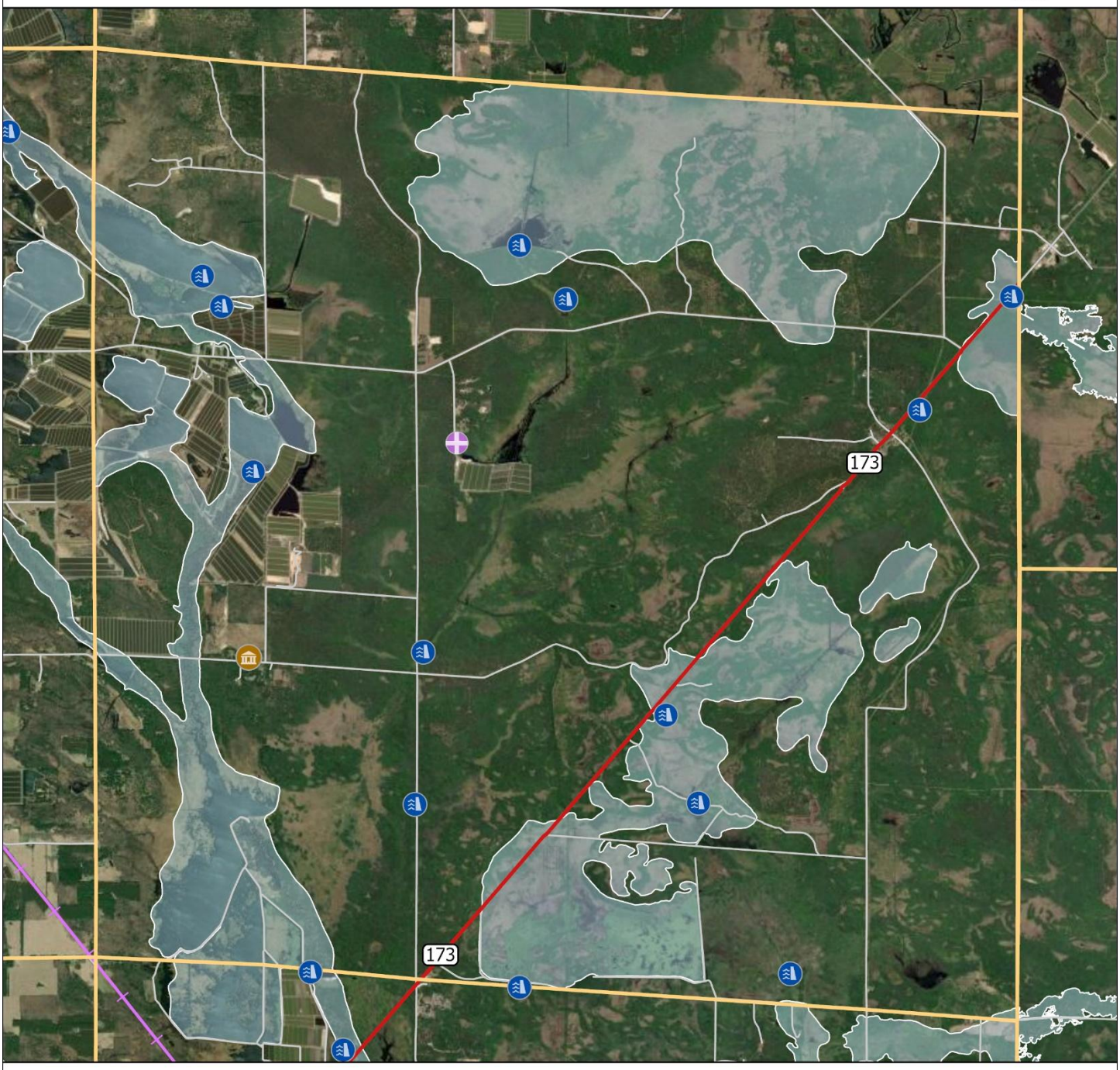


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Scott

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Scott



100 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
Railroad
City, Village, or Town Hall
Well
Dam

N

0 1 2
Miles

Town of Sheldon

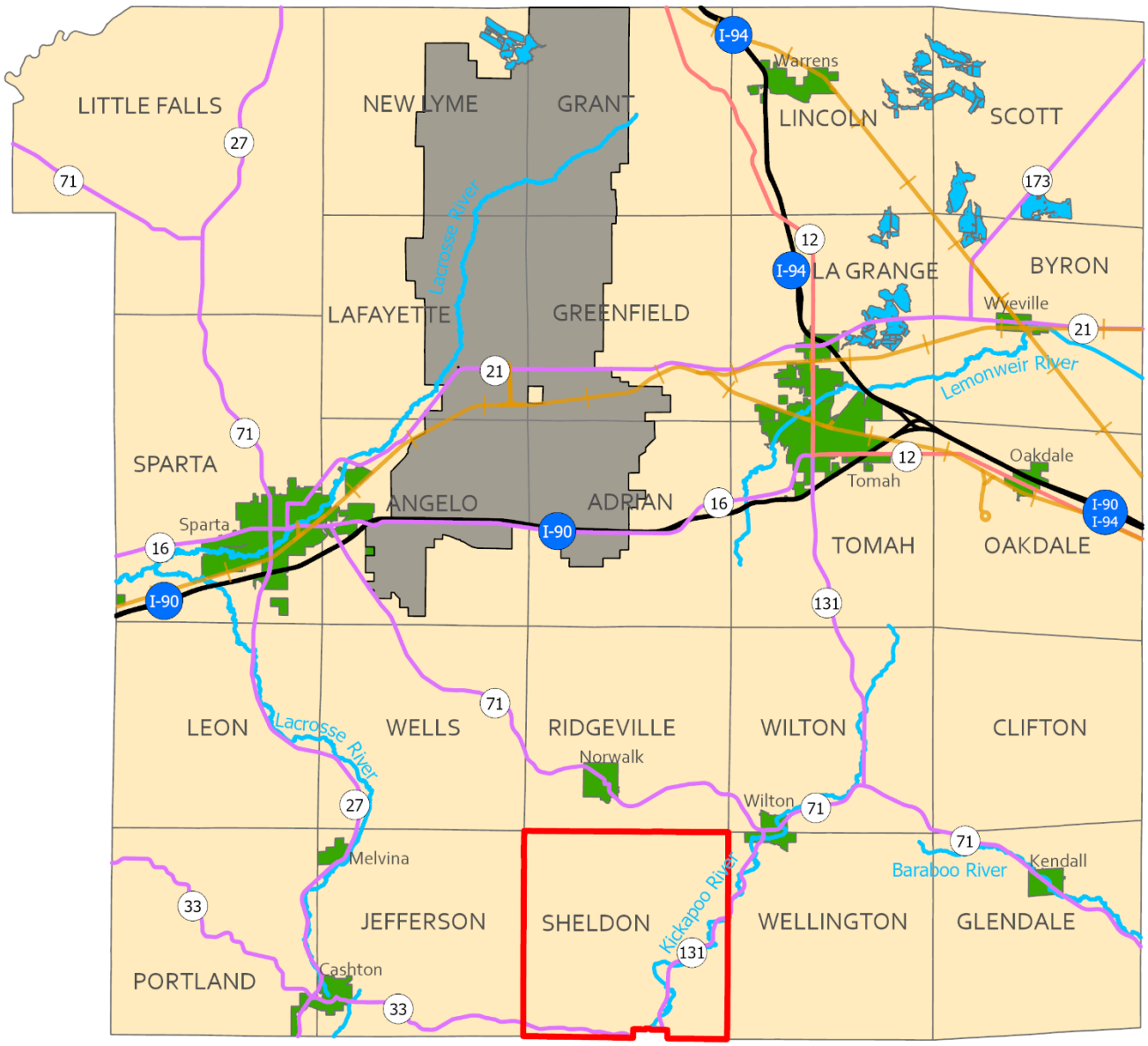
The Town of Sheldon, with a population of 748 as of the 2020 U.S. Census, is vulnerable to tornadoes, high winds, and flooding, particularly along the Kickapoo River. This rural, agricultural community faces risks to farming operations from hail and lightning strikes. Located in southern Monroe County, the town is traversed by Highway 131 running north-south and Highway 33 briefly crossing the southern edge. There are 92 parcels in the floodplain, with assessed improvements valued at $8,427,400. Social vulnerability is in the 40th to 60th percentile, driven by a significantly higher percentage of agricultural workers, 28%, compared to the county median of 7%.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Sheldon. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Sheldon, Monroe County

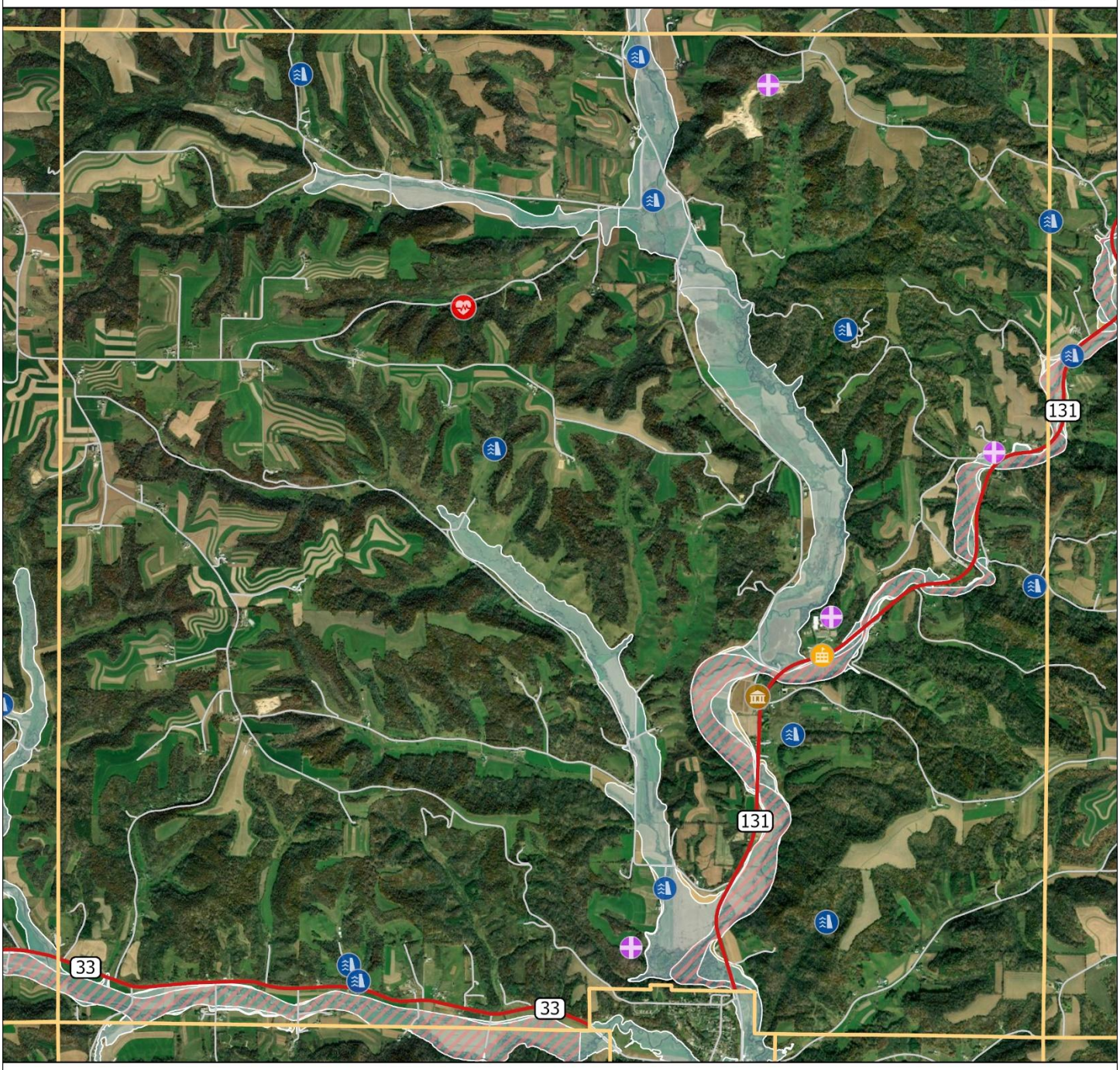


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Sheldon

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Sheldon



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
Well
Hospital
School
Dam
N
0
1
2
Miles

Town of Sparta

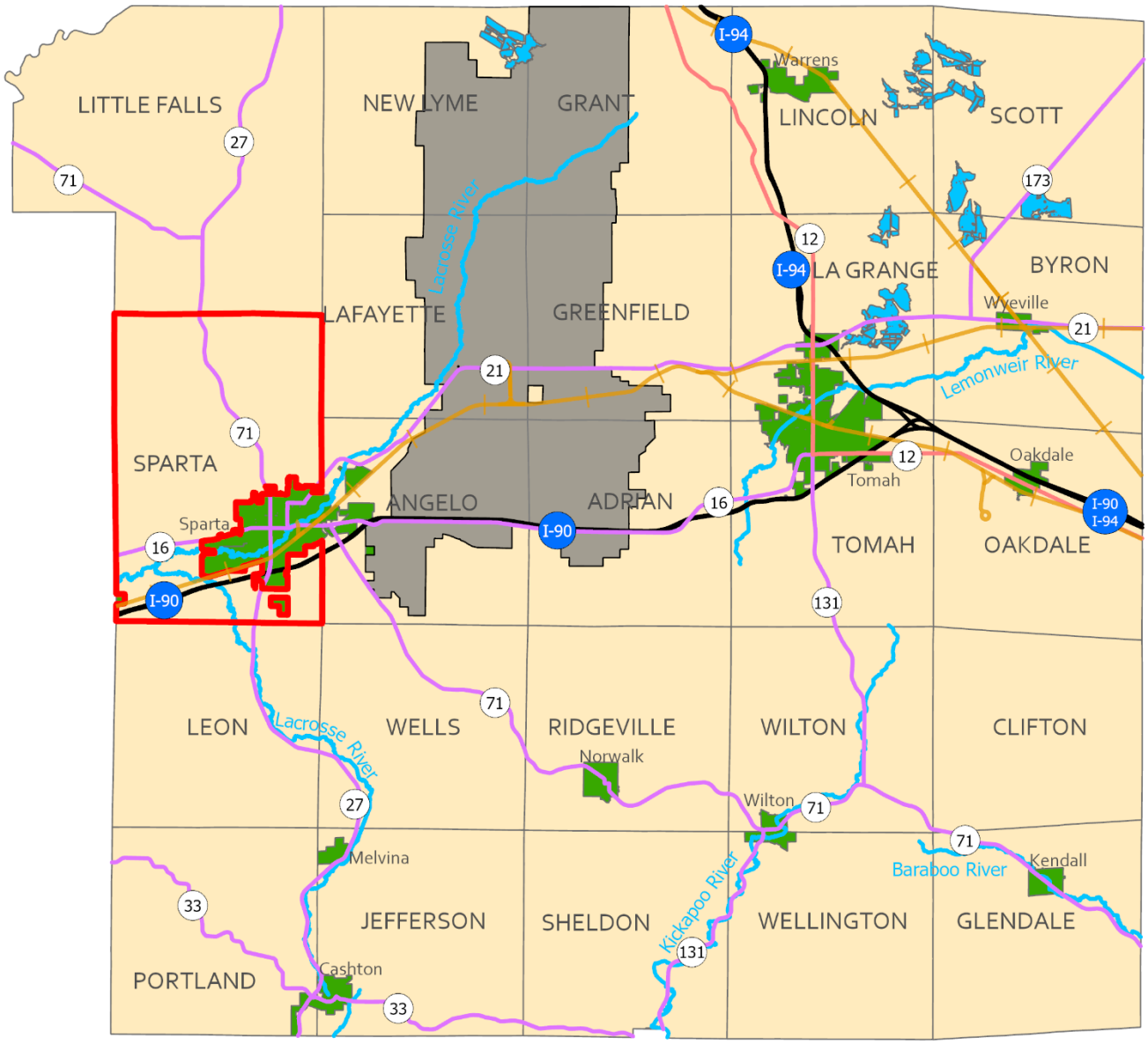
With a population of 3,253 as of the 2020 U.S. Census, the Town of Sparta is the largest in Monroe County. It faces risks from tornadoes, flooding, and snowstorms, which threaten both residential and agricultural areas. The town has a notable mix of rural, agricultural land and residential development, some of which is exurban in nature, due to its proximity to the City of Sparta. The town contains 97 parcels in the floodplain, with assessed improvements valued at $14,410,000. Highways 71, 21, 16, and 27, as well as I-90 and a railroad, pass through the town, which is located on the county's western edge along the I-90 corridor. Social vulnerability ranks in the bottom 20th percentile, with most indicators near or below county medians.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Sparta. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Sparta, Monroe County

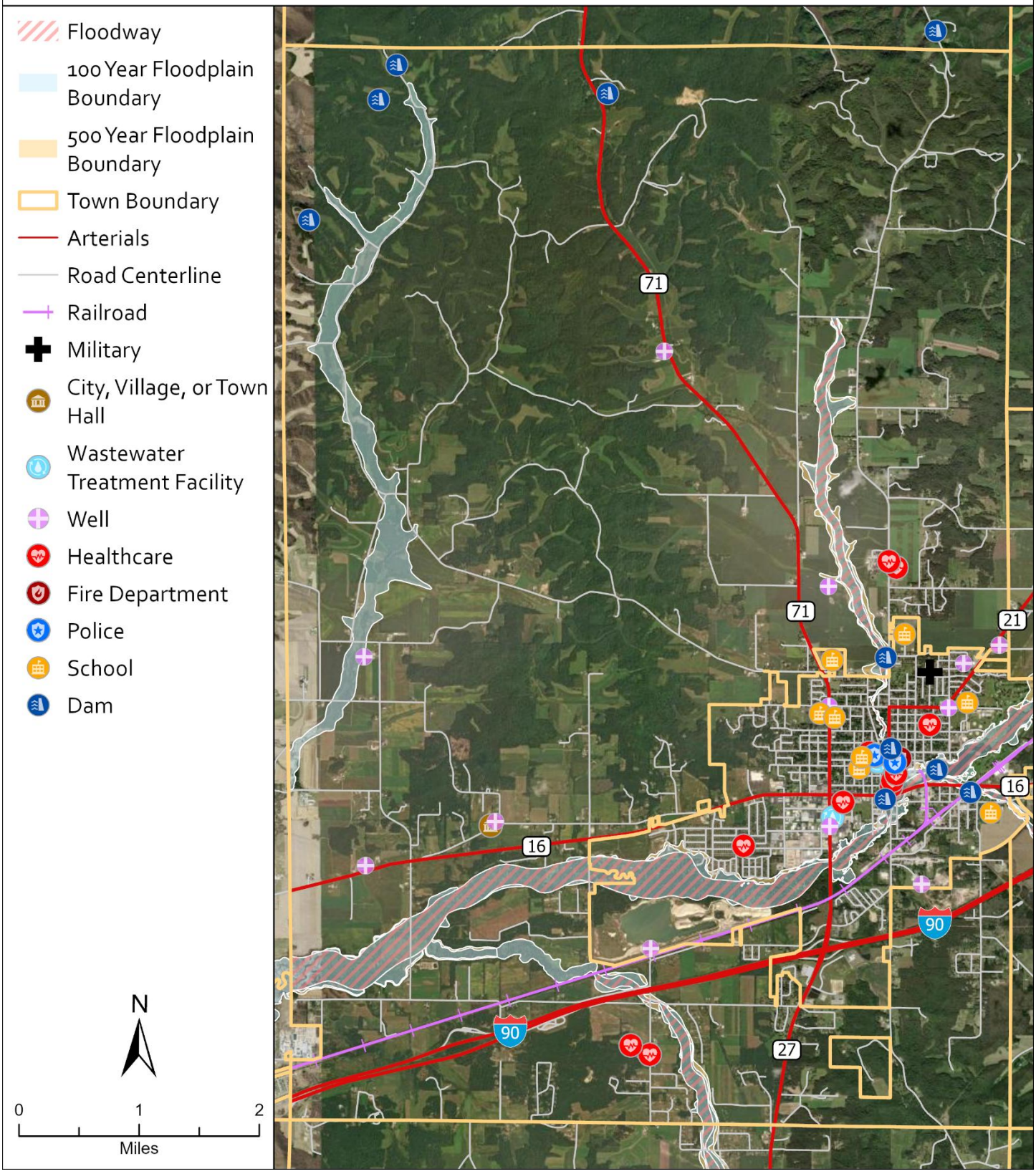


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Town of Sparta

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Sparta



Town of Tomah

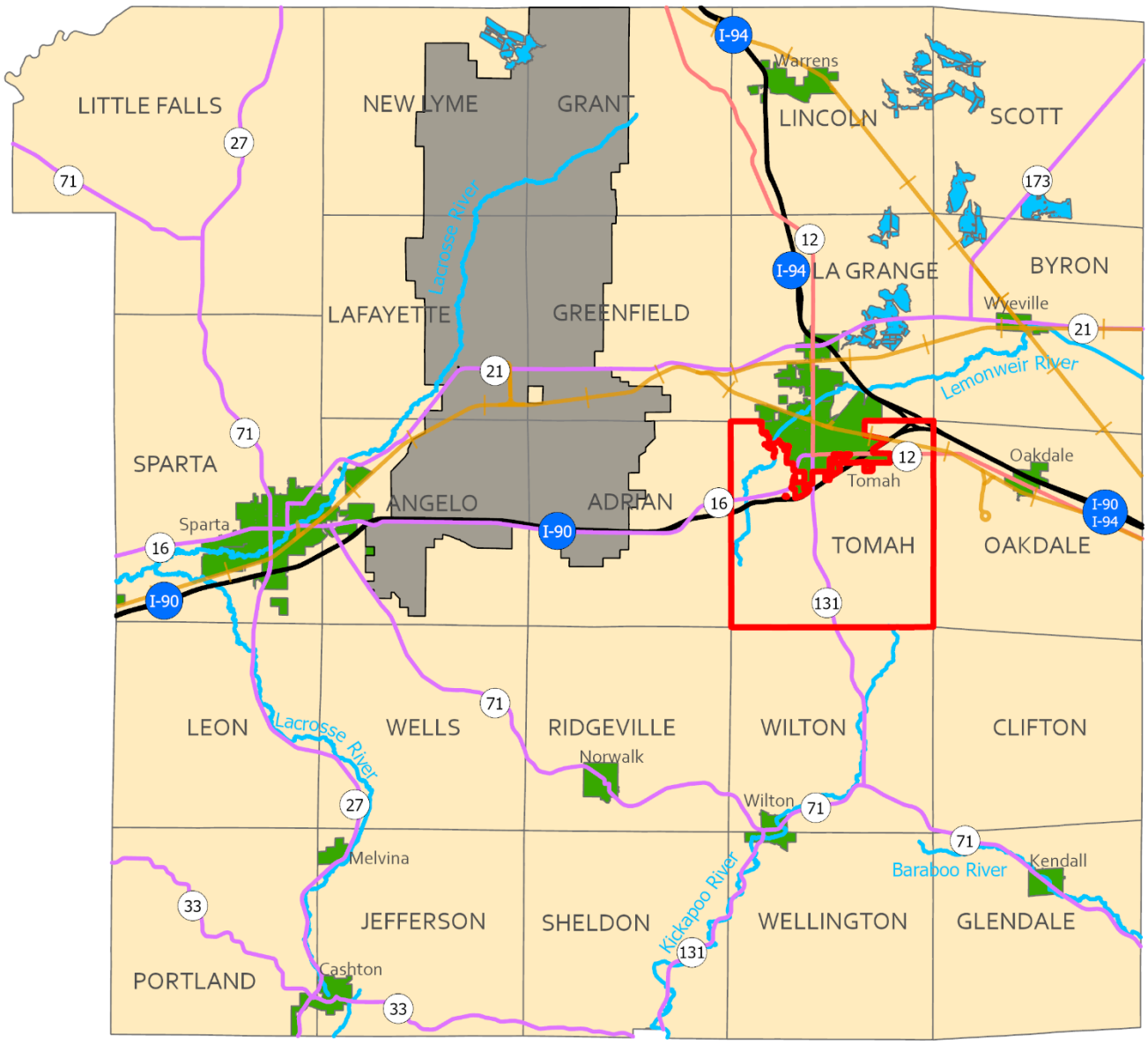
The Town of Tomah, home to 1,488 residents as of the 2020 U.S. Census, is at risk from tornadoes, flooding, and severe thunderstorms, which threaten both its agricultural lands and residential subdivisions. Agricultural operations are especially vulnerable to crop damage from hail and high winds. The town, located in central Monroe County, surrounds the southern half of the City of Tomah and includes parts of the Lemonweir River. Highways 131 and 16, I-90, and a railroad traverse the area, which includes 56 floodplain parcels with assessed improvements totaling $5,502,200. Social vulnerability is in the 20th to 40th percentile, with a notably high percentage of mobile homes—15%, compared to the county median of 5%.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

The 2019 HMP identified one project for the Town: replacing the bridge on Highland Ave. This remains a high-priority project, with 70% of the engineering complete. The only barrier is funding, which was denied by WisDOT for 2024, but the Town is actively seeking alternative funding sources to move forward. Given the critical nature of this project, no additional initiatives are currently prioritized.

- **Replace bridge on Highland Ave.**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Ongoing, waiting for funding to progress, carried over from 2019 HMP

Town of Tomah, Monroe County



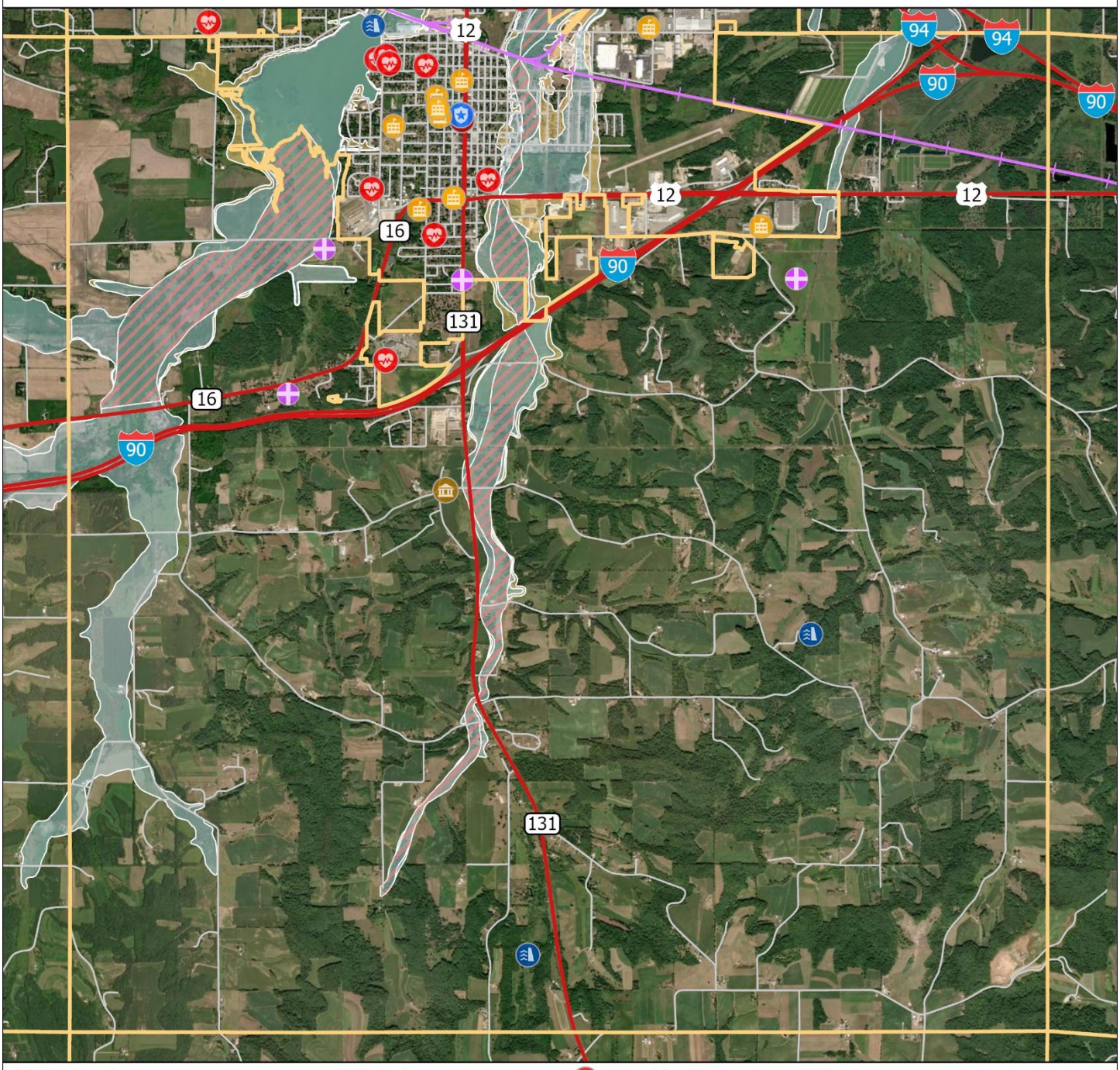
Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Town of Tomah

N

0 4 8 16 Miles

MRRPC

Flood Zones and Critical Infrastructure in the Town of Tomah



Town of Wellington

The Town of Wellington, with a population of 666 as of the 2020 U.S. Census, faces risks from flooding, severe thunderstorms, snowstorms, and particularly from tornadoes and high winds, which have caused significant damage in the past. Located in southern Monroe County, this rural, agricultural town includes a portion of the Kickapoo River in the northwest, where floodplains are present. The town contains 25 parcels in the floodplain, with assessed improvements valued at $1,662,000. Highway 131 runs through only a small part of the northwest corner. Social vulnerability is in the 60th to 80th percentile, with a higher percentage of older residents (23% compared to the county median of 18%) and agricultural workers (13% compared to 7%).

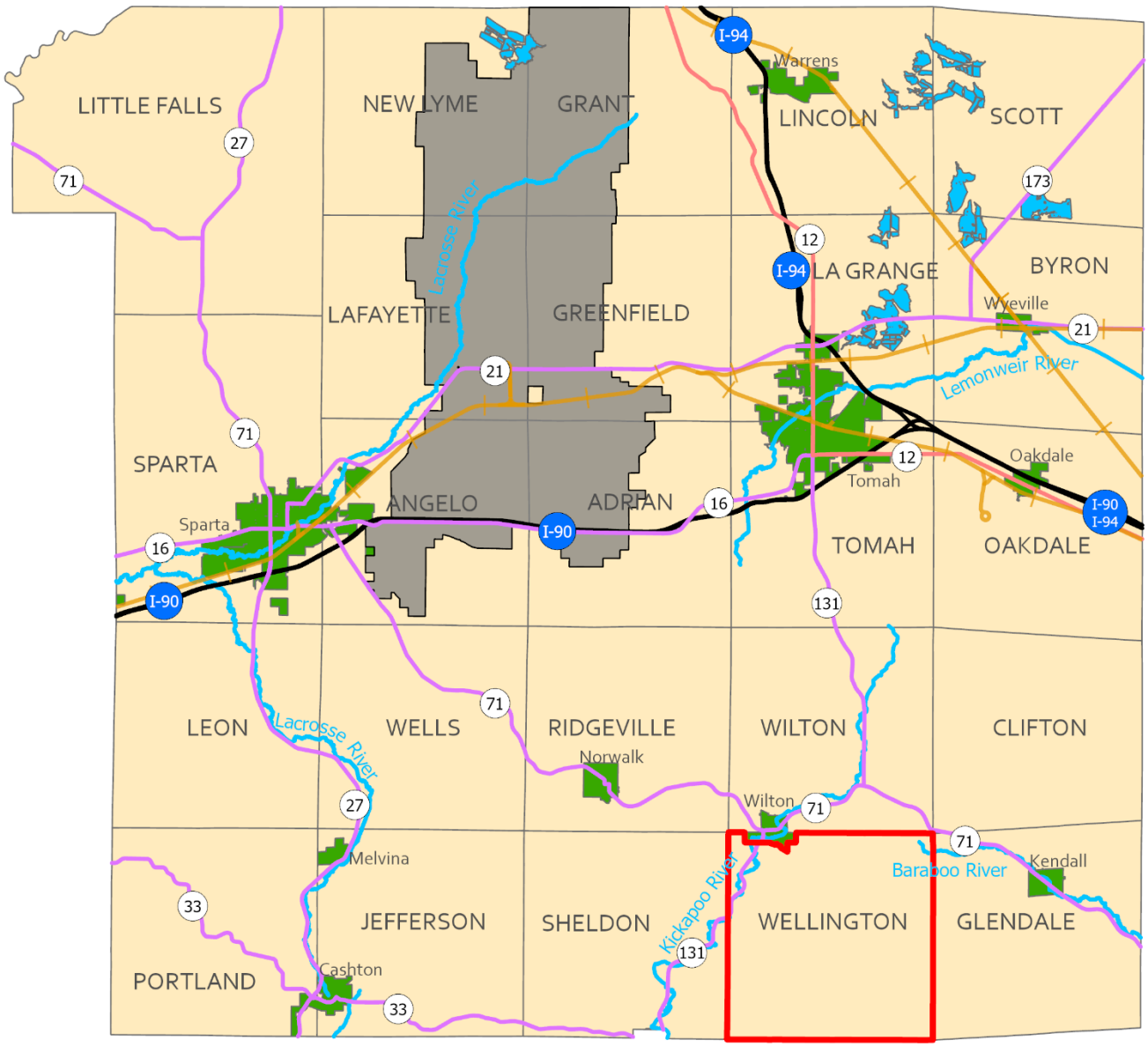
Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Wellington. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1. No other mitigation activities have been undertaken by the Town since 2019.

New Projects and Actions

No new projects are desired by the Town at this time.

Town of Wellington, Monroe County

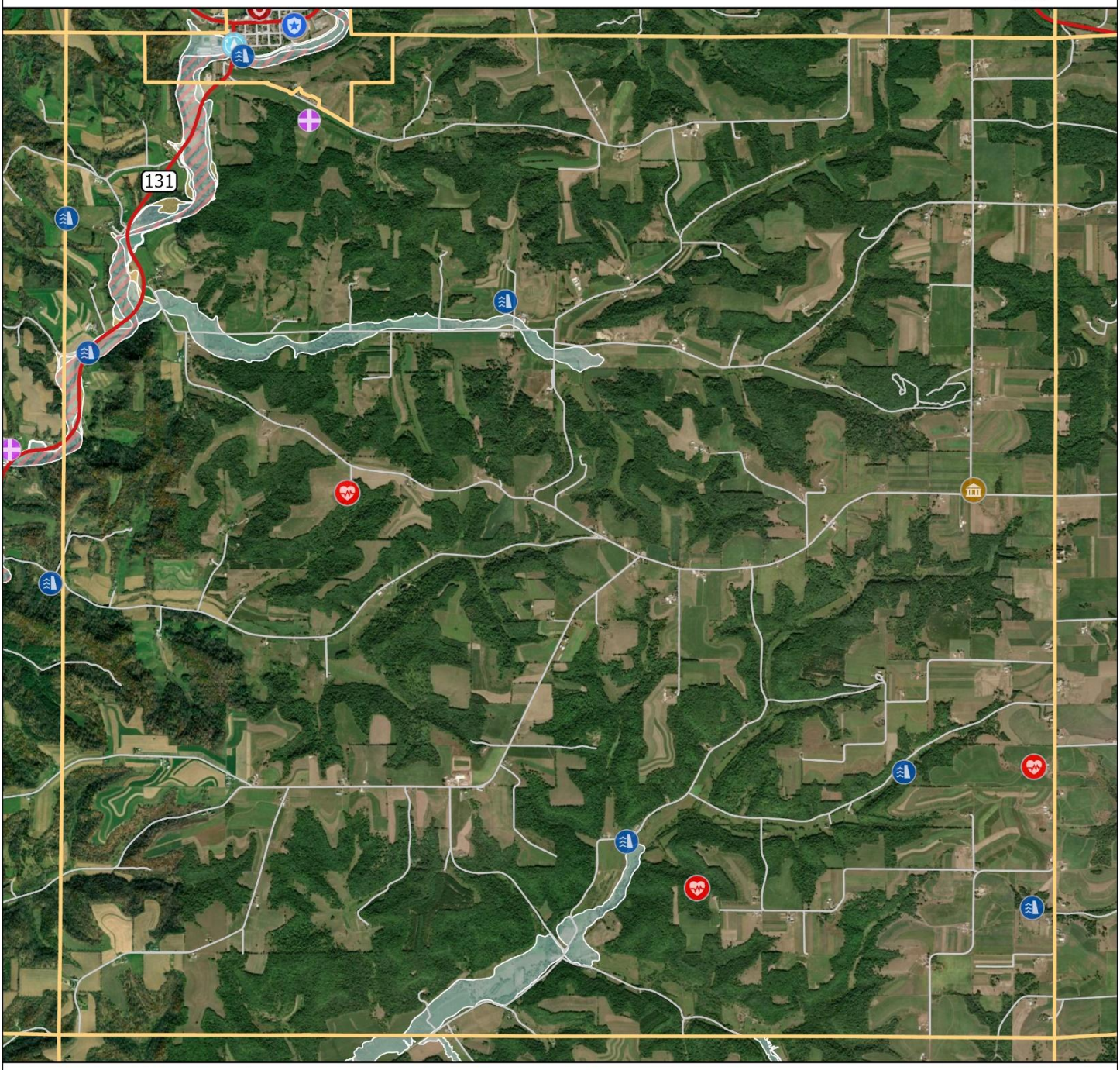


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Wellington

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Wellington



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
City, Village, or Town Hall
Wastewater Treatment Facility
Healthcare
Fire Department
Police
Dam
Well
N
0
1
2
Miles

Town of Wells

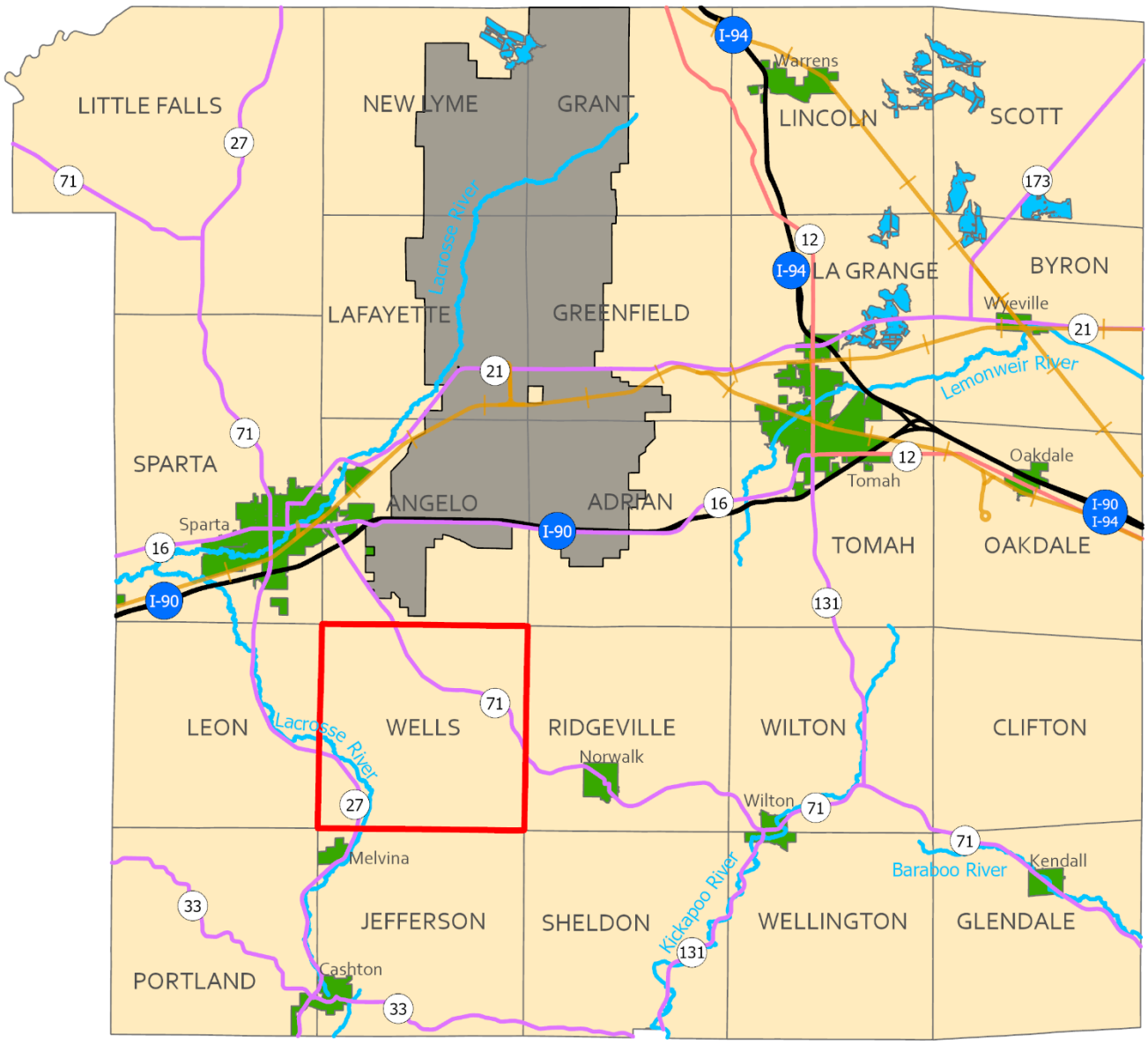
The Town of Wells, with a population of 562 as of the 2020 U.S. Census, is a rural, agricultural community in central Monroe County, south of the I-90 corridor. The town is vulnerable to hailstorms, tornadoes, thunderstorms, and flooding, particularly in low-lying areas near the La Crosse River and other watercourses. Major routes include Highways 27 and 71, and the floodplain is concentrated near Highway 27 in the southwest and around Highway 71 in the north-central part of the town. There are 8 parcels in the floodplain, with assessed improvements totaling $669,000. Social vulnerability is in the 60th to 80th percentile, with higher rates of older residents (26% compared to the county median of 18%), poverty (14% compared to 10%), and agricultural workers (17% compared to 7%).

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
13 projects were identified for the Town in the 2019 HMP. During the writing of this plan, multiple attempts were made to contact the Town to gather information on the status of those projects, as well as any other mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

- **Develop a flood warning plan for the Town**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Identify and raise roads within the town that become impassable during flooding**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Develop an evacuation plan for the town**
  - *Hazard*: Flooding, Severe Weather
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Identify and flood-proof buildings within the town that flood during high water events**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Improvements to roadways and waterways to improve visibility**
  - *Hazard*: Severe Weather, Fog
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Improvements to public warning systems**
  - *Hazard*: Severe Weather, Tornadoes
  - *Funding Source(s)*: Grants and Town Budget
  - *Responsible Official/Organization*: Town Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Purchase weather radios**

    - *Hazard*: Severe Weather
    - *Funding Source(s)*: Grants and Town resources
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: 2020
    - *Status*: Deferred
- **Train additional weather spotters**
    - *Hazard*: Severe Weather
    - *Funding Source(s)*: Grants and Town resources
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: 2020
    - *Status*: Deferred
- **Purchase portable generators**
    - *Hazard*: Power Outages
    - *Funding Source(s)*: Grants and Town resources
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: 2021
    - *Status*: Deferred
- **Identify areas of landslides/falling rocks and develop a program to warn the public**
    - *Hazard*: Landslides, Falling Rocks
    - *Funding Source(s)*: Grants and Town Budget
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: As funding becomes available
    - *Status*: Carried over from previous plan
- **Develop and implement a plan for pruning and clearing of vegetation**
    - *Hazard*: Wildfire
    - *Funding Source(s)*: Grants and Town Budget
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: As funding becomes available
    - *Status*: Carried over from previous plan
- **Identify and create buffer zones between structures and woodlands**
    - *Hazard*: Wildfire
    - *Funding Source(s)*: Grants and Town Budget
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: As funding becomes available
    - *Status*: Carried over from previous plan
- **Encourage the purchase of crop insurance**
    - *Hazard*: Agricultural Drought
    - *Funding Source(s)*: Grants and Town Budget
    - *Responsible Official/Organization*: Town Board
    - *Project Timetable*: As funding becomes available
    - *Status*: Carried over from previous plan

Town of Wells, Monroe County

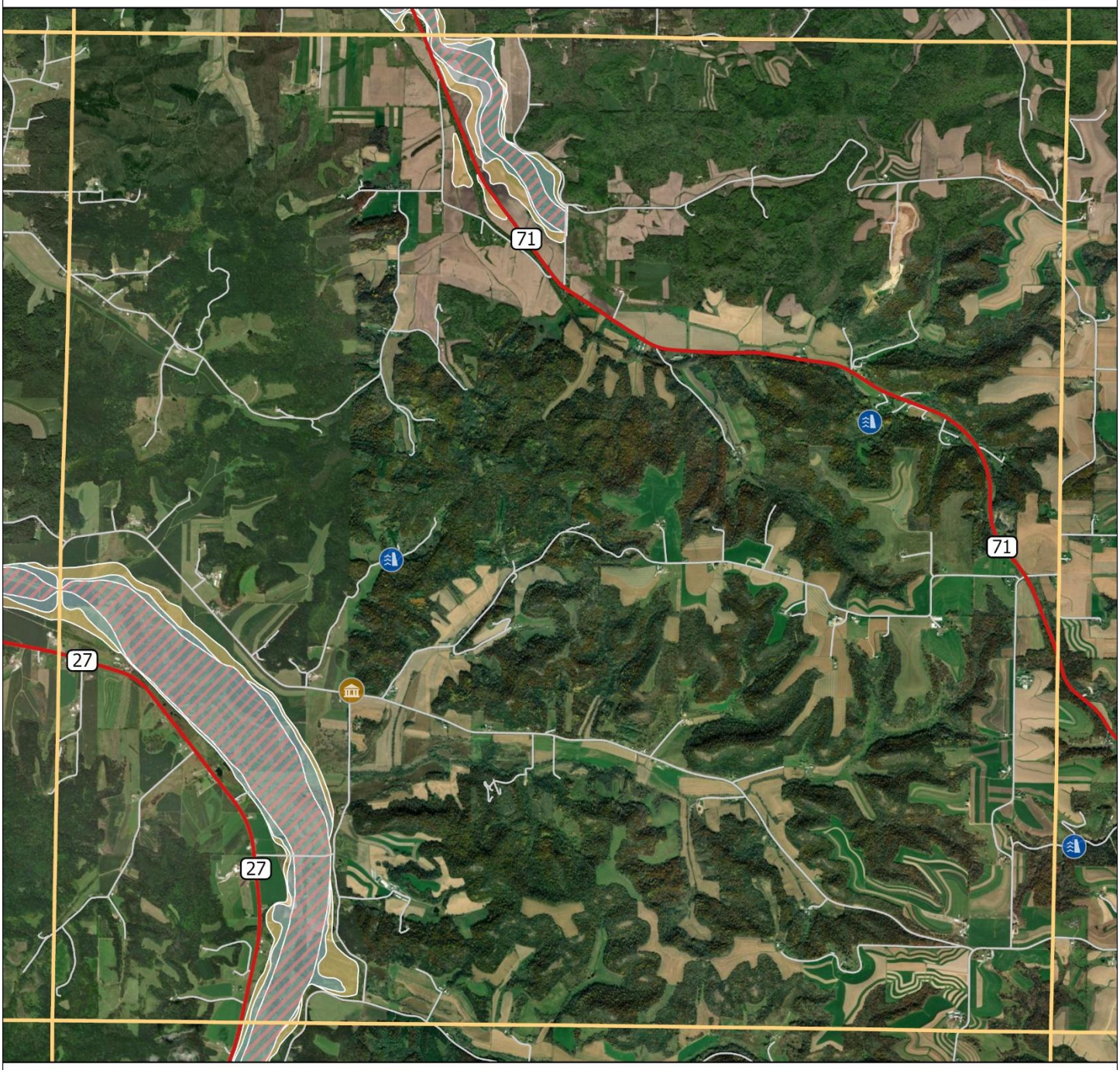


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Wells

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Wells



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
City, Village, or Town Hall
Dam

N

0 1 2
Miles

Town of Wilton

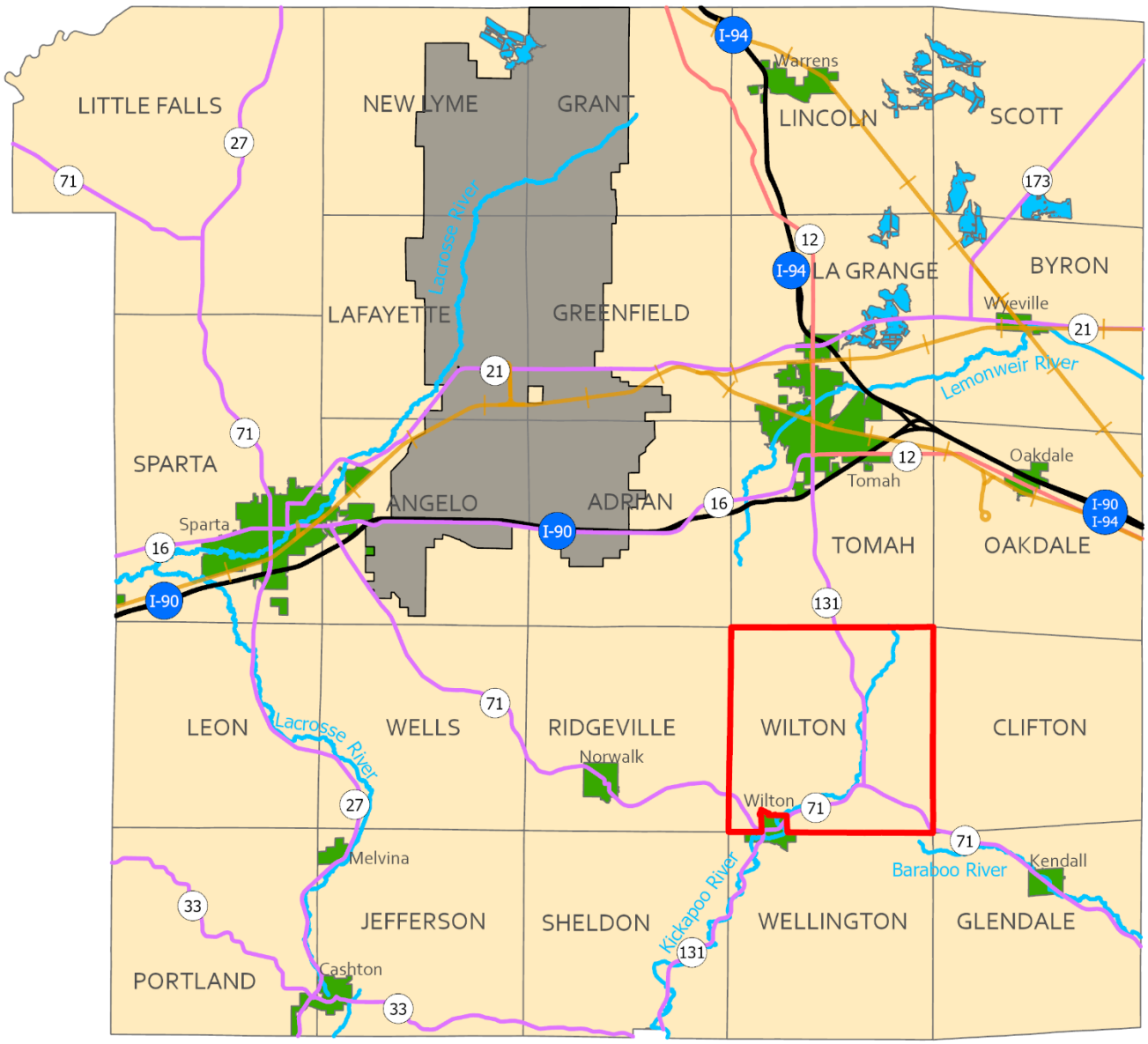
The Town of Wilton, with a population of 963 as of the 2020 U.S. Census, is vulnerable to flooding, thunderstorms, and windstorms due to its proximity to several watercourses, including the Kickapoo River, which contributes to a significant floodplain along the southern boundary near the Village of Wilton. Agricultural areas and homes are at risk from severe weather, including tornadoes and hailstorms. The town, located in central Monroe County, south of the I-90 corridor, is traversed by Highways 131 and 71. Wilton contains 40 parcels in the floodplain, with assessed improvements totaling $3,923,800. Social vulnerability ranks in the bottom 20th percentile, with higher rates of poverty (19% compared to the county median of 10%) and limited English proficiency (14% compared to 1%).

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Town of Wilton. However, the Town was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Town to gather information on mitigation projects completed since 2019. Despite these efforts, the Town has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Town.

Town of Wilton, Monroe County

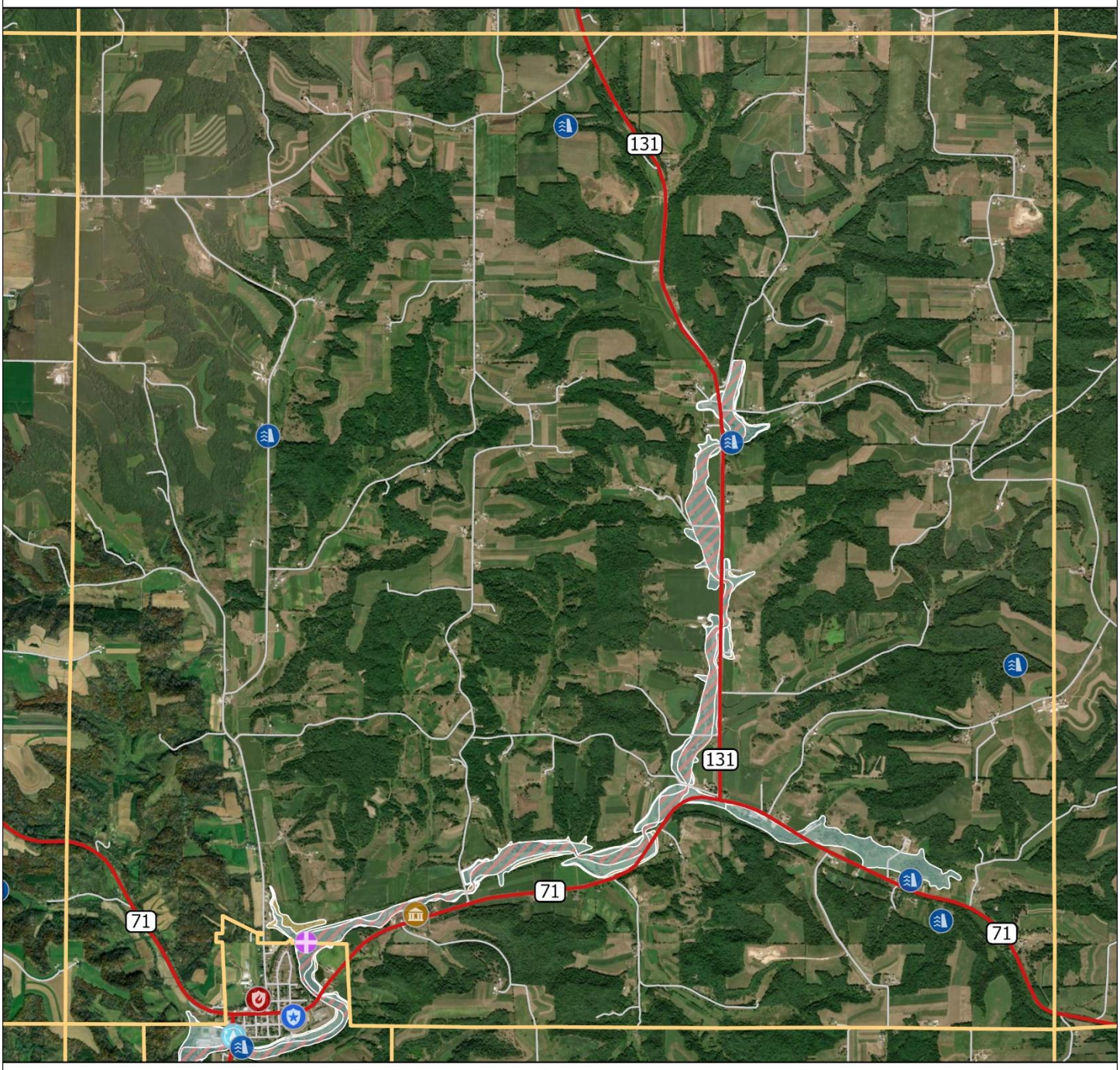


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Town of Wilton

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Town of Wilton



Village Mitigation Strategies

No progress has been made by the villages on the projects and actions identified in the 2019 Hazard Mitigation Plan. The small populations and even more limited resources compared to townships make it particularly challenging for villages to implement mitigation initiatives. These constraints, combined with the complexities of legal and regulatory requirements, have left villages unable to advance their hazard mitigation priorities.

Village of Cashton

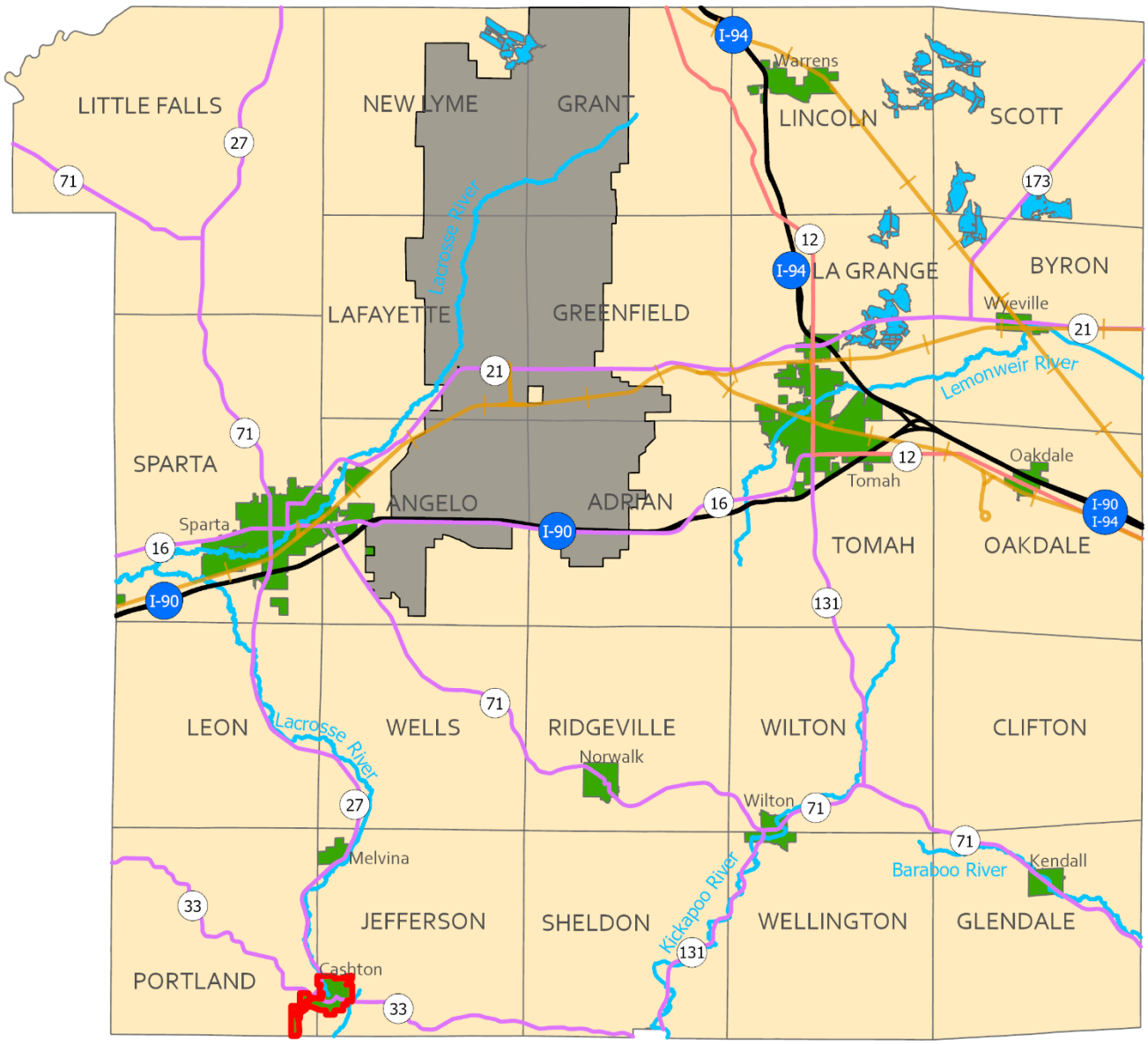
With a population of 1,158 as of the 2020 U.S. Census, the Village of Cashton is located on higher ground in southwestern Monroe County, minimizing its flood risk but increasing its exposure to windstorms, tornadoes, and winter storms. In recent years, severe weather events such as high winds and thunderstorms have caused damage to homes and public infrastructure. Cashton's agricultural economy is particularly vulnerable to hailstorms, which can damage crops and property. There is no floodplain within the village boundaries. Highways 33 and 27 are nearby, with their junction just outside the village. Cashton's social vulnerability is high, in the 60th to 80th percentile in the County. Cashton has a significantly higher percentage of mobile homes (21% compared to the county median of 5%) and a higher poverty rate (17% vs. 10%). The percentage of seniors (19%) is just above the county median of 18%. The ESL population (8%) is considerably higher than the county median of 1%. Social vulnerability ranks in the 20th to 40th percentile.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Village of Cashton. However, the Village was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Village to gather information on mitigation projects completed since 2019. As of the writing of this plan, the Village has not yet responded, although they have indicated they are planning to do so soon, likely in 2025. This leaves a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Village. This is a particular concern, since the Village's participation in the NFIP is unknown.

Village of Cashton, Monroe County



Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Cashton

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Village of Cashton

Village of Kendall

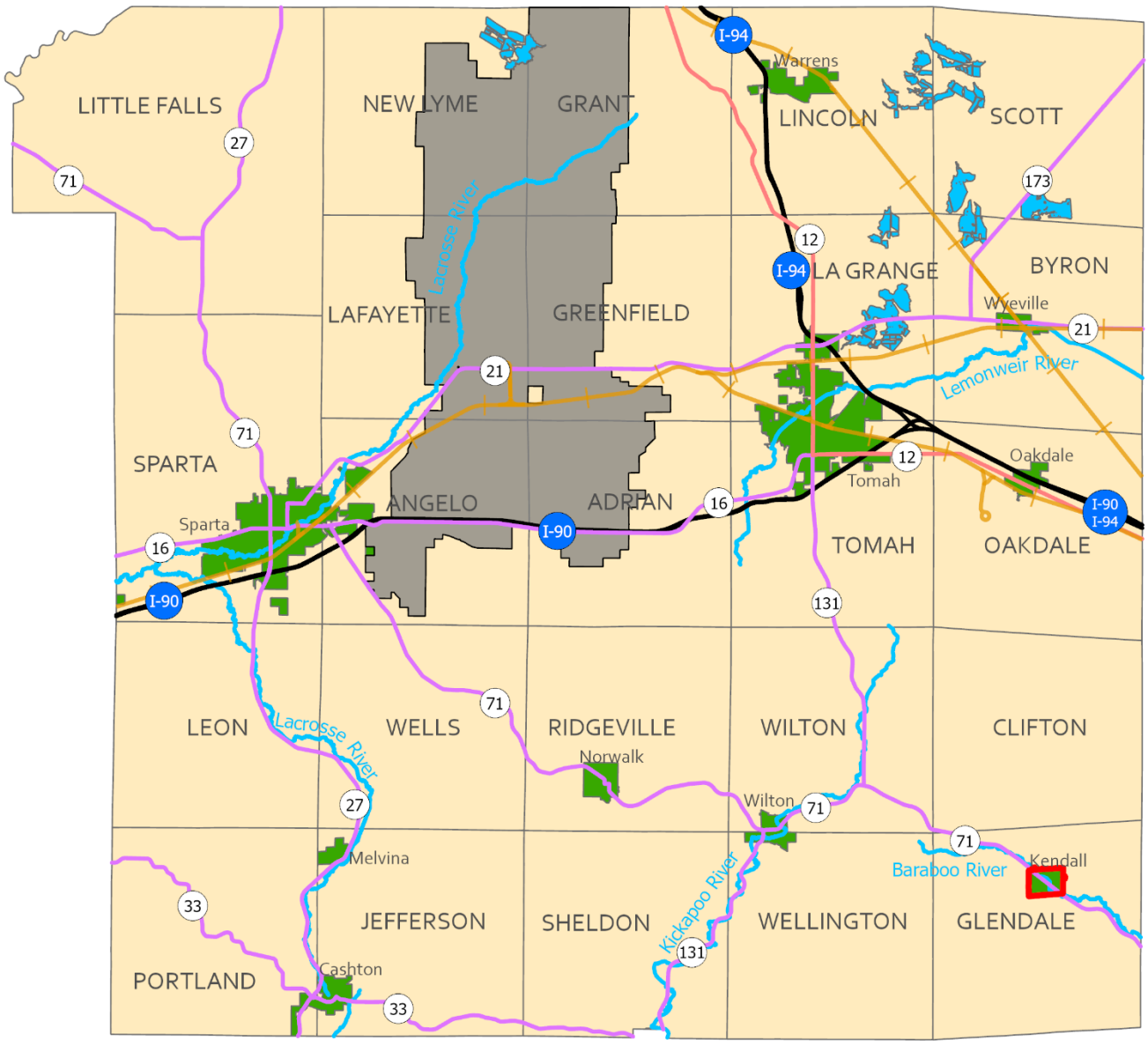
The Village of Kendall, with a population of 484 as of the 2020 U.S. Census, lies in a hilly and forested area of southeastern Monroe County. This geography makes the village susceptible to flash floods and landslides, especially during heavy rainfall. Winter weather, including snowstorms and ice storms, frequently disrupts transportation and causes power outages. The village benefits from tourism due to its proximity to the Elroy-Sparta State Trail, but the trail's location also presents erosion and wind damage risks. Significant portions of the village, including its wastewater treatment plant and police department, are in the floodplain along Highway 71 and the Baraboo River. There are 69 floodplain parcels with assessed improvements totaling $2,549,500. Kendall has a higher percentage of agricultural workers (9% vs. 7%) and a slightly higher senior population (20% vs. 18%). Other metrics, such as poverty (14% vs. 10%) and disability rates (10% vs. 12%), are close to the county median.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Village of Kendall. However, the Village was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

During the writing of this plan, multiple attempts were made to contact the Village to gather information on mitigation projects completed since 2019. Despite these efforts, the Village has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Village.

Village of Kendall, Monroe County

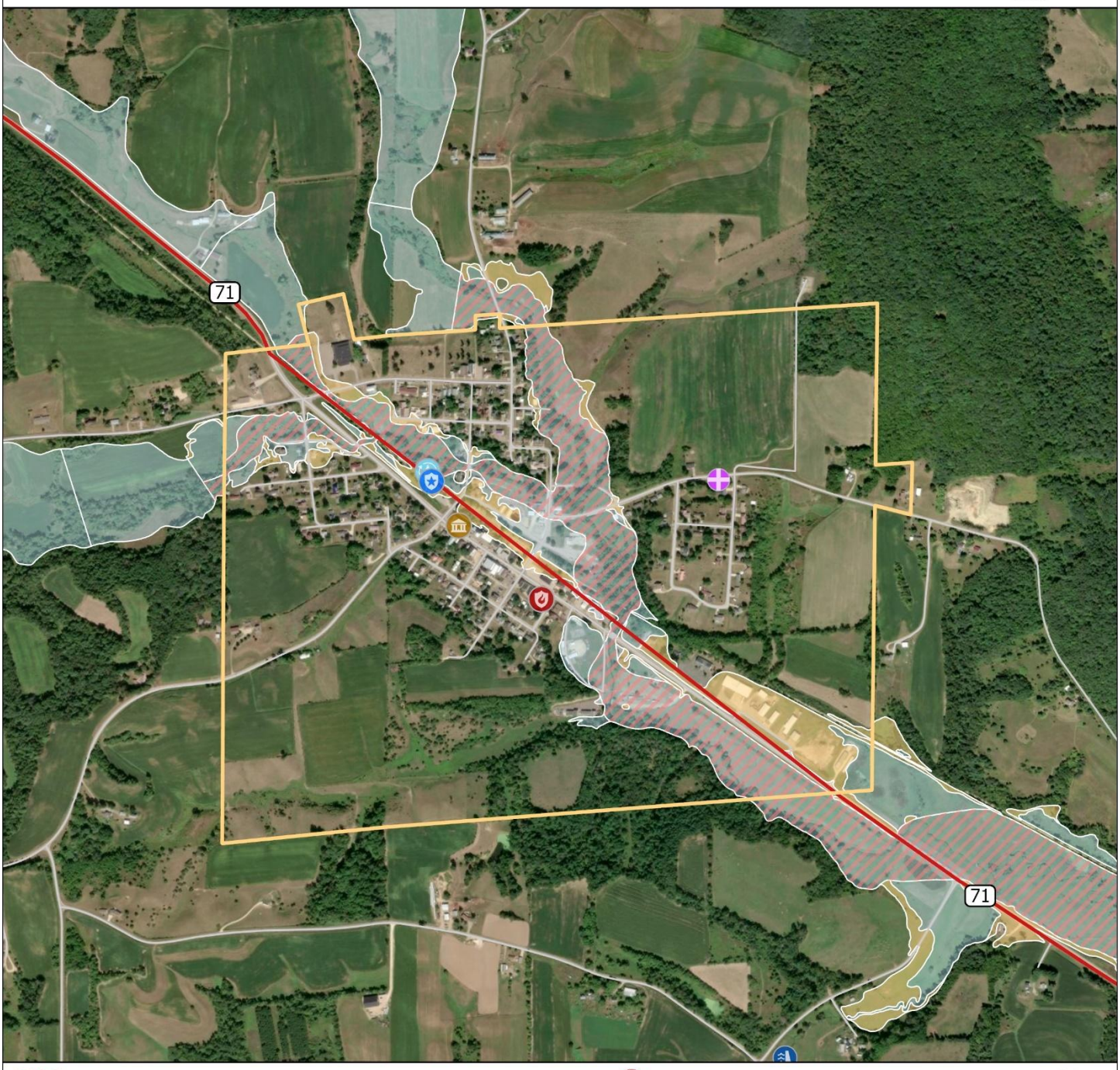


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Kendall

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Village of Kendall



Village of Melvina

The Village of Melvina, with a population of 93 as of the 2020 U.S. Census, is a small rural community in southwestern Monroe County. The village faces significant risks from severe winter weather, such as blizzards and freezing rain, which can isolate residents and disrupt essential services. Its lower-lying location also makes it vulnerable to flooding during heavy rain, particularly due to the presence of the Little La Crosse River, which flows through the village. Highway 27 runs through Melvina, and there are notable floodplain areas within the village. The only critical infrastructure is the Village Hall. Melvina has low social vulnerability: 0 to 20th percentile. Melvina has no ESL population and a very low poverty rate (0% vs. 10%). The percentage of mobile homes (10%) is higher than the county median (5%), while the percentage of seniors (12%) and disabled individuals (2%) are lower.

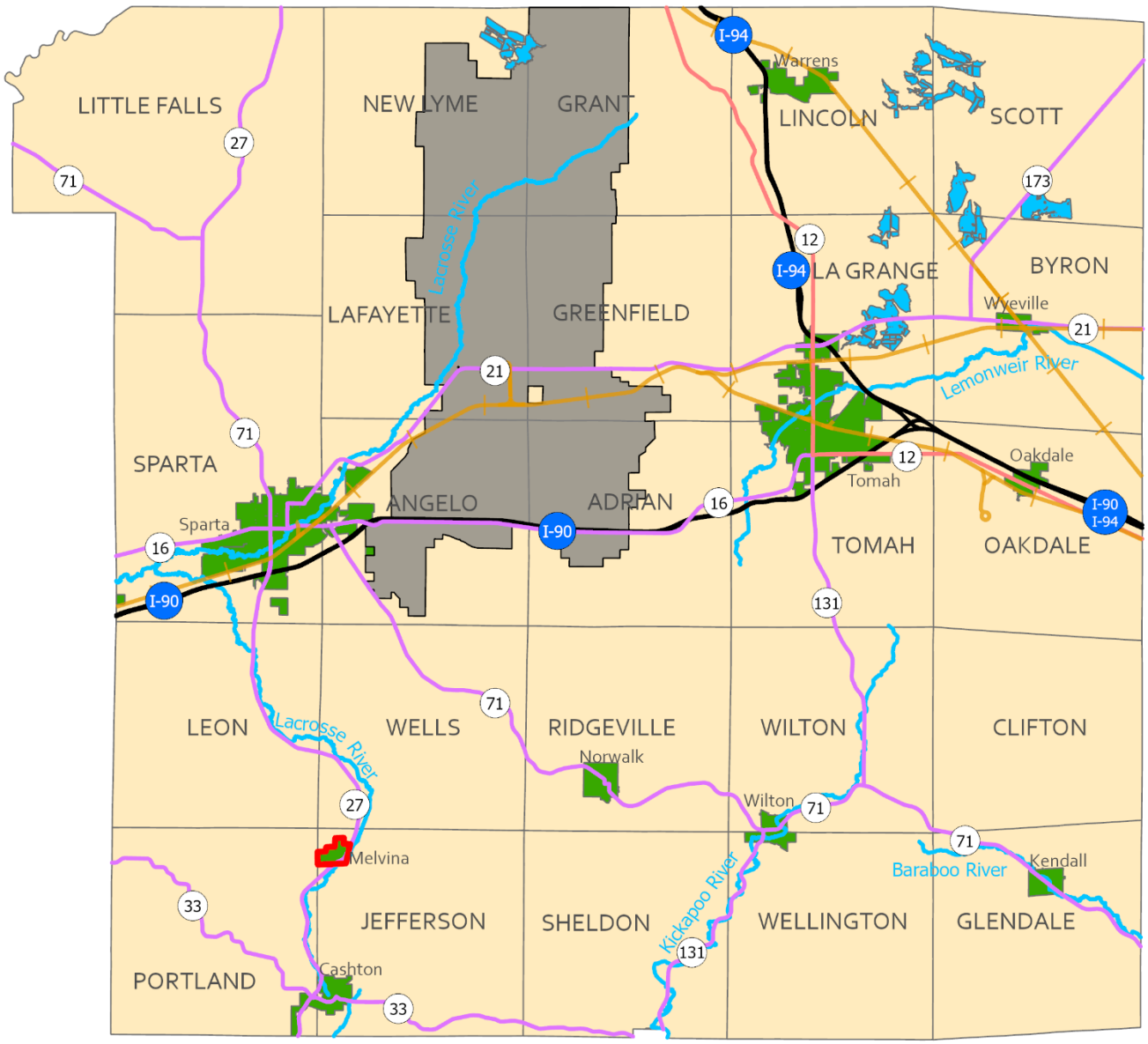
Review of Projects and Actions from the 2019 Hazard Mitigation Plan

The 2019 HMP identified eight projects for the Village, listed below. During the writing of this plan, multiple attempts were made to contact the Village to gather information on mitigation projects completed since 2019. Despite these efforts, the Village has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Village.

- **Develop a flood warning plan for the village**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Develop an evacuation plan for the village**
  - *Hazard*: Flooding, Severe Weather
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Increase size of culverts on Central Dr. and in the lift station area**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Purchase generator for lift station**
  - *Hazard*: Power Outages
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Develop a public warning plan for the village**
  - *Hazard*: Severe Weather
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Purchase NOAA weather radios**
  - *Hazard*: Severe Weather
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project

- **Train weather spotters**
    - *Hazard*: Severe Weather
    - *Funding Source(s)*: Grants and Village Budget
    - *Responsible Official/Organization*: Village Board
    - *Project Timetable*: As funding becomes available
    - *Status*: New Project
- **Purchase and install severe weather warning sirens**
    - *Hazard*: Severe Weather, Tornadoes
    - *Funding Source(s)*: Grants and Village Budget
    - *Responsible Official/Organization*: Village Board
    - *Project Timetable*: As funding becomes available
    - *Status*: New Project

Village of Melvina, Monroe County

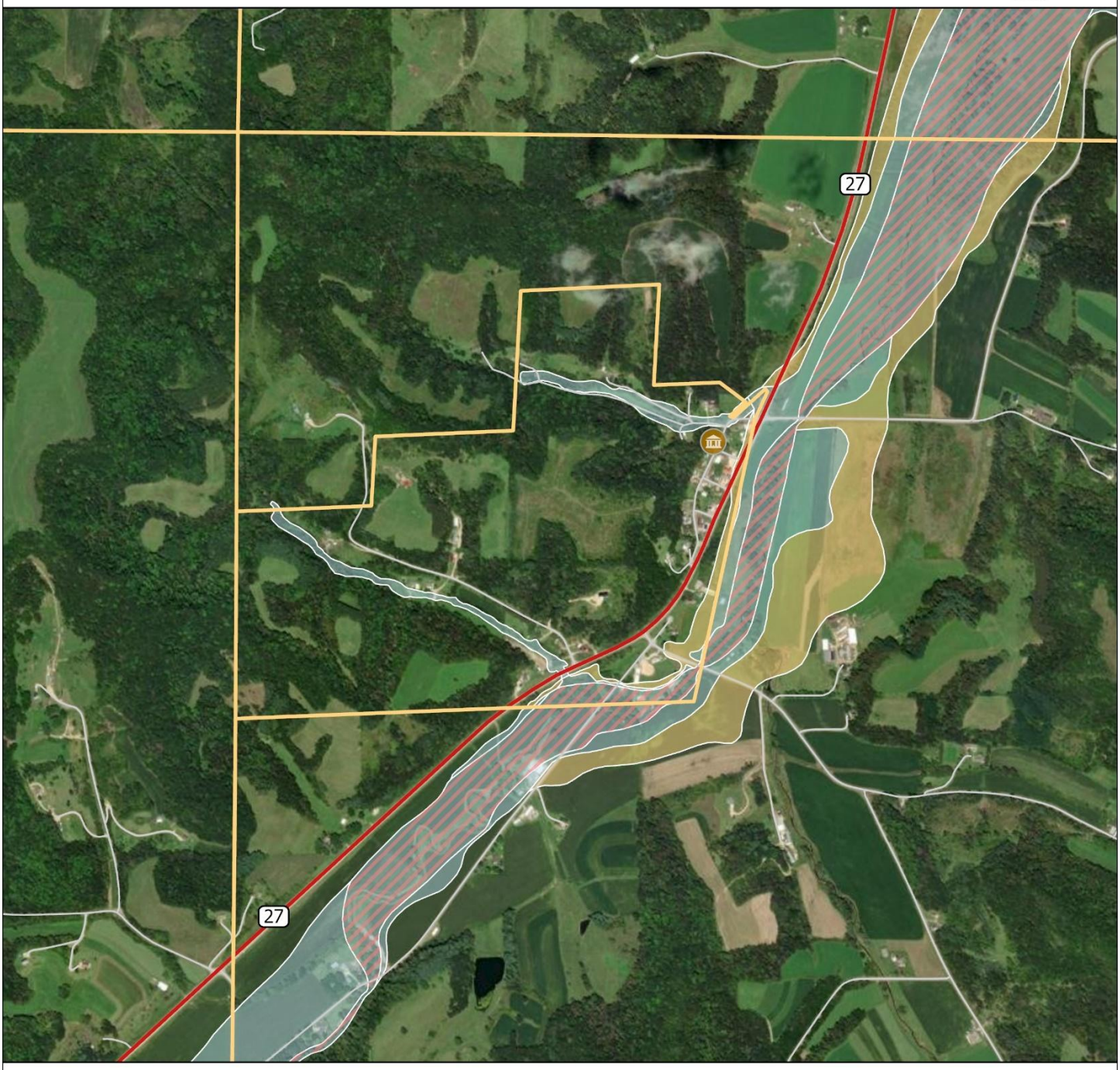


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Melvina

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Village of Melvina



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
City, Village, or Town Hall

N

0 0.5
Miles

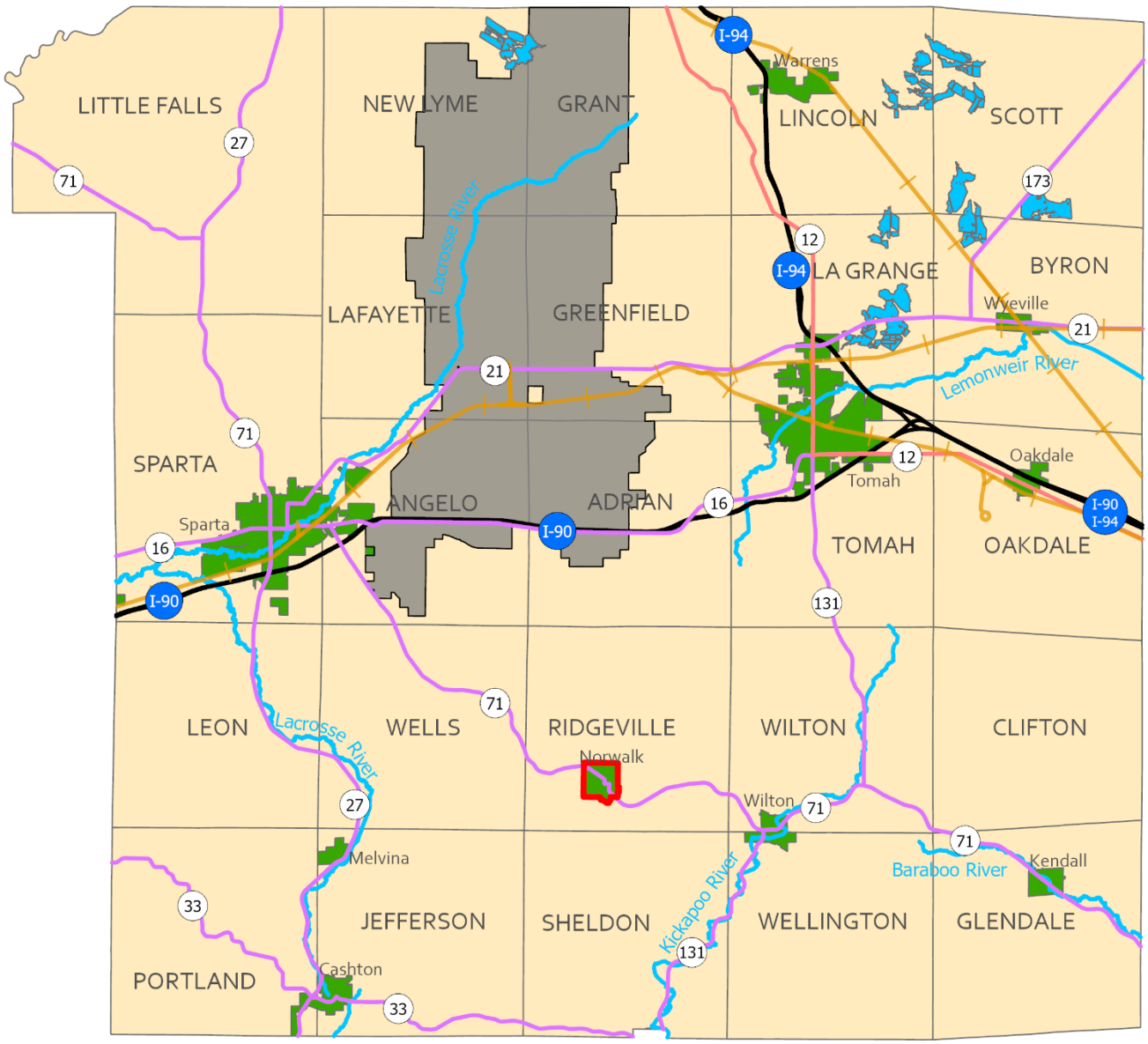
Village of Norwalk

The Village of Norwalk, home to 611 residents as of the 2020 U.S. Census, is located in a valley, making it particularly vulnerable to flooding and flash floods. High winds and tornadoes have historically caused damage to village infrastructure, and snowstorms frequently disrupt transportation and power. Moore Creek, which frequently floods, runs through the village, contributing to the large floodplain area that affects 63 parcels, with assessed improvements of $2,727,900. Highway 71 passes through Norwalk, with parts of the road also in the floodplain. The village is located in central Monroe County. Norwalk's social vulnerability is at the 20th to 40th percentile. Norwalk stands out for its high poverty rate (31% compared to the county median of 10%) and a notable ESL population (15% vs. 1%). The percentages for seniors (8%) and mobile homes (4%) are lower than the county median.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
The 2019 HMP identified four projects for the Village, listed below. During the writing of this plan, multiple attempts were made to contact the Village to gather information on mitigation projects completed since 2019. Despite these efforts, the Village has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Village.

- **Replace box culvert at the intersection of STH 71 & Main St.**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Review and update Emergency Action Plan for the dam located above the Village**
  - *Hazard*: Dam Failure, Flooding
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Conduct a study of the existing Norwalk dam alarm system**
  - *Hazard*: Dam Failure
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project
- **Updates and improvements/replacement of the existing Norwalk dam alarm system**
  - *Hazard*: Dam Failure
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: New Project

Village of Norwalk, Monroe County

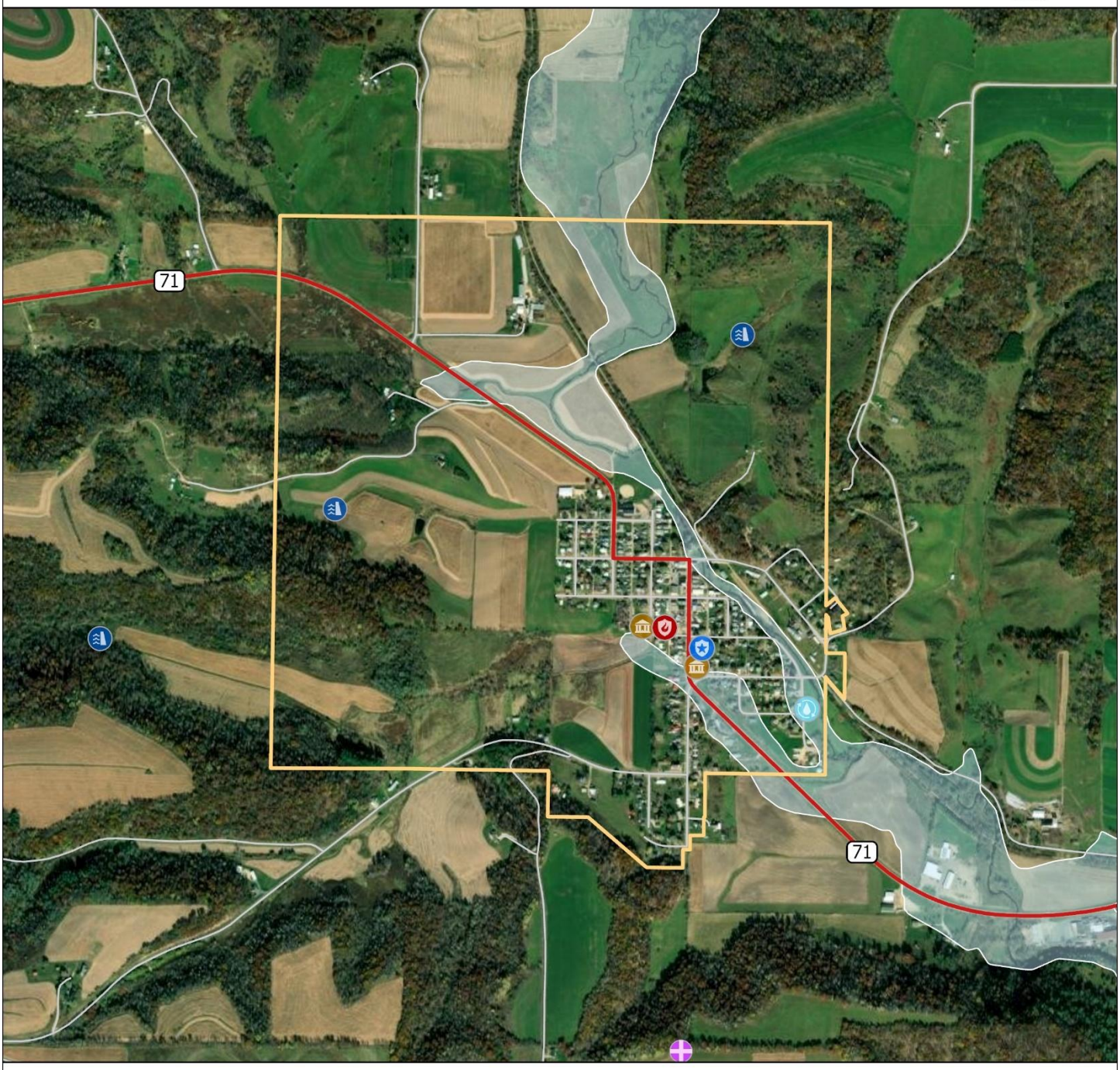


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Norwalk

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Village of Norwalk



100 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline

City, Village, or Town Hall
Fire Department
Police
Well

Dam
School

N

0 0.5
Miles

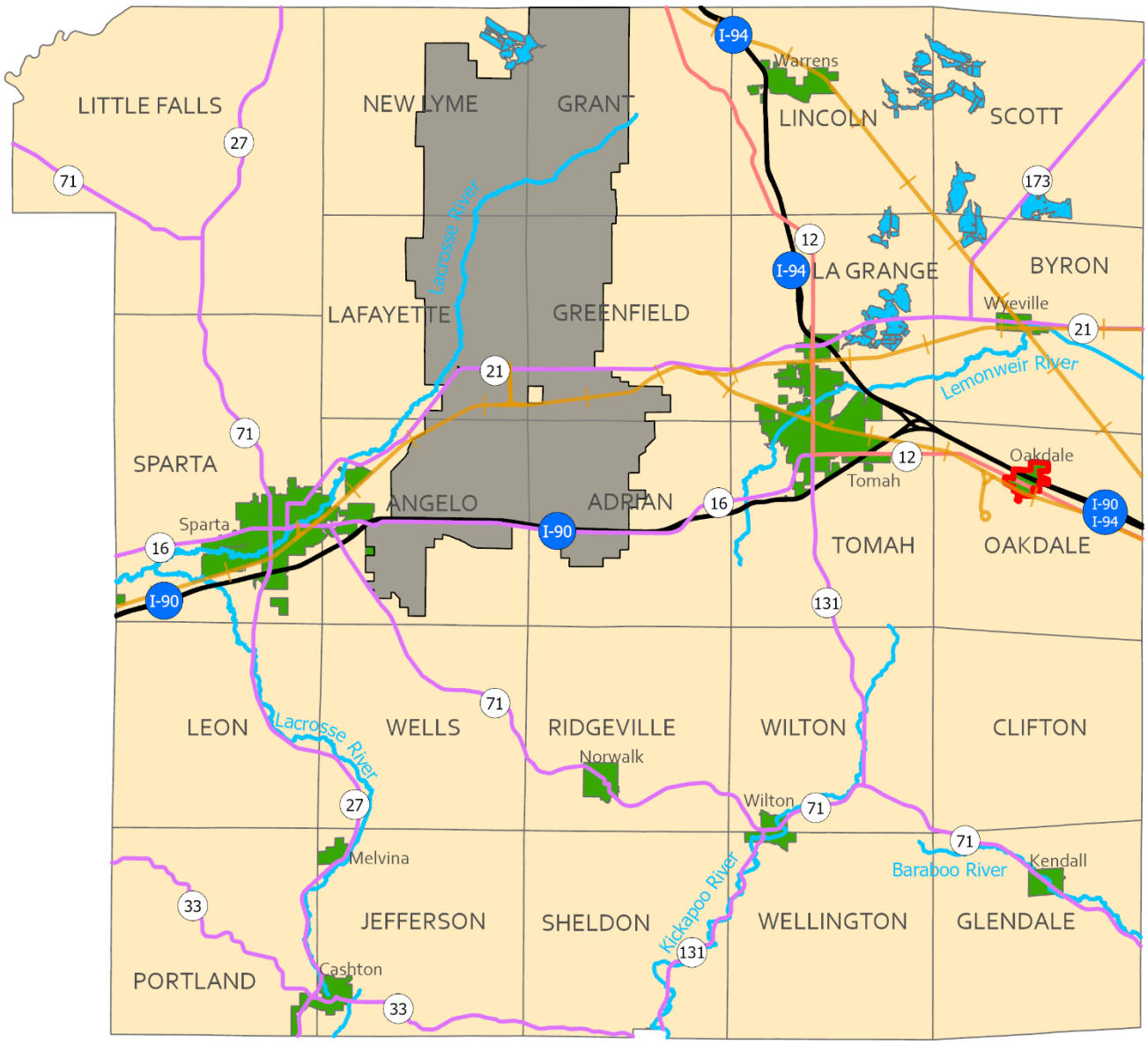
Village of Oakdale

The Village of Oakdale, with a population of 302 as of the 2020 U.S. Census, faces hazards primarily from severe storms, tornadoes, and flooding. Its proximity to Interstate 90 increases the risk of transportation-related accidents, particularly involving hazardous materials. The village has 5 parcels in the floodplain with assessed improvements of $130,600, all located on the west side, away from the main developed area. Oakdale is situated along I-90, Highway 12, and a railroad, in eastern Monroe County. Oakdale's social vulnerability is at the 60th to 80th percentile. Oakdale has a significantly higher percentage of seniors (26% vs. 18%) and individuals with disabilities (18% vs. 12%). The mobile home rate (12%) is also higher than the county median.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
The 2019 HMP identified six projects for the Village, listed below. During the writing of this plan, multiple attempts were made to contact the Village to gather information on mitigation projects completed since 2019. Despite these efforts, the Village has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Village.

- **Purchase large submersible pumps**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Upgrade the forced main going to the top of the hill**
  - *Hazard*: Flooding
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Add a second well to the village**
  - *Hazard*: Water Supply Issues
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Fuse kits for lift stations**
  - *Hazard*: Power Outages
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Standby generators for lift stations**
  - *Hazard*: Power Outages
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan
- **Surge protection for village facilities**
  - *Hazard*: Power Outages
  - *Funding Source(s)*: Grants and Village Budget
  - *Responsible Official/Organization*: Village Board
  - *Project Timetable*: As funding becomes available
  - *Status*: Carried over from previous plan

Village of Oakdale, Monroe County



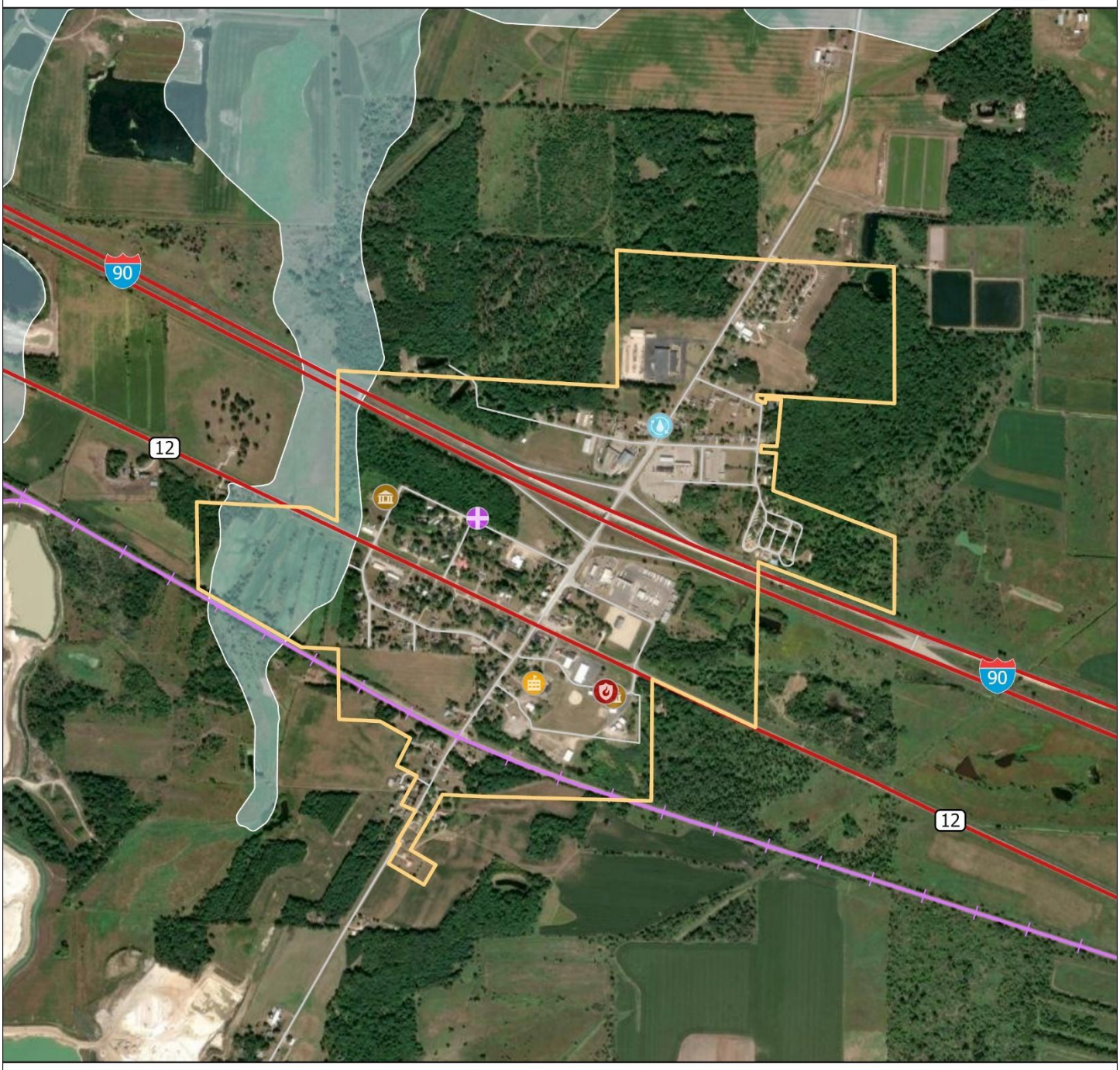
Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Village of Oakdale

N

0 4 8 16 Miles

MRRPC

Flood Zones and Critical Infrastructure in the Village of Oakdale



100 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
Railroad
Wastewater Treatment Facility
City, Village, or Town Hall
Fire Department
School
Well

N

0 0.5
Miles

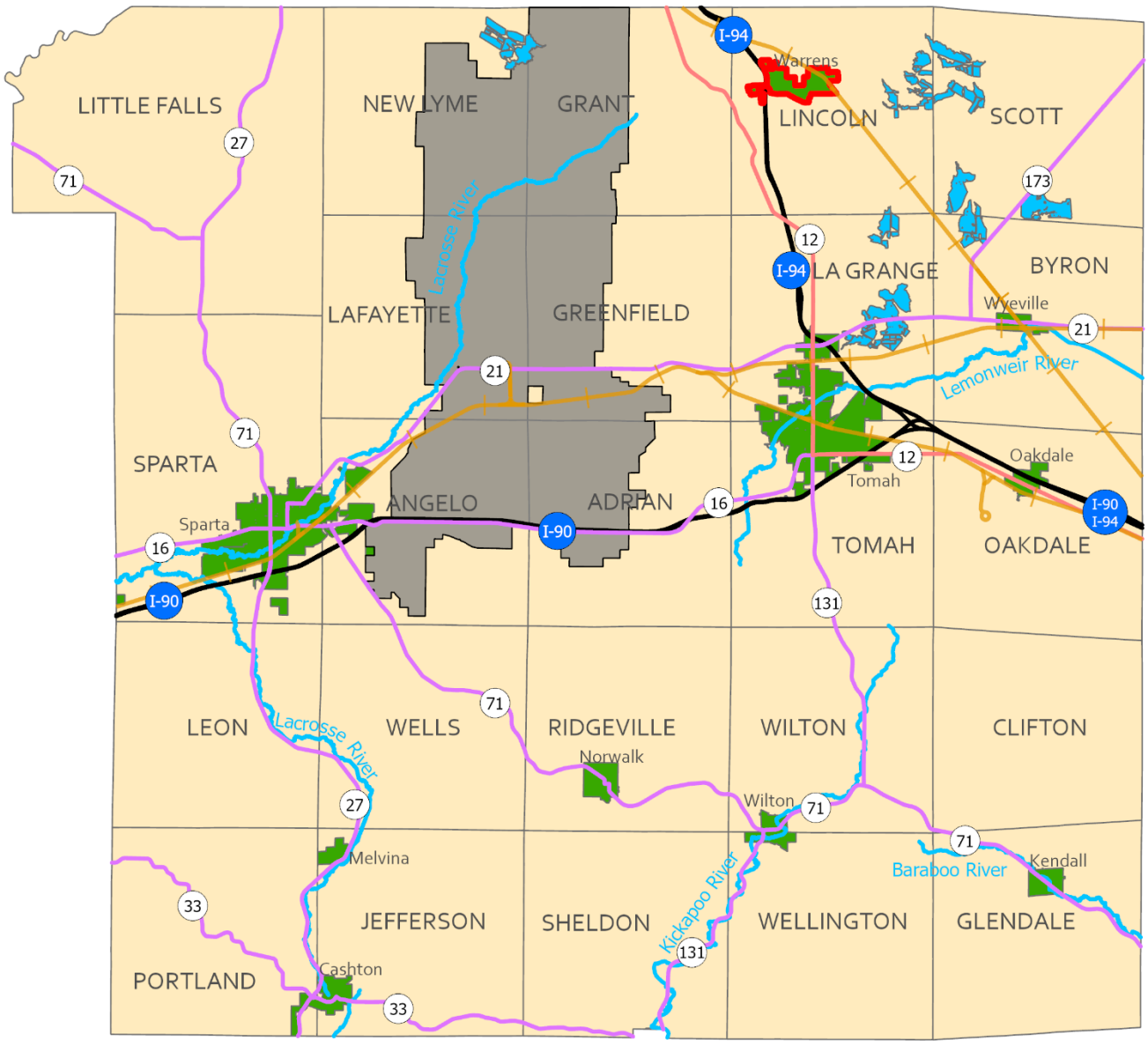
Village of Warrens

The Village of Warrens, with a population of 400 as of the 2020 U.S. Census, is located near cranberry marshlands in northeastern Monroe County, making it susceptible to flooding during heavy rains. Severe storms, tornadoes, and hail have caused damage to homes and agricultural operations in the past. There is 1 floodplain parcel in the village with assessed improvements totaling $468,100. While I-94 is adjacent to the village, none of the highway is within village limits. The railroad runs through the main residential area near critical facilities. Warrens's social vulnerability is at the 0-20th percentile. Warrens has no mobile homes or ESL population, and its poverty rate (8%) is slightly lower than the county median (10%). The percentage of individuals with disabilities (13%) is slightly above the county median

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
The 2019 HMP identified six projects for the Village, listed below. During the writing of this plan, multiple attempts were made to contact the Village to gather information on mitigation projects completed since 2019. Despite these efforts, the Village has not responded, leaving a gap in understanding their progress on hazard mitigation. Therefore, no new projects or actions are listed for the Village.

- **Purchase 2 permanently mounted natural gas generators for lift stations**
    - *Hazard*: Power Outages, Flooding
    - *Funding Source(s)*: Grants and Village Budget
    - *Responsible Official/Organization*: Village Board
    - *Project Timetable*: As funding becomes available
    - *Status*: New Project
- **Purchase a permanently mounted natural gas generator for Well House 1**
    - *Hazard*: Power Outages, Water Supply
    - *Funding Source(s)*: Grants and Village Budget
    - *Responsible Official/Organization*: Village Board
    - *Project Timetable*: As funding becomes available
    - *Status*: New Project
- **Develop a public warning plan for the village**
    - *Hazard*: Severe Weather, Tornadoes
    - *Funding Source(s)*: Grants and Village Budget
    - *Responsible Official/Organization*: Village Board
    - *Project Timetable*: As funding becomes available
    - *Status*: New Project
- **Develop a plan on how to warn residents and visitors at Jellystone Park of severe weather**
    - *Hazard*: Severe Weather, Tornadoes
    - *Funding Source(s)*: Grants and Village Budget
    - *Responsible Official/Organization*: Village Board
    - *Project Timetable*: As funding becomes available
    - *Status*: New Project
- **Purchase a tornado siren for Jellystone Park**
    - *Hazard*: Severe Weather, Tornadoes
    - *Funding Source(s)*: Grants and Village Budget
    - *Responsible Official/Organization*: Village Board
    - *Project Timetable*: As funding becomes available
    - *Status*: New Project
- **Purchase police radios for Village Hall and Public Works offices**
    - *Hazard*: Communication Disruption, Public Safety
    - *Funding Source(s)*: Grants and Village Budget
    - *Responsible Official/Organization*: Village Board
    - *Project Timetable*: As funding becomes available
    - *Status*: New Project

Village of Warrens, Monroe County

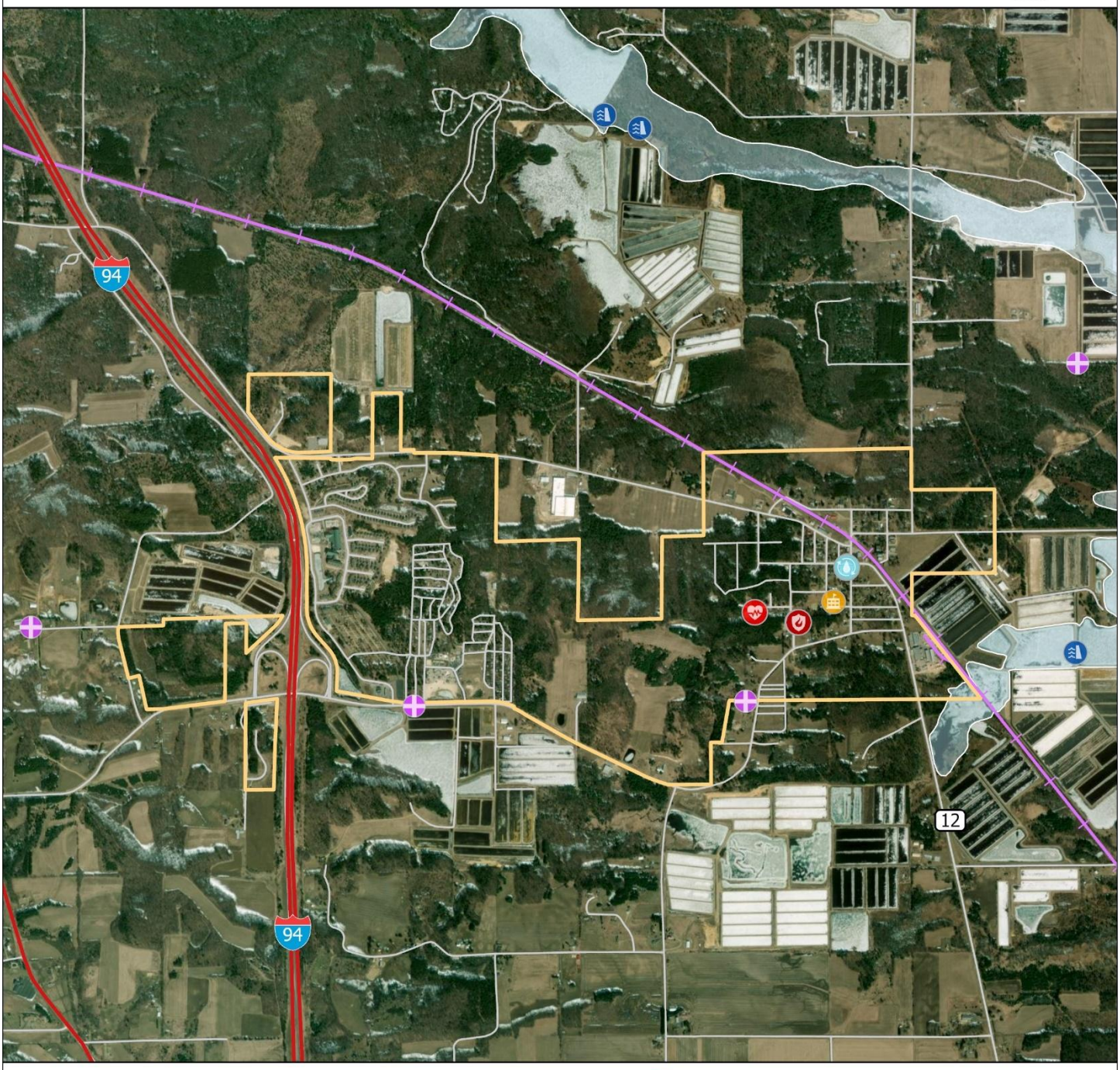


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Warrens

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Village of Warrens



100 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
Railroad
Wastewater Treatment Facility
City, Village, or Town Hall
Fire Department
Healthcare
School
Dam
Well
N
0
0.5
Miles

Village of Wilton

The Village of Wilton, home to 532 residents as of the 2020 U.S. Census, benefits from its location along the Elroy-Sparta State Trail, which promotes tourism but also exposes the village to erosion and storm-related damage. Wilton is vulnerable to tornadoes, severe thunderstorms, and flooding, particularly in low-lying areas along the Kickapoo River. The village has a significant floodplain area, affecting 223 parcels with assessed improvements of $8,131,100. Wilton is located in southeastern Monroe County at the junction of Highways 71 and 131, and the Kickapoo River's frequent flooding is a major issue for the village. Wilton's social vulnerability is at the 0-20th percentile. Wilton has a much higher percentage of agricultural workers (16% vs. 7%), with mobile homes (3%), seniors (11%), and disabled individuals (10%) close to county medians.

During discussions with Village representatives regarding both completed and proposed projects, an interesting piece of historical and practical information emerged. According to the Wisconsin DNR's database—and subsequently the maps derived from it—a dam known as the "Old Vogel" dam was still listed along the Kickapoo River within the Village. However, the Village informed us that the dam no longer exists and has not existed within living memory. One Village trustee shared that remnants of the concrete structure were present when he was a child, and his father had recounted stories about the dam's existence. As part of the hazard mitigation planning process, the dam was removed from our maps, and we reached out to the WisDNR to update their database. This underscores the value of the Hazard Mitigation Plan as a collaborative platform for stakeholders to share local knowledge, correct inaccuracies, and enhance the effectiveness of regional planning efforts.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Village of Wilton. However, the Village was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1.

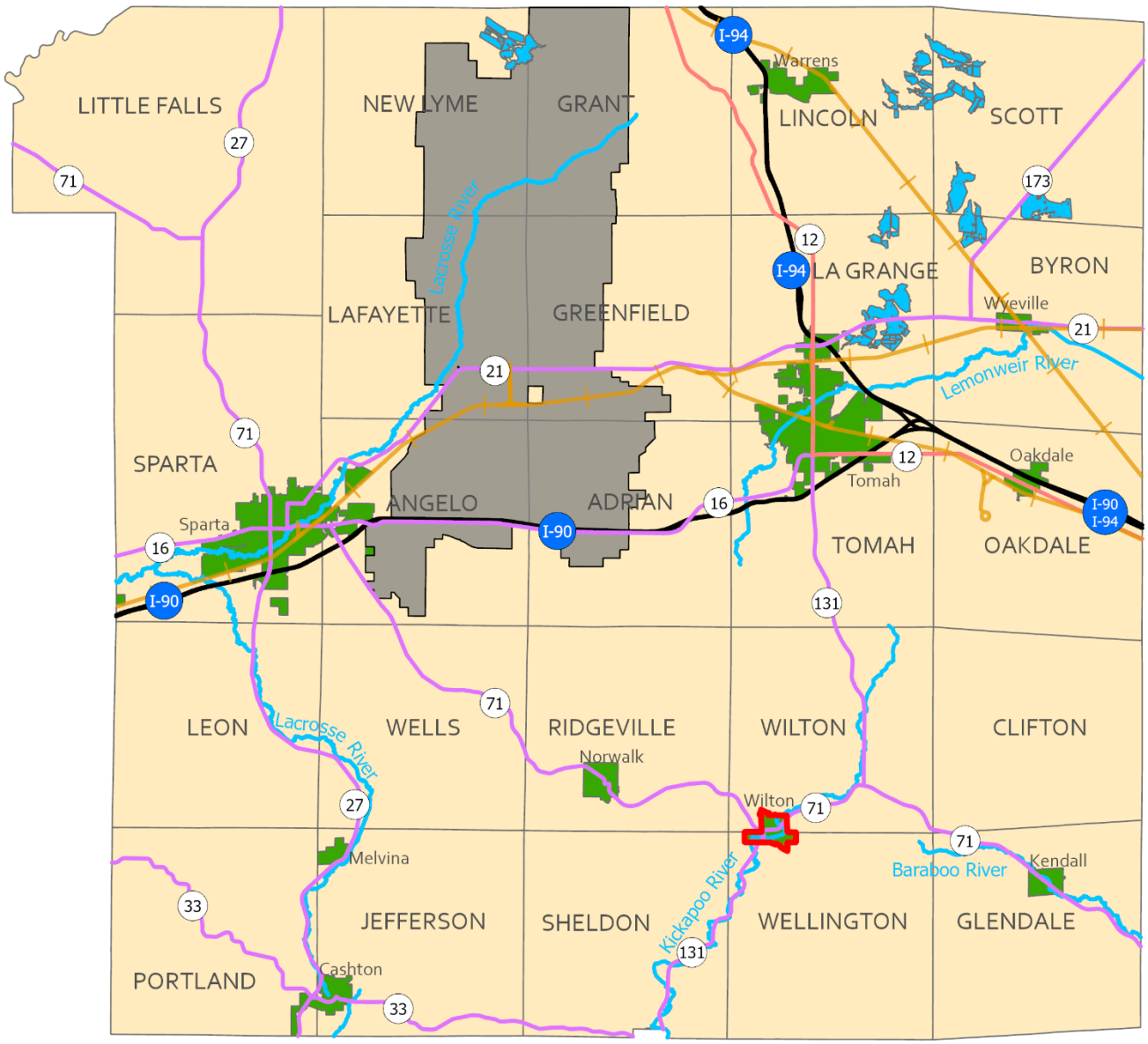
Since 2019, the Village has actively pursued hazard mitigation efforts, particularly addressing flood risks and enhancing emergency response capabilities. Key accomplishments include significant upgrades to the stormwater drainage system, with four drains upgraded entirely with Village funds, and improvements to backup power systems. The fire and police departments, along with the northern well, now have reliable generator backups.

New Projects and Actions

Looking ahead, the Village aims to further enhance resilience through several projects. Plans include installing a backup generator at the southern well, which currently requires a tractor-powered system during outages to restore water service. Further stormwater drain upgrades, in addition to the four drain upgrades already completed since 2019, are also desired although the specifics have not been determined. Additionally, the Village seeks to replace its outdated street signs, many of which fail to meet modern standards for size and reflectivity, creating challenges for emergency responders. The estimated costs and timelines for these projects are not known at this time; however, given the Village's size and limited administrative capacity, it is highly likely that funding will need to come from Village resources rather than grants, which often entail burdensome reporting requirements. Nonetheless, the Village remains open to pursuing grant opportunities if they are not overly arduous.

While not a Village-led project, a significant WisDOT effort scheduled for 2027 will upgrade stormwater infrastructure along Highway 71, which is expected to dramatically reduce the flood risk from the Kickapoo River in the Village.

Village of Wilton, Monroe County

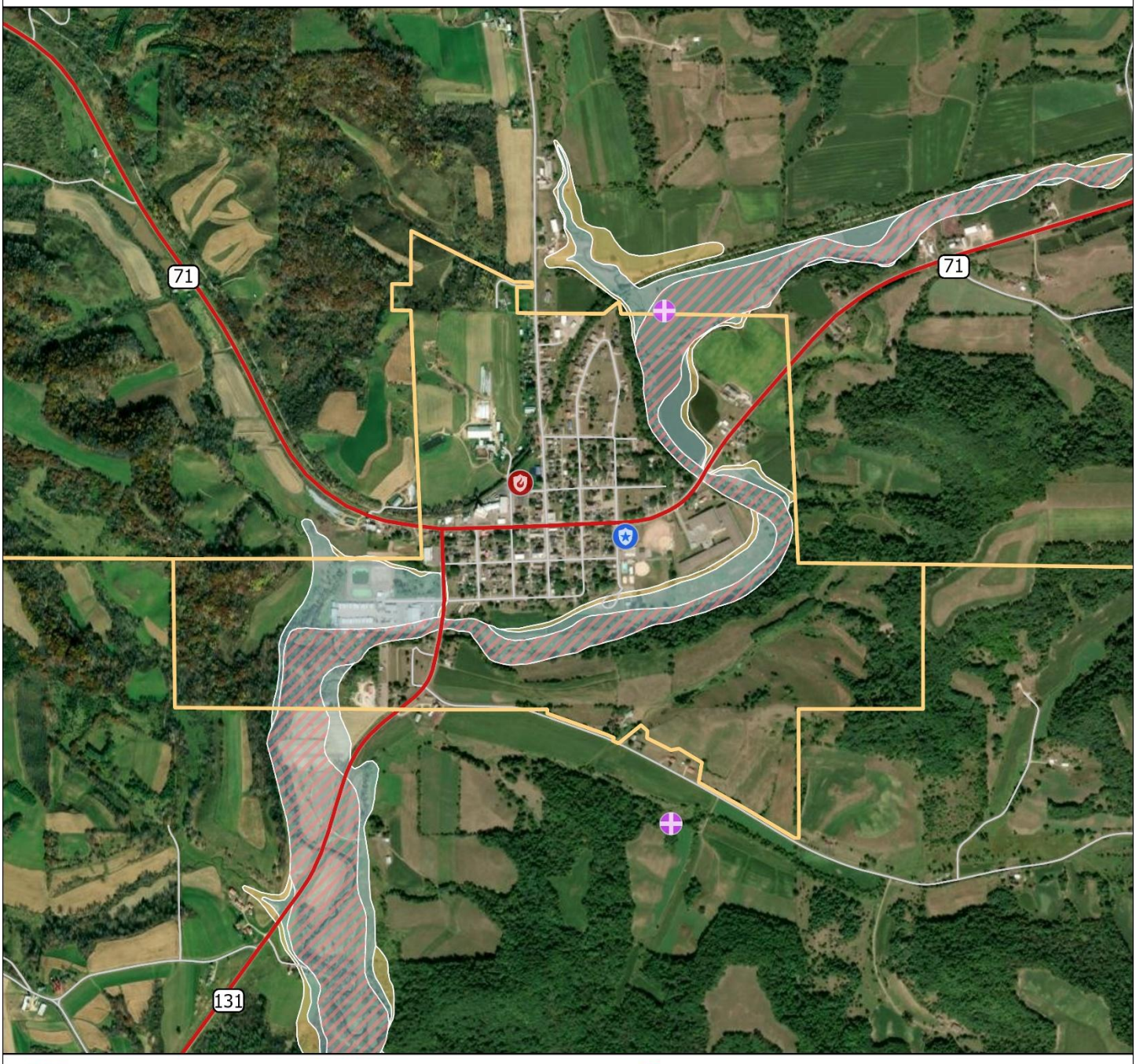


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Village of Wilton

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Village of Wilton



Village of Wyeville

With a population of 121 as of the 2020 U.S. Census, the Village of Wyeville is a small community in northeastern Monroe County, vulnerable to snowstorms and ice storms that can isolate residents and disrupt essential services. The village is also at risk from windstorms and tornadoes due to its open landscape. Almost the entire village lies in the floodplain, with 47 parcels and assessed improvements totaling $3,070,200. The Lemonweir River runs through the village, and Highway 21 crosses it from east to west, contributing to significant flooding issues. Wyeville's social vulnerability is at the 0-20th percentile. Wyeville has a slightly higher percentage of seniors (19% vs. 18%) and individuals with disabilities (14% vs. 12%). The poverty rate (4%) and agricultural worker percentage (2%) are notably lower than the county medians.

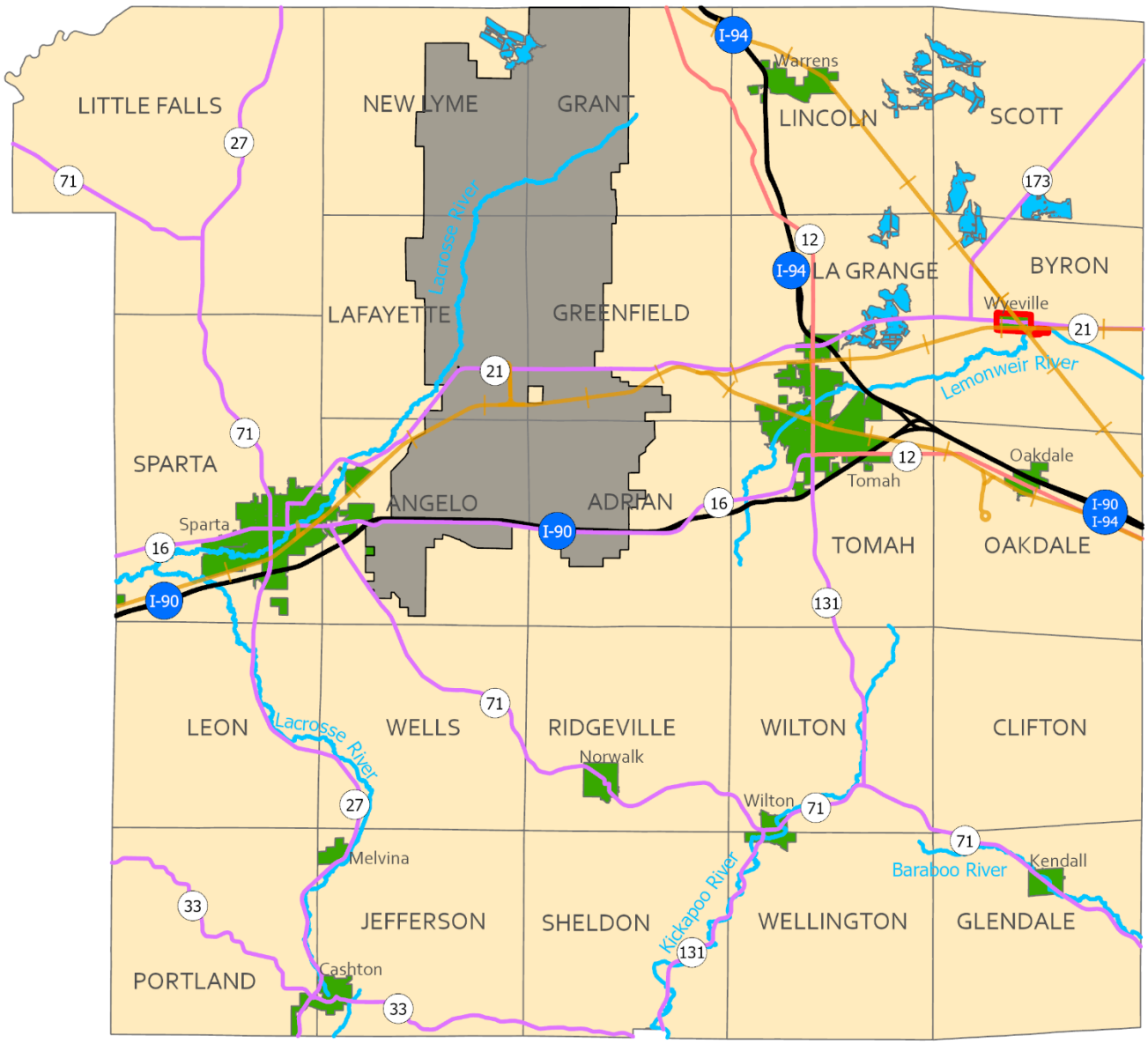
Review of Projects and Actions from the 2019 Hazard Mitigation Plan

In the previous hazard mitigation plan, no specific municipal actions or projects were identified for the Village of Wyeville. However, the Village was still covered under County-wide mitigation strategies outlined in that plan. Additionally, a universal list of actions for each municipality to complete, as part of the previous plan, can be found in Table 4-1. No mitigation activities have been undertaken by the Village since 2019.

New Projects and Actions

No new projects are desired by the Village at this time.

Village of Wyeville, Monroe County

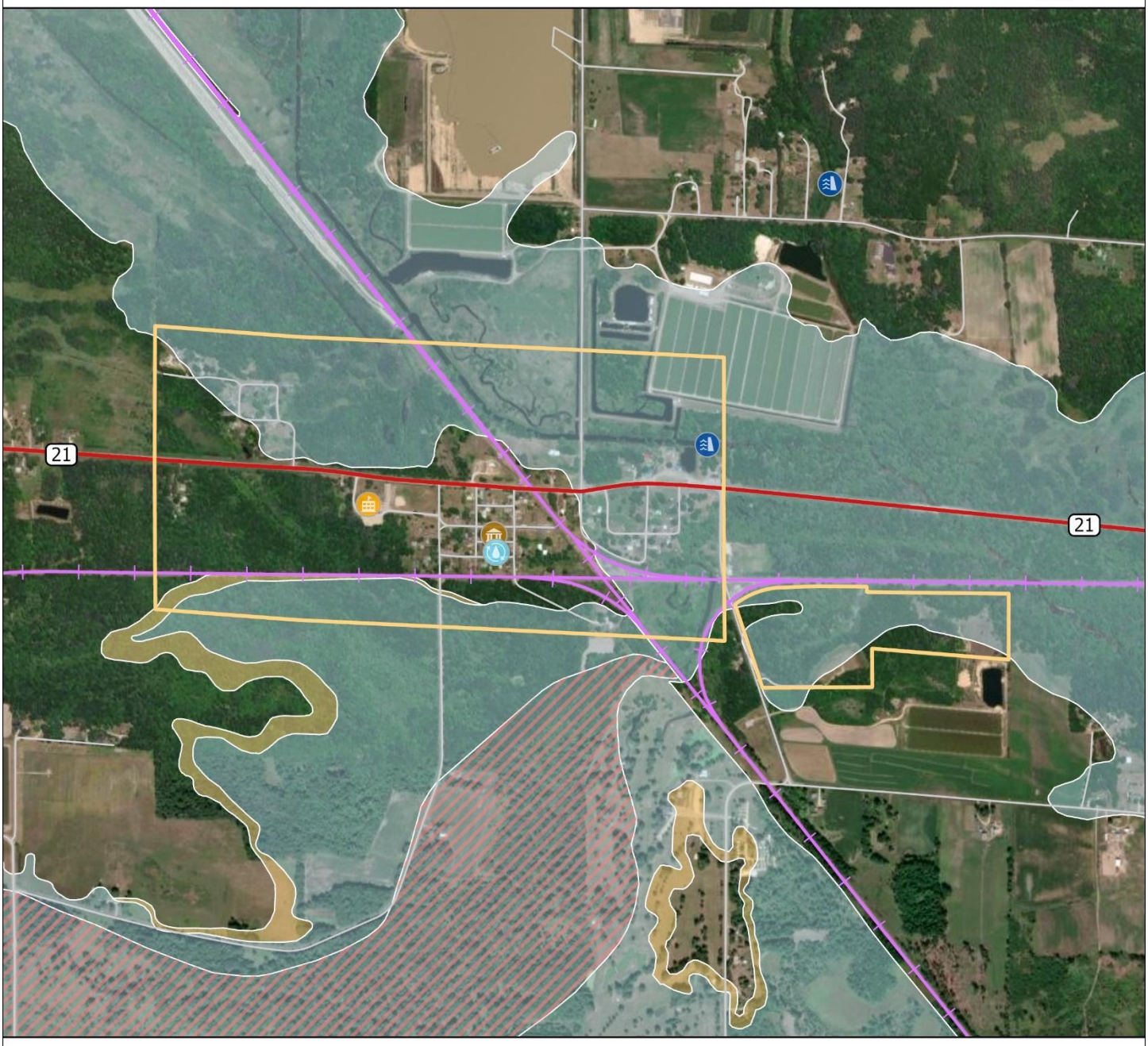


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
Wyeville

N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the Village of Wyeville



Floodway
100 Year Floodplain Boundary
500 Year Floodplain Boundary
Town Boundary
Arterials
Road Centerline
Railroad
Wastewater Treatment Facility
City, Village, or Town Hall
Dam
School

N

0 0.5
Miles

City Mitigation Strategies

The cities have been significantly more successful in advancing the projects and actions identified in the 2019 Hazard Mitigation Plan. Sparta has completed all of its planned initiatives demonstrating a high level of commitment and effectiveness. Tomah, while tackling a larger number of more ambitious projects, has also made substantial progress, though some remain unfinished. Compared to the limited progress in townships and villages, both Sparta and Tomah stand out as examples of proactive hazard mitigation efforts.

City of Sparta

The City of Sparta, the county seat of Monroe County, is a vital hub for transportation, economy, and recreation. With a population of 10,025 as of the 2020 US Census, Sparta faces a range of natural and human-made hazards. Its position along major transportation routes, including Interstate 90, exposes the city to severe weather risks, especially high winds and tornadoes, as well as transportation-related hazards such as hazardous material spills and traffic accidents. The city has also been impacted by thunderstorms, hail, and flash floods, which pose risks to its aging infrastructure and residential areas.

Historically, tornadoes and severe thunderstorms have caused significant damage in the city. One notable event occurred in 2004, when strong winds severely damaged homes and infrastructure. Given Sparta's relatively flat topography and proximity to agricultural lands, windstorms and hail continue to be prominent threats, especially to the city's older residential areas. The Elroy-Sparta State Trail, a critical recreational and tourism asset, also faces the risk of damage from these natural hazards.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
In the 2019 HMP, only one key project was identified for the City of Sparta: to conduct a study on the Paper Mill Dam (formerly referred to as the Perch Lake Dam) and implement its recommendations. The primary concern was mitigating hazards related to dam failure and flooding.

Since the 2019 HMP, the study of the Paper Mill Dam was not only conducted, but the recommendations were also fully implemented. The dam renovation project, which was completed in 2021, included substantial upgrades in response to findings from both the study and prior 2014 recommendations from the Wisconsin Department of Natural Resources. The improvements focused on reinforcing dam safety and included:

- Reinforced Concrete: The dam structure was enhanced with reinforced concrete to ensure durability and stability.
- Emergency Spillway: A new emergency spillway was constructed to mitigate overflow risks during flooding.
- New Operations and Emergency Action Plans: Comprehensive operational procedures and an updated EAP were established, incorporating proactive measures for emergency response, including flood monitoring and regular inspections

In addition to the actions outlined in the 2019 HMP, the City of Sparta has proactively implemented several other infrastructure and safety improvements to address flooding and other hazards. These projects, while not listed in the previous HMP, have been instrumental in enhancing the city's resilience and mitigating risks. Here's a summary of these efforts:

- Ice Cap Road Flood Mitigation
    - Project Summary: Addressed flooding issues in the low-lying swamp area of Ice Cap Road by constructing retention systems to manage excess water during heavy rainfall events.
    - Impact: This has helped prevent water from overwhelming nearby areas, providing a significant reduction in localized flooding risks.
- County BC/Harbor Drive Stormwater Infrastructure:
    - Project Summary: Upgraded stormwater management infrastructure by installing larger stormwater piping to handle increased volumes during heavy rains.
    - Impact: Since the upgrades, this area, which previously experienced severe flooding, has seen significant improvements in stormwater control during major rain events.

- Stream Dredging and Restoration:
    - Upper Birch Road Dredging: Targeted the upper end of Birch Road, where streams were dredged to improve water flow and prevent blockages.
    - Miscellaneous Stream Bed Restoration: Additional stream bed restoration projects were carried out to improve water movement and reduce erosion.
        - Impact: These actions have improved stream capacity and helped minimize flood risks in surrounding areas.
- Floodplain Mapping and FEMA Updates:
    - Project Summary: The city is in the process of updating its FEMA 100-year floodplain maps, the maps shown on the following page, while the most up-to-date, are known to be outdated, particularly due to the aforementioned infrastructure improvements in the city. These updates are crucial for understanding the full impact of the mitigation efforts.
    - Impact: While the effect of recent infrastructure changes on the floodplain has not been fully assessed, improvements are expected to positively influence flood risk areas once the new maps are available.
- Collaboration with Town of Angelo on Dam Management:
    - Project Summary: Improved coordination with the Town of Angelo regarding the management of the upstream dam. Regular communication now occurs when the dam is opened, helping to prevent sudden downstream flooding.
    - Impact: This cooperative approach has enhanced flood preparedness and response for both the town and city, reducing unexpected water surges downstream.
- Tree Trimming and Pest Management Initiative:
    - Project Summary: The city has undertaken extensive tree trimming, focusing on removing species vulnerable to pests, mainly soft maple and ash trees. This initiative is nearing completion, with soft maple trimming currently underway.
    - Impact: These efforts reduce the risk of fallen trees during storms, contributing to public safety and minimizing potential damage to infrastructure.

New Projects and Actions

In recent discussions, several new project ideas have emerged to further enhance the City of Sparta's hazard mitigation efforts. These initiatives aim to address critical infrastructure challenges and improve overall community resilience, particularly in the face of flooding, utility reliability, and emergency response. Below are the key proposals that the city is considering:

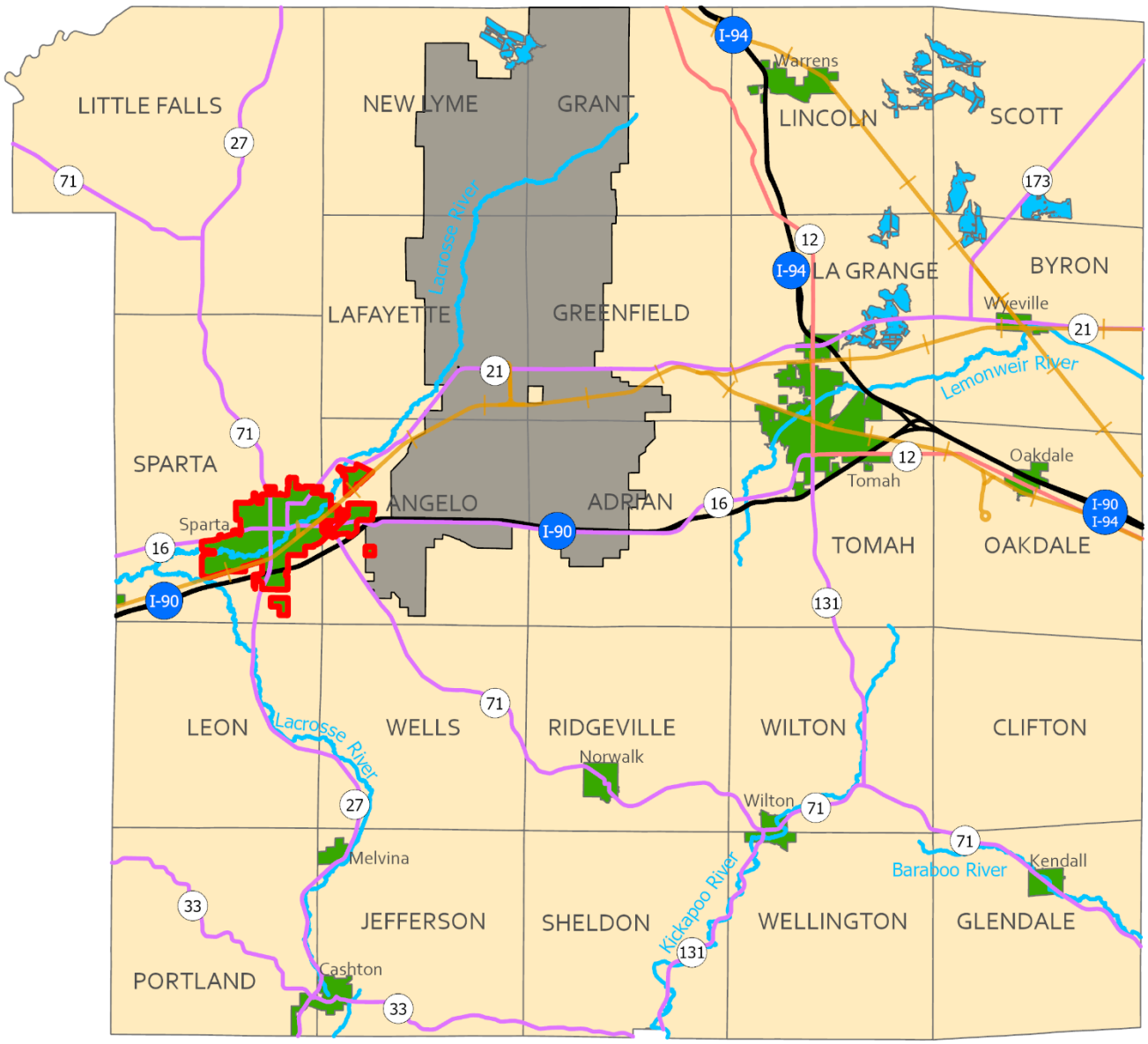
1. Highland Meadows Area Water Diversion
    - Project Summary: Implement a project in the Highland Meadows area to redirect water flow to a safer direction, minimizing the risk of flooding in nearby low-lying areas.
    - Estimated Cost: Over $50,000, requiring the project to go through a formal bidding process.
    - Impact: By diverting water away from vulnerable areas, this project aims to prevent future flooding and protect homes and infrastructure. It would also contribute to better stormwater management across the city.

2. Long-Range Plan for Burying Power Lines
    - Project Summary: Develop a long-range plan to bury all power lines within the city, with a particular focus on collaborating with utility companies. Xcel Energy is already burying power lines for new installations, and the city aims to extend this to older lines as well.
    - Impact: Burying power lines would significantly reduce the risk of power outages caused by storms, fallen trees, and other hazards. This project would also enhance public safety. Close cooperation with utility companies will be essential for its success.

3. Improved Evacuation Routes and Plans in Case of Railroad Derailment
    - Project Summary: Create a more effective evacuation route and plan for the city to address potential derailment risks from the nearby rail lines. While the railroads operate independently from the city, the focus would be on improving public safety and evacuation procedures.

- Impact: This project will bolster the city's preparedness for rail-related emergencies, ensuring that residents can evacuate safely and efficiently in the event of a derailment or other rail incidents. Although the city has limited control over railroad operations, better planning will improve response times and reduce the risk to public safety.

City of Sparta, Monroe County

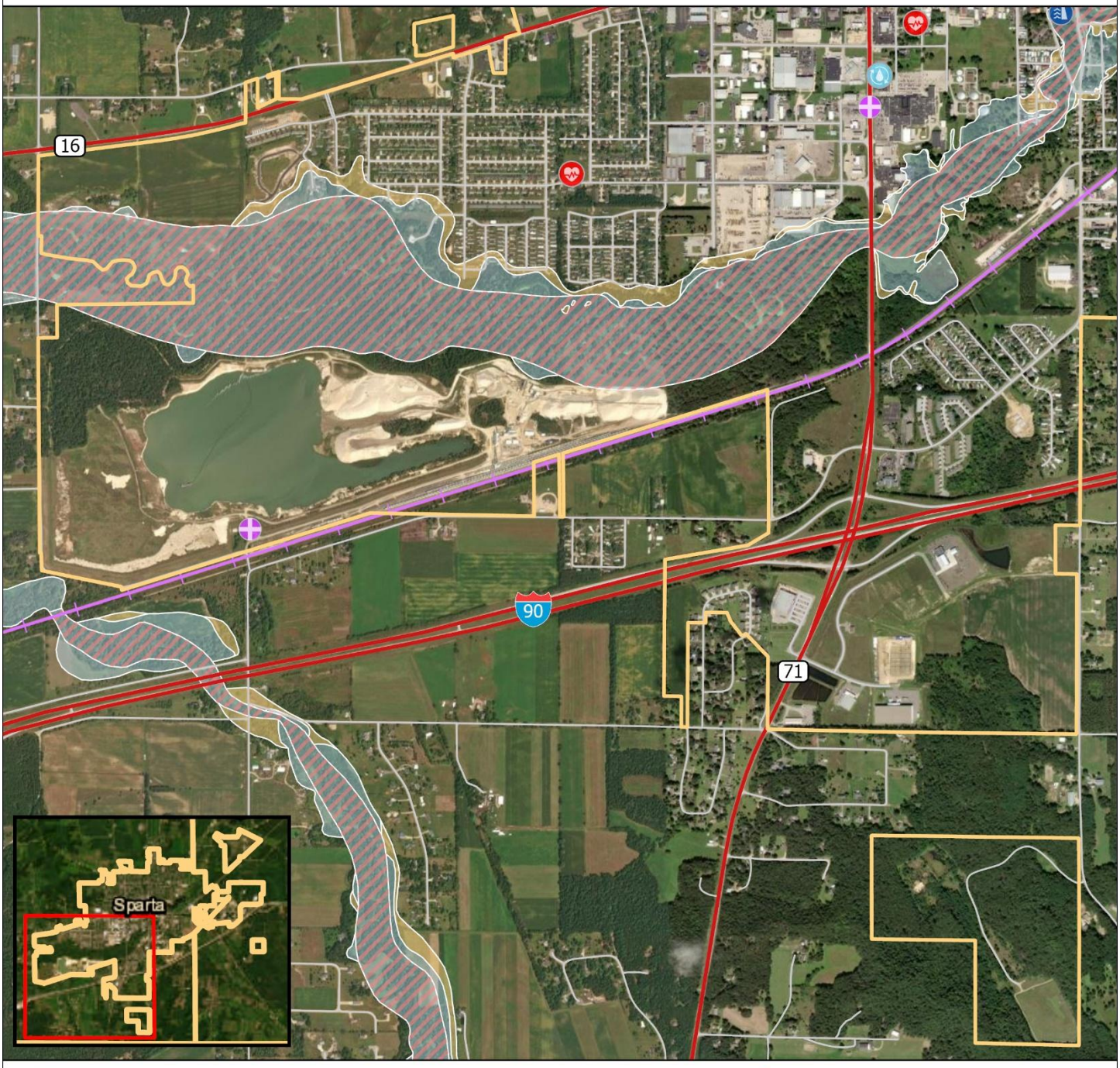


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
City of Sparta

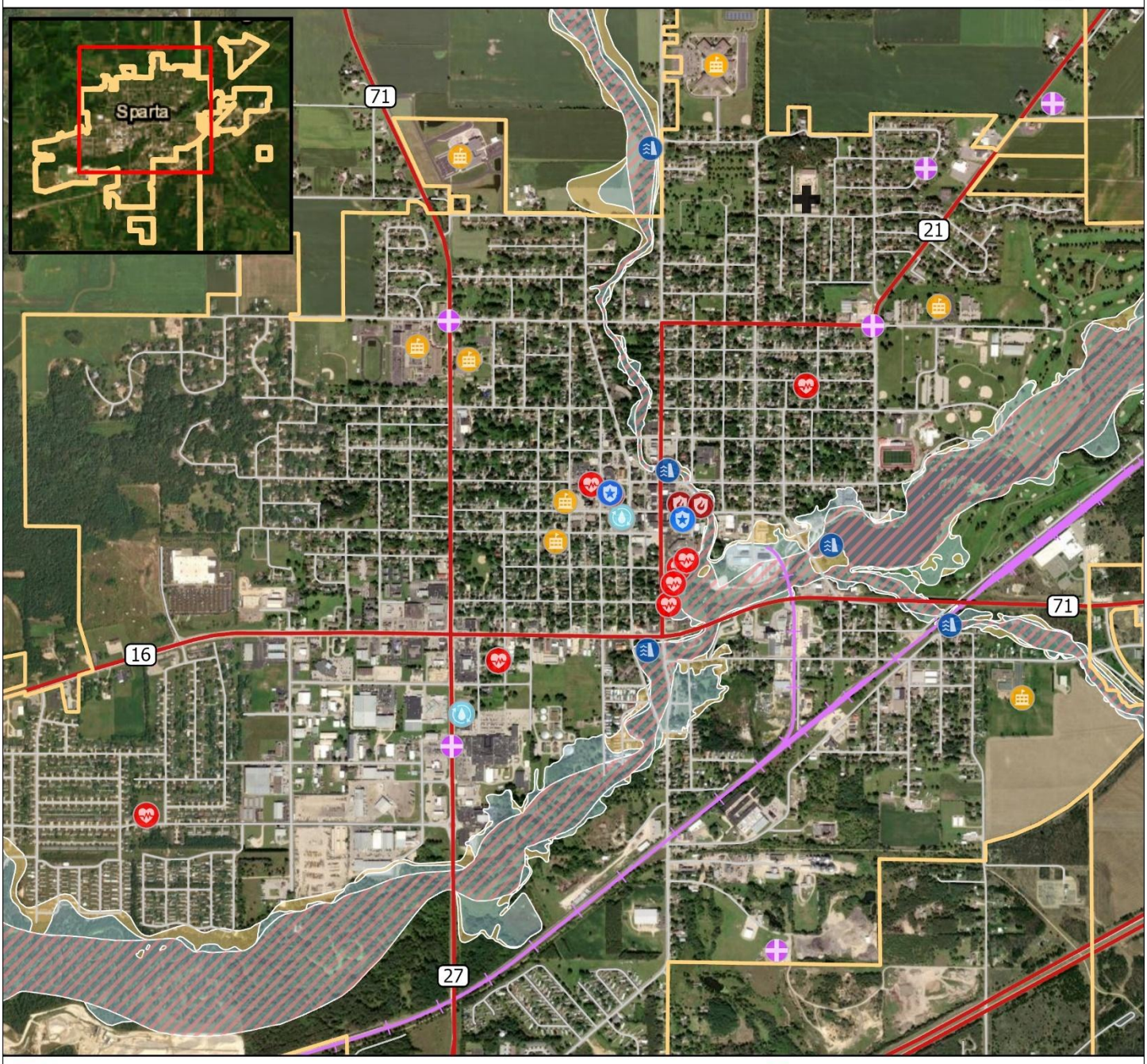
N

0 4 8 16 Miles

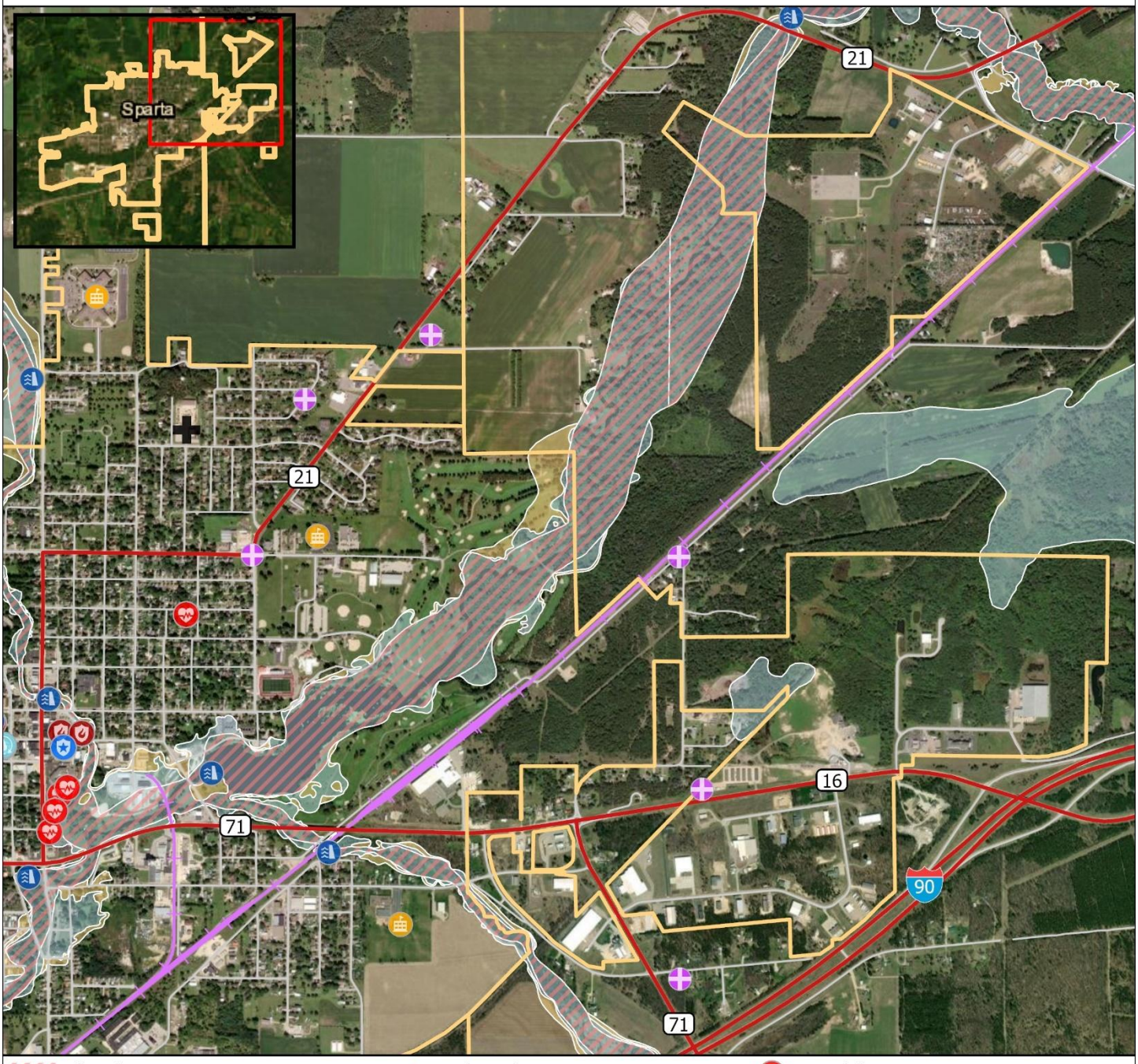
Flood Zones and Critical Infrastructure in the City of Sparta (West Side)



Flood Zones and Critical Infrastructure in the City of Sparta (Central)



Flood Zones and Critical Infrastructure in the City of Sparta (East Side)



City of Tomah

The City of Tomah, with a population of 9,570 as of the 2020 US Census, is a key transportation hub and economic center in Monroe County, situated at the intersection of major highways like Interstate 90 and U.S. Highway 12. The city's infrastructure and economy are influenced by Fort McCoy, a major military installation that draws thousands of service members annually. This proximity makes Tomah vulnerable to hazards such as transportation accidents, severe weather events, and technological risks related to industrial accidents or military operations.

Tomah has historically faced challenges with flooding due to its location near the Yellow River and Lake Tomah, which have caused periodic overflow and damage to nearby homes and businesses. In 2011, an EF2 tornado hit the region, causing significant structural damage to homes and public buildings. The tornado underscored the city's vulnerability to wind-related events, particularly in its residential and industrial zones. Additionally, thunderstorms and ice storms have resulted in widespread power outages and transportation disruptions.

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
In the 2019 HMP, five projects and actions were identified for the City of Tomah. Significant progress has been made on all of these, but none of them are complete. All of these projects are still desired by the City.

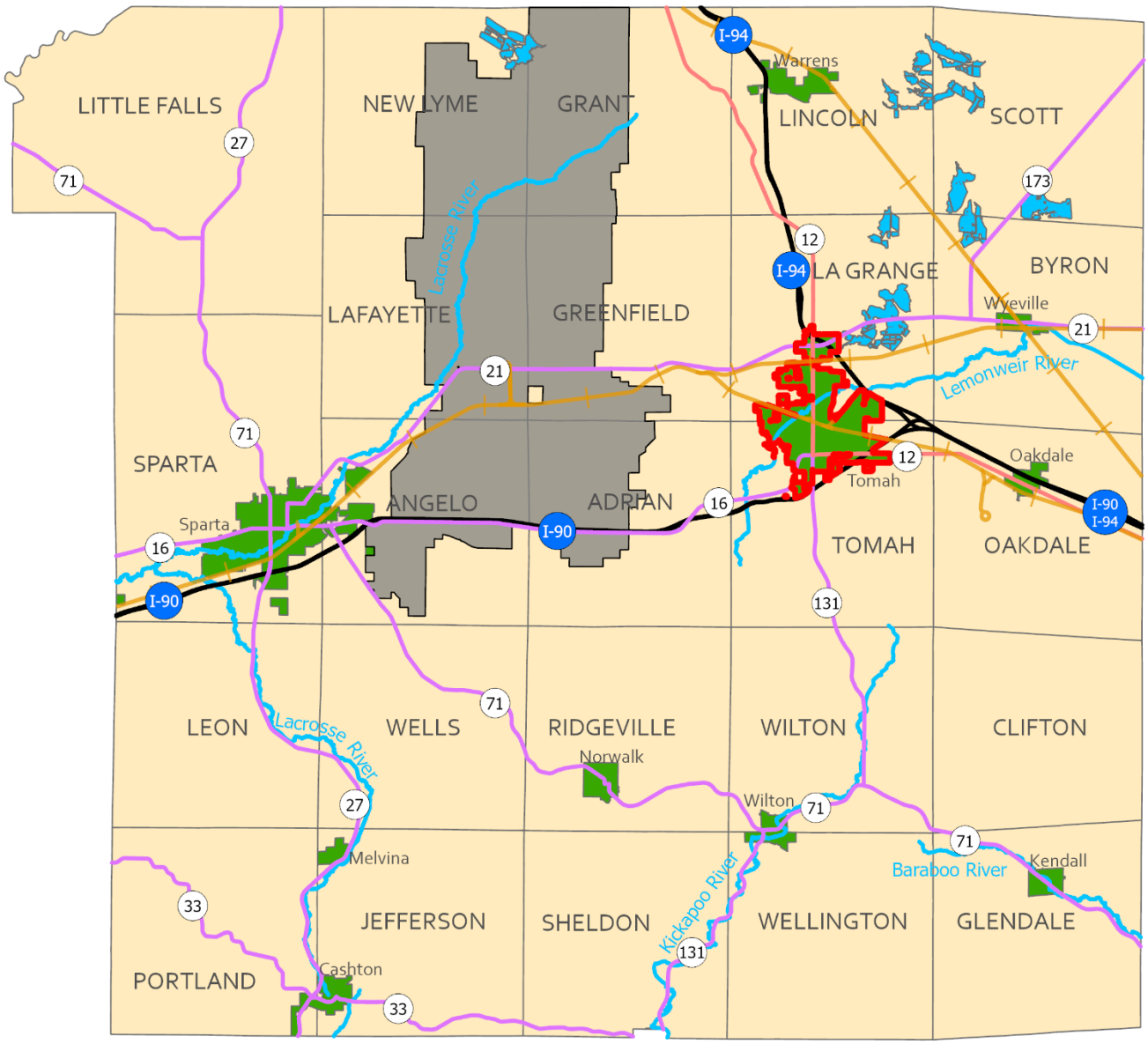
- **Improve stormwater drainage systems**
    - *Hazard*: Flooding
    - *Funding Source(s)*: Grants and City Budget
    - *Responsible Official/Organization*: City Board
    - *Project Timetable*: As funding becomes available
    - *Status*: Efforts to enhance stormwater drainage systems have been initiated, but the project remains incomplete. This action continues to be a priority for mitigating flood risks and is carried forward into the updated plan.
- **Replace two severe weather warning sirens**
    - *Hazard*: Severe Weather, Tornadoes
    - *Funding Source(s)*: Grants and City Budget
    - *Responsible Official/Organization*: Police Chief
    - *Project Timetable*: When funding can be obtained
    - *Status*: Some initial work has been undertaken to replace outdated severe weather warning sirens, but funding constraints have delayed completion. The project remains a priority and will be carried forward.
- **Develop evacuation plan for fairgrounds**
    - *Hazard*: Large Gatherings, Severe Weather
    - *Funding Source(s)*: Grants and City Budget
    - *Responsible Official/Organization*: Fire Chief
    - *Project Timetable*: When funding can be obtained
    - *Status*: While the development of an evacuation plan for the fairgrounds has not yet begun, it is a recognized need for addressing large gatherings and severe weather risks. This project is rolled forward into the updated plan.
- **Additional training for emergency responders**
    - *Hazard*: Train Derailment, Hazardous Materials
    - *Funding Source(s)*: Grants and City Budget
    - *Responsible Official/Organization*: Fire Chief
    - *Project Timetable*: When funding can be obtained
    - *Status*: Initial discussions on enhancing training for emergency responders have occurred, but no formal programs have been implemented yet. This action is critical for preparing for train derailments and hazardous material incidents and will be rolled forward.
- **Develop evacuation plans for rail line incidents**
    - *Hazard*: Train Derailment, Hazardous Materials
    - *Funding Source(s)*: Grants and City Budget
    - *Responsible Official/Organization*: Fire Chief

- *Project Timetable*: When funding can be obtained
- *Status*: Work on developing evacuation plans for rail line incidents is in its early stages. This project remains an essential focus for managing the risks of train derailments and hazardous material spills and will be carried forward into the updated plan.

New Projects and Actions

At this time, no new projects or actions are proposed. The focus remains on completing the previously identified projects and actions from the 2019 Hazard Mitigation Plan. Efforts will be directed toward improving stormwater drainage systems, replacing severe weather warning sirens, developing evacuation plans, and providing additional training for emergency responders. These ongoing initiatives continue to address key hazard mitigation priorities for the community.

City of Tomah, Monroe County

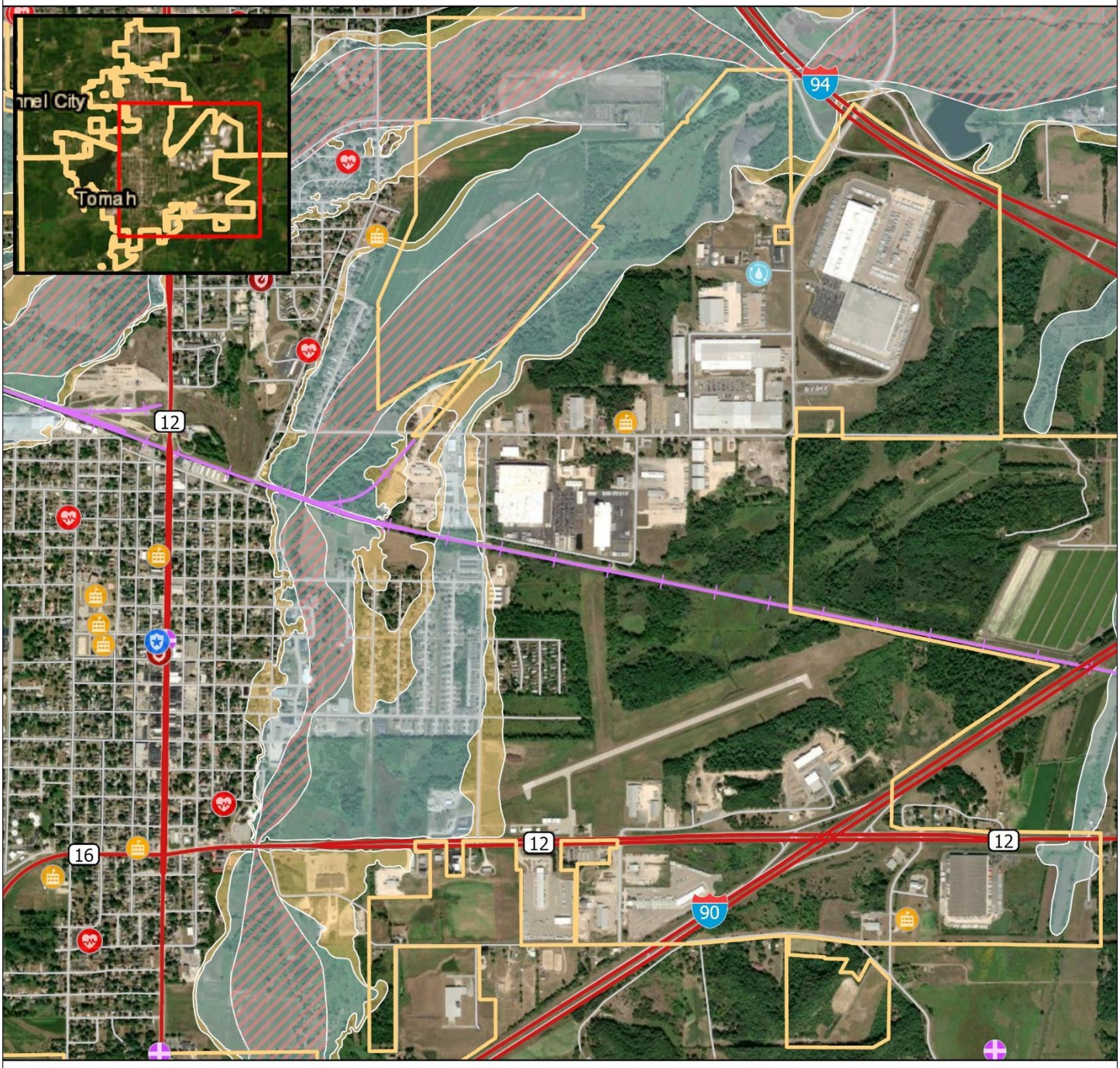


Railroads
Interstate
State Highway
US Highway
Water
Fort McCoy
Town
City/Village
City of Tomah

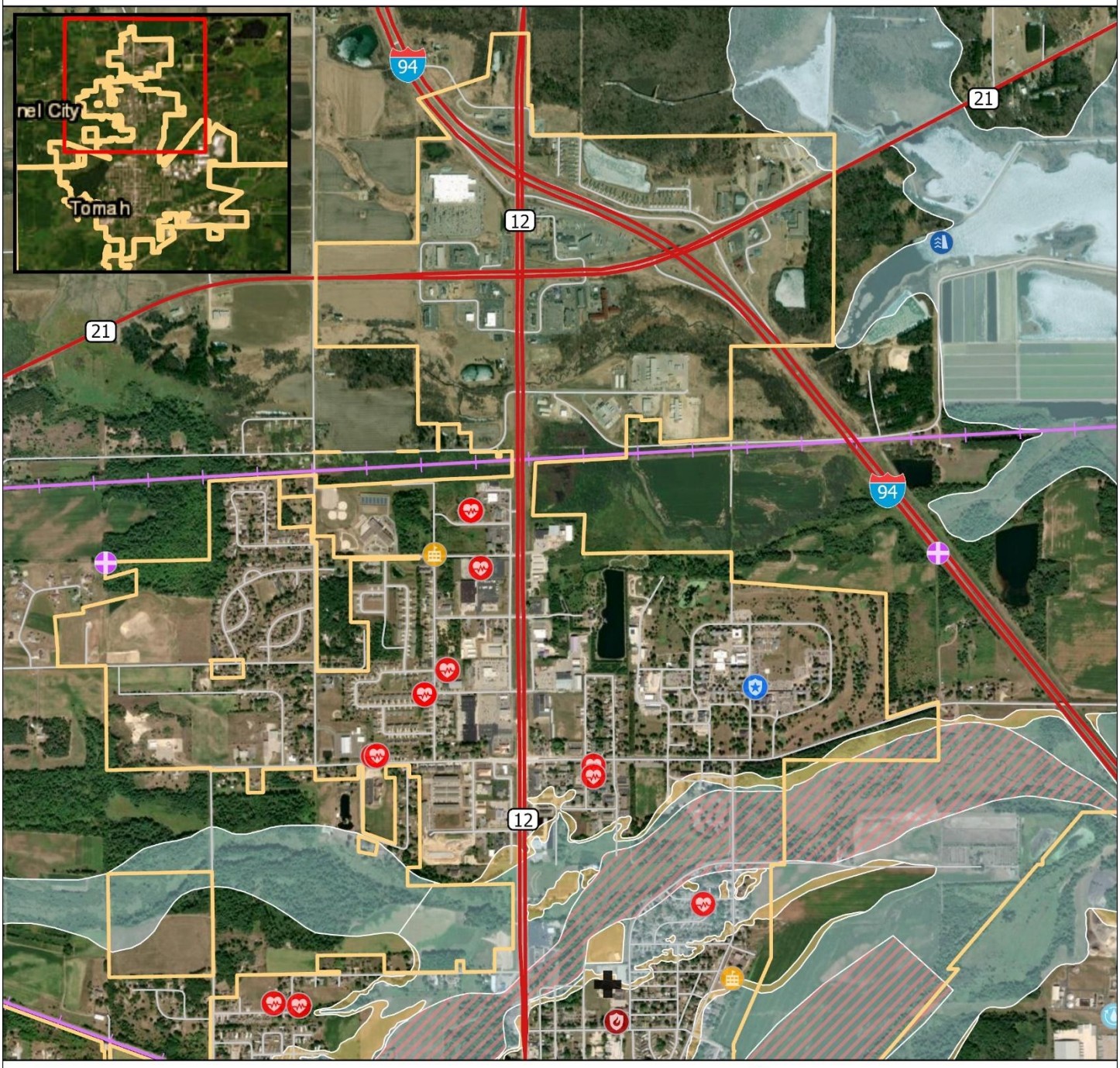
N

0 4 8 16 Miles

Flood Zones and Critical Infrastructure in the City of Tomah (Central)



Flood Zones and Critical Infrastructure in the City of Tomah (North)



Flood Zones and Critical Infrastructure in the City of Tomah (South)

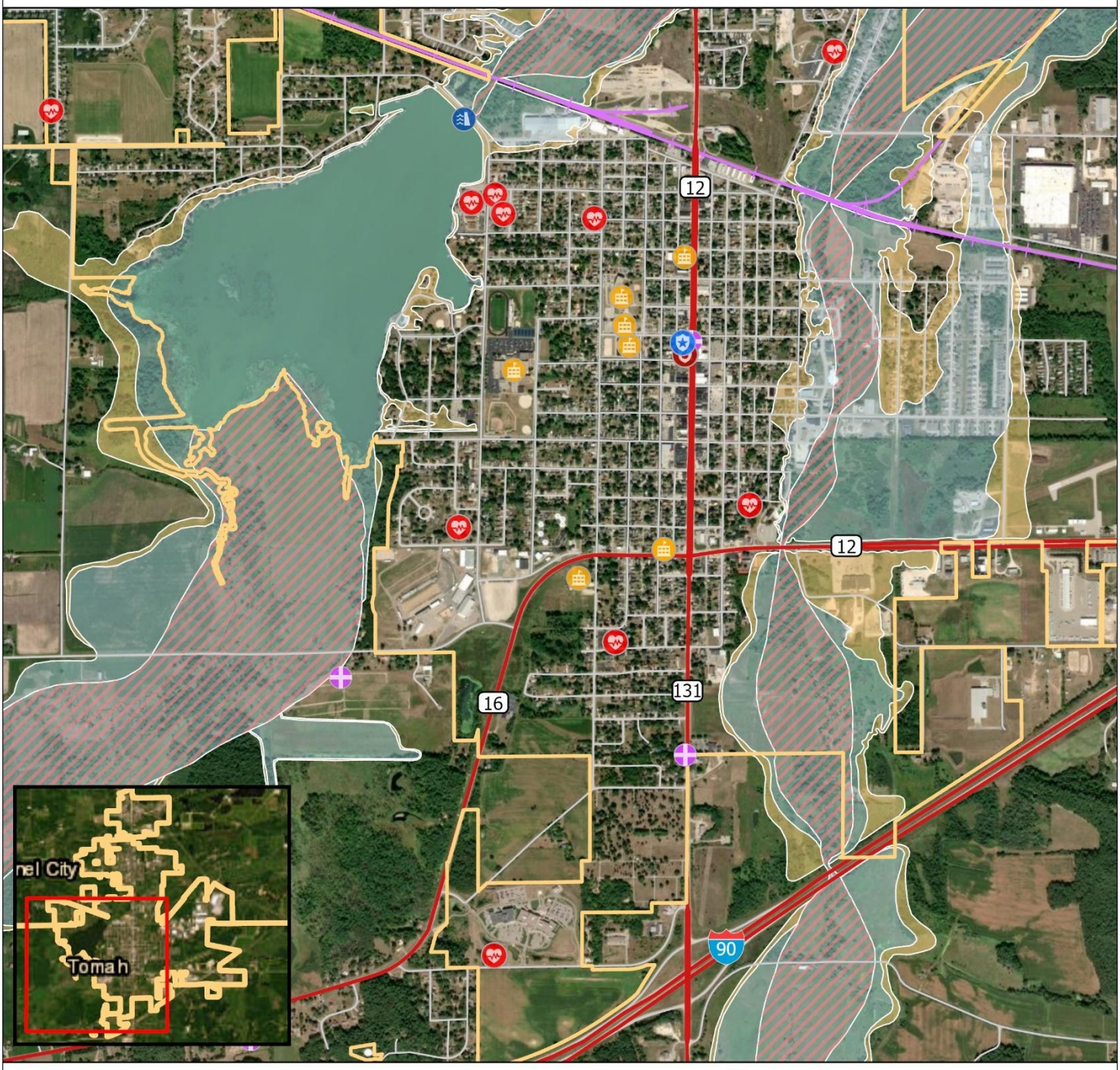


Table 4-1: Projects and Actions for Every Municipality Identified in the 2019 Hazard Mitigation Plan

Mitigation Action or Project	Funding Source(s)	Responsible Official or Organization	Project Timetable	Comments
Flooding, Storm water Drainage, and Dam Hazards Actions and Projects				
In conjunction with the County investigate the concept of a voluntary floodplain property buyout/relocation program through a survey of property owners in the floodplain. This survey could also inquire about interest in flood proofing and/or elevating their properties to protect health, public safety and welfare.	Existing Village and County staff resources to investigate	County Emergency Management Coordinator to serve as coordinator	Continual Program	Determine interest on an area by area basis
Continue to monitor and enforce N.R. 116 Floodplain, Shore Land - Wetland Regulations and any changes to it.	Existing Village and City resources	Village or City Board or designee	Annually	Continual Program
Work to reduce or eliminate repetitive loss or substantially damaged structures by undertaking the following: 1: The Village or City Clerk or designee biannually shall provide a list of owners of repetitive loss structures or substantially damaged structures within the Village or City to the County Emergency Management Coordinator. The County Emergency Management Coordinator will then biannually write a letter to owners of repetitive loss structures or substantially damaged structures to inform them of techniques and potential state and federal resources available to reduce further flood losses. Specific emphasis will be placed on contacting them if the County, City or a Village proceeds with a voluntary buyout program as described above. 2: Inform property owners through the annual survey to act as a resource for information and answer questions on how to reduce future flood losses.	Existing Village, City and County staff resources	Village or City Board or designee and the County Emergency Management Coordinator	Biannually	Carried over from previous plan
Promote the National Flood Insurance Program through community education	Existing County/Village/City staff resources	Emergency Management Coordinator	Continual	Deferred, relates to NFIP compliance

Mitigation Action or Project	Funding Source(s)	Responsible Official or Organization	Project Timetable	Comments
To maintain compliance with the National Flood Insurance Program the Village/City will undertake the following actions: 1: The Village/City Clerk or designee shall annually attend floodplain zoning seminars and workshops to keep informed on floodplain issues and regulations. 2: The Village/City Clerk or designee shall report monthly on floodplain permit activity to the Village Board. 3: The Village/City Clerk or designee shall administer, enforce and update the municipality's floodplain ordinance as prescribed by law.	Existing Village/City staff and resources	Village/City Clerk or designee	Annually	Carried over from previous plan, relates to NFIP compliance
Work in conjunction with the County to review flood disaster impacts and revise and update this plan as needed after a flood disaster. New flood hazard mitigation projects and strategies are likely to arise after a flood disaster. To deal with this situation Village/City Clerks or designees shall meet and report in a timely manner to the Village/City Boards on potential changes to the Village/City portions of the Monroe County Multi-Hazard Mitigation Plan. The Village/City Boards shall recommend reaffirming, amend or update (rewrite) this plan to the County Emergency Management Coordinator and the Public Safety and Justice Committee. This disaster assessment may be included in the annual review process discussed in the Plan Maintenance and Adoption section of this plan if the response to the recent flood disaster will not be impaired by doing so.	Existing Village/City/ County staff resources	Village/City Clerks or designees, Emergency Management Coordinator and Public Safety and Justice Committee	After each flood disaster	Carried over from previous plan
Hail, Lightning, Thunderstorm and Fog Hazard				
Encourage the burying of electrical lines	Existing City, Village, Town and County staff resources	Individual municipal Boards in conjunction with the County Public Safety and Justice Committee	Continual Program	Carried over from previous plan

Mitigation Action or Project	Funding Source(s)	Responsible Official or Organization	Project Timetable	Comments
Encourage the burying of telecommunication lines	Existing City, Village, Town and County staff resources	Individual municipal Boards in conjunction with the County Public Safety and Justice Committee	Continual Program	Carried over from previous plan
Assist the County in utilizing the Severe Awareness Week to alert residents of the need for concern about hail, lightning, thunderstorm and fog hazards and actions they can take to minimize losses from these hazards.	Existing City, Village, Town and County staff resources	County Emergency Management Coordinator coordinating with City, Town and Village Clerks	Annual Program	Carried over from previous plan
Tornadoes and High Winds				
Require anchoring on new mobile home residences, carports and porches.	Existing City, Village, Town and County staff resources	Individual municipal Boards in conjunction with the County Public Safety and Justice Committee	Continual Program	Carried over from previous plan
Encourage the burying of underground power, cable and telephone lines.	Existing City, Village, Town and County staff resources	Individual municipal Boards in conjunction with the County Public Safety and Justice Committee	Continual Program	Carried over from previous plan
Encourage the use of interlocked roofing shingles.	Existing City, Village, Town and County staff resources	Individual municipal Boards in conjunction with the County Public Safety and Justice Committee	Continual Program	Carried over from previous plan

Mitigation Action or Project	Funding Source(s)	Responsible Official or Organization	Project Timetable	Comments
Encourage the construction of concrete safe rooms in mobile home parks and other residential structures subject to high winds.	Existing City, Village, Town and County staff resources	Individual municipal Boards in conjunction with the County Public Safety and Justice Committee	Continual Program	Carried over from previous plan
Identify buildings that will provide protection to the public in the event of a tornado or high winds.	Existing City, Village, Town and County staff resources	Individual municipal Boards in conjunction with the County Public Safety and Justice Committee	Continual Program	Carried over from previous plan
Extreme Cold and Heat Event				
In conjunction with the County and adjacent municipalities identify buildings within or adjacent to their respective municipality that could be used as shelters with appropriate heating, ventilation and air conditioning for housing that segment of population that are more vulnerable to extreme temperature events, such as the low income, elderly, and sick.	Existing City, Town, Village and County staff resources	County Emergency Management Coordinator will coordinate with each municipal board or their designee	2020-2021	Deferred
Forest and Wildland Fire				
Develop/maintain cooperative fire agreements with area fire departments and the Department of Natural Resources, as necessary.	Existing City, Town and Village staff resources	City, Town and Village Boards will be responsible for their municipality	Continual Program	Carried over from previous plan
Heavy Snow and Ice Storms and Blizzard				
Cooperate with the County in preparing timely releases that inform the public on actions and precautions they can take to minimize disruptions and losses.	Existing County staff resources along with City, Town and Village staff and resources	County Emergency Management Coordinator with City, Town and Village Clerks	Annually	Carried over from previous plan

Mitigation Action or Project	Funding Source(s)	Responsible Official or Organization	Project Timetable	Comments
Identify locations where snow fences could be constructed, or trees/brushes (living snow fences) could be erected or planted to increase motor vehicle safety by reducing or eliminating blowing/drifting snow	Existing County staff resources along with City, Town and Village staff and resources	County Emergency Management Coordinator and County Highway Commissioner coordinating with City, Town and Village Clerks	2020 - 2021	Deferred from previous plan, project was not budgeted for in either department
Earthquake, Landslide and Subsidence				
Investigate developing an inventory/prioritization of roads/road segments that have shoulders with slopes conducive to erosion or land /mud slides. The roads/road segments identified can be stabilized as funding becomes available.	Existing City, Village/ and Town staff resources	City, Town or Village Board or designee	2019-2020	Deferred
Agricultural and Drought				
In conjunction with the County consider developing an education/information program that informs agricultural producers and residents about water conserving measures and crop insurance.	Existing County staff resources	County Emergency Management Coordinator in cooperation with City, Village and Town Officials	2021-2022	Deferred
Train Derailment				
Develop evacuation plans for the incorporated communities which have rail lines running through them	Existing County staff resources	County Emergency Management Coordinator in cooperation with city and village officials	2019-2023	New Project
Pandemic Flu				
Develop a pandemic flu plan listing specific actions and identifies emergency powers and who has the authority to use them.	Existing County staff resources	Public Health officer in cooperation with City Officials, Village Officials, Emergency response personnel and local hospitals and clinics	2020-2022	New Project

County-Wide Mitigation Strategies

In the previous hazard mitigation plan, Monroe County outlined several key projects and actions designed to mitigate hazards such as flooding, severe storms, extreme weather events, and more. These projects were proposed with the intent of reducing long-term risks to public safety, infrastructure, and property. Below is a summary of the major initiatives that were either carried over from the previous plan or newly proposed for the county to complete.

In this updated hazard mitigation plan, Monroe County has expanded its scope to include a broader range of hazards, with a more detailed analysis for each. This plan incorporates newer risks, such as climate change, industrial accidents, and groundwater contamination, while also breaking down broader hazard categories from previous plans into more specific, granular assessments. For example, in the previous plan, hazards such as Heavy Snow, Ice Storms, and Blizzards were grouped together, whereas this updated plan treats them as distinct hazards with separate risk assessments and mitigation strategies. This new structure allows Monroe County to address each hazard with greater precision and develop more targeted mitigation efforts. By providing a clearer understanding of the risks, the new plan strengthens Monroe County's ability to protect its people, infrastructure, economy, and environment from both natural and human-made hazards.

Projects are listed first by the responsible committee, person, or department. Within each group, the projects are organized by the specific hazard they aim to address.

Public Safety and Justice Committee

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
The Public Safety and Justice Committee oversees all of the projects and actions listed below as part of its purview. However, the committee meets only twice a year and, during the drafting of this Hazard Mitigation Plan update, did not have sufficient space on its agenda to review these items. The committee has scheduled time to address these projects during its January 2025 meeting, where it will evaluate progress, provide recommendations, and determine any necessary adjustments, as well as any new desired projects and actions. Following that meeting, the Hazard Mitigation Plan will be updated to reflect the committee's input and decisions.

Hail, Lightning, Thunderstorm, and Fog Actions and Projects

- **Burying of Electrical Lines**
  The county encouraged the burying of electrical lines to reduce the risk of power outages and damage from thunderstorms and lightning strikes. This would provide more resilience to the electrical grid and help prevent service interruptions.
  - *Funding*: Existing county staff resources
  - *Timetable*: Ongoing (Carried over from previous plan)
- **Burying of Telecommunication Lines**
  The county also encouraged the burying of telecommunication lines to prevent service disruptions during severe storms, particularly those caused by lightning or high winds.
  - *Funding*: Existing county staff resources
  - *Timetable*: Ongoing (Carried over from previous plan)

Tornadoes and High Winds Actions and Projects

- **Anchoring of Mobile Homes and Structures**
  The county encouraged the anchoring of mobile homes, carports, and porches to reduce damage from high winds and tornadoes. This initiative targeted residents in mobile home parks and other high-risk areas.
  - *Funding*: Existing county staff resources
  - *Timetable*: Ongoing (Carried over from previous plan)

- **Burying of Underground Power, Cable, and Telephone Lines**
  Similar to efforts for other severe storms, the county encouraged the burying of power, cable, and telephone lines to prevent service disruptions during tornadoes and high winds.
    - *Funding*: Existing county staff resources
    - *Timetable*: Ongoing (Carried over from previous plan)
- **Encouraging the Use of Interlocked Roofing Shingles**
  To reduce roof damage from tornadoes and high winds, the county promoted the use of interlocked roofing shingles in new construction and renovations. This would improve the resilience of homes and public buildings to high wind events.
    - *Funding*: Existing county staff resources
    - *Timetable*: Ongoing (Carried over from previous plan)
- **Encouraging Construction of Safe Rooms**
  Monroe County encouraged the construction of safe rooms in mobile home parks and other residential structures at high risk for tornadoes and high winds. These safe rooms would provide shelter to residents during storms.
    - *Funding*: Existing county staff resources
    - *Timetable*: Ongoing (Carried over from previous plan)

Extreme Cold and Heat Event Actions and Projects

- **National Heat Awareness Day Participation**
  The county planned to participate in **National Heat Awareness Day** by distributing information to the public on heat safety and awareness. This initiative aimed to raise awareness about heat-related dangers and provide tips on staying cool during extreme heat.
    - *Funding*: Existing county staff resources
    - *Timetable*: Ongoing (New Project)

Forest and Wildland Fire Actions and Projects

- **Encourage Periodic Cutting of Conservation Reserve Program (CRP) Land**
  To reduce fire risks, the county encouraged periodic cutting of CRP land, as required by the program, to prevent the accumulation of dry brush that could fuel wildfires.
    - *Responsibility*: Public Safety and Justice Committee, **National Resource Conservation Service (NRCS)**
    - *Funding*: Existing county staff resources
    - *Timetable*: Ongoing (Carried over from previous plan)
- **Enforce Countywide Burning Bans During Dry Seasons**
  The county committed to enforcing burning bans during periods of high fire risk, reducing the likelihood of accidental wildfires.
    - *Responsibility*: Public Safety and Justice Committee, **County Board**
    - *Funding*: Existing county staff resources
    - *Timetable*: Ongoing (Carried over from previous plan)

County Emergency Management Coordinator

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

The County Emergency Management Coordinator is responsible for several of the projects and actions outlined below. However, the coordinator has not yet provided an update on the progress of these initiatives during the drafting of this Hazard Mitigation Plan update. An update is scheduled to be presented during the January 2025 meeting of the Public Safety and Justice Committee. Following that meeting, the Hazard Mitigation Plan will be revised to incorporate the coordinator's input and any relevant updates.

Hail, Lightning, Thunderstorm, and Fog Actions and Projects

- **Public Awareness Campaign on Severe Storms**
  During Severe Weather Awareness Week, the county aimed to educate the public on the risks associated with hail, lightning, thunderstorms, and fog, as well as actions residents could take to minimize losses. This included information on lightning safety, hail damage prevention, and safe driving in foggy conditions.
    - *Funding*: Existing county staff resources
    - *Timetable*: Annually (Carried over from previous plan)
- **Identifying Buildings for Public Shelter During Tornadoes**
  The county planned to identify public buildings that could serve as tornado shelters for residents during high-wind events. This action aimed to ensure that communities have safe locations to shelter from severe storms.
    - *Funding*: Existing county staff resources
    - *Timetable*: 2020-2021 (Deferred, to be coordinated with extreme temperature shelter planning)
- **Improvement of Communication and Warning Systems**
  The county proposed improving its communication and advanced warning systems to provide timely alerts for tornadoes and high winds. This included upgrading existing systems to ensure that all residents are informed during emergencies.
    - *Responsibility*: County Emergency Management Coordinator and **Public Safety and Justice Committee**
    - *Funding*: Existing county staff resources
    - *Timetable*: 2021-2022 (Deferred due to lack of funding)

Heavy Snow, Ice Storms, and Blizzard Actions and Projects

- **Public Education on Winter Weather Safety**
  The county proposed issuing timely public releases to inform residents about precautions they can take to minimize disruptions and losses from heavy snow, ice storms, and blizzards. This included safety tips for staying warm, driving in poor conditions, and ensuring adequate supplies for extended isolation.
    - *Funding*: Existing county staff resources
    - *Timetable*: Annually (Carried over from previous plan)
- **Snow Fence Installation**
  The county planned to identify locations where snow fences or living snow fences (trees and bushes) could be installed to improve motor vehicle safety during snowstorms. This was meant to reduce snow drift on roads and highways, which often causes hazardous driving conditions.
    - *Responsibility*: Emergency Management Coordinator **in cooperation with the County Highway Commissioner**
    - *Funding*: Existing county staff resources
    - *Timetable*: 2020-2021 (Deferred due to lower priority)
- **Winter Weather Awareness Week Campaign**
  As part of its ongoing efforts, Monroe County planned to participate in Winter Weather Awareness Week by alerting residents to the dangers of heavy snow, ice storms, and blizzards. This campaign aimed to educate the public on how to prepare for and respond to winter storms, including emergency preparedness and vehicle safety.
    - *Responsibility*: Emergency Management Coordinator **in cooperation with the County Highway Commissioner**
    - *Funding*: Existing county staff resources
    - *Timetable*: Annually (Carried over from previous plan)

Extreme Cold and Heat Event Actions and Projects

- **Identification of Shelters for Vulnerable Populations**
  The county planned to identify buildings that could be used as shelters with appropriate heating, ventilation, and air conditioning (HVAC) systems for housing vulnerable populations during extreme cold or heat events. This included coordinating with local municipalities to ensure these shelters were accessible during weather emergencies.
    - *Responsibility*: Emergency Management Coordinator and **Public Safety and Justice Committee, in conjunction with Cities, Villages, and Towns**
    - *Funding*: Existing county staff resources
    - *Timetable*: 2013-2015 (Deferred)
- **Development of a Heat Assistance Program**
  Monroe County proposed developing a program to provide fans to the elderly during extreme heat waves, helping reduce the risk of heat-related illnesses. This program aimed to distribute cooling devices to those most at risk during prolonged heat events.
    - *Responsibility*: Emergency Management Coordinator and **Public Safety and Justice Committee**
    - *Funding*: Existing county staff resources
    - *Timetable*: As funding becomes available (New Project)

Flooding, Stormwater Drainage, and Dam Hazards Actions and Projects

- **Reduction of Repetitive Loss and Substantially Damaged Structures**
  To address repetitive flood loss, the Emergency Management Coordinator was tasked with writing biannual letters to owners of substantially damaged or repetitive loss properties. These letters would inform them of techniques and potential state and federal resources to reduce further flood damage. Property owners would also be contacted if the county pursued a voluntary buyout program.
    - *Funding*: Existing county staff resources
    - *Timetable*: Biannually (Carried over from previous plan)
- **Promotion of the National Flood Insurance Program (NFIP)**
  The county committed to promoting the NFIP through community education, aiming to increase awareness and participation among property owners in flood-prone areas.
    - *Funding*: Existing county staff resources
    - *Timetable*: Ongoing (Deferred, relates to NFIP compliance)
- **Plan to Address Emergency Access During Flooding**
  The county committed to developing a plan to identify areas that could be cut off from emergency vehicles during flooding and create solutions to maintain access, including road improvements or alternative routes.
    - *Funding*: Grants
    - *Timetable*: As funding becomes available (New Project)

Earthquake, Landslide, and Subsidence Actions and Projects

- **Road Segment Inventory and Prioritization for Stabilization**
  The county planned to develop an inventory and prioritization of road segments with shoulders vulnerable to erosion, landslides, and subsidence. This would help identify critical areas that need stabilization to prevent road washouts and other transportation-related hazards during heavy rain or flooding.
    - *Responsibility*: County Emergency Management Coordinator, **County Highway Commissioner**
    - *Funding*: Existing county staff resources
    - *Timetable*: 2022-2023

Forest and Wildland Fire Actions and Projects

- **Promote and Maintain Cooperative Fire Agreements**
  The county aimed to strengthen cooperative fire agreements among local fire departments and the Department of Natural Resources (DNR) to ensure coordinated responses to wildland fires.
    - *Funding*: Existing county staff resources
    - *Timetable*: Ongoing (Carried over from previous plan)

Agricultural and Drought Actions and Projects

- **Water Conservation Education for Agricultural Producers**
  The county planned to develop an education and information program to inform agricultural producers about water conservation techniques, best practices for drought-resistant farming, and the availability of crop insurance. This was intended to help farmers mitigate the impacts of prolonged dry periods and prepare for drought conditions.
    - *Responsibility*: County Emergency Management Coordinator, **in collaboration with City, Village, and Town Officials**
    - *Funding*: Existing county staff resources
    - *Timetable*: 2020-2021 (Deferred, due to lack of funding)

Train Derailment Actions and Projects

- **Development of Evacuation Plans for Communities Along Rail Lines**
  The county proposed creating detailed evacuation plans for incorporated communities that have rail lines running through them. These plans would outline evacuation routes and protocols in the event of a derailment or hazardous materials spill, ensuring swift and efficient removal of residents from danger.
    - *Responsibility*: County Emergency Management Coordinator, **in cooperation with City and Village Officials**
    - *Funding*: Existing county staff resources
    - *Timetable*: 2019-2023 (New Project)
- **Additional Training for Emergency Responders**
  The plan recommended providing additional, specialized training for emergency responders to enhance their ability to manage train derailments, hazardous material spills, and fires. This training would be conducted in collaboration with Canadian Pacific and Union Pacific railroads to ensure that responders are equipped to handle rail-specific hazards.
    - *Responsibility*: County Emergency Management Coordinator, **in cooperation with first responders' organizations**
    - *Funding*: Grants and contributions from rail companies
    - *Timetable*: Ongoing (New Project)
- **Develop Procedures for Disseminating Public Information During Rail Events**
  A procedure was proposed to ensure timely and accurate dissemination of public information during train derailments or other rail-related emergencies. This project would create communication protocols for alerting residents and businesses in affected areas, using both traditional and digital communication platforms.
    - *Responsibility*: County Emergency Management Coordinator, **County Administrator**
    - *Funding*: Existing county staff resources
    - *Timetable*: 2021-2022 (New Project)
- **Development of a Sheltering Plan**
  The county proposed developing a sheltering plan to accommodate residents displaced during train derailment emergencies. This plan would include identifying potential shelter locations, ensuring they are properly equipped, and establishing transportation routes to these shelters.
    - *Funding*: Existing county staff resources
    - *Timetable*: 2021-2022 (New Project)
- **Update the Emergency Operations Center (EOC)**
  The county also proposed updating its Emergency Operations Center (EOC) to improve its capacity to manage large-scale emergencies, including train derailments. This would include upgrading staff training, updating equipment, and ensuring the EOC is fully functional during critical incidents.
    - *Funding*: Hazard Mitigation Program (HMP) grants
    - *Timetable*: 2021-2022 (New Project)

County Zoning Department

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
There were seven projects and actions identified for the County Zoning Department in the 2019 HMP. These projects are primarily conducted annually without a set ending point. However, significant progress has been made on all projects and actions, as is discussed below. One project, developing a clear procedure for prioritizing voluntary buyouts of properties in flood-prone areas, has been completed.

Flooding, Stormwater Drainage, and Dam Hazards Actions and Projects

- **Voluntary Floodplain Property Buyout/Relocation Program**
  The county proposed conducting a survey of property owners in flood-prone areas to assess interest in a voluntary buyout or relocation program. The survey would also inquire about property owners' interest in floodproofing or elevating their structures to reduce flood damage risks. This initiative was intended to continue until all floodplain structures were mitigated.
  - *Progress:* In 2019, Monroe County identified nine properties damaged by the August 2018 flood for acquisition and demolition. A FEMA grant, along with local match funding from Wisconsin DNR and Coulee Cap, supported this effort. By 2021, eight properties were acquired and demolished, returning them to open space.
  - *Carried Forward:* Yes.
- **Enforcement of N.R. 116 Floodplain, Shoreland, and Wetland Regulations**
  Monroe County committed to monitoring and enforcing Wisconsin's NR 116 floodplain regulations, along with shoreland and wetland protections, to minimize flood risk. This action was to be carried out on an ongoing basis, ensuring compliance with state regulations.
  - *Progress:* From 2019 to the end of 2023, Monroe County issued 18 Floodplain Land Use Permits and 69 Shoreland Zoning Permits. The Zoning Department has continued monitoring and enforcing compliance with state regulations.
  - *Carried Forward:* Yes.
- **Maintain Compliance with the National Flood Insurance Program (NFIP)**
  The county took several actions to maintain compliance with the NFIP, including:
    - The County Zoning Administrator would attend annual floodplain zoning seminars to stay informed about floodplain regulations and issues.
    - Monthly reports on floodplain permit activity would be provided to the Emergency Management Committee.
    - The County's floodplain ordinance would be regularly administered, enforced, and updated as prescribed by law.
  - *Progress:* Monroe County Zoning staff attended regular floodplain training seminars, now primarily virtual. Annual reports on floodplain permitting were submitted to the Zoning and Planning Committee and posted online. The County Floodplain Ordinance was amended in 2019 and 2020 to comply with updated FEMA requirements.
  - *Carried Forward:* Yes.
- **Flood Disaster Plan Review and Update**
  After any flood disaster, the Emergency Management Coordinator and Zoning Administrator would meet to review and update the county's Multi-Hazard Mitigation Plan. They would report to the Emergency Management Committee and recommend either reaffirming, amending, or rewriting the plan to the County Board, based on lessons learned and new mitigation strategies.
  - *Responsibility*: County Zoning Administrator, **County Emergency Management Coordinator, Public Safety and Justice Committee**
  - *Progress:* Since 2018, Monroe County has not experienced a flooding event requiring substantial damage assessments by County Zoning staff. The review and update process remains in place for future disasters.
  - *Carried Forward:* Yes.

- **Update County Floodplain Maps Using LiDAR**
  The county committed to updating its floodplain maps using **LiDAR** data to provide more accurate information about flood risks, allowing for better planning and mitigation efforts.
    - *Responsibility*: County GIS/Zoning Department
    - *Progress:* The WDNR and Wisconsin Emergency Management are actively updating Monroe County's floodplain maps using LiDAR data. Preliminary maps are available on the FEMA website, and a Flood Risk Review and Resilience meeting was held in June 2024. Final adoption is anticipated by 2026.
    - *Carried Forward:* Yes.
- **Procedure for Prioritizing Voluntary Buyouts**
  The county planned to develop a clear procedure for prioritizing voluntary buyouts of properties in flood-prone areas, helping to ensure an equitable and strategic approach to flood mitigation.
    - *Responsibility*: County Zoning Department
    - *Progress:* Complete - In 2022, the Land Conservation Department secured funding for an intern to use GIS mapping to identify non-conforming floodplain structures. The map prioritizes properties based on flood zone type and structural use, with a focus on habitable structures in the Floodway Zone AE.
    - *Carried Forward:* No, project has been completed.
- **Notice to Owners of Non-Conforming Structures in Floodplains**
  The county intended to send notices to owners of non-conforming structures in mapped floodplains, making them aware of floodplain regulations and offering guidance on compliance and mitigation options.
    - *Progress:* A mailing is planned for property owners affected by updated floodplain maps once public hearings are scheduled, anticipated for 2025–2026. This effort will inform owners of regulations and mitigation options.
    - *Carried Forward:* Yes.

New Projects and Actions
The Monroe County Zoning Department has reviewed its current projects and actions related to hazard mitigation and has determined that no new initiatives are needed at this time. The department is focused on continuing its progress on existing efforts, including floodplain property buyouts, enforcement of floodplain and shoreland regulations, compliance with the National Flood Insurance Program, and the development of updated floodplain maps using LiDAR data. These ongoing projects comprehensively address the department's priorities for mitigating flood risks and ensuring community resilience, leaving no immediate gaps that require additional actions.

County Land Conservation Department

Review of Projects and Actions from the 2019 Hazard Mitigation Plan
The 2019 Hazard Mitigation Plan identified eight projects and actions for the County Land Conservation Department. Significant progress has been achieved on all but one project—a feasibility study for rain gardens and stormwater retention, which remains incomplete. Notably, one project has been fully completed: a comprehensive breach route and hydraulic shadow analysis of all PL-566 dams in the county. This analysis concluded with a recommendation to decommission all 14 dams.

Flooding, Stormwater Drainage, and Dam Hazards Actions and Projects
- **Development of Flood Mitigation Mapping and Priorities**
  The county planned to develop flood mitigation maps and prioritize areas for mitigation actions, such as property buyouts, floodproofing, and infrastructure upgrades. This would be supported by advanced flood modeling tools to improve decision-making.
    - Progress: This ongoing project has made significant strides. In 2023, a Summer GIS Intern completed an inventory of structures within floodplains using 2020 LiDAR data, identifying building footprints and initiating land cover change analysis for sub-watersheds in the Little La Crosse area. The inventory also included GPS data collection of Civilian Conservation Corps (CCC) dams across the county. In 2024, another Summer GIS Intern created a feedlot inventory layer to assess and prioritize feedlots within flood-prone watersheds. These efforts were supported by a FEMA HMGP planning grant.
    - Status: Ongoing.

- **Use of EVAAL for Conservation and Mitigation Prioritization**
  The county proposed using EVAAL (Erosion Vulnerability Assessment for Agricultural Lands) and other modeling tools to identify priority areas for conservation and mitigation practices that reduce erosion and flooding risks.
    - Progress: The Erosion Vulnerability Assessment for Agricultural Lands (EVAAL) model is actively being utilized in the Timber Coulee Watershed, part of the Coon Creek Watershed, under the DNR TRIM grant. This project aims to develop plans addressing erosion and flooding in priority areas.
    - Status: Ongoing, 2024–2025.
- **Road and Culvert Inventory and "Digital Dams" Documentation**
  A county-wide inventory of roads and culverts that interfere with natural watershed modeling, sometimes referred to as "digital dams", was proposed to improve stormwater management and flood mitigation efforts.
    - Progress: From 2021 to 2023, a comprehensive inventory and assessment of road-stream crossings for all town and county roads in Monroe County was completed using DNR's data collection protocols. The assessment focused on flood resiliency and fish passage, resulting in summary reports with rankings and recommended actions for stream crossings. This effort was funded by contributions from DNR, Trout Unlimited, local townships, the County Highway Department, and FEMA HMGP planning grants.
    - Status: Ongoing.
- **Development of Road and Culvert Mitigation Strategies**
  The county aimed to develop strategies to address roads and culverts that exacerbate flood risks. This included exploring alternatives such as resizing culverts, lowering roads, and improving infrastructure to withstand stormwater runoff.
    - Progress: Monroe County secured a PROTECT grant to evaluate the vulnerability of bridges, culverts, dams, and roadways within the Little La Crosse River watershed. This grant-funded project aims to identify and implement strategies to improve infrastructure resiliency during extreme weather events.
    - Status: Ongoing.
- **Landowner and Farmer Outreach on Water Retention Practices**
  Monroe County sought to develop a program to increase the number of water retention practices (e.g., rain gardens, retention basins) among landowners and farmers, helping to reduce the impact of heavy rainfall and improve water management.
    - Progress: In 2023, Monroe County hired a Conservation Agronomist to enhance outreach to landowners and farmers about water retention practices such as rain gardens and retention basins. The Little La Crosse River Watershed Group began meeting monthly in June 2024, supported by the County's Climate Change Taskforce (CCTF), which has been active since 2019 and continues to drive mitigation efforts.
    - Status: Ongoing.
- **Breach Route and Hydraulic Shadow Analysis of Dams**
  The county proposed conducting a breach route and hydraulic shadow analysis of all PL-566 dams to assess the potential impacts of dam failure and prioritize mitigation actions.
    - Progress: This project was completed in August 2024. The 2024 Final Programmatic Environmental Impact Statement for the Coon Creek Watershed recommended decommissioning all 14 PL-566 dams. Reports are available.
    - Status: Completed.
- **Upgrade High Water Warning Systems**
  A project was proposed to update the county's high water warning systems, ensuring that real-time alerts are provided to residents and emergency services when water levels rise to dangerous levels.
    - Progress: Monroe County has significantly advanced its high water warning capabilities by updating Tri-Creek Dam flood monitoring equipment and installing real-time flood monitoring stations in flood-prone watersheds. These stations feature water-level sensors, cameras, and rain gauges, with data shared publicly via the National Weather Service's National Water Prediction Service website. Flashing beacons are being installed in the Village of Norwalk and on Brush Creek to provide visual warnings. Alert notification systems are operational in collaboration with the NWS, Emergency Management, and Dispatch. Funding has been provided by the Fishers and Farmers Partnership Program, FEMA BRIC, and WI Department of Health Services grants.
    - Status: Ongoing.

- **Feasibility Study for Rain Gardens and Stormwater Retention**
  A feasibility study was proposed to explore the development of a cost-sharing program for rain gardens and other stormwater retention practices to help manage runoff and reduce flood risks.
    - Progress: This study, proposed to explore cost-sharing for stormwater retention practices, has not yet been initiated.
    - Status: Not Completed.

New Projects and Actions

- **Open Space Improvements to Improve Flood Resiliency or Provide Flood Mitigation**
  Monroe County aims to enhance flood resiliency and mitigation through open space improvements, including streambank restoration projects and the development of flood detention basins. These projects would utilize properties acquired through the county's voluntary buy-out program.
    - Funding: Grants
    - Timetable: As funding becomes available
- **Civilian Conservation Corps (CCC) Dams Rehabilitation**
  The County proposes rehabilitating CCC dams constructed in the 1930s, which currently lack recorded easements. Planned work includes tree removal and grade stabilization to extend the structural life and improve flood resiliency of these historic dams.
    - Funding: Grants
    - Timetable: As funding becomes available
- **Increase Tree Canopy**
  The County plans to promote tree canopy expansion through tree sales programs and agroforestry projects, focusing on intercepting rainfall, reducing stormwater runoff, and creating carbon sinks to mitigate climate change. Additionally, partnerships with urban communities will encourage increasing tree cover to counter hard surfacing effects and heat sinks.
    - Funding: Grants/LCD
    - Timetable: As funding becomes available
- **Create and Facilitate a Monroe County Grazing Group**
  This initiative seeks to establish a grazing group composed of farmers with expertise in converting row crops to perennial vegetation, such as managed grazing. Converting row crops to perennials is recognized as the leading soil health practice in agriculture, improving infiltration, organic matter levels, and runoff mitigation.
    - Funding: NRCS/LCD
    - Timetable: 2025

These new projects reflect the County Land Conservation Department's commitment to addressing flood risks, enhancing soil health, and promoting sustainable land-use practices to build resilience against climate change and extreme weather events.

County Highway Department

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

There were two projects and actions identified for the County Highway Department in the 2019 HMP. No progress has been made on these projects since 2019, but the department remains interested in pursuing them.

Earthquake, Landslide, and Subsidence Actions and Projects

- **Stabilization of Vulnerable Roads**
  Once roads and road segments with erosion risks were identified, the county intended to stabilize these areas as funding became available. This project focused on reducing risks from landslides and preventing further degradation of the county's transportation network.
    - *Responsibility*: County Highway Department, **County Emergency Management**
    - *Funding*: Grant opportunities as funding becomes available
    - *Timetable*: Ongoing

Train Derailment Actions and Projects

- **Purchase of Electronic Highway Signs for Detours and Road Closures**
  The plan called for purchasing electronic highway signs to facilitate detours and road closures during rail emergencies. These signs would improve communication with motorists during incidents that require rerouting traffic, reducing congestion and improving safety.
    - *Funding*: Grants
    - *Timetable*: As funding becomes available

New Projects

In addition, the department highlighted significant progress in other areas. It has been awarded a Federal Highway Administration (FHWA) PROTECT planning grant of $506,000 to enhance resilient infrastructure within the Little La Crosse River Watershed. This project will commence upon receipt of an executed agreement from the FHWA. The department is also working on the broader Monroe County Resilient Infrastructure Initiative, which aims to apply similar resilience measures to other watersheds throughout the county. Funding opportunities for this expanded effort are being actively pursued.

County Public Health Officer

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

The County Public Health Officer, who is responsible for certain projects and actions related to hazard mitigation, did not respond to repeated attempts to provide updates or input during the drafting of this Hazard Mitigation Plan update. As a result, the current status of these projects is unclear. In the absence of any communication or updates, it is assumed that the Public Health Officer does not wish to propose any new projects or actions at this time. Should further input be received, the plan will be revised accordingly.

Pandemic Flu Actions and Projects

- **Development of a Pandemic Flu Plan**
  The county planned to develop a detailed pandemic flu plan that would specify emergency actions, define emergency powers, and clearly identify which officials have the authority to implement them during a public health crisis.
    - *Responsibility*: County Public Health Officer, **in cooperation with City and Village Officials, Emergency Response Personnel, Hospitals, and Clinics**
    - *Funding*: Existing county staff resources
    - *Timetable*: 2020-2022 (New Project)

County Administrator

Review of Projects and Actions from the 2019 Hazard Mitigation Plan

The County Administrator, who was assigned responsibility for developing an Emergency Alert System for county residents in the 2019 Hazard Mitigation Plan, did not respond to repeated attempts to provide updates or input during the drafting of this plan update. However, the County Emergency Management Coordinator provided clarification, stating that Monroe County has successfully implemented a mass notification system. Previously using Nixle, the county transitioned to RAVE Mobile Safety in 2024. This system is subscription-based, requiring residents to sign up for alerts. As the project is now complete, no new actions are assumed to be needed under the County Administrator's purview at this time. Should additional input be provided, the plan will be updated accordingly.

Train Derailment Actions and Projects

- **Develop an Emergency Alert System for County Residents**
  To improve public safety during rail-related emergencies, the county proposed developing an Emergency Alert System that would notify residents in real-time. This system would send alerts about derailments, hazardous material spills, and evacuation orders directly to residents' phones, radios, or other communication devices.
    - *Progress:* Complete.

Chapter 5: Plan Maintenance and Adoption

Plan Approval Process

Adoption of the plan by Monroe County and participating local governments certifies to program and grant administrators at FEMA and Wisconsin Emergency Management that the plan's findings, goals, and projects have been thoroughly considered. It also demonstrates the commitment of local governments to take proactive steps to reduce losses from future hazard events. In return, FEMA and Wisconsin Emergency Management will designate Monroe County and its participating local governments as eligible for Hazard Mitigation Grant Programs.

The County and participating local units of government will adopt the plan through appropriate public meeting notices and resolutions, formalizing their commitment to reducing risks and losses from future hazards.

Plan Maintenance and Monitoring

As Monroe County's landscape continues to evolve, it is essential to monitor and update the Multi-Hazards Mitigation Plan regularly to address changing conditions. To ensure its relevance, the County Emergency Management Coordinator will review the plan's contents annually during the third quarter. This review will focus on the plan's applicability and the prioritization of mitigation projects. The findings will be reported to the Public Safety Committee and the Local Emergency Planning Committee, detailing progress on the goals, projects, and actions outlined in the plan.

Before the end of each calendar year, the Public Safety Committee will recommend to the County Board whether the plan should be reaffirmed, amended, or fully updated (rewritten), based on input from county staff, the public, and any relevant new information. The Disaster Mitigation Act of 2000 mandates that the plan must be evaluated and updated at least once every five years to maintain eligibility for federal assistance; this means the plan will need to be updated roughly in 2030. It is at the discretion of the recommendation of the Public Safety Committee who will update the plan.

Additionally, the Public Safety Committee will evaluate the plan after any disaster to ensure that the information, goals, and actions remain appropriate given the event. The committee will also conduct bi-annual reviews to assess the following:

- Are the goals and objectives addressing current or anticipated conditions?
- Have the nature, magnitude, or types of risks changed?
- Have priorities for mitigation projects shifted?
- Are the available resources adequate for implementing the plan?
- Are there technical, political, legal, or coordination challenges with other agencies?
- Have partners and agencies participated as planned?
- Are mitigation projects being actively pursued?

After plan approval, Monroe County will continue to prioritize public participation throughout the plan's implementation, monitoring, and evaluation. When the plan undergoes review, whether during the annual evaluation or following a disaster, the County Emergency Management Coordinator will notify stakeholders through meeting notices, public announcements, and social media platforms to ensure broad outreach. Public feedback remains a vital component of the process, and community members are encouraged to engage in meetings. For those unable to attend, an extended comment period will be provided to allow ample opportunity for input. Additionally, the County will host periodic public forums and surveys to gather insights and maintain an open dialogue with the community, ensuring that public participation remains a key element in shaping the plan's ongoing effectiveness.

Plan Coordination

Once the plan is adopted by Monroe County and other participating local governments, the County Emergency Management Coordinator will distribute copies to key stakeholders and ensure local governments receive any additional copies as needed. While the initial Hazard Mitigation Plan had limited incorporation into other planning activities, this updated plan will be integrated more effectively into countywide initiatives. The County Emergency Management Coordinator will monitor ongoing planning efforts and ensure that relevant goals, projects, and topics from the mitigation plan are presented to those involved in developing comprehensive plans for cities, villages, and towns.

The annual plan evaluation process will also serve as a mechanism to integrate the plan's information, findings, goals, and projects into broader planning efforts. Additionally, the County Emergency Management Coordinator will annually send letters to all participating local governments, county department directors, and new county board supervisors. These letters will include a list of each community's respective mitigation projects and explain the importance of incorporating these projects into any new or revised comprehensive plans, ordinances, or codes.

Municipal Authority to Implement the Plan

The incorporated communities of Cashton, Kendall, Melvina, Norwalk, Oakdale, Sparta, Tomah, Warrens, Wilton, and Wyeville, along with all Town governments in Monroe County, have the authority to commit funds to mitigation projects through taxation or annual budgets. Monroe County also retains the authority to allocate funding for mitigation efforts.

Appendices

Appendix A: Monroe County HAZUS Report

Monroe County Hazard Risk Assessment and Mitigation Projects

Monroe County is updating its Hazard Mitigation Plan. This update is important because it aims to reduce the damage hazards cause and charts a path to a quick recovery. To create this plan, we need to hear from your community about which hazards are the biggest threats. Please rate the hazards in this form below, it should only take a few minutes. The second part of the form asks for a list of hazard mitigation projects, programs, or policies that could be implemented in your municipality to mitigate hazards, be inclusive but realistic.

If you have any questions, or you want to tell us about more projects, contact Jack Zabrowski at Jack@mrrpc.com.

Please Enter Your Name (we will not share or publish this):

_____

Please Enter Your Email (we will not share or publish this):

_____

Please Enter Your Community (we will not share or publish this):

_____

Please Enter Your Position / Role:

_____

Based on your experience in your community, please check Low, Medium, or High Risk next to each hazard on the list.

	Low Risk √	**Medium Risk √**	**High Risk √**
Tornadoes/High Winds	○	○	○
Heavy Snow/Ice Storm	○	○	○
Extreme Cold	○	○	○
Flooding	○	○	○
Thunderstorms and Lightning	○	○	○
Hail	○	○	○
Forest Fires and Wildland Fires	○	○	○
Terrorism and Bioterrorism	○	○	○
Cyberterrorism	○	○	○
Pandemic Flu	○	○	○
Climate Change	○	○	○
Extreme Heat	○	○	○
Drought	○	○	○
Fog	○	○	○

Blizzard	○	○	○
Earthquake/Landslide, Subsidence (downward movement of the Earth's surface due to underground excavation or seismic activity)	○	○	○
Train Derailment	○	○	○

Is there anything else you would like us to know about these hazards or any other hazards in your community?

_____

_____

_____

_____

_____

Does your unit of government or organization have any hazard mitigation projects they would like to undertake? This could be anything from community education about flooding to major bridge reconstruction. If so, please provide the following details about the project:

1) What is the project?
2) What is the estimated cost (if known)?
3) Proposed project beginning/ending date (if known)? 4) Key project contact person/telephone number?

- ○ Project Description _____
- ○ Estimated Cost _____
- ○ Proposed Timeline _____
- ○ Key Person/Number _____

What hazard is this project meant to mitigate?

- ○ Tornadoes/High Winds
- ○ Winter Storms
- ○ Extreme Cold
- ○ Flooding
- ○ Thunderstorms and Lightning
- ○ Hail
- ○ Forest Fires and Wildland Fires
- ○ Terrorism and Bioterrorism
- ○ Cyberterrorism
- ○ Pandemic Flu
- ○ Climate Change
- ○ Extreme Heat
- ○ Drought
- ○ Fog
- ○ Blizzard
- ○ Earthquake/Landslide, Subsidence (downward movement of the Earth's surface due to underground excavation or seismic activity)
- ○ Train Derailment

If you have any other projects that you would like completed, please provide the following details about the project:

1) What is the project?
2) What is the estimated cost (if known)?
3) Proposed project beginning/ending date (if known)?
4) Key project contact person/telephone number?

- Project Description _____
- Estimated Cost _____
- Proposed Timeline _____
- Key Person/Number _____

What hazard is this project meant to mitigate?

- ○ Tornadoes/High Winds
- ○ Winter Storms
- ○ Extreme Cold
- ○ Flooding
- ○ Thunderstorms and Lightning
- ○ Hail
- ○ Forest Fires and Wildland Fires
- ○ Terrorism and Bioterrorism
- ○ Cyberterrorism
- ○ Pandemic Flu
- ○ Climate Change
- ○ Extreme Heat
- ○ Drought
- ○ Fog
- ○ Blizzard
- ○ Earthquake/Landslide, Subsidence (sinking the Earth due to underground excavation or seismic activity)
- ○ Train Derailment

If you have any other projects that you would like completed, please provide the following details about the project:

1) What is the project?
2) What is the estimated cost (if known)?
3) Proposed project beginning/ending date (if known)?
4) Key project contact person/telephone number?

- Project Description _____
- Estimated Cost _____
- Proposed Timeline _____
- Key Person/Number _____

What hazard is this project meant to mitigate?

- ○ Tornadoes/High Winds
- ○ Winter Storms
- ○ Extreme Cold
- ○ Flooding
- ○ Thunderstorms and Lightning
- ○ Hail
- ○ Forest Fires and Wildland Fires
- ○ Terrorism and Bioterrorism
- ○ Cyberterrorism
- ○ Pandemic Flu
- ○ Climate Change
- ○ Extreme Heat
- ○ Drought
- ○ Fog
- ○ Blizzard
- ○ Earthquake/Landslide, Subsidence (sinking the Earth due to underground excavation or seismic activity)
- ○ Train Derailment

Appendix C: Public Notices and Meeting Agendas

MISSISSIPPI RIVER REGIONAL PLANNING COMMISSION
1707 Main Street, Suite 435
La Crosse, WI 54601
Phone: (608) 785-9396
Email: plan@mrrpc.com
Website: mrrpc.com

MISSISSIPPI RIVER REGIONAL PLANNING COMMISSION
BIMONTHLY MEETING NOTICE AND AGENDA
10:00 AM, Wednesday, December 13, 2023
Altra Federal Credit Union Operations Building, 1700 Oak Forest Dr., Onalaska, WI 54650
Note: We will be meeting in person.
If you are unable to attend in person, you can also attend via Zoom.
Direct Link: https://us02web.zoom.us/j/82543045263?pwd=WnVhWSt1cEhLWTE5QkpBWk4rKzZWZz09
Go to: Zoom.us, click on join a meeting
Meeting ID: 825 4304 5263 | Passcode: 532322
By Phone: 1.312.626.6799 – Enter Meeting ID: - 825 4304 5263 | Passcode: 532322

< MRRPC BIMONTHLY MEETING AGENDA >

1. Roll call and guest introductions.
2. Decision on October 11, 2023, Bimonthly Meeting Minutes
3. Decision on Treasurer's Report: (a) October 2023, November 2023 Account Balance, Revenue and Expense Reports. (b) Revolving Loan Fund Reports: (1) Business Capital Fund, (2) Crawford, Monroe, Vernon - CMV Growth Development Fund, (3) La Crosse County Loan Fund, (4) Disaster Recovery Microloan Fund, (5) CARES Act RLF. VB/JB
4. Presentation by Dan Baumann, West Central Wisconsin Director, WI DNR
5. Update on County Regional Coordinated Public Transit Plans
6. Update on WI DOT 2024 Work Program
7. Decision to hire Jack Zabrowski as Senior Planner as recommended by the Executive Committee
8. Decision on Village of Merrillan Comprehensive Plan contract
9. Decision on Village of Merrillan Outdoor Recreation Plan Contract
10. Decision on applications for 2024-2025 HMPs for Jackson and La Crosse
11. Decision on Ho Chunk Hazard Mitigation Contract
12. Decision on Trempealeau County Hazard Mitigation Contract
13. Decision on Pierce County Hazard Mitigation Contract
14. Decision on Monroe County Hazard Mitigation Contract
15. Update on MainStreetBounceBack Audit
16. Update on BUILD Grant…Regional Freight Study
17. Update on County Broadband Committees
18. Update on RLFs
19. MRRPC staffing update.
20. Commissioners' questions and comments on the projects or subjects listed in the written staff report.
21. Reports from Commissioners
22. Director's Report.
23. Old Business.
24. New Business.
25. Adjourn.

Commissioners

Buffalo County	**La Crosse County**	**Pierce County**
Mary Anne McMillan Urell	Vicki Burke	Richard Purdy
Del Twidt	Sharon Hampson	William Schroeder
John Schlesselman	Vacant	Neil Gulbranson
Crawford County	**Monroe County**	**Trempealeau County**
Gerald Krachey	Toni Wissestad	Patrick Sorge
Craig Anderson	James Kuhn	George Brandt
Bruce Strnad	Cedric Schnitzler	Phillip Borreson
Jackson County	**Pepin County**	**Vernon County**
Ron Carney	John Andrews	John Pedretti
Brad Chown	Chris Kees Winkler	Jo Ann Nickelatti
Tom Cooper	Kim Seipel	Nancy Jaekel

Staff:
Jon Bingol, Executive Director
Ken Harwood, Planner
Andrew Miller, Planner
Abbey Nicewander, Senior Planner
Sarah Ofte, Senior Office Manager
Simon Fichter, Intern
Courtney Osmek, Intern

Non-Discrimination Policy Statement. *The MRRPC operates its employment, programs, and services without regard to race, color, age, sex, disability, low income, limited English proficiency, and national origin in accordance with the Title VI of the Civil Rights Act. If you have a disability and need assistance participating in the meeting, please contact Sarah Ofte at 608.785.9396 or at plan@mrrpc.com at least twenty-four hours prior to the meeting.*

Appendix D: Monroe County Adoption Resolution

RESOLUTION NO. 02-25-01

RESOLUTION ADOPTING THE MONROE COUNTY MULTI-HAZARDS MITIGATION PLAN 2025-2030

WHEREAS, Monroe County recognizes the threat that natural and man-made hazards pose to people and property; and

WHEREAS, undertaking hazard mitigation actions before disasters occur will reduce the possibility and potential of harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted all hazards mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, in 2011-12 Monroe County participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazards Mitigation Plan and has done so again with this new updated plan; and

NOW, THEREFORE, BE IT RESOLVED, that Monroe County, hereby adopts the Monroe County Multi-Hazards Mitigation Plan 2025-2030 as the official plan Monroe County; and

BE IT FURTHER RESOLVED that the Monroe County Emergency Management Department will submit, on behalf of the participating municipalities, the adopted Monroe County Multi-Hazards Mitigation Plan 2025-2030 to Wisconsin Emergency Management and Federal Emergency Management Agency officials.

Offered by the Public Safety & Justice Coordinating Committee this 26th day of February, 2025.

Statement of purpose: To officially adopt the all hazards mitigation plan.

Fiscal note: Maintains eligibility for certain grants or programs.

Finance Vote (If required):
____ Yes ____ No ____ Absent

Approved as to form: 2/17/2025
Lisa Aldinger Hamblin, Corporation Counsel

Committee of Jurisdiction Forwarded on: 2/13, 2025
3 Yes 0 No 2 Absent
Committee Chair:

☒ ADOPTED ☐ FAILED ☐ AMENDED
☐ OTHER _____
County Board Vote on April 23, 2025
14 Yes 0 No 2 Absent

STATE OF WISCONSIN
COUNTY OF MONROE
I, SHELLEY R. BOHL, Monroe County Clerk, DO HEREBY CERTIFY that the foregoing is a true and correct copy of Resolution # 02-25-01 acted on by the Monroe County Board of Supervisors at the meeting held on April 23, 2025
Shelley R. Bohl
SHELLEY R. BOHL, MONROE COUNTY CLERK
A raised seal certifies an official document.

Appendix E: Local Adoption Resolutions