Wayne County, Illinois Multi-Hazard Mitigation Plan

2017 Countywide MHMP

FEMA

IEMA
ILLINOIS EMERGENCY MANAGEMENT AGENCY

SEAL OF WAYNE COUNTY, ILLINOIS
1824

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SIU
Southern Illinois University
CARBONDALE

Multi-Hazard Mitigation Plan

Wayne County, Illinois

Adoption Date: -- _____ --

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Section 1. Introduction

Hazard mitigation is any sustained action to reduce or eliminate long-term risk to human life and property from hazards. The Federal Emergency Management Agency (FEMA) makes reducing hazards one of its primary goals; hazard-mitigation planning and the subsequent implementation of mitigation projects, measures, and policies is a primary mechanism in achieving FEMA's goal.

The Multi-Hazard Mitigation Plan (MHMP) is a requirement of the Federal Disaster Mitigation Act of 2000 (DMA 2000). The development of a local government plan is required in order to maintain eligibility for certain federal disaster assistance and hazard mitigation funding programs. In order for the National Flood Insurance Program (NFIP) communities to be eligible for future mitigation funds, they must adopt an MHMP.

In recognition of the importance of planning in mitigation activities, FEMA created Hazus Multi-Hazard (Hazus-MH), a powerful geographic information system (GIS)-based disaster risk assessment tool. This tool enables communities of all sizes to estimate losses from floods, hurricanes, earthquakes, and other natural hazards and to measure the impact of various mitigation practices that might help reduce those losses. The Illinois Emergency Management Agency (IEMA) has determined that Hazus-MH should play a critical role in the risk assessments performed in Illinois.

The Wayne County Emergency Management Agency, Southern Illinois University, and Greater Wabash Regional Planning Commission have joined efforts in developing the County's first mitigation plan. This plan incorporates state-of-the art hazard analyses, addresses changes in probability and impact of specific hazards, incorporates changes in land-use, population and demographic within the county. Detailed GIS and Hazus-MH Level 2 analyses were performed for the Risk Assessment and sound mitigation strategies were established for each jurisdiction. This document hereby serves as the Wayne County 2017 Multi-Hazard Mitigation Plan.

Section 2. Planning Process

2.1 Timeline

The MHMP process is broken into a series of six meetings. These meetings are organized by SIU and hosted by the Wayne County Emergency Management Agency (EMA). At these meetings, various tasks are completed by SIU and the Wayne County Multi-Hazard Mitigation Planning Team:

Meeting 1: The purpose of Meeting 1 is to introduce the MHMP process, discuss scheduling and milestones, and organize resources. This meeting included a discussion of roles, responsibilities, decision-making processes, administrative procedures, and communication strategies. SIU gathered local resources that contributed to the detailed county risk assessment such as critical facilities in the county, as well as assessor's data and pertinent GIS data.

Meeting 2: SIU presented the county's historical hazards. Based on this information, the Planning Team identified natural hazards to include in the plan, and ranked hazards by potential damages and occurrences. The Planning Team also provided SIU with disaster scenarios for the county's risk assessment.

Meeting 3: SIU presented the draft risk assessment, derived from the Hazus-MH and GIS modeling of the identified disasters, to the Planning Team. The general public was also invited to this meeting through a series of newspaper articles and/or radio spots. At the end of the meeting, SIU encouraged the general public to ask questions and provide input to the planning process, fulfilling one of FEMA's requirements for public input.

Meeting 4: This meeting consisted of a "brainstorming session." The Planning Team provided local knowledge to identify and prioritize mitigation strategies and projects that can address the threats identified in the risk assessment. FEMA requires the plan to contain mitigation strategies specific to each hazard and for each incorporated area within the county.

Meeting 5: The Planning Team reviewed the draft plan, proposed revisions, and accepted the plan after SIU incorporated the necessary changes. Subsequently, SIU forwarded the county MHMP to the mitigation staff at the Illinois Emergency Management Agency (IEMA) for review prior to submitting it to FEMA.

Meeting 6: This is not a formal meeting of the Planning Team, but rather the adoption of the approved plan. Once FEMA approves the plan, the plan is returned to the county for formal adoption by the appropriate commissions and town boards.

2.2 Jurisdiction Participation Information

Approximately twenty jurisdictions participated in the development of this MHMP with the intent of formally adopting the plan and subsequently fulfill the requirements of the DMA 2000. Various representatives from each jurisdictions were present at the meetings (see Section 2.3 Planning Team

Information). Each jurisdiction falls under the one of the following categories: County, City, Village, Town, School, or Non-Profit Organization.

Participating Jurisdictions

Wayne County	**Mount Erie**	**Geff CCSD #14**
Cisne	**Sims**	**Jasper CCSD #17**
Fairfield	**Wayne City**	**New Hope CCSD #6**
Jeffersonville	**Wayne White Electric Co-Op**	**North Wayne CUSD #200**
Johnsonville	**Frontier Community College**	**Wayne City CUSD #100**
Mill Shoals	**Fairfield CHSD #225**	**Fairfield Memorial Hospital**
	Fairfield PSD #112	**Fairfield – Wayne Area Development**

2.3 Planning Team Information

Jeff Jake, Wayne County EMA Coordinator, heads the Planning Team. The Planning Team includes representatives from various county departments, municipalities, and public and private utilities. Members of the Planning Team have a common vested interest in the County's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. All members of the Planning Team actively participated in the meetings, reviewed and provided comments on the draft plan, participated in the public input process and the county's formal adoption of the plan.

Wayne County Planning Team Members

Jurisdiction	Name	Title
Wayne County	Jeff Jake	EMA Coordinator
	Andy Miller	Chief Deputy
	Shirley MacDavid	County Board
Cisne	Jennifer Eckleberry	Village Clerk
	David Bullard	Utilities Operator
Fairfield	Wade Gregory	Fire Captain
	Darin Hopper	Fire Chief
	Keith Colclasure	Police Chief
Jeffersonville	Russell Hillard	Mayor
Johnsonville	Rob Brashear	Village President
Mill Shoals	Tim Issacs	Village Mayor
Mount Erie	Norman McKinney	Village President
Sims	Terry Walters	Mayor
Wayne City	Scott Clark	Mayor
Fairfied CHSD #225	Jill Fulkerson	Superintendent
Fairfield PSD #112	Diana Zurliene	Superintendent
Geff CCSD #14	Sharon White	Superintendent
Jasper CCSD #17	David Mills	Superintendent

Jurisdiction	Name	Title
New Hope CCSD #6	Julie Harrelson	Superintendent
North Wayne CUSD #200	Julie Healy	Superintendent
Wayne City CUSD #100	Jeff Mitchell	Superintendent
Frontier Community College	Jay Edgrem	President
Fairfield Memorial Hospital	Ann Ignas	Chief of Nursing
Wayne-White Electric Co-Op	Erin Halley	Manager of Operations & Engineering
Fairfield-Wayne Co. Area Development	Florence Simpson	Executive Director
Wayne County Farm Bureau	Doug Anderson	Manager

The DMA 2000 planning regulations require that Planning Team members from each jurisdiction actively participate in the MHMP process. The Planning Team was actively involved on the following components:

- Attending the MHMP meetings
- Providing available assessment and parcel data and historical hazard information
- Reviewing and providing comments on the draft plans
- Coordinating and participating in the public input process
- Coordinating the formal adoption of the plan by the county

The first MHMP meeting was held in Fairfield, Illinois on November 6th, 2014. Representatives from SIU explained the rationale behind the MHMP process and answered questions from the participants. SIU representatives also provided an overview of GIS/Hazus-MH, described the timeline and the process of mitigation planning.

The Wayne County Planning Team assembled for four formal meetings and held one informal meeting for reviewing the plan. Each meeting was approximately two hours in length. Appendix A includes the minutes for all meetings. During these meetings, the Planning Team successfully identified critical facilities, reviewed hazard data and maps, identified and assessed the effectiveness of existing mitigation measures, established mitigation projects for the future, and assisted with preparation of the public participation information.

Planning Meetings

MEETING 1	Nov 6th, 2014
MEETING 2	April 6th, 2015 July 23, 2015
MEETING 3	Sept 30th, 2015
MEETING 4	March 10th, 2016
MEETING 5	Dec 19th, 2016

2.4 Public Involvement

The Wayne County EMA solicited public input throughout the planning process a public meeting was held on September 30, 2015 to review the county's risk assessment. The public was encouraged to recommend mitigation strategies. Appendix A contains the minutes from the public meeting. Appendix B contains press releases and/or articles sent to local newspapers throughout the MHMP development process.

2.5 Neighboring Community Involvement

The planning team invited participation from various representatives of county government, local city and town governments, community groups, local businesses, and universities. The planning team also invited participation from neighboring counties to obtain their involvement in the planning process.

Neighboring Community Participation

Person Participating	Neighboring Jurisdiction	Title/Organization
Ken Pryor	Crawford County	EMA Coordinator
Debbie Judge	Edwards County	EMA Coordinator
Jess Angle	Lawrence County	EMA Coordinator
Gerald Brooks	Wabash County	EMA Coordinator
Jim Totten	White County	EMA Coordinator

2.6 Review of Technical Documents

The Wayne County Planning Team identified technical documents from key agencies to assist in the planning process. These documents includes land use plans, comprehensive plans, emergency response plans, municipal ordinances, and building codes. The following technical data, reports, and studies were utilized:

Federal Emergency Management Agency
- *Developing the Mitigation Plan (April 2003)*
- *Mitigation Ideas (January 2003)*
- *Local Mitigation Planning Handbook*

United State Census Bureau
- *County Profile Information*
- *2010 Census Data*
- *American Community Survey (2009-2013)*

United States Department of Transportation
- *PHMSA Hazardous Materials Incident Data*

United States Geological Survey
- *Earthquake Data*

United States Army Corps of Engineers
- *National Inventory of Dams*
- *National Levee Database*

NOAA National Climatic Data Center
- *Climate Data*

NOAA / National Water Service Storm Prediction Center
- *Severe Weather Data*

Illinois Emergency Management Agency
- *2013 Illinois Natural Hazard Mitigation Plan*
- *Hazardous Materials Incident Reports*

Illinois Environmental Protection Agency
- *2014 303d Listed Waters and Watershed Maps*

Illinois State Water Survey
- *Climate Data*

Illinois Department of Natural Resources
- *Repetitive Loss Data*
- *Dam and Levee Data*

Illinois State Geological Survey
- *Geologic Data*

Wayne County
- *2013 Assessment Records*
- *2013 Countywide GIS Parcel Database*

2.7 Adoption by Local Government

Upon IEMA and FEMA approval, the Planning Team presented and recommended the plan to the County Board for formal adoption. The plan was formally adopted by the Wayne County Board on <adoption date>. The Planning Team worked with the county and its jurisdictions to ensure all parties formally adopted the plan. Appendix C contains the Adopting Resolutions for each participating jurisdiction.

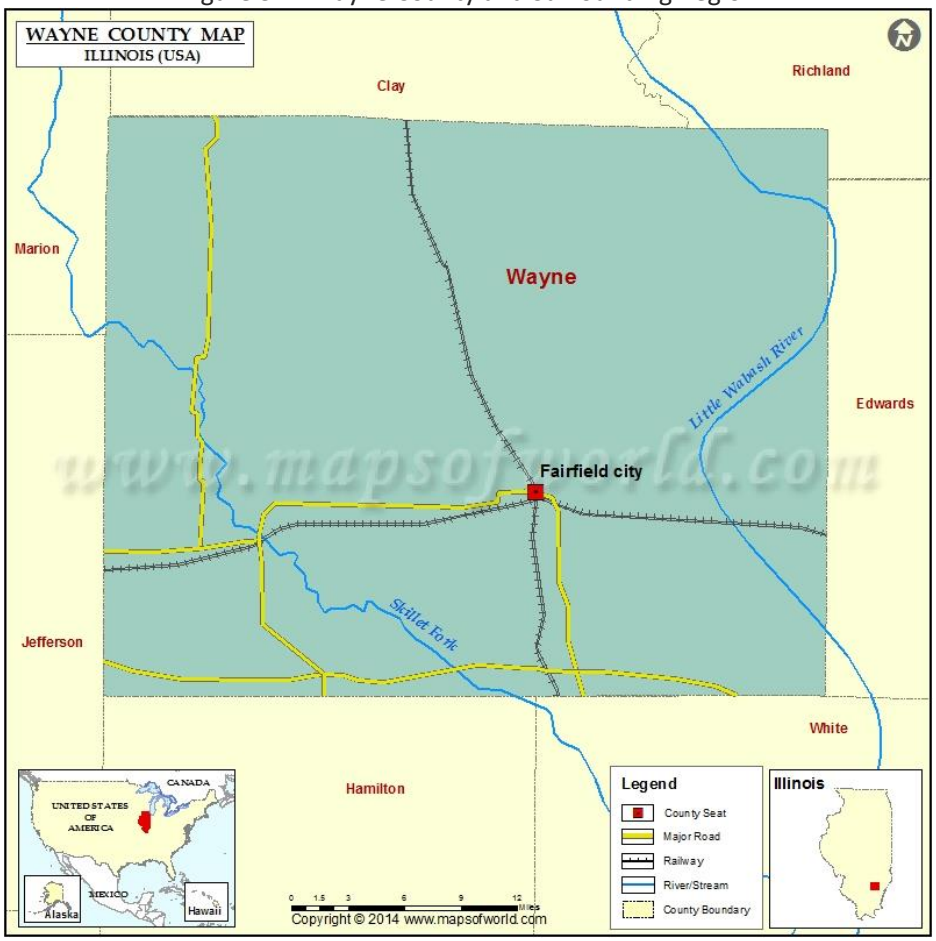
Section 3. County Profile

3.1 County Background

Wayne County was formed out of Edwards County in 1819. The name comes from General "Mad Anthony" Wayne, an officer in the Revolutionary War and Northwest Indian War. The county seat is Fairfield, Illinois. According to the Wayne County Historical Society, Abraham Lincoln handled a legal case in Fairfield when he was a Springfield attorney.

Wayne County is located in the northeast portion of the southern tip of Illinois (Figure 3-1). It is bounded on the north by Clay and Richland Counties, on the east by Edwards County, on the south by White and Hamilton Counties, and on the West by Jefferson and Marion Counties. It relates to major urban areas as follows: 67 miles northwest of Evansville, Indiana; 110 miles east of St. Louis, Missouri; 147 miles southeast of Springfield, Illinois; and 265 miles south of Chicago, Illinois. Three highways cross the county: Illinois State Highway 15 bisects the southern half of Wayne County east to west as it connects Mount Carmel with East St. Louis, US Highway 45 bisects the county north to south coming from Chicago, Illinois, and I-64 follows the southern border as it connects Chesterfield, Missouri to the Hampton Roads metropolitan area of southeast Virginia.

Figure 3-1. Wayne County and Surrounding Region



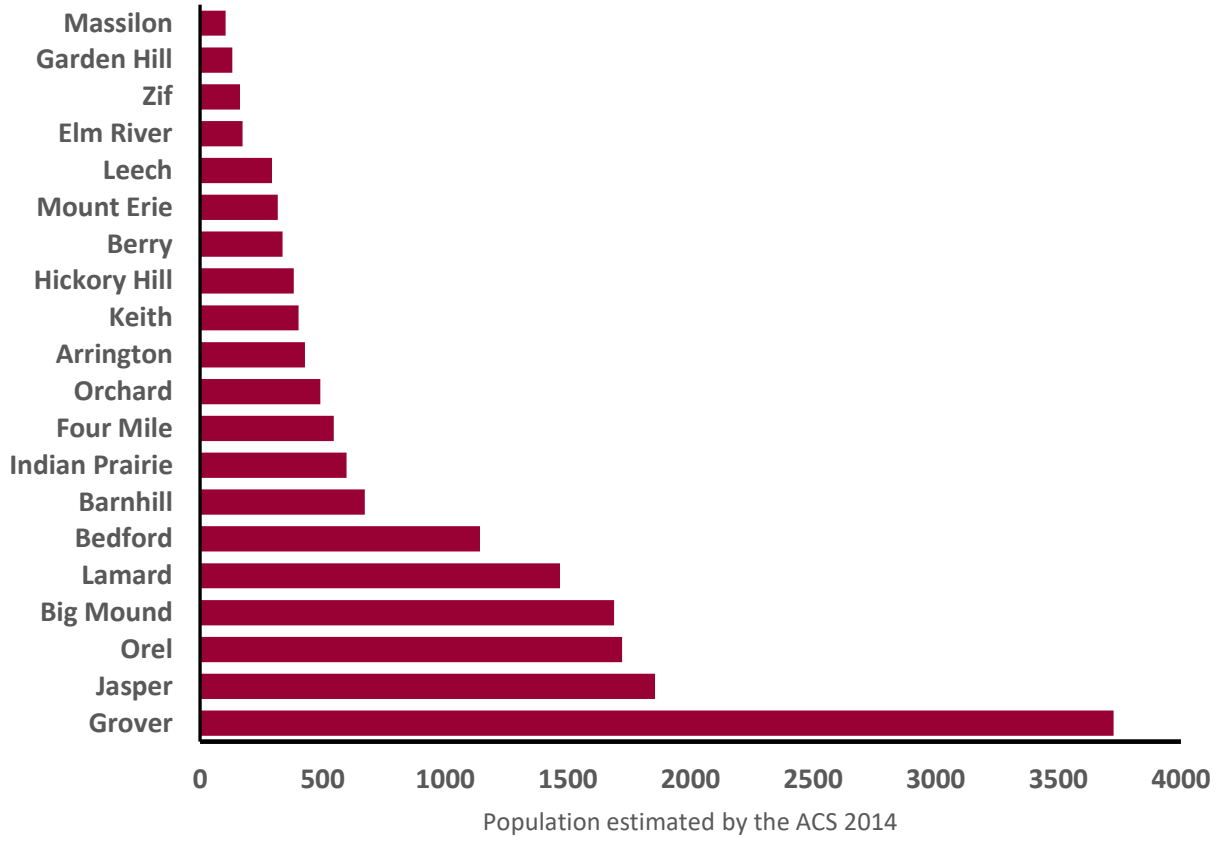
Historically, Wayne County was a cluster of railroad towns. Their early industries include textile manufacturing, poultry production, and automobile parts production. Located in Fairfield, Airtex Products Inc., is one of the world's largest producers of water and fuel pumps for the automotive industry. Otherwise, the main source of economic activity in Wayne County is agriculture. With the abundance of farmland there is a good market for farm-related materials. Wayne County offers a host of amenities such as shops, fairs, parades, local wineries, restaurants, lodging, education, and entertainment. Sam Dale Lake is located in the county and offers oportunities for fishing, hunting, camping, and swimming.

Two major healthcare facilities serve Wayne County: Fairfield Memorial Hospital and Crossroads Family Medicine of Wayne City. Dedicated in 1950, Fairfield Memorial Hospital has remained an indispensable community institution and remains the only full-service, critical access hospital. Fairfield Memorial is the second largest employer in the county. Fairfield Community Health Center, a part of Christopher Rural Health Planning Corporation, is also a vital healthcare facility serving the community of Wayne County.

3.2 Demographics

According to the 2015 U.S. Census, Wayne County's population is 16,423, a decrease of 2.0% from 2010. As of 2014, Wayne County's population estimate is 16,637 (American Community Survey, 2014). The population is spread through 20 townships: Arrington, Barnhill, Bedford, Berry, Big Mound, Elm River, Four Mile, Garden Hill, Grover, Hickory Hill, Indian Prairie, Jasper, Keith, Lamard, Leech, Massilon, Mount Erie, Orchard, Orel, Zif. Figure 3-2 displays the breakdown of population by township from the 2010-2014 American Community Survey 5-Year Estimates.

Figure 3-2. Wayne County 2014 Population by Township



3.3 Economy and Industry

The diversified Wayne County workforce is spread across agriculture, forestry, construction, manufacturing, retail, healthcare and social assistance, hospitality, and education. Table 3-1 lists the top employers and the approximate number of employees in Wayne County. As stated above, auto parts manufacturing, oil, and agriculture are the main industries in Wayne County. The 2014 annual median household income in the county is $56,154, compared to an Illinois average of $78,521.

Table 3-1. Wayne County's Major Employers

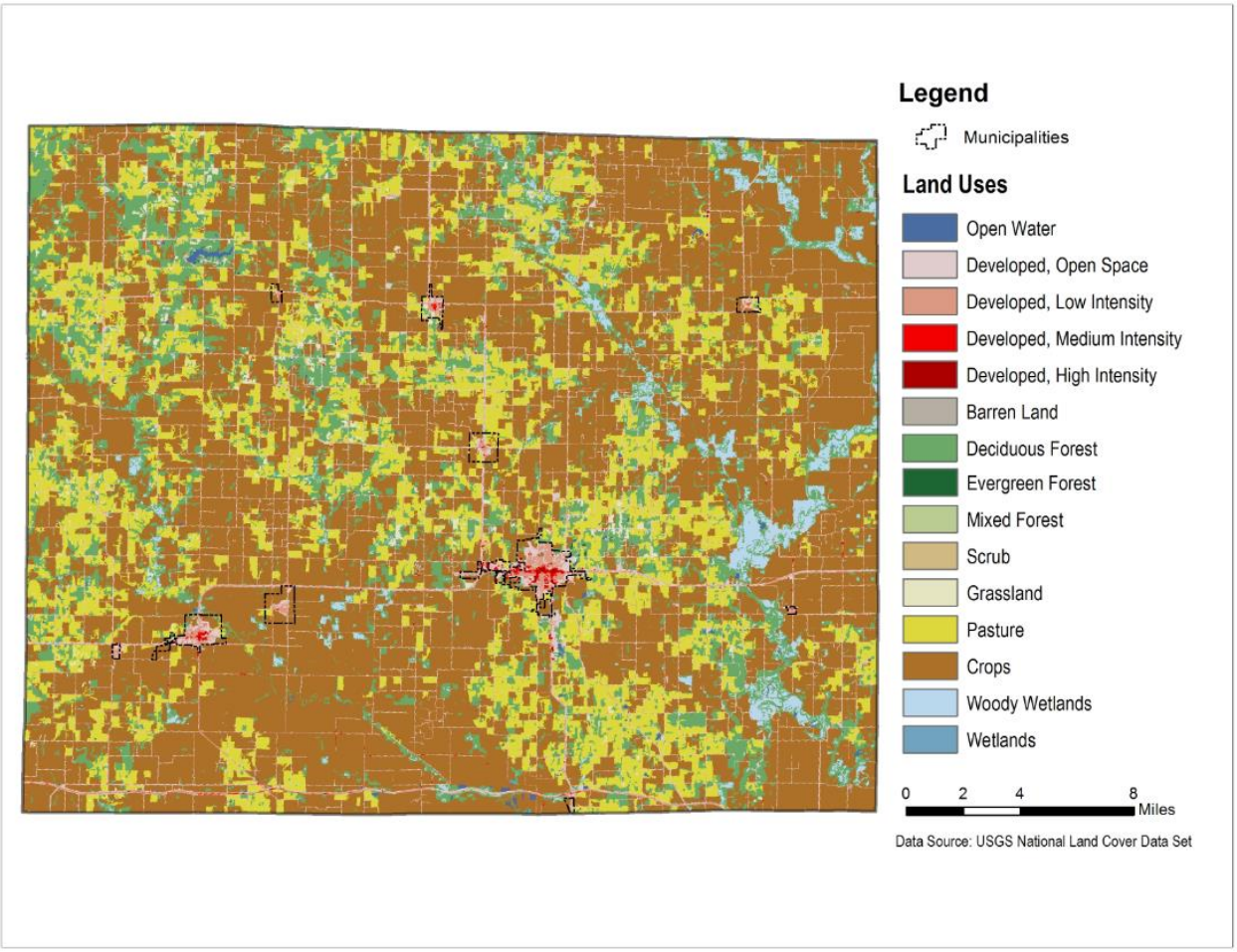
Employer	Industry	Approximate Number of Employees
Fairfield Memorial Hospital	Health Care	350
Wal-Mart	Department Store	170
Way-Fair Nursing Home	Nursing & Convalescent Homes	100
Fairfield City Mayor	City Government-Executive Offices	97
Fairfield Public School Dist	Elementary & Secondary Schools	90
Web Printing Control	Automatic Environmental Control Mfg	75
Fairfield Cmnty School Dist	Elementary & Secondary Schools	70
Fairfield High School	Elementary & Secondary Schools	70
Mc Donald's	Full-Service Restaurants	60
Peoples National Bank	Commercial Banking	60
Wayne City Community District	Elementary & Secondary Schools	60
AirTex Products, Inc.	Automotive Parts	35

Sources: Greater Wabash Regional Planning Commission 2011 Comprehensive Economic Development Strategy and Connect SI Foundation Inc.

3.4 Land Use and Development Trends

Agriculture is the predominant land cover in Wayne County. Figure 3-3 displays the current land use in Wayne County. The Greater Wabash Region has some of the most diverse agricultural resources, therefore creating various opportunities for agricultural potential. Soybean is the primary crop, followed by corn, winter wheat, and hay. Residential developments tend to focus along Illinois Routes 15 and 45, particularly within the city limits of Fairfield. The city of Fairfield is the largest community within the county (5,112) according to the U.S. Census 2013 population estimates.

Figure 3-3. Land Use in Wayne County



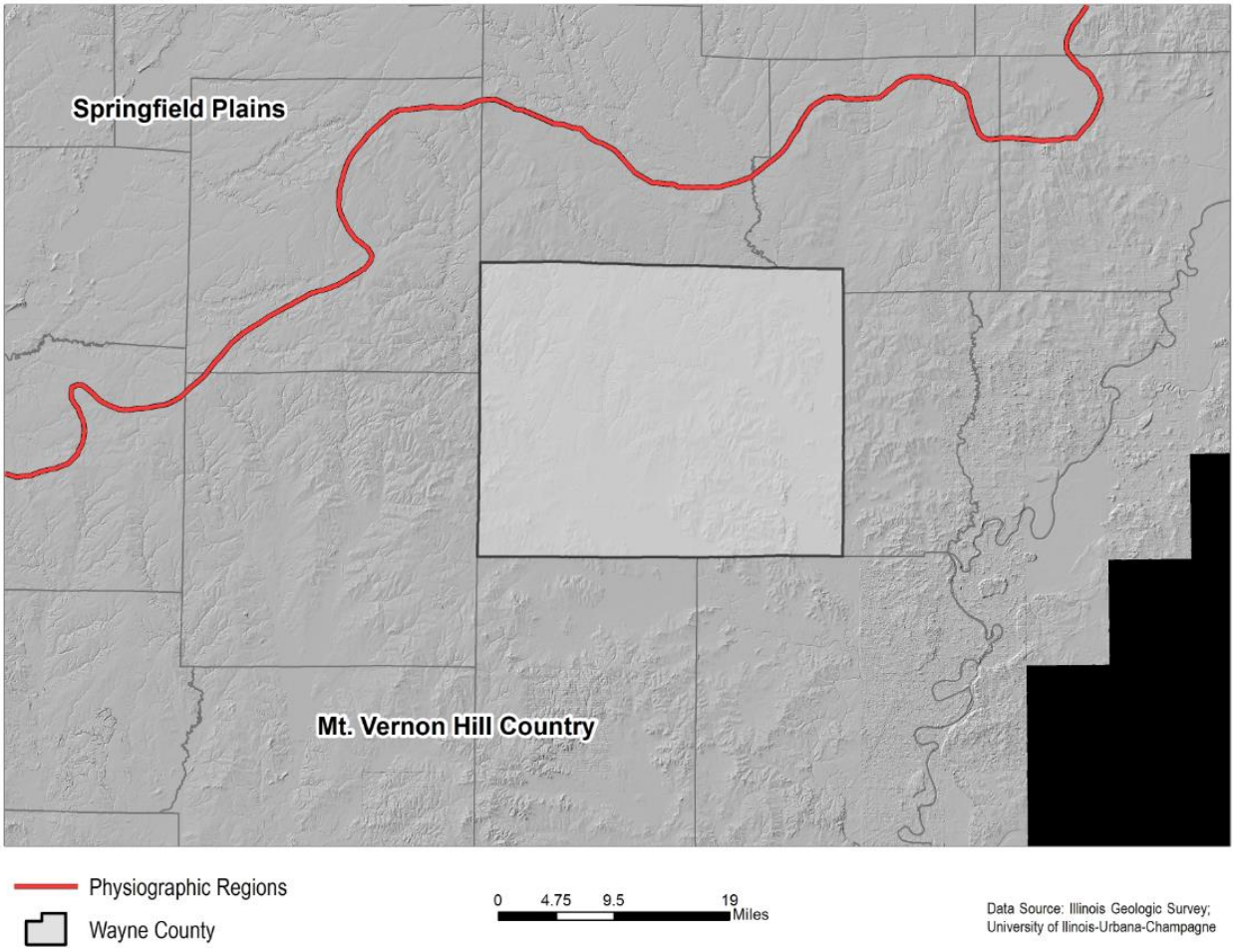
3.5 Climate

Wayne County's climate is typical of Southern Illinois and generally characterized by hot dry summers and cool wet winters. The variables of temperatures, precipitation, and snowfall can vary greatly from one year to the next. The average annual temperature for Wayne County is 54 degrees Fahrenheit (°F), which is higher than the Illinois average of 51.37°F. The coldest average temperatures are in January, and the warmest temperatures are in July. Wayne County's average annual total precipitation is 43.47 inches, which includes an average annual snowfall of 12.32 inches.

3.6 Topography

Wayne County is located in the Mount Vernon Hill Country physiographic sub-division of the Till Plains Section. Figure 3-4 depicts the terrain within Wayne County. The Mount Vernon Hill Country is characterized by low rolling hills and broad alluvial valleys along the major streams. The relief in this region is not pronounced. Upland prairies are flat to moderately hilly, and the valleys are shallow. The land surface is primarily controlled by bedrock, which has been only slightly modified by glacial drift deposits. While the southern boundary of the Mount Vernon Hill Country lies within a few miles of the limits of glaciations, moraine ridges are essentially absent in the area. Elevation in the county varies from slightly more than 550 feet above sea level to approximately 360 feet above sea level.

Figure 3-4. Physiographic Divisions of Wayne County and Surrounding Terrain



3.7 Major Lakes, Rivers, and Watersheds

A 240-mile long tributary of the Wabash River in east-central and southeastern Illinois, the Little Wabash River is part of the watershed of the Mississippi River via the Wabash and Ohio Rivers. It is the third largest tributary after the White River and Embarras River. Rising in Coles County near Mattoon, the Little Wabash flows southwardly through the counties of Shelby, Effingham, Clay, Richland, Wayne, Edwards and White.

Wayne County is home to Sam Dale Lake located northwest of Johnsonville in Wayne County. The lake was named for Sam O. Dale, an eight-term state representative who served as a teacher, principal, and superintendent of schools in Hamilton County.

Figure 3-5. Major drainage basins in Wayne County

Section 4. Risk Assessment

The goal of mitigation is to reduce future hazard impacts including loss of life, property damage, disruption to local and regional economies, and the expenditure of public and private funds for recovery. Sound mitigation requires a rigorous risk assessment. A risk assessment involves quantifying the potential loss resulting from a hazard by assessing the vulnerability of buildings, infrastructure, and people. This assessment identifies the characteristics and potential consequences of a hazard, how much the hazard could affect the community, and the impact on community assets. This risk assessment consists of three components—hazard identification, vulnerability assessment, and risk analysis.

4.1 Hazard Identification

4.1.1 Existing Plans

The Planning Team identified technical documents from key agencies to assist in the identification of potential hazards. Several other documents were used to profile historical hazards and guide the Planning Team during the hazard ranking exercise. Section 2-6 contains a complete list of the technical documents utilized to develop this plan.

4.1.2 National Hazard Records

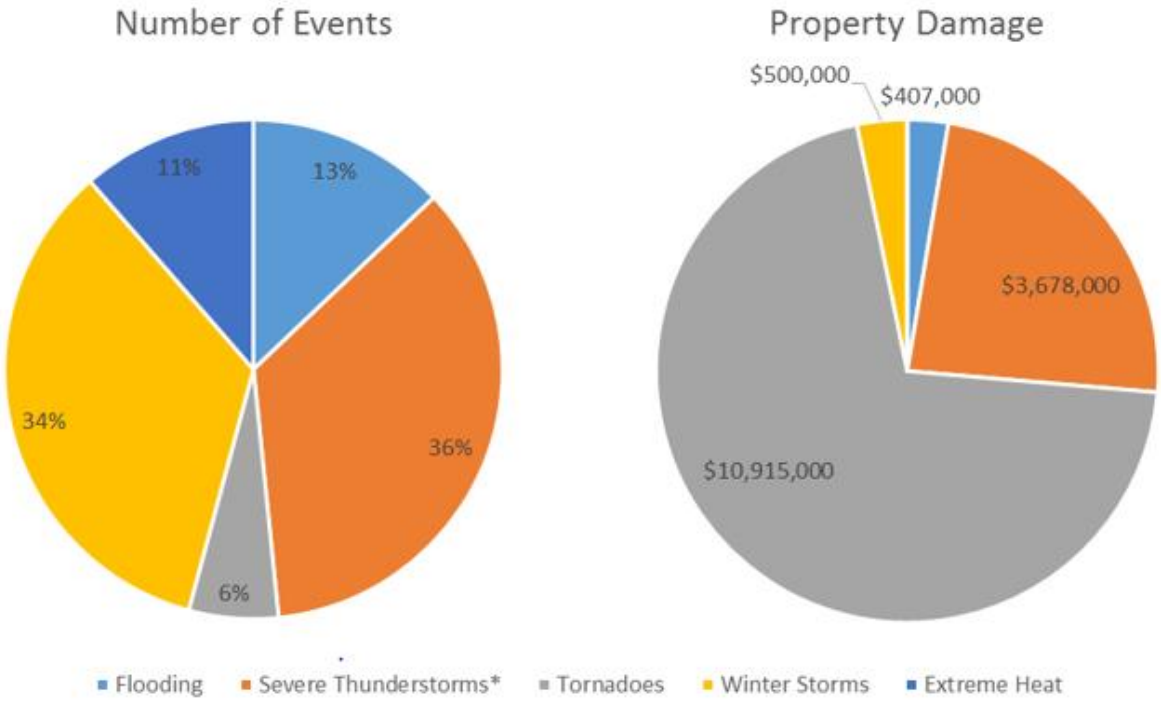
To assist the Planning Team, historical storm event data from the National Climatic Data Center (NCDC) was complied. NCDC records are estimates of damages reported to the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses.

The NCDC database included 465 reported meteorological events in Wayne County from 1950-2014 (the most updated information as of the date of this plan). The following hazard-profile sections each include a summary table of events related to each hazard type. Table 4-1 summarizes the meteorological hazards reported for Wayne County. Figure 4-1 summarizes the relative frequency of NCDC reported meteorological hazards and the percent of total damage associated with each hazard for Wayne County. Full details of individual hazard events are on the NCDC website. In addition to NCDC data, Storm Prediction Center (SPC) data associated with tornadoes, strong winds, and hail was mapped using SPC-recorded latitudes and longitudes. Appendix D includes a map of these events.

Table 4-1. Summary of Meteorological Hazards Reported by the NCDC for Wayne County

Hazards	Time Period		Number of Events	Property Damage	Deaths	Injuries
	Start	End				
Flooding	1996	2014	60	$407,000	1	0
Severe Thunderstorms	1955	2014	165	$3,678,000	0	2
Tornadoes	1957	2013	27	$10,915,000	1	49
Winter Storms	1996	2014	160	$500,000	0	2
Extreme Heat	1997	2013	53	$0	2	20

Figure 4-1. Distribution of NCDC Meteorological Hazards for Wayne County



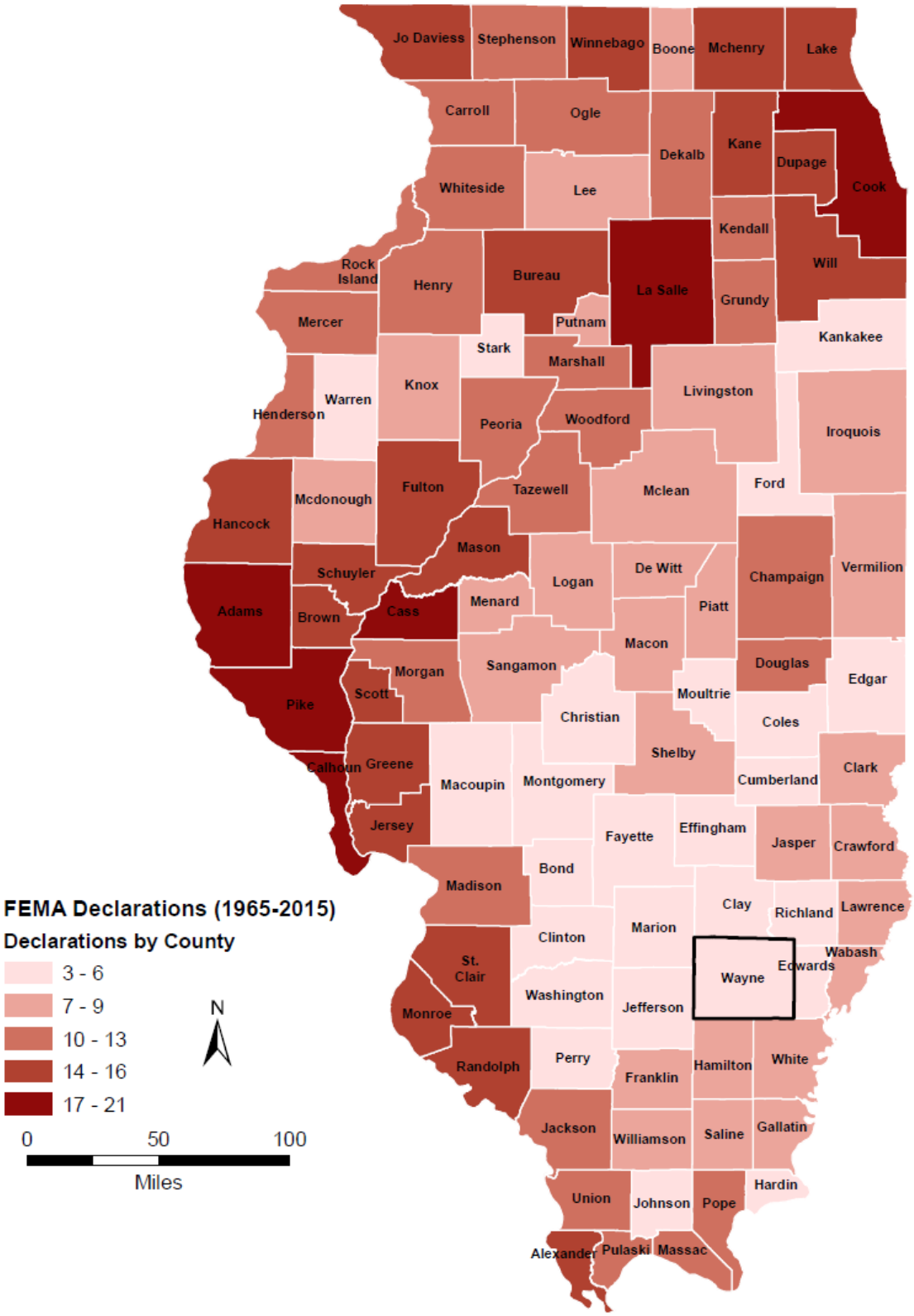
4.1.3 FEMA Disaster Information

Since 1957, FEMA has declared 53 major disasters and 7 emergencies for the State of Illinois. Emergency declarations allow states to access FEMA funds for Public Assistance (PA); disaster declarations allow for even more PA funding, including Individual Assistance (IA) and the Hazard Mitigation Grant Program (HMGP). Wayne County has received federal aid for five declared disasters and one emergency since 1965. Table 4-2 lists specific information for each disaster declaration in Wayne County. Figure 4-2 depicts the number of disasters and emergencies that have been declared for the State of Illinois and Wayne County since 1965.

Table 4-2. Details of FEMA-declared Emergencies and Disasters in Wayne County

Declaration Number	Date of Declaration	Description
819	1989	Severe Storms & Tornadoes
871	1990	Severe Storms, Tornadoes & Flooding
1416	2002	Severe Storms, Tornadoes & Flooding
32330	2005	Hurricane Katrina Evacuation
1991	2011	Severe Storms & Flooding
4157	2013	Severe Storms, Straight-Line Winds & Tornadoes

Figure 4-2. FEMA-declared Emergencies and Disasters in Illinois



4.1.4 Hazard Ranking Methodology

Based on Planning Team input, national datasets, and existing plans, the Wayne County Planning Team developed and ranked a list of hazards. These hazards ranked the highest based on the Risk Priority Index discussed in Section 4.1.5. It should be noted that Ground Failure and Wildfire have been omitted from the plan and were not natural hazards identified by Wayne County or participating jurisdictions during the risk assessment process.

Wayne County Hazard List

TORNADOES	HAZARDOUS MATERIALS RELEASE
SEVERE THUNDERSTORM	FLOODING
EARTHQUAKES	DAM/LEVEE FAILURE
WINTER STORMS	DROUGHT/EXTREME HEAT

4.1.5 Risk Priority Index

The Risk Priority Index (RPI) quantifies risk as the product of hazard probability and magnitude so Planning Team members can prioritize mitigation strategies for high-risk-priority hazards. Planning Team members use historical hazard data to determine the probability, combined with knowledge of local conditions to determine the possible severity of a hazard. Tables 4-3 and 4-4 display the criteria the Planning Team used to quantify hazard probability and magnitude.

Table 4-3. Hazard Probability Ranking

Probability	Characteristics
4 – Highly Likely	Event is probable within the next calendar year This event has occurred, on average, once every 1-2 years in the past
3 – Likely	Event is probable within the next 10 years Event has a 10-50% chance of occurring in any given year This event has occurred, on average, once every 3-10 years in the past
2 – Possible	Event is probable within the next 50 years Event has a 2-10% chance of occurring in any given year This event has occurred, on average, once every 10-50 years in the past
1 – Unlikely	Event is probable within the next 200 years Event has a 0.5-2% chance of occurring in any given year This event has occurred, on average, once every 50-200 years in the past

Table 4-4. Hazard Severity Ranking

Magnitude/Severity	Characteristics
8 – Catastrophic	Multiple deaths Complete shutdown of facilities for 30 or more days More than 50% of property is severely damaged
4 – Critical	Injuries and/or illnesses result in permanent disability Complete shutdown of critical facilities for at least 14 days More than 25% of property is severely damaged

2 – Limited	Injuries and/or illnesses do not result in permanent disability Complete shutdown of critical facilities for more than seven days More than 10% of property is severely damaged
1 – Negligible	Injuries and/or illnesses are treatable with first aid Minor quality of life lost Shutdown of critical facilities and services for 24 hours or less Less than 10% of property is severely damaged

The product of hazard probability and magnitude is the RPI. The Planning Team members ranked specified hazards based on the RPI, with larger numbers corresponding to greater risk. After evaluating the calculated RPI, the Planning Team adjusted the ranking to better suit the county. Table 4-5 identifies the RPI and adjusted ranking for each hazard specified by the Planning Team.

Table 4-5. Wayne County Hazard Priority Index and Ranking

Hazard	Probability	Magnitude/Severity	Risk Priority Index	Rank
Tornadoes	3	6	18	1
Severe Thunderstorms	3	6	18	2
Earthquakes	1	8	8	3
Winter Storms	2	3	6	4
Hazardous Materials Release	2	2	4	5
Flooding	1	4	4	6
Dam/ Levee Failure	2	2	4	7
Drought/ Extreme Heat	3	1	3	8

4.1.6 Jurisdictional Hazard Ranking

Each jurisdiction created its own RPI because hazard susceptibility may differ by jurisdiction. During the five-year review of the plan, the Planning Team will update this table to ensure these jurisdictional rankings accurately reflect each community's assessment of these hazards. Table 4-6 lists the jurisdictions and their respective hazard rankings (Ranking 1 being the highest concern). The individual jurisdictions made these rankings at Meeting 1.

Table 4-6. Hazard Ranking by Jurisdiction

Jurisdiction	Tornadoes	Severe Storms	Earthquakes	Winter Storms	HAZMAT	Flooding	Dam/ Levee Failure	Drought/ Extreme Heat
Cisne	1	2	3	4	5	6	7	8
Fairfield	1	2	3	4	5	6	7	8
Jeffersonville	1	2	4	3	5	6	7	8
Johnsonville	2	3	4	5	1	6	7	8
Mill Shoals	1	3	6	4	5	2	7	8
Mount Erie	1	2	3	4	5	6	7	8
Sims	2	1	6	5	3	4	7	8
Wayne City	2	3	1	3	5	6	7	8
Fairfield CHSD #225	2	1	3	6	5	4	7	8
Fairfield PSD #112	2	1	3	4	6	5	7	8
Geff CCSD #14	1	2	3	4	5	6	7	8

Jurisdiction	Tornadoes	Severe Storms	Earthquakes	Winter Storms	HAZMAT	Flooding	Dam/ Levee Failure	Drought/ Extreme Heat
Jasper CCSD #17	1	3	2	4	5	6	7	8
New Hope CCSD #6	1	2	3	4	5	6	7	8
North Wayne CUSD #200	1	2	3	4	5	6	7	8
Wayne City CUSD #100	1	2	3	4	5	6	7	8
Frontier Community College	1	2	4	5	3	6	7	8
Wayne-White Electric Co-Op	1	2	4	3	5	6	7	8
Fairfield Memorial Hospital	1	2	3	4	5	6	7	8

4.2 Vulnerability Assessment

4.2.1 Asset Inventory

Processes and Sources for Identifying Assets

Before meeting one, the Planning Team used their resources to update a list of critical facilities from state resources. Local GIS data was used to verify the locations of all critical facilities. SIU GIS analysts incorporated these updates and corrections to the Hazus-MH data tables prior to performing the risk assessment. The updated Hazus-MH inventory contributed to a Level 2 analysis, which improved the accuracy of the risk assessment. Wayne County also provided local assessment and parcel data to estimate the actual number of buildings susceptible to damage for the risk assessment.

Essential Facilities List

Table 4-7 identifies the number of essential facilities identified in Wayne County. Essential facilities are a subset of critical facilities. Appendix E include a comprehensive list of the essential facilities in Wayne County and Appendix F displays a large format map of the locations of the critical facilities within the county.

Table 4-7. Wayne County's Essential Facilities

Facility	Number of Facilities
EOC	1
Fire Stations	4
Police Stations	3
Medical Care	1
Schools	14

Facility Replacement Costs

Table 4-8 identifies facility replacement costs and total building exposure. Wayne County provided local assessment data for updates to replacement costs. Tax-exempt properties such as government buildings, schools, religious and non-profit structures were excluded from this study because they do not have an assessed value. Table 4-8 also includes the estimated number of buildings within each occupancy class.

Table 4-8. Wayne County's Building Exposure

General Occupancy	Estimated Total Buildings	Total Building Exposure
Residential	6,093	$95,312,312
Agriculture	1,395	$16,718,290
Commercial	719	$21,497,520
Industrial	46	$3,727,845
Total:	**8,253**	**$137,255,967**

Future Development

Wayne County is expected to see a modest increase in population due to the expansion of existing distribution centers, light industry, and the creation of new opportunities in the service industry such as retail stores, restaurants, and hotels. Most of this expansion is expected to take place within the city limits of Fairfield within close proximity to transportation corridors such as Illinois Routes 45 and 15, as well as Interstate 64.

4.3 Risk Analysis

4.3.1 GIS and Hazus-MH

The third step in the risk assessment is the risk analysis, which quantifies the risk to the population, infrastructure, and economy of the community. The hazards were quantified using GIS analyses and Hazus-MH where possible. This process reflects a Level 2 Hazus-MH analysis. A level 2 Hazus-MH analysis involves substituting selected Hazus-MH default data with local data and improving the accuracy of model predictions.

Updates to the default Hazus-MH data include:

- Updating the Hazus-MH defaults, critical facilities, and essential facilities based on the most recent available data sources.
- Reviewing, revising, and verifying locations of critical and essential point facilities with local input.
- Applying the essential facility updates (schools, medical care facilities, fire stations, police stations, and EOCs) to the Hazus-MH model data.
- Updating Hazus-MH reports of essential facility losses.

The following assumptions were made during analysis:

- Hazus-MH aggregate data was used to model the building exposure for all earthquake analyses. It is assumed that the aggregate data is an accurate representation of Wayne County.
- The analyses were restricted to the county boundaries. Events that occur near the county boundaries do not contain damage assessments from adjacent counties.
- For each tax-assessment parcel, it is assumed there is only one building that bares all the associated values (both structure and content).
- For each parcel, it is assumed that all structures are wood-framed, one-story, slab-on-grade structures, unless otherwise stated in assessment records. These assumptions are based on sensitivity analyses of Hazus and regional knowledge.

Depending upon the analysis options and the quality of data the user inputs, Hazus-MH generates a combination of site-specific and aggregated loss estimates. Hazus-MH is not intended as a substitute for detailed engineering studies; it is intended to serve as a planning aid for communities interested in

assessing their risk to flood-, earthquake-, and hurricane-related hazards. This plan does not fully document the processes and procedures completed in its development, but this documentation is available upon request. Table 4-9 indicates the analysis type (i.e. GIS, Hazus-MH, or historical records) used for each hazard assessment.

Table 4-9. Risk Assessment Tool Used for Each Hazard

Hazard	Risk Assessment Tool(s)
Tornadoes	GIS-based
Severe Thunderstorm	Historical Records
Flooding	Hazus-MH
Winter Storms	Historical Records
Drought / Extreme Heat	Historical Records
Earthquakes	Hazus-MH
Hazmat Release	GIS-based
Fire	GIS-based
Dam / Levee Failure	Historical Records

4.3.2 Tornado Hazard

Hazard Definition

Tornadoes are violently rotating columns of air extending from thunderstorms to the ground. Funnel clouds are rotating columns of air not in contact with the ground; however, the violently rotating column of air can reach the ground quickly and become a tornado. If the funnel cloud picks up and blows debris, it has reached the ground and is a tornado.

Tornadoes are a significant risk to Illinois and its citizens. Tornadoes can occur at any time on any day. The unpredictability of tornadoes makes them one of Illinois' most dangerous hazards. Tornado winds are violently destructive in developed and populated areas. Current estimates place maximum wind velocity at about 300 miles per hour, but higher values can occur. A wind velocity of 200 miles per hour results in a pressure of 102.4 pounds per square foot—a load that exceeds the tolerance limits of most buildings. Thus, it is easy to understand why tornadoes can devastate the communities they hit.

Tornadoes are classified according to the Enhanced Fujita tornado intensity scale. The Enhanced Fujita scale ranges from intensity EF0, with effective wind speeds of 40 to 70 miles per hour, to EF5 tornadoes, with effective wind speeds of over 260 miles per hour. Table 4-10 outlines the Enhanced Fujita intensity scale.

Table 4-10. Enhanced Fujita Tornado Rating

Enhanced Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
0 Gale	40-72 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, signboards damaged, shallow-rooted trees blown over.
1 Moderate	73-112 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
2 Significant	113-157 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished,

Enhanced Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
				boxcars pushed over, large trees snapped or uprooted.
3 Severe	158-206 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
4 Devastating	207-260 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
5 Incredible	261-318 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Previous Occurrences of Tornadoes

There have been several occurrences of tornadoes in Wayne County during recent decades. The National Climatic Data Center (NCDC) database reported 30 tornadoes/funnel clouds in Wayne County since 1950. Table 4-11 identifies NCDC-recorded tornadoes that caused damage, death, or injury in Wayne County. Additional details of individual hazard events are on the NCDC website.

The most damaging tornado event occurred in April 2002 when a tornado entered Wayne County about a half mile north of Illinois Route 15, then proceeded to move northeast to a point about 1.5 miles north of Wayne City. The tornado then paralleled Route 15 just north of Sims. The tornado continued moving east toward Fairfield, and passed through the southern part of Fairfield with F-3 intensity winds. The tornado then travelled slightly south of east toward Golden Gate. The tornado weakened east of Golden Gate and finally dissipated in extreme eastern Wayne County near Ellery. The sole fatality occurred 4 miles west of Wayne City, when a 47-year-old man was killed inside his mobile home. Of the 42 hospital-treated injuries, 13 were critical. A total of 35 homes were destroyed, and 16 received major damage. The average wind speed in the tornado was 130 to 170 MPH, with peak winds at or approaching 200 MPH. The F-3 damage was located near Sims, southern sections of Fairfield, near Merriam, and areas west and north of Wayne City. Vehicles were picked up and deposited in houses. Well-constructed houses lost roofs and some walls. Weaker structures, including a tavern near Sims, were demolished. The tornado caused approximately $4 million in damages.

Table 4-11. NCDC-Recorded Tornadoes That Caused Damage, Death, or Injury in Wayne County

Location or County*	Date	Scale	Deaths	Injuries	Property Damage
Wayne County	1957	F3	0	1	$250,000
Wayne County	1958	F2	0	0	$25,000
Wayne County	1972	F1	0	0	$25,000
Wayne County	1973	F1	0	0	$25,000
Wayne County	1983	F1	0	0	$250,000
Wayne County	1989	F2	0	0	$2,500,000
Wayne County	1989	F1	0	0	$25,000
Wayne County	1989	F2	0	0	$25,000

Location or County*	Date	Scale	Deaths	Injuries	Property Damage
Wayne County	1990	F4	0	2	$250,000
Wayne County	1990	F4	0	1	$2,500,000
Barnhill	1996	F3	0	0	$200,000
Ellery	2002	F3	1	42	$4,000,000
Keenes	2006	F1	0	0	$70,000
Orchardville	2009	EF0	0	0	$80,000
Cisne	2009	EF1	0	1	$40,000
Wynoose	2009	EF2	0	0	$90,000
Fairfield	2011	EF2	0	2	$400,000
Golden Gate	2013	EF1	0	0	$10,000
Fairfield	2013	EF2	0	0	$150,000
		Total:	**1**	**49**	**$10,915,000**

*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

Geographic Location for Tornado Hazard

The entire county has the same risk of tornado occurrence. Tornadoes can occur at any location within the county.

Hazard Extent for Tornado Hazard

Historical tornadoes generally moved from southwest to northeast across the county, although many other tracks are possible, from more southerly to northerly directions. The extent of the hazard varies in terms of the size of the tornado, its path, and its wind speed.

Risk Identification for Tornado Hazard

Based on historical information, the probability of future tornadoes in Wayne County is likely. The County should expect tornadoes with varying magnitudes to occur in the future. Tornadoes ranked as the number one hazard according to the Wayne County Planning Team's risk assessment.

Risk Priority Index

Probability	x	Magnitude	=	RPI
3	x	6	=	18

Vulnerability Analysis for Tornado Hazard

Tornadoes can occur within any area in the county; therefore, the entire county population and all buildings are vulnerable to tornadoes. To accommodate this risk, this plan considers all buildings located within the county as vulnerable. Tables 4-7 and 4-8 display the existing buildings and critical infrastructure in Wayne County.

Critical Facilities

All critical facilities are vulnerable to tornadoes. Critical facilities are susceptible to many of the same impacts as any other building within the jurisdiction. These impacts vary based on the magnitude of the tornado but can include structural failure, damaging debris (trees or limbs), roofs blown off or windows

broken by hail or high winds, and loss of facility functionality (e.g., a damaged police station will no longer be able to serve the community). Table 4-7 lists the types and number of essential facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

Table 4-8 lists the building exposure in terms of types and numbers of buildings for the entire county. The buildings within the county can all expect the same impacts, similar to those discussed for critical facilities. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, and loss of building function (e.g., damaged home will no longer be habitable, causing residents to seek shelter).

Infrastructure

The types of infrastructure that could be impacted during a tornado include roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is vulnerable, it is important to emphasize that any number of these structures could become damaged during a tornado. The impacts to these structures include broken, failed, or impassable roadways, broken or failed utility lines (e.g., loss of power or gas to community), and railway failure from broken or impassable rail lines. Bridges could fail or become impassable, causing risk to motorists.

GIS-based Tornado Analysis

One tornado scenario was conducted for Wayne County through the Keenes, Wayne City, Sims and Fairfield. The following analysis quantifies the anticipated impacts of tornadoes in the county in terms of numbers and types of buildings and infrastructure damaged.

GIS-overlay modeling was used to determine the potential impacts of an EF4 tornado. The analysis used a hypothetical path based upon the F4 tornado event that runs for 42 miles through the jurisdictions above. Table 4-12 depicts tornado damage curves and path widths utilized for the modeled scenarios. The damage curve is based on conceptual wind speeds, path winds, and path lengths from the Enhanced-Fujita Scale guidelines.

Table 4-12. Tornado Path Widths and Damage Curves

Fujita Scale	Path Width (feet)	Maximum Expected Damage
5	2,400	100%
4	1,800	100%
3	1,200	80%
2	600	50%
1	300	10%
0	150	0%

Degrees of damage depend on proximity to the path centerline within a given tornado path. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. To model the EF4 tornado, a tornado path was created in GIS with buffers added (damage zones) around the tornado paths. Table 4-13 and Figure 4-3 illustrate the zone analysis. Figure 4-4 depicts the selected hypothetical tornado paths.

Table 4-13. EF4 Tornado Zones and Damage Curves

Zone	Buffer (feet)	EF4 Damage Curve
1	0-150	100%
2	150-300	80%
3	300-600	50%
4	600-900	10%

Figure 4-3. EF4 Tornado Analysis (Damage Curves) Using GIS Buffers

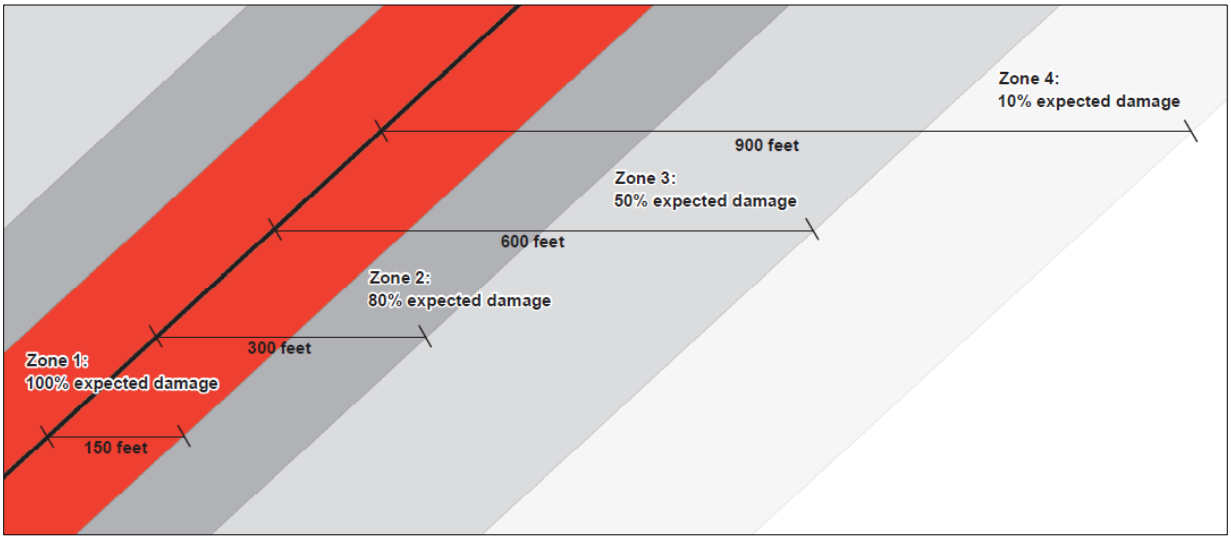
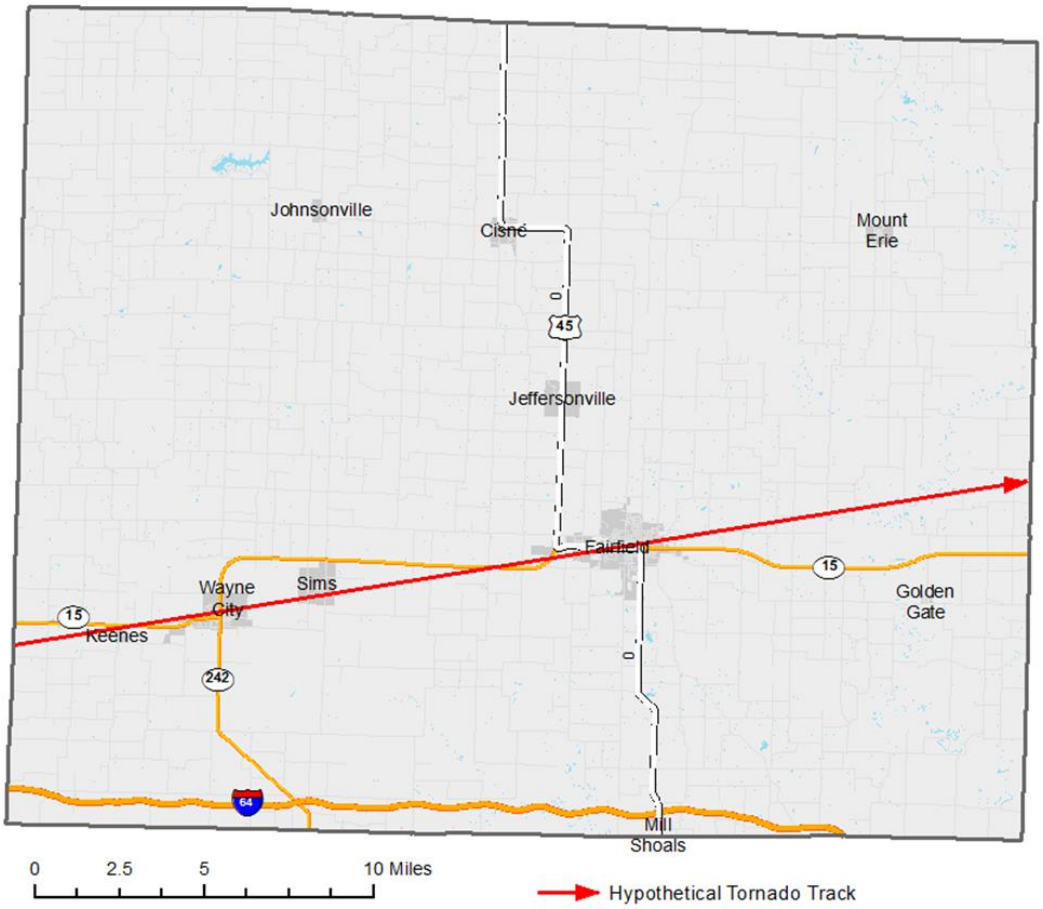


Figure 4-4. Modeled Tornado Track for Wayne County



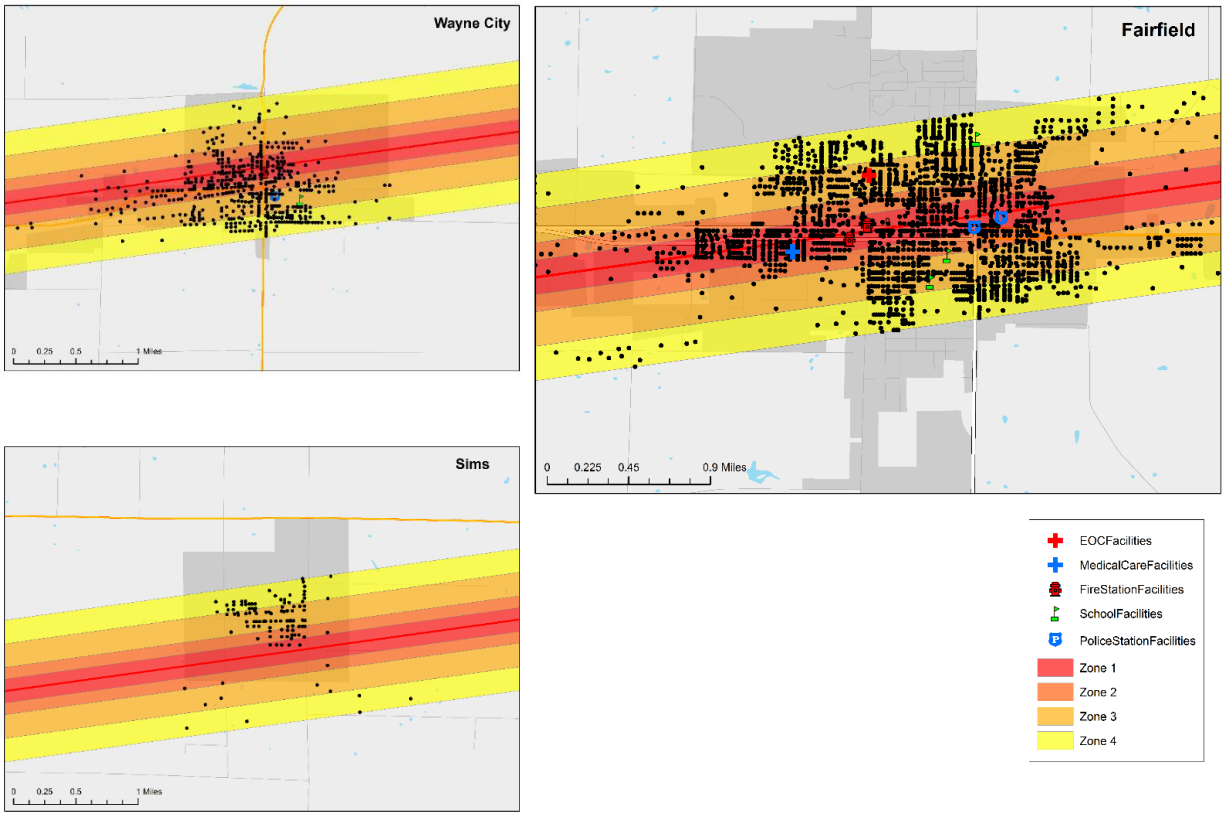
Modeled Impacts of the EF4 Tornado

The GIS analysis estimates that the modeled EF4 tornado would damage 824 buildings. The estimated building losses are approximately $57,088,673. The building losses are an estimate of building replacement costs multiplied by the damage percent. Table 4-14 and Figures 4-5 show the results of the EF4 tornado analysis.

Table 4-14. Estimated Building Loss by Occupancy Type

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	184	156	170	193
Commercial	16	34	32	1
Industrial	2	2	0	0
Agricultural	4	14	4	12
Total:	**206**	**206**	**206**	**206**

Figure 4-5. Building Inventory Affected by the EF4 Tornado



Essential Facilities Damage

There are thirteen essential facilities located within 900 feet of the F3 tornado path. The affected facilities are identified in Table 4-15, and their geographic locations are shown in Figure 4-5.

Table 4-15. Essential Facilities Affected by the EF4 Tornado

Essential Facility	Facility Name
Care Facility	Fairfield Memorial Hospital
Schools	North Side Elementary School
	Center Street Elementary School
	Wayne City Attendance Center
	Wayne City High School
	Fairfield Community High School
EOC Facility	Wayne County Civil Defense
Fire Departments	Fairfield City Fire Department
	Fairfield Rural Fire Protection District
	Wayne FPD #1
Police Departments	Fairfield Auxiliary Police Office
	Wayne City Police Department
	Wayne County Sheriff

Vulnerability to Future Assets/Infrastructure for Tornado Hazard

The entire population and all buildings are at risk because tornadoes can occur anywhere within the state, at any time. Furthermore, any future development in terms of new construction within the county is at risk. Table 4-8 includes the building exposure for Wayne County. All essential facilities in the county are at risk. Appendix E include a list of the essential facilities in Wayne County and Appendix F displays a large format map of the locations of all critical facilities within the county.

Suggestions for Community Development Trends

Preparing for severe storms will be enhanced if local officials sponsor a wide range of programs and initiative to address severe storm preparedness. It is suggested that the county should build new structures with more sturdy construction, and harden existing structures to lessen the potential impacts of severe weather. This is particularly import where the future economic expansion is expected to take place within the city limits of Fairfield. Additional warning sirens can warn the community of approaching storms to ensure the safety of Wayne County residents and minimizing property damage.

4.3.3 Thunderstorm Hazard

Hazard Definition

Severe thunderstorms are weather events with one or more of the following characteristics: strong winds, large and damaging hail, and frequent lightning. Severe thunderstorms most frequently occur in Illinois during the spring and summer months, but can occur at any time. A severe thunderstorm's impacts can be localized or can be widespread in nature. A thunderstorm is classified as severe when it meets one or more of the following criteria:

Hail 0.75 inches or greater in diameter

Hail is a possible product of a strong thunderstorm. Hail usually falls near the center of a storm, but strong winds occurring at high altitudes in the thunderstorm can blow the hailstones away from the storm center, resulting in damage in other areas near the storm. Hailstones range from pea-sized to baseball-sized, and some reports note hailstones larger than softballs.

Frequent and dangerous lightning

Lightning is a discharge of electricity from a thunderstorm. Lightning is often perceived as a minor hazard, but lightning damages many structures and kills or severely injures numerous people in the United States each year.

Wind speeds greater than or equal to 58 miles per hour

Straight-line winds from thunderstorms are fairly common in Illinois. Straight-line winds can cause damage to homes, businesses, power lines, and agricultural areas, and may require temporary sheltering of individuals who are without power for extended periods of time.

Previous Occurrences of Thunderstorm Hazards

The National Climatic Data Center (NCDC) database reported 57 hailstorms, 2 lightning events, and 68 thunderstorm and wind storms in Wayne County since 1950. Table 4-16 identifies selected NCDC-recorded storms that caused major damage, death, or injury in Wayne County. Additional details of individual hazard events are on the NCDC website. Below are the 6 storms that caused the most damages.

Table 4-16. Selected NCDC-Recorded Severe Thunderstorms that Caused Major, Death, or Injury in Wayne County

Location or County*	Date	Deaths	Injuries	Property Damage
Fairfield	1994	0	1	$500,000
Cisne	1994	0	0	$500,000
Fairfield	2006	0	0	$500,000
Fairfield	2007	0	0	$150,000
Fairfield	2008	0	0	$120,000
Middleton	2011	0	0	$100,000
	Total:	**0**	**1**	**$1,870,000**

*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

Geographic Location of Thunderstorm Hazard

The entire county has the same risk for occurrence of thunderstorms. They can occur at any location within the county.

Hazard Extent for Thunderstorm Hazard

The extent of the hypothetical thunderstorms depends upon the extent of the storm, the wind speed, and the size of hail stones. Thunderstorms can occur at any location within the county.

Risk Identification for Thunderstorm Hazard

Based on historical information, the occurrence of future high winds, hail, and lightning is highly likely. The County should expect high winds, hail, and lightning of widely varying magnitudes in the future. Although historical information equates 1-2 severe thunderstorm events per year for Wayne County, input from the Planning Team suggests thunderstorms in this area of great magnitude and severity of damage and loss is a likely event. According to the Risk Priority Index (RPI) and County input, severe thunderstorms are ranked as the number two hazard.

Risk Priority Index

Probability	x	Magnitude	=	RPI
3	x	6	=	18

Vulnerability Analysis for Thunderstorm Hazard

The entire county's population and all buildings are vulnerable to a severe thunderstorm and can expect the same impacts within the affected area. To accommodate this risk, this plan considers all buildings located within the county as vulnerable. Tables 4-7 and 4-8 display the existing buildings and critical infrastructure in Wayne County.

Critical Facilities

All critical facilities are vulnerable to severe thunderstorms. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, fires caused by lightning, and loss of building functionality (e.g., a damaged police station cannot serve the

community). Table 4-7 lists the types and number of essential facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

Table 4-8 lists the building exposure in terms of types and numbers of buildings for the entire county. The buildings within the county can expect impacts similar to those discussed for critical facilities. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, fires caused by lightning, and loss of building functionality (e.g., a person cannot inhabit a damaged home, causing residents to seek shelter).

Infrastructure

A severe thunderstorm could impact roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is vulnerable, it is important to emphasize that a severe thunderstorm could damage any number of these structures. The impacts to these structures include broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); or impassable railways. Bridges could become impassable causing risk to motorists.

Potential Dollar Losses from Thunderstorm Hazard

According to the NCDC, Wayne County has incurred approximately $3,678,000 in damages relating to thunderstorms, including hail, lightning, and high winds since 1950. NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event. As a result, the potential dollar losses for a future event cannot be reliably constrained; however, based on average property damage in the past decade, SIU estimates that Wayne County incurs property damages of approximately $61,300 per year related to severe thunderstorms.

Vulnerability to Future Assets/Infrastructure for Thunderstorm Hazard

All future development within the county and all communities will remain vulnerable to severe thunderstorm events.

Suggestions for Community Development Trends

Local officials could enhance severe storm preparedness if they sponsor a wide range of programs and initiatives to address the overall safety of county residents. It is suggested that the county should build new structures with more sturdy construction, and harden existing structures to lessen the potential impacts of severe weather. This is particularly important where the future economic expansion is expected to take place within the city limits of Fairfield. Additional warning sirens can warn the community of approaching storms to ensure the safety of Wayne County residents and minimizing property damage.

4.3.4 Earthquake Hazard

Hazard Definition

An earthquake is the shaking of the earth caused by the energy released when large blocks of rock slip past each other in the earth's crust. Most earthquakes occur at tectonic plate boundaries; however, some earthquakes occur in the middle of plates, for example the New Madrid Seismic Zone or the Wabash Valley Fault System. Both of these seismic areas have a geologic history of strong quakes, and an earthquake

from either seismic area could possibly affect Illinois counties. There may be other, currently unidentified faults in the Midwest also capable of producing strong earthquakes.

Strong earthquakes can collapse buildings and infrastructure, disrupt utilities, and trigger landslides, avalanches, flash floods, fires, and tsunamis. When an earthquake occurs in a populated area, it may cause death, injury, and extensive property damage. An earthquake might damage essential facilities, such as fire departments, police departments, and hospitals, disrupting emergency response services in the affected area. Strong earthquakes may also require mass relocation; however, relocation may be impossible in the short-term aftermath of a significant event due to damaged transportation infrastructure and public communication systems.

Earthquakes are usually measured by two criteria: intensity and magnitude (M). Earthquake intensity qualitatively measures the strength of shaking produced by an earthquake at a certain location and is determined from effects on people, structures, and the natural environment. Earthquake magnitude quantitatively measures the energy released at the earthquake's subsurface source in the crust, or epicenter. Table 4-17 provides a comparison of magnitude and intensity, and Table 4-18 provides qualitative descriptions of intensity, for a sense of what a given magnitude might feel like.

Table 4-17. Comparison of Earthquake Magnitude and Intensity

Magnitude (M)	Typical Maximum Modified Mercalli Intensity
1.0 – 3.0	I
3.0 – 3.9	II – III
4.0 – 4.9	IV – V
5.0 – 5.9	VI – VII
6.0 – 6.9	VII – IX
7.0 and higher	VIII or higher

Table 4-18. Abbreviated Modified Mercalli Intensity Scale

Mercalli Intensity	Description
I	Not felt except by a very few under especially favorable conditions.
II	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned.

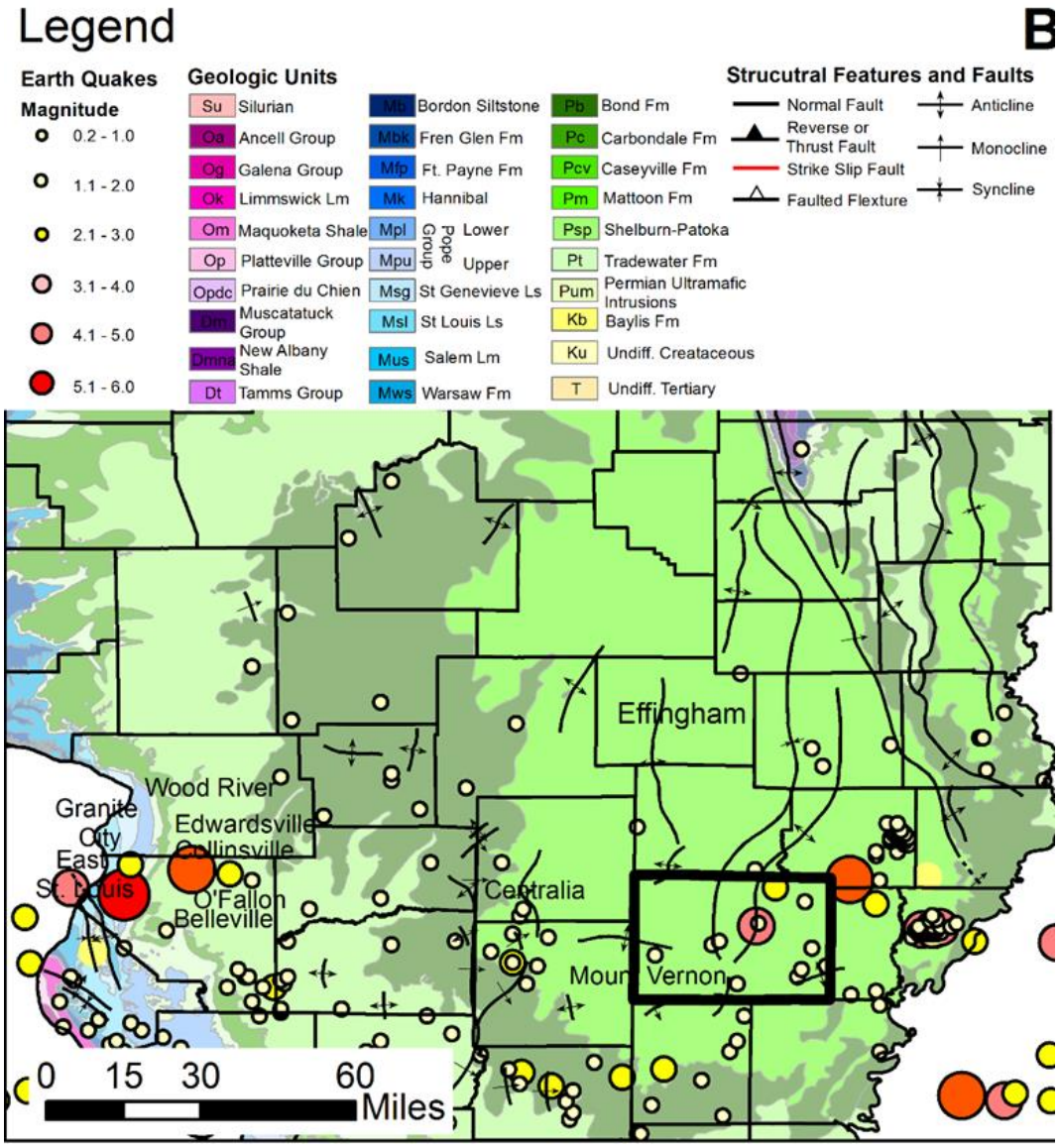
Mercalli Intensity	Description
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Previous Occurrences for Earthquakes

Historically, the most significant seismic activity in Illinois is associated with New Madrid Seismic Zone. The New Madrid Seismic Zone produced three large earthquakes in the central U.S. with magnitudes estimated between 7.0 and 7.7 on December 16, 1811, January 23, 1812, and February 7, 1812. These earthquakes caused violent ground cracking and volcano-like eruptions of sediment (sand blows) over an area >10,500 km^2, and uplifted a 50 km by 23 km zone (the Lake County uplift). The shaking was felt over a total area of over 10 million km^2 (the largest felt area of any historic earthquake). The United States Geological Survey (USGS) and the Center for Earthquake Research and Information (CERI) at the University of Memphis estimate the probability of a repeat of the 1811-1812 type earthquakes (M7.5-8.0) is 7%-10% over the next 50 years (USGS Fact Sheet 2006-3125).

Earthquakes measured in Illinois typically vary in magnitude from micro-seismic events of M=1-3 to larger events up to M=5.4. Figure 4-6 depicts the following: (A) location of notable earthquakes in Illinois region; (B) generalized geologic bedrock map with earthquake epicenters and geologic structures; (C) geologic and earthquake epicenter map of Wayne County. The most recent earthquake in Illinois—as of the date of this report—was a M3.1 event in September 2017, approximately 13km W of Mount Carmel, Illinois in Wabash County. The last earthquake in Illinois to cause minor damage occurred on April 18, 2008 near Mt. Carmel, IL and measured 5.2 in magnitude. Earthquakes resulting in more serious damage have occurred about every 70 to 90 years and are historically concentrated in southern Illinois.

Figure 4-6(C). Notable Earthquakes in Illinois with Geologic and Earthquake Epicenters in Wayne County



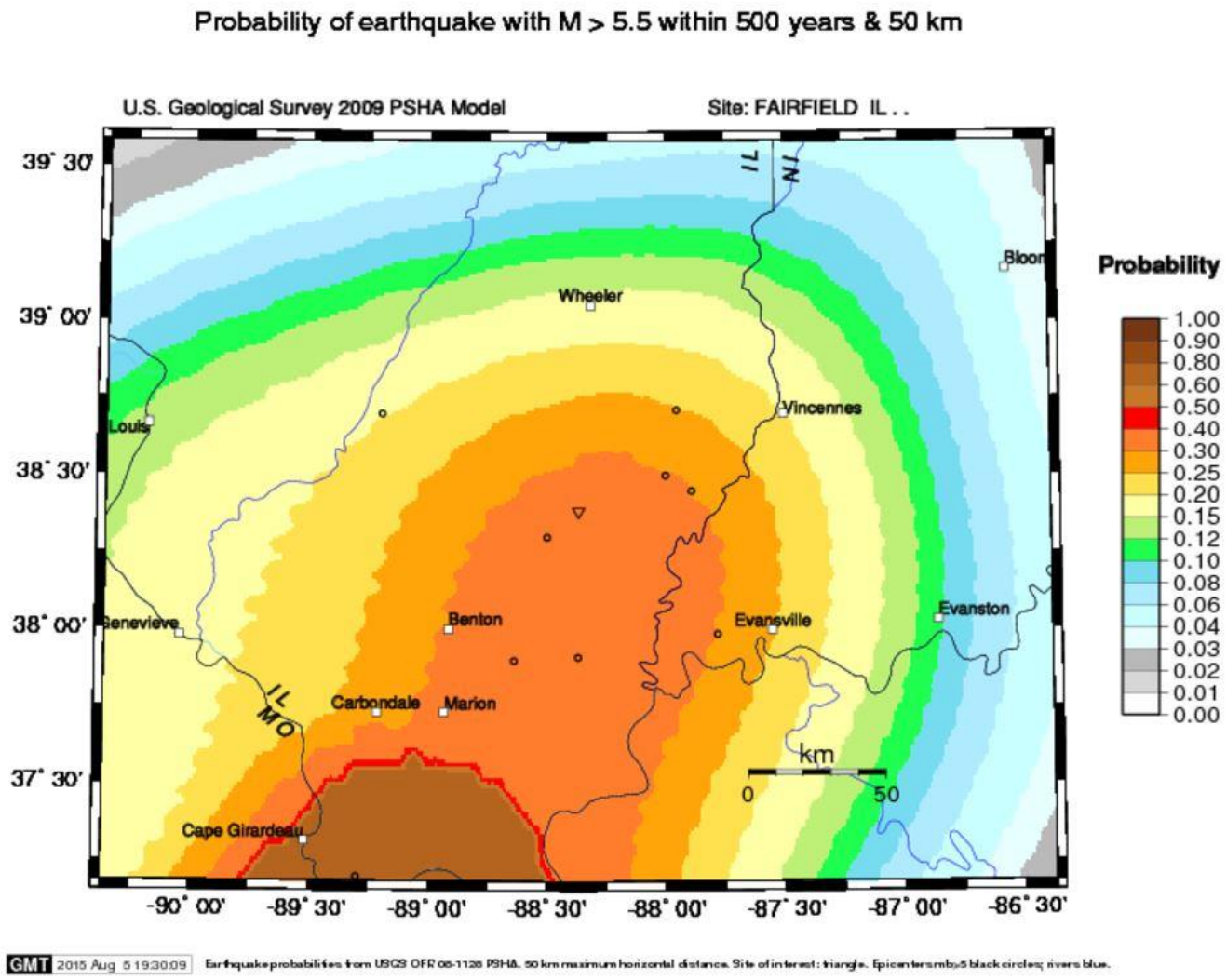
Geographic Location for Earthquake Hazard

Wayne County is situated in a region susceptible to earthquakes. Since 1974, the epicenters of 6 small earthquakes (M2.7-M3.5) have been recorded in Wayne County (see Figure 4-6(C)). This local seismic activity is believed to be associated with the Wabash Valley Fault System.

The two most significant zones of seismic activity in Illinois are the New Madrid Seismic Zone and the Wabash Valley Fault System. Return periods for large earthquakes within the New Madrid System are estimated to be ~500–1000 years; moderate quakes between magnitude 5.5 and 6.0 can recur within approximately 150 years or less. The Wabash Valley Fault System extends nearly the entire length of southern Illinois and has the potential to generate an earthquake of sufficient strength to cause damage

between St. Louis, MO and Indianapolis, IN. While large earthquakes (>M7.0) experienced during the New Madrid Events of 1811 and 1812 are unlikely in Wayne County, moderate earthquakes (≤ 6.0M) in or in the vicinity of Wayne County are probable. The USGS estimates the probability of a moderate M5.5 earthquake occurring in Wayne County within the next 500-years at approximately 30% (see Figure 4-7).

Figure 4-7. Probability of M5.5 Earthquake occurring in Wayne County within the next 500 years



Hazard Extent for Earthquake Hazard

Earthquake effects are possible anywhere in Wayne County. One of the most critical sources of information that is required for accurate assessment of earthquake risk is soils data. The National Earthquake Hazards Reduction Program (NEHRP) compliant soils map was provided by FEMA for the analysis. This map identifies the soils most susceptible to failure.

Risk Identification for Earthquake Hazard

Based on historical information and current USGS and SIU research and studies, future earthquakes in Wayne County are possible, but large (>M7.0) earthquakes that cause catastrophic damage are unlikely. According to the Wayne County Planning Team's assessment, earthquakes are ranked as the number three hazard.

Risk Priority Index

Probability	x	Magnitude	=	RPI
1	x	8	=	8

Vulnerability Analysis for Earthquake Hazard

Earthquakes could impact the entire county equally; therefore, the entire county's population and all buildings are vulnerable to an earthquake. To accommodate this risk, this plan considers all buildings located within the county as vulnerable. Tables 4-7 and 4-8 display the existing buildings and critical infrastructure in Wayne County.

Critical Facilities

All critical facilities are vulnerable to earthquakes. Critical facilities are susceptible to many of the same impacts as any other building within the jurisdiction. These impacts include structural failure and loss of facility functionality (e.g., a damaged police station will no longer be able to serve the community). Table 4-7 lists the types and number of essential facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

Table 4-8 lists the building exposure in terms of types and numbers of buildings for the entire county. The buildings within the county can expect similar impacts to those discussed for critical facilities. These impacts include structural failure and loss of building function which could result in indirect impacts (e.g., damaged homes will no longer be habitable causing residents to seek shelter).

Infrastructure

During an earthquake, the types of infrastructure that shaking could impact include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure was not available for use in the earthquake models, it is important to emphasize that any number of these items could become damaged in the event of an earthquake. The impacts to these items include broken, failed, or impassable roadways, broken or failed utility lines (e.g., loss of power or gas to community), and railway failure from broken or impassable railways. Bridges could also fail or become impassable, causing risk to motorists.

Hazus-MH Earthquake Analyses

Existing geological information was reviewed prior to the Planning Team selection of earthquake scenarios. A Magnitude 5.5 probabilistic earthquake scenario was performed to provide a reasonable basis for earthquake planning in Wayne County. The other two scenarios included a Magnitude of 7.7 with the epicenter located on the New Madrid Fault Zone and a Magnitude 7.1 with the epicenter located on the Wabash Fault Zone.

The earthquake-loss analysis for the probabilistic scenario was based on ground-shaking parameters derived from U.S. Geological Survey probabilistic seismic hazard curves for the earthquake with the 500-year return period. This scenario evaluates the average impacts of a multitude of possible earthquake epicenters with a magnitude typical of that expected for a 500-year return period. The New Madrid Fault Zone runs along the Mississippi River through Arkansas, Tennessee, Missouri, Kentucky and Southern Illinois. The Wabash Valley Fault Zone runs through southeastern Illinois, western Kentucky and southwest Indiana. This represents a realistic scenario for planning purposes.

The earthquake hazard modeling scenarios performed:

- Magnitude 5.5 probabilistic earthquake epicenter in Wayne County
- Magnitude 7.7 event along the New Madrid Fault Zone
- Magnitude 7.1 event along the Wabash Valley Fault Zone

This report presents two types of building losses: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

Results for M5.5 Earthquake Scenario

The results of the M5.5 probabilistic earthquake scenario are depicted in Tables 4-19, 4-20, and Figure 4-8. Hazus-MH estimates that approximately 710 buildings will be at least moderately damaged. This is over 9% of the total number of buildings in the Wayne County. It is estimated that 13 buildings would be damaged beyond repair.

The total building related losses are approximately $37.68 million dollars. It is estimated that 18% of the losses are related to the business interruption of the region. By far, the largest loss is sustained by the residential occupancies which make up over55% of the total loss.

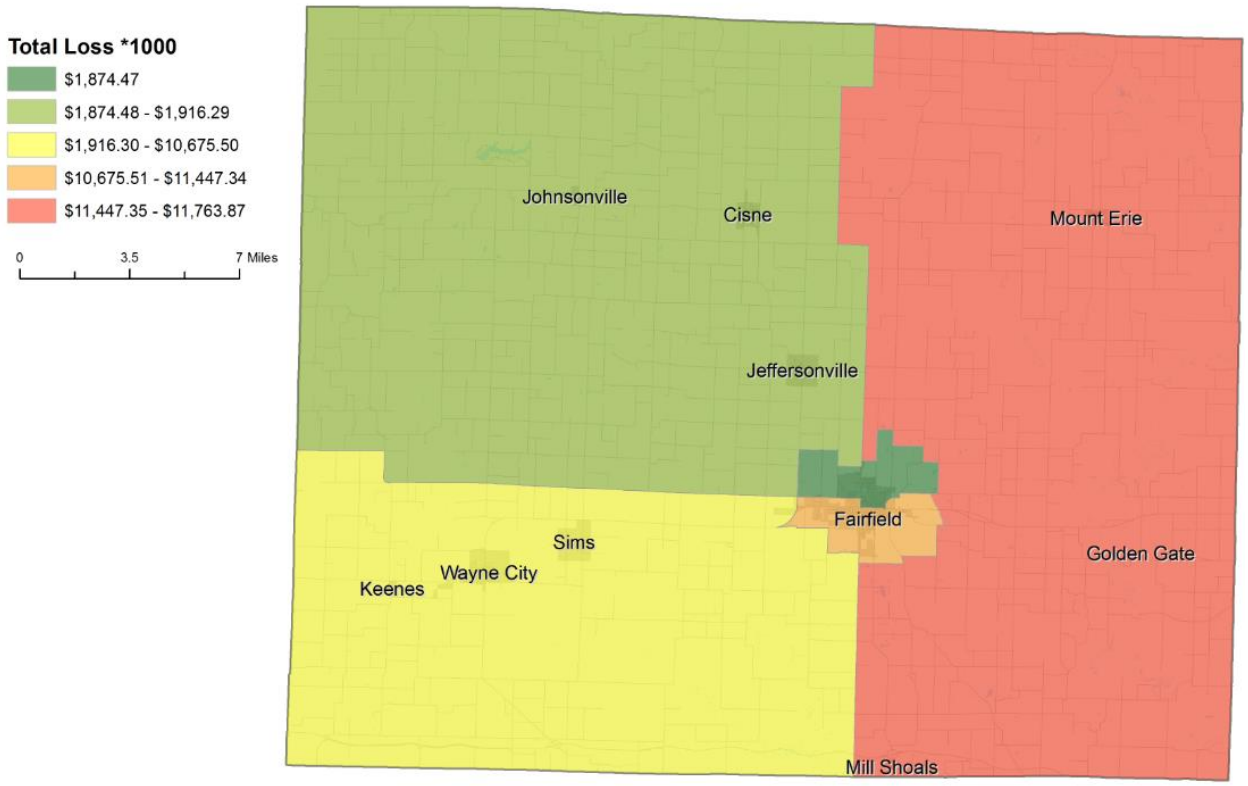
Table 4-19. M5.5 Earthquake Damage Estimates by Building Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	20	0.32	4	0.39	3	0.53	1	0.81	0	0.69
Commercial	177	2.84	40	3.91	26	4.39	7	6.08	1	5.61
Educational	10	0.16	2	0.20	1	0.23	0	0.28	0	0.39
Government	20	0.32	4	0.37	3	0.44	1	0.48	0	0.70
Industrial	44	0.71	10	0.94	8	1.31	2	2.02	0	1.48
Other Residential	1,348	21.69	376	63.76	342	58.66	63	55.55	6	42.30
Religion	37	0.60	7	0.64	4	0.68	1	0.93	0	1.03
Single Family	4,560	73.35	580	56.75	197	33.76	39	33.86	6	47.79
Total:	**6,216**		**1,023**		**584**		**114**		**13**	

Table 4-20. M5.5 Earthquake Estimates of Building Economic Losses (in Millions of Dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Other	Total
Income Losses	Wage	0.00	0.05	1.07	0.05	0.15	1.33
	Capital-Related	0.00	0.02	0.67	0.04	0.03	0.76
	Rental	0.32	0.17	0.51	0.02	0.04	1.07
	Relocation	1.17	0.72	1.06	0.11	0.40	3.46
	Subtotal:	**$1.49**	**$0.96**	**$3.31**	**$0.22**	**$0.62**	**$6.62**
Capital Stock Losses	Structural	2.54	0.92	1.63	0.42	0.81	6.33
	Non-Structural	8.68	2.59	3.49	1.02	1.43	17.22
	Content	3.12	0.51	2.12	0.71	0.88	7.31
	Inventory	0.00	0.00	0.07	0.11	0.03	0.20
	Subtotal:	**$14.34**	**$4.02**	**$7.31**	**$2.26**	**$3.15**	**$31.06**
	Total:	**$15.83**	**$4.98**	**$10.62**	**$2.48**	**$3.77**	**$37.68**

Figure 4-8. Wayne County M5.5 Earthquake Building Economic Losses



Results for M7.7 New Madrid Earthquake

The results of the M7.7 New Madrid earthquake scenario are depicted in Tables 4-21, 4-22, and Figure 4-9. Hazus-MH estimates that approximately 158 buildings will be at least moderately damaged. This is over 2.0% of the buildings in the county. It is estimated that 0 buildings would be damaged beyond repair.

The total building related losses are approximately $9.82 million dollars. It is estimated that 8.0% of the losses are related to the business interruption of the region. By far, the largest loss is sustained by the residential occupancies which make up over 55% of the total loss.

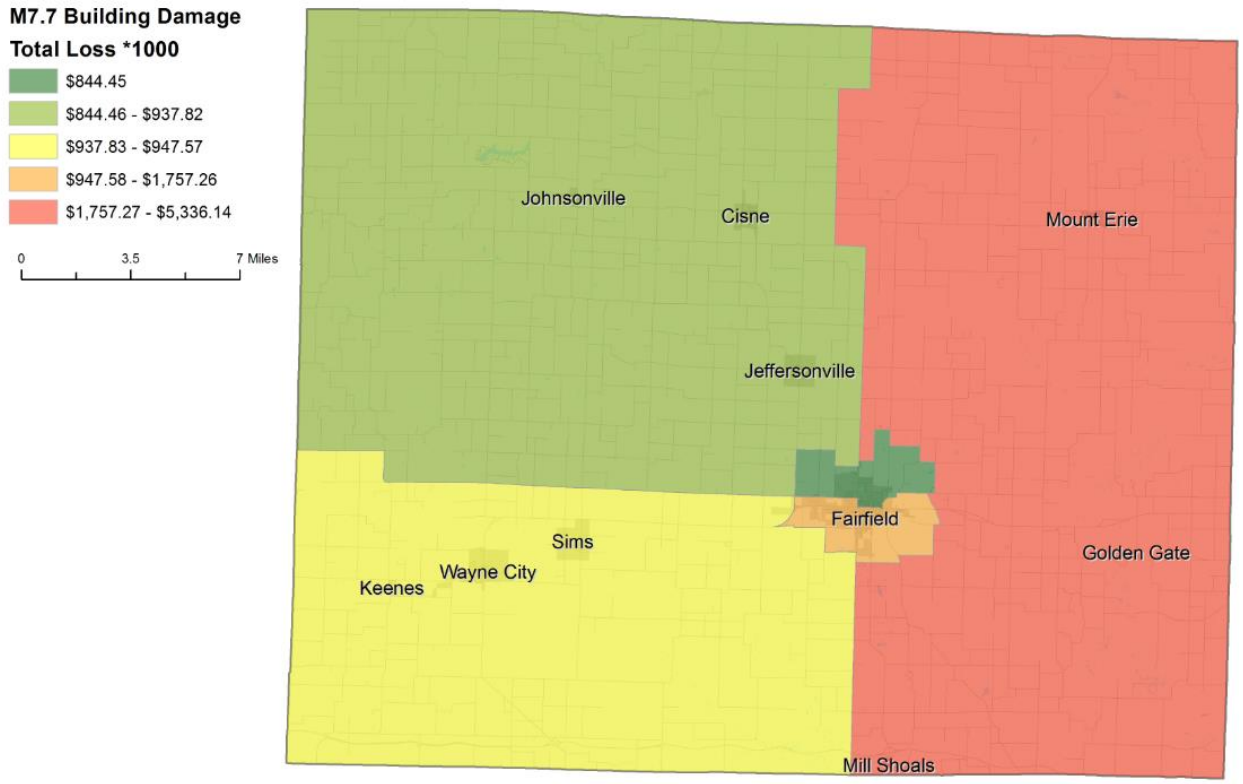
Table 4-21. New Madrid M7.7 Earthquake Damage Estimates by Building Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	24	0.33	3	0.54	1	0.96	0	1.55	0	2.01
Commercial	231	3.16	14	3.01	4	2.88	0	6.05	0	8.64
Educational	13	0.17	1	0.21	0	0.17	0	0.20	0	0.59
Government	24	0.33	2	0.44	1	0.39	0	0.45	0	1.01
Industrial	55	0.75	6	1.23	3	1.82	0	4.49	0	4.65
Other Residential	1,735	23.70	277	58.92	120	78.16	3	66.54	0	0.16
Religion	46	0.63	2	0.49	1	0.41	0	0.72	0	1.46
Single Family	5,191	70.92	165	35.16	24	15.49	1	20.01	0	81.47
Total:	**7,319**		**470**		**154**		**4**		**0**	

Table 4-22. New Madrid M7.7 Earthquake Estimates of Building Economic Losses (in Millions of Dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Other	Total
Income Losses	Wage	0.00	0.00	0.09	0.02	0.03	0.13
	Capital-Related	0.00	0.00	0.07	0.01	0.00	0.09
	Rental	0.03	0.02	0.08	0.01	0.01	0.13
	Relocation	0.10	0.16	0.10	0.03	0.05	0.45
	Subtotal:	**$0.13**	**$0.18**	**$0.34**	**$0.07**	**$0.09**	**$0.80**
Capital Stock Losses	Structural	0.29	0.20	0.20	0.11	0.14	0.95
	Non-Structural	2.31	0.70	1.00	0.42	0.46	4.90
	Content	1.40	0.20	0.81	0.30	0.37	3.09
	Inventory	0.00	0.00	0.02	0.05	0.01	0.08
	Subtotal:	**$4.00**	**$1.10**	**$2.03**	**$0.88**	**$0.98**	**$9.02**
	Total:	**$4.13**	**$1.28**	**$2.37**	**$0.95**	**$1.07**	**$9.82**

Figure 4-9. New Madrid M7.7 Earthquake Building Economic Losses



Results M7.1 Magnitude Wabash Valley Earthquake – General Building Stock

The results of the Wabash Valley M7.1 earthquake scenario are depicted in Tables 4-23, 4-24, and Figure 4-10. Hazus-MH estimates that approximately 405 buildings will be at least moderately damaged. This is over 5.0% of the buildings in the county. It is estimated that 7 buildings would be damaged beyond repair.

The building related losses are approximately $80.24 million dollars. It is estimated that 4.0% of the losses are related to the business interruption of the region. The largest loss is sustained by the residential occupancies which make up over 59% of the total loss.

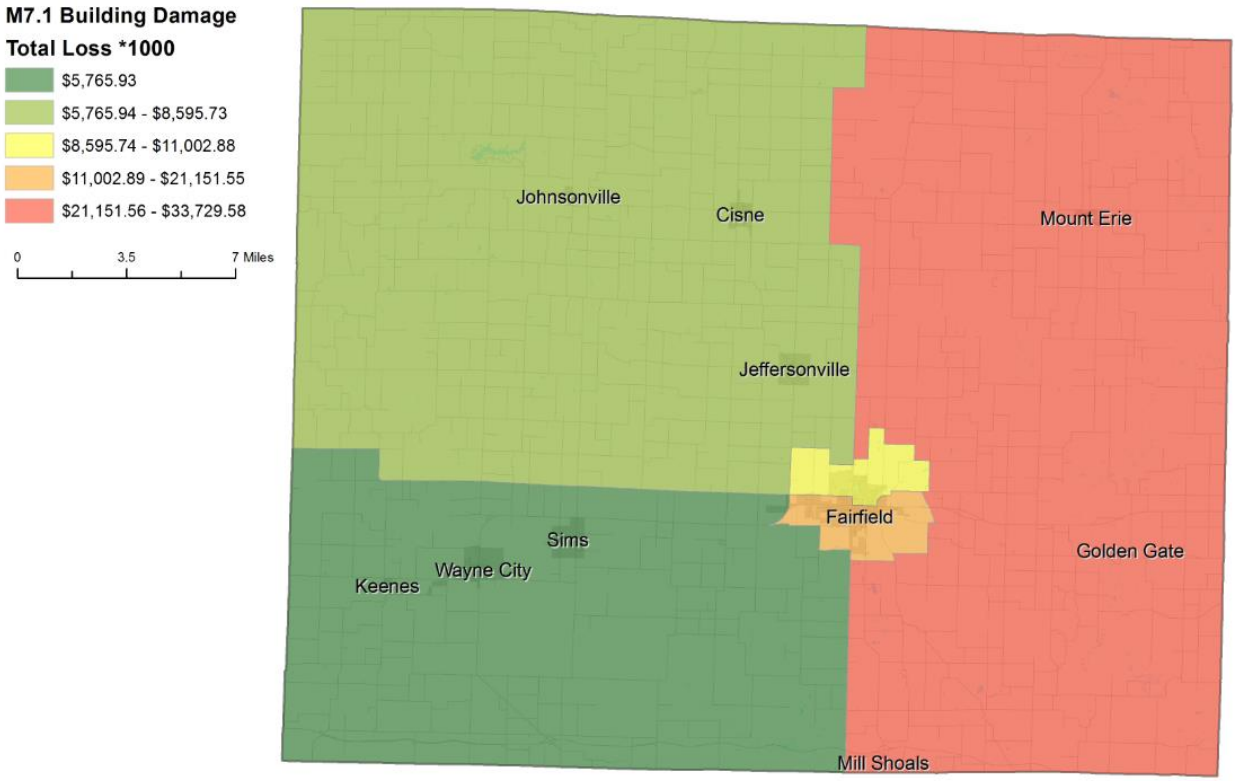
Table 4-23. Wabash Valley 7.1 Magnitude Earthquake Damage Estimates by Building Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	20	0.33	6	0.39	2	0.56	0	0.62	0	0.49
Commercial	186	3.05	48	3.29	15	4.14	1	3.66	0	2.44
Educational	10	0.17	3	0.19	1	0.22	0	0.23	0	0.19
Government	21	0.35	5	0.31	1	0.34	0	0.47	0	0.43
Industrial	47	0.77	12	0.82	4	1.22	1	1.44	0	1.16
Other Residential	1,263	20.72	641	44.33	217	60.75	11	27.56	2	27.83
Religion	36	0.59	10	0.67	3	0.79	0	0.68	0	0.45
Single Family	4,512	74.02	723	50.00	114	31.99	26	65.34	5	67.01
Total:	**6,095**		**1,448**		**357**		**39**		**7**	

Table 4-24. Wabash Valley 7.1 Magnitude Earthquake Estimates of Building Economic Losses (in Millions of Dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Other	Total
Income Losses	Wage	0.00	0.01	0.44	0.02	0.09	0.56
	Capital-Related	0.00	0.01	0.30	0.01	0.02	0.33
	Rental	0.21	0.09	0.25	0.01	0.02	0.58
	Relocation	0.74	0.35	0.44	0.04	0.18	1.74
	Subtotal:	**$0.95**	**$0.46**	**$1.43**	**$0.08**	**$0.31**	**$3.21**
Capital Stock Losses	Structural	2.00	0.54	0.69	0.17	0.39	3.79
	Non-Structural	21.07	5.29	7.88	3.14	3.47	40.85
	Content	15.00	2.42	7.85	2.83	3.52	31.62
	Inventory	0.00	0.00	0.22	0.43	0.11	0.76
	Subtotal:	**$38.07**	**$8.25**	**$16.64**	**$6.57**	**$7.49**	**$77.02**
	Total:	**$39.02**	**$8.71**	**$18.07**	**$6.65**	**$7.80**	**$80.23**

Figure 4-10. Wayne Valley M7.1 Scenario Building Economic Losses



Vulnerability to Future Assets/Infrastructure for Earthquake Hazard

New construction, especially critical facilities, should accommodate earthquake mitigation design standards.

Suggestions for Community Development Trends

Community development should occur outside of the low-lying areas in floodplains with a water table within five feet of grade that is susceptible to liquefaction. It is important to harden and protect future and existing structures against the possible termination of public services and systems including power lines, water and sanitary lines, and public communication.

4.3.5 Winter Storm Hazard

Hazard Definition of Winter Storm Hazard

Severe winter weather consists of various forms of precipitation and weather conditions. This may include one or more of the following: freezing rain, sleet, heavy snow, blizzards, icy roadways, extreme low temperatures, and strong winds. These conditions can cause human health risks such as frostbite, hypothermia, or death and cause property damage and disrupt economic activity.

Ice or sleet, even in small quantities, can result in hazardous driving conditions and can cause property damage. Sleet involves raindrops that freeze completely before reaching the ground. Sleet does not stick to trees and wires. Ice storms, on the other hand, involve liquid rain that falls through subfreezing air and/or onto sub-freezing surfaces, freezing on contact with those surfaces. The ice coats trees, buildings, overhead wires, and roadways, sometimes causing extensive damage.

Ice storms are some of the most damaging winter storms in Illinois. Ice storms occur when moisture-laden Gulf air converges with the northern jet stream causing freezing rain that coats power and communication lines and trees with heavy ice. Strong winds can cause the overburdened limbs and cables to snap; leaving large sectors of the population without power, heat, or communication.

Rapid accumulation of snow, often accompanied by high winds, cold temperatures, and low visibility, characterize significant snowstorms. A blizzard is categorized as a snow storm with winds of 35 miles per hour or greater and/or visibility of less than one-quarter mile for three or more hours. Strong winds during a blizzard blow falling and fallen snow, creating poor visibility and impassable roadways. Blizzards potentially result in property damage.

Blizzards repeatedly affect Illinois. Blizzard conditions cause power outages, loss of communication, and transportation difficulties. Blizzards can reduce visibility to less than one-quarter mile, and the resulting disorientation makes even travel by foot dangerous if not deadly.

Severe cold involves ambient air temperatures that drop to 0˚F or below. These extreme temperatures can increase the likelihood of frostbite and hypothermia. High winds during severe cold events can enhance the air temperature's effects. Fast winds during cold weather events can lower the wind chill factor (how cold the air feels on your skin). As a result, the time it takes for frostbite and hypothermia to affect a person's body will decrease.

Previous Occurrences of Winter Storm Hazard

The NCDC database reported 112 winter storm and extreme cold events for Wayne County since 1950. The most recent reported event occurred in April of 2014. There was a high pressure system that moved east across the Ohio valley and brought extremely cold temperatures and freezing conditions to the area. Table 4-25 identifies NCDC-recorded winter storm events that caused damage, death, or injury in Wayne County.

Table 4-25. NCDC-Recorded Winter Storms that Caused Damage, Death, or Injury in Wayne County

Location or County	Date	Deaths	Injuries	Property Damage
Wayne County	2008	0	2	$0
Wayne County	2009	0	0	$500,000
	Total:	**0**	**2**	**$500,000**

Geographic Location of Winter Storm Hazard

Severe winter storms are regional in nature. Most of the NCDC data are calculated regionally or in some cases statewide.

Hazard Extent of Winter Storm Hazard

The extent of the historical winter storms varies in terms of storm location, temperature, and ice or snowfall. A severe winter storm can occur anywhere in the county.

Risk Identification of Winter Storm Hazard

Based on historical information, the probability of future winter storms in Wayne County is highly likely. The county should expect winter storms with varying magnitudes to occur in the future. Although historical information equates 1-2 winter storm events per year for Wayne County, input from the Planning Team suggests winter storms in this area of great magnitude and severity of damage and loss is a possible event. According to the Risk Priority Index (RPI) and County input, winter storms are ranked as the number four hazard.

Risk Priority Index

Probability	x	Magnitude	=	RPI
2	x	3	=	6

Vulnerability Analysis of Winter Storm Hazard

Winter storm impacts are equally likely across the entire county; therefore, the entire county is vulnerable to a winter storm and can expect impacts within the affected area. To accommodate this risk, this plan considers all buildings located within the county as vulnerable. Tables 4-7 and 4-8 display the existing buildings and critical infrastructure in Wayne County.

Critical Facilities

All critical facilities are vulnerable to winter storms. A critical facility will encounter many of the same impacts as other buildings within the county. These impacts include loss of gas or electricity from broken or damaged utility lines, damaged or impassable roads and railways, broken water pipes, and roof collapse from heavy snow. Table 4-7 lists the types and number of essential facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

Table 4-8 lists the building exposure in terms of types and numbers of buildings for the entire county. The impacts to the general buildings within the county are similar to the damages expected to the critical facilities. These include loss of gas or electricity from broken or damaged utility lines, damaged or impassable roads and railways, broken water pipes, and roof collapse from heavy snow.

Infrastructure

During a winter storm, the types of potentially impacted infrastructure include roadways, utility lines/pipes, railroads, and bridges. Since the county's entire infrastructure is vulnerable, it is important to emphasize that a winter storm could impact any structure. Potential impacts include broken gas and/or electricity lines or damaged utility lines, damaged or impassable roads and railways, and broken water pipes.

Potential Dollar Losses from Winter Storm Hazard

According to the NCDC, Wayne County has incurred two events of direct financial damages relating to winter storms since 1950. NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event. As a result, the potential dollar losses for a future event cannot be reliably constrained for Wayne County.

Vulnerability to Future Assets/Infrastructure for Winter Storm Hazard

Any new development within the county will remain vulnerable to these events.

Suggestions for Community Development Trends

Because winter storm events are regional in nature, future development across the county will also face winter storms.

4.3.6 Hazardous Material Storage and Transportation Hazard

Hazard Definition

Illinois has numerous active transportation lines that run through many of its counties. Active railways transport harmful and volatile substances across county and state lines every day. Transporting chemicals and substances along interstate routes is commonplace in Illinois. The rural areas of Illinois have considerable agricultural commerce, meaning transportation of fertilizers, herbicides, and pesticides is common on rural roads. These factors increase the chance of hazardous material releases and spills throughout the state of Illinois.

The release or spill of certain substances can cause an explosion. Explosions result from the ignition of volatile products such as petroleum products, natural and other flammable gases, hazardous materials/chemicals, dust, and bombs. An explosion can potentially cause death, injury, and property damage. In addition, a fire routinely follows an explosion, which may cause further damage and inhibit emergency response. Emergency response may require fire, safety/law enforcement, search and rescue, and hazardous materials units.

Previous Occurrences of Hazardous Materials Storage and Transportation Hazard

Wayne County has not experienced a significantly large-scale hazardous material incident at a fixed site or during transport resulting in multiple deaths or serious injuries.

The Illinois Emergency Management Agency maintains a comprehensive Hazardous Materials Incident Report Database for the State of Illinois. The database contains information on all Hazardous Materials Reports since 1987 but does not include an assessment of economic and property losses in terms of dollars of damage. The database reported 250 incidents in Wayne County as of December 2016. The most recent

event occurred in July 2016 in Fairfield on the SE corner of IL. Rte. 15 and CO Rd. 1400E where an underground storage tank leaked gasoline.

Industries regulated by The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) are required to report incidents which meet or exceed established reporting criteria. The data for reported incidents are available on the PHMSA website via the U.S. Department of Transportation Hazmat Intelligence Portal. The database reported 166,970 incidents for the State of Illinois. As of December, 2016, no incidents were reported for Wayne County.

Geographic Location of Hazardous Materials Storage and Transportation Hazard

Hazardous material hazards are countywide and are primarily associated with the transport of materials via highway, railroad, and/or river barge.

Hazard Extent of Hazardous Materials Storage and Transportation Hazard

The extent of the hazardous material hazard varies both in terms of the quantity of material being transported as well as the specific content of the container.

Risk Identification of Hazardous Materials Storage and Transportation Hazard

Based on input from the Planning Team, future occurrence of hazardous materials accident in Wayne County is possible. According to the Risk Priority Index (RPI) and County input, hazardous materials storage and transportation hazard is ranked as the number five hazard.

Risk Priority Index

Probability	x	Magnitude	=	RPI
2	x	2	=	4

Vulnerability Analysis for Hazardous Materials Storage and Transportation Hazard

The entire county is vulnerable to a hazardous material release and can expect impacts within the affected area. The main concern during a release or spill is the affected population. This plan will therefore consider all buildings located within the county as vulnerable. To accommodate this risk, this plan considers all buildings located within the county as vulnerable. Tables 4-7 and 4-8 display the existing buildings and critical infrastructure in Wayne County.

Critical Facilities

All critical facilities and communities within the county are at risk. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural failure due to fire or explosion and loss of function of the facility (e.g., a damaged police station can no longer serve the community). Table 4-7 lists the types and number of essential facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

Table 4-8 lists the building exposure in terms of types and numbers of buildings for the entire county. The buildings within the county can expect similar impacts to those discussed for critical facilities. These impacts include structural failure due to fire or explosion or debris, and loss of function of the building (e.g., a person cannot inhabit a damaged home, causing residents to seek shelter).

Infrastructure

During a hazardous material release, the types of potentially impacted infrastructure include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available to this plan, it is important to emphasize that a hazardous materials release could damage any number of these items. The impacts to these items include: broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); and railway failure from broken or impassable railways. Bridges could become impassable causing risk to motorists.

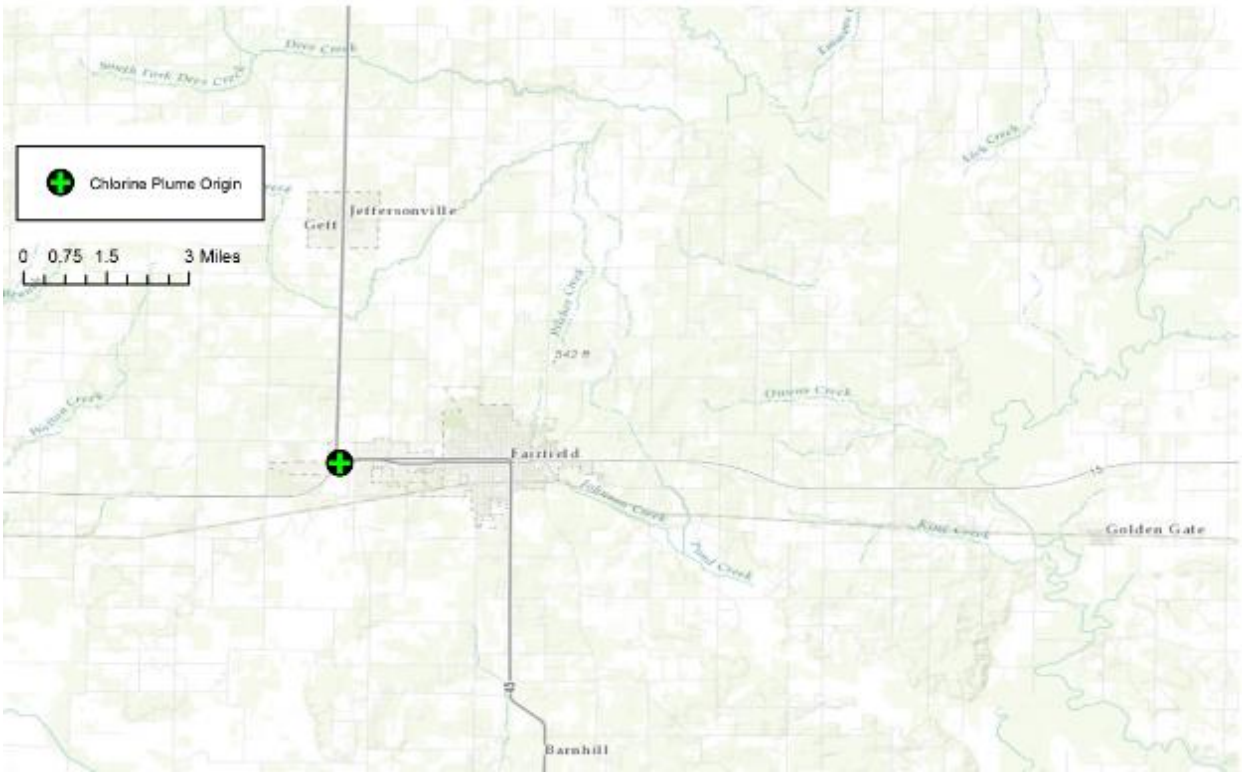
ALOHA Hazardous Chemical Release Analysis

The U.S. Environmental Protection Agency's ALOHA (Areal Locations of Hazardous Atmospheres) model was used to assess a chlorine release due to an accident at the intersection of State Route 15 and U.S. Highway 45 west of Fairfield. ALOHA is a computer program designed for response to chemical accidents, as well as emergency planning and training. The Wayne County planning team chose this scenario because it is an intersection of two major roads and is close to the City of Fairfield.

Chlorine is a greenish yellow gas with a pungent suffocating odor. Toxic by inhalation. Slightly soluble in water. Liquefies at -35°C and room pressure. Readily liquefied by pressure applied at room temperature. Density (as a liquid) 13.0 lb / gal. Contact with unconfined liquid can cause frostbite by evaporative cooling. Does not burn but, like oxygen, supports combustion. Long-term inhalation of low concentrations or short-term inhalation of high concentrations has ill effects. Vapors are much heavier than air and tend to settle in low areas. Contact CHEMTREC to activate chlorine response team 800-424-9300. Used to purify water, bleach wood pulp, and to make other chemicals. (NOAA Reactivity, 2007).

For the chlorine scenario, SIU assumed average atmospheric and climatic conditions for the fall season with a breeze from the west. Figure 4-11 depicts the plume origin of the modeled hazardous chemical release in Wayne County. The ALOHA atmospheric modeling parameters for the chlorine release, depicted in Figure 4-12, were based upon a Westerly speed of 10 miles per hour. The temperature was 66.7 °F with a 75% humidity and a cloud cover of five-tenths skies. SIU used average weather conditions for the month of September reported from NOAA for wind direction, wind speed, and temperature to simulate fall conditions.

Figure 4-11. ALOHA Modeled Hazardous Chemical Chlorine Plume Origin in Wayne County



ALOHA displays the estimated threat zones as Acute Exposure Guideline Levels (AEGL). The AEGLs are intended to describe the risk to humans resulting from once-in-a-lifetime, or rare exposure to airborne chemical (U.S. EPA AEGL Program). The National Advisory Committee for the Development of Acute Exposure Guideline Levels for Hazardous Substances (AEGL Committee) is involved in developing these guidelines to help both national and local authorities, as well as private companies, deal with emergencies involving spills, or other catastrophic exposures. AEGLs represent threshold exposure limits for the general public and are applicable to emergency exposure periods ranging from 10 minutes to 8 hours. The three AEGLs have been defined as follows:

> AEGL-1: the airborne concentration, expressed as parts per million or milligrams per cubic meter (ppm or mg/m^3) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.
>
> AEGL-2: the airborne concentration (expressed as ppm or mg/m^3) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.
>
> AEGL-3: the airborne concentration (expressed as ppm or mg/m^3) of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

Airborne concentrations below the AEGL-1 represent exposure levels that can produce mild and progressively increasing but transient and non-disabling odor, taste, and sensory irritation or certain asymptomatic, non-sensory effects. With increasing airborne concentrations above each AEGL, there is a progressive increase in the likelihood of occurrence and the severity of effects described for each corresponding AEGL. Although the AEGL values represent threshold levels for the general public, including susceptible subpopulations, such as infants, children, the elderly, persons with asthma, and those with other illnesses, it is recognized that individuals, subject to unique or idiosyncratic responses, could experience the effects described at concentrations below the corresponding AEGL.

Analysis Parameters of the Fairfield Chlorine Scenario

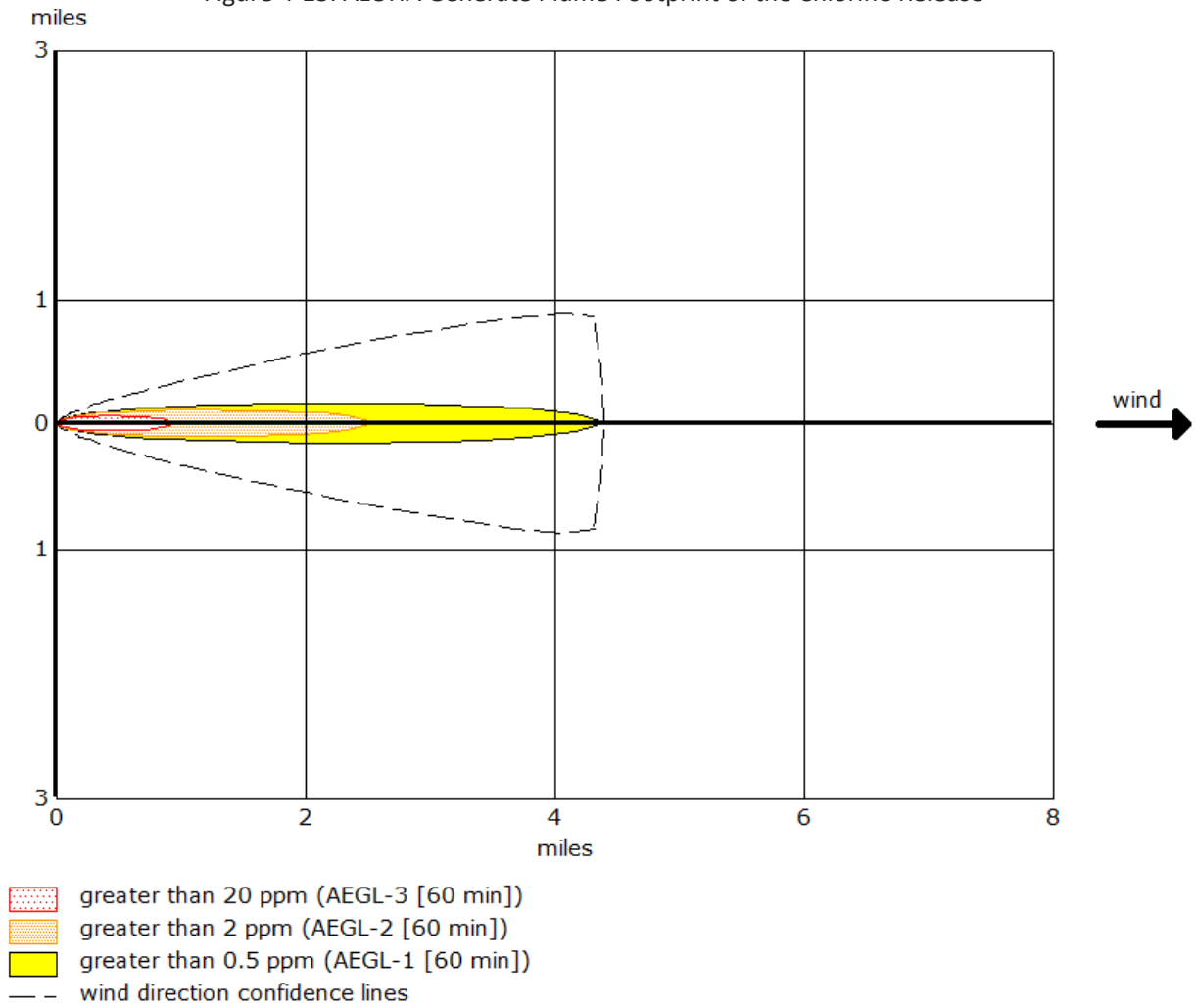
The ALOHA atmospheric modeling parameters for the chlorine release, depicted in Figure 4-12, were based upon a westerly wind speed of 6.2 miles per hour. The temperature was 66.7°F with 75% humidity and a cloud cover of five-tenths skies. SIU used average weather conditions reported by NOAA for wind direction, wind speed, and temperature to simulate fall conditions. The source of the chemical spill is a horizontal, cylindrical-shaped tank. The diameter of the tank was set to 8 feet and the length set to 33 feet (12,408 gallons). At the time of its release, it was estimated that the tank was 75% full. The chlorine in this tank is in its liquid state. This release was based on a leak from a 2.5-inch-diameter hole, 12 inches above the bottom of the tank. Figure 4-12 shows the plume modeling parameters in greater detail.

Figure 4-12. ALOHA Modeling Parameters for Chlorine Release

```
Wayne Aloha Starting Parameters
Using the INSERT LOCATION as the location for the Monthly Weather Summary from NOAA
http://www.nws.noaa.gov/climate/

Chemical Release
       Location: 38.378468, -88.40499
       Elevation: 131.064
       Month: September
       Average Wind Speed: 6.2 mph
       Wind Direction: West
       Average Temperature: 66.7

SITE DATA:
  Location: FAIRFIELD, ILLINOIS
  Building Air Exchanges Per Hour: 0.57 (unsheltered single storied)
  Time: September 29, 2015  1927 hours CDT (using computer's clock)

CHEMICAL DATA:
  Chemical Name: CHLORINE                Molecular Weight: 70.91 g/mol
  AEGL-1 (60 min): 0.5 ppm   AEGL-2 (60 min): 2 ppm   AEGL-3 (60 min): 20 ppm
  IDLH: 10 ppm
  Ambient Boiling Point: -29.8° F
  Vapor Pressure at Ambient Temperature: greater than 1 atm
  Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
  Wind: 6.2 miles/hour from 270° true at 10 feet
  Ground Roughness: open country         Cloud Cover: 5 tenths
  Air Temperature: 66.7° F               Stability Class: E
  No Inversion Height                    Relative Humidity: 75%

SOURCE STRENGTH:
  Leak from hole in horizontal cylindrical tank
  Non-flammable chemical is escaping from tank
  Tank Diameter: 8 feet                  Tank Length: 33 feet
  Tank Volume: 12,408 gallons
  Tank contains liquid                   Internal Temperature: 66.7° F
  Chemical Mass in Tank: 1.53 tons       Tank is 0.60% full
  Circular Opening Diameter: 2.5 inches
  Opening is 12 inches from tank bottom
  Release Duration: 3 minutes
  Max Average Sustained Release Rate: 365 pounds/min
     (averaged over a minute or more)
  Total Amount Released: 510 pounds
  Note: The chemical escaped from the tank as a gas.

THREAT ZONE:
  Model Run: Heavy Gas
  Red    : 1641 yards --- (20 ppm = AEGL-3 [60 min])
  Orange: 2.6 miles --- (2 ppm = AEGL-2 [60 min])
  Yellow: 4.4 miles --- (0.5 ppm = AEGL-1 [60 min])
```

Using the parameters in Figure 4-12, approximately 510 pounds of material would be released. The image in Figure 4-13 depicts the plume footprint generated by ALOHA. As the substance moves away from the source, the level of substance concentration decreases. Each color-coded area depicts a level of concentration measured in parts per million.

Figure 4-13. ALOHA Generate Plume Footprint of the Chlorine Release



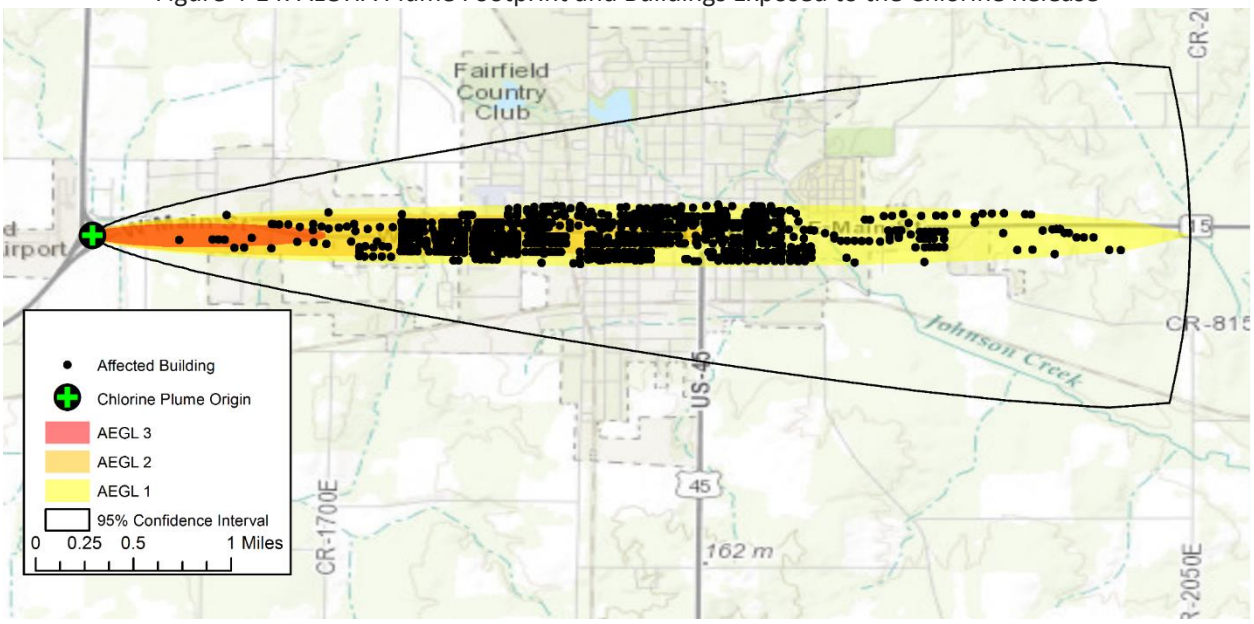
Results for the Fairfield Chlorine Scenario

An estimate of property exposed to the chlorine spill was calculated by using the building inventory and intersecting these data with each of the AEGL levels. The Wayne County assessment and parcel data was utilized for this analysis. There are 849 buildings within the chlorine plume. It should be noted that the results should be interpreted as potential degrees of loss rather than exact number of buildings damaged to the chlorine release. Table 4-26 lists the total amount of building exposure to each AEGL zone. Figure 4-14 depicts the chlorine spill footprint and location of the buildings exposed.

Table 4-26. Estimated Building Exposure as a Result of the Chlorine Release

Occupancy	Building Exposure			Number of Buildings		
	AEGL 1	AEGL 2	AEGL 3	AEGL 1	AEGL 2	AEGL 3
Residential	$17,460,855	$15,253,400	$0	282	248	0
Commercial	$12,750,900	$13,658,200	$744,430	140	153	6
Industrial	$10,500,200	$8,785,400	$2,278,500	8	11	1
Total:	**$40,711,955**	**$37,697,000**	**$3,022,930**	**430**	**412**	**7**

Figure 4-14. ALOHA Plume Footprint and Buildings Exposed to the Chlorine Release

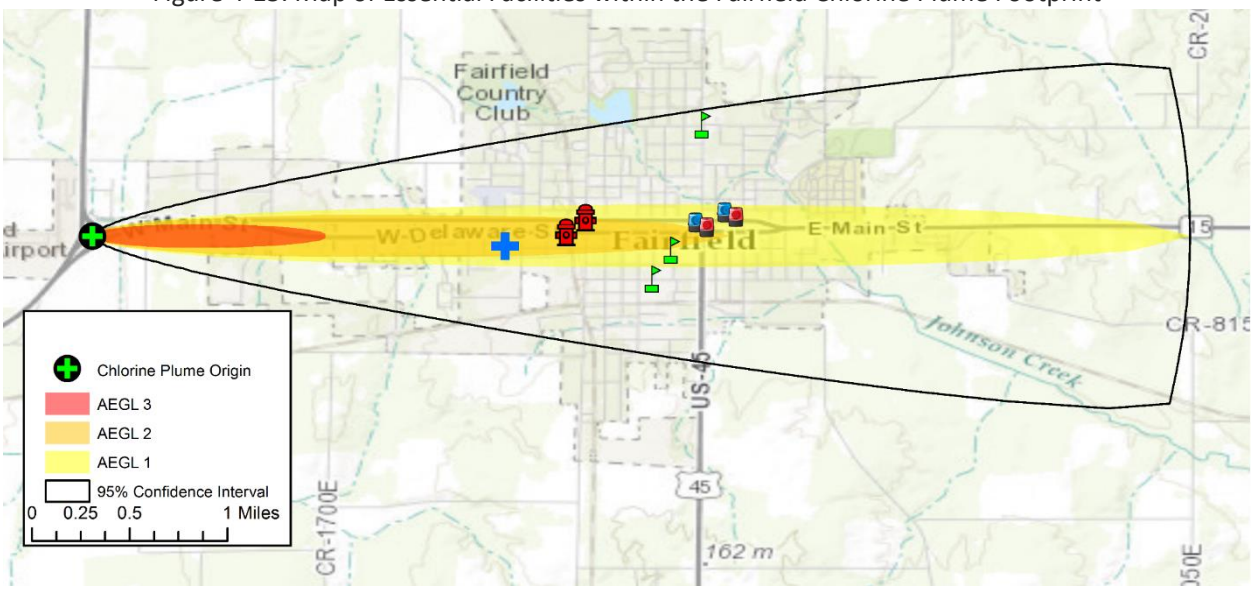


There are 7 essential facilities within the limits of the Fairfield Chlorine scenario. Table 4-27 and Figure 4-15 identifies the affected facilities.

Table 4-27. Essential Facilities within the Fairfield Chlorine Plume Footprint

Essential Facility	Facility Name
Schools	Center Street Elementary
	Fairfield Community High School
Police/EOC	Fairfield Auxiliary Police
	Wayne County Sheriff
Fire Station	Fairfield City Fire Department
	Fairfield Rural FFD
Care Facility	Fairfield Memorial Hospital

Figure 4-15. Map of Essential Facilities within the Fairfield Chlorine Plume Footprint



Vulnerability to Future Assets/Infrastructure for Hazardous Materials Storage and Transportation Hazard

Wayne County is expect to see future economic expansion within the city limits of Fairfield. These areas are particularly vulnerable to chemical releases because of transportation of hazardous materials along railways, and Illinois Routes 15 and 45.

Suggestion for Community Development Trends

Because the hazardous material hazard events may occur anywhere within the county, future development is susceptible to the hazard. The major transportation routes and the industries located in Wayne County pose a threat of dangerous chemicals and hazardous materials release.

4.3.7 Flooding Hazard

Hazard Definition for Flooding

Flooding is a significant natural hazard throughout the United States. The type, magnitude, and severity of flooding are functions of the magnitude and distribution of precipitation over a given area, the rate at which precipitation infiltrates the ground, the geometry and hydrology of the catchment, and flow dynamics and conditions in and along the river channel. Floods are classified as one of two types in this plan: upstream floods or downstream floods. Both types of floods are common in Illinois.

Upstream floods, also called flash floods, occur in the upper parts of drainage basins and are generally characterized by periods of intense rainfall over a short duration. These floods arise with very little warning and often result in locally intense damage, and sometimes loss of life, due to the high energy of the flowing water. Flood waters can snap trees, topple buildings, and easily move large boulders or other structures. Six inches of rushing water can upend a person; 18 inches might carry off a car. Generally, upstream floods cause severe damage over relatively localized areas. Urban flooding is a type of upstream flood. Urban flooding involves the overflow of storm drain systems and can result from inadequate

drainage combined with heavy rainfall or rapid snowmelt. Upstream or flash floods can occur at any time of the year in Illinois, but they are most common in the spring and summer months.

Downstream floods, sometimes called riverine floods, refer to floods on large rivers at locations with large upstream catchments. Downstream floods are typically associated with precipitation events that are of relatively long duration and occur over large areas. Flooding on small tributary streams may be limited, but the contribution of increased runoff may result in a large flood downstream. The lag time between precipitation and time of the flood peak is much longer for downstream floods than for upstream floods, generally providing ample warning for people to move to safe locations and, to some extent, secure some property against damage. Riverine flooding on the large rivers of Illinois generally occurs during either the spring or summer.

Previous Occurrences of Flooding

The NCDC database reported 65 flooding events in Wayne County. One of the most significant flood events occurred in March 2008 in Johnsonville. Torrential rainfall amounts from 6 to 12 inches occurred over a two-day period, causing an historic flood event. A very slow-moving cold front over southwest Illinois and southeast Missouri provided the focus for prolonged heavy rainfall. A deep southwest wind flow brought subtropical moisture across the frontal zone. Some roads were closed, including the main road from Orchardville to Keenes. The excessive rainfall caused gravel and dirt roads to become very soft. Heavy traffic was urged to stay on paved roads. There were no injuries or deaths reported, but the event resulted in $100,000 in property damages. Table 4-28 identifies NCDC-recorded severe flooding events that caused damage, death, or injury in Wayne County.

Table 4-28. NCDC-recorded Flooding Events that caused Death, Damage or Injury in Wayne County

Location or County*	Date	Deaths	Injuries	Property Damage
Fairfield	1996	0	0	$100,000
Fairfield	2006	0	0	$50,000
Johnsonville	2008	0	0	$100,000
Mt. Erie	2013	1	0	$20,000
	Total:	**1**	**0**	**$270,000**

*NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event.

There are two structures (1 single family structure, 1 non-residential structure) in Wayne County that have experienced repetitive losses due to flooding. FEMA defines a repetitive loss structure as a structure covered by a contract of flood insurance issued under the NFIP that has suffered flood loss damage on two or more occasions during a 10-year period that ends on the date of the second loss, in which the cost to repair the flood damage is ≥ 25% of the market value of the structure at the time of each flood loss.

The Illinois Emergency Management Agency and Illinois Department of Natural Resources was contacted to determine the location of repetitive loss structures in Wayne County. Records indicate that there are two repetitive loss structures within the county. The total amount paid for building replacement and building contents for damage to these repetitive loss structures is $51,117.90. Table 4-29 describes the repetitive loss structures for each jurisdiction.

Table 4-29. Repetitive Loss Structures for each Jurisdiction in Wayne County

Jurisdiction	Number of Properties	Number of Losses	Total Paid
City of Fairfield	2	4	$51,117.90
Total:	**2**	**4**	**$51,117.90**

Geographic Location of Flooding

Most riverine flooding in Illinois occurs during either the spring or summer and is the result of excessive rainfall and/or the combination of rainfall and snowmelt. Flash flooding of low-lying areas in Illinois can occur during any time of the year, but tends to be less frequent and more localized between mid-summer and early winter.

The primary sources of river flooding in Wayne County is the Embarras River and its tributaries. On June 10, 2008, Wayne County was one of six counties (Clark, Coles, Crawford, Wayne, Jasper, and Lawrence) in southeastern Illinois that was declared a state disaster area due to flooding. Heavy rains in May and June caused levees along the Embarras and Wabash rivers to fail. The Embarras River flood of record at Ste. Marie, Illinois occurred on June 8, 2008 with a flood stage of 28.01 feet. In Wayne County, the most severe flooding occurred in Greenup and Neoga.

Hazard Extent for Flooding

All floodplains are susceptible to flooding in Wayne County. The floodplain of concern is for the 100-year flood event which is defined as areas that have a 1% chance of flooding in any given year. However, flooding is dependent on various local factors including, but not limited to, impervious surfaces, amount of precipitation, river-training structures, etc. The 100-year flood plain covers approximately 15% of Wayne County

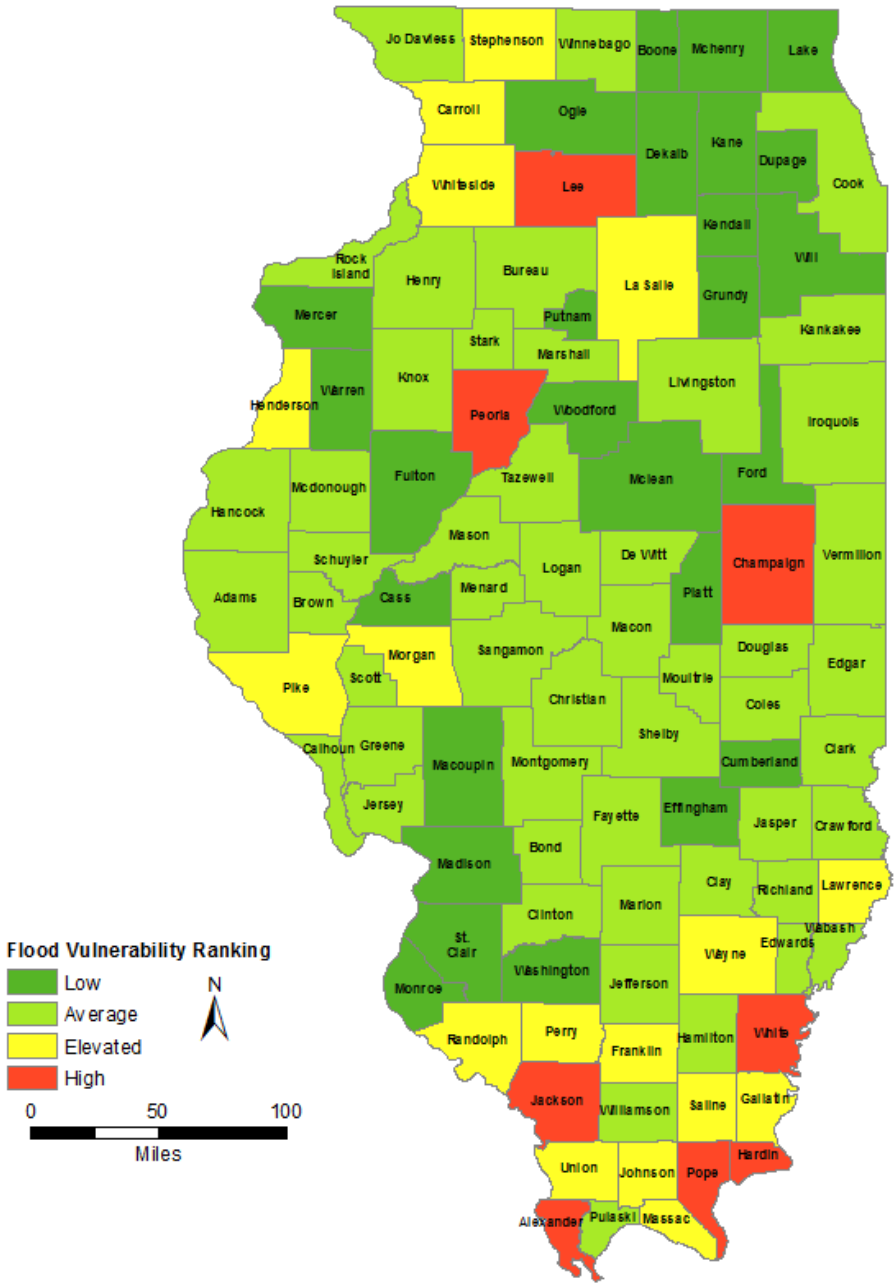
Vulnerability Analysis for Flooding

The 2013 Illinois Hazard Mitigation Plan analyzed a variety potential natural hazards including vulnerability to flooding. A Flood Vulnerability Index (FVI) was calculated for all counties and jurisdictions in Illinois. FVI combines Hazus-based estimates of flood exposure and loss with the widely utilized Social Vulnerability Index (SoVI). The highest vulnerability scores and vulnerability ratings were generally in rural counties and communities located along Illinois's large rivers (i.e., Mississippi, Green, Illinois, Kaskaskia, Rock and Ohio Rivers). Figure 4-16 displays the Flood Vulnerability Ratings for the 102 counties in Illinois. The vulnerability ratings are categorically representations (low, average, elevated, or high) of the flood vulnerability index. Wayne County has an Average Flood Vulnerability Rating of Elevated and ranks 21 out of the 102 counties in Illinois in terms of loss estimation according to Hazus-MH for floods. Table 4-30 lists the jurisdictional Flood Vulnerability Ratings for Wayne County.

Table 4-30. Jurisdictional Flood Vulnerability Ranking for Wayne County

Jurisdiction	State Ranking	Flood Vulnerability Rating
Mill Shoals	34	Elevated
Golden Gate	327	Average
Fairfield	367	Average
Wayne City	369	Average
Sims	370	Average

Figure 4-16. County Flood Vulnerability Rating for Illinois



Because all floodplains are susceptible to flooding in Wayne County; therefore, the population and all buildings located within the floodplain are vulnerable to flooding. To accommodate this risk, this plan considers all buildings located within 100-year flood plain as vulnerable.

Risk Identification for Flood Hazard

Based on historical information and the Flood Vulnerability Rating, future occurrence of flooding in Wayne County is highly likely. Although historical information equates 1-2 flooding events per year for Wayne County, input from the Planning Team suggests flooding in this area of great magnitude and severity of damage and loss is an unlikely event. According to the Risk Priority Index (RPI) and County input, flooding is ranked as the number six hazard.

Risk Priority Index

Probability	x	Magnitude	=	RPI
1	x	4	=	4

Critical Facilities

All critical facilities within the floodplain are vulnerable to floods. An essential facility will encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility, and loss of facility functionality (e.g., a damaged police station cannot serve the community). Appendix E includes a list of the essential facilities in Wayne County and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

All buildings within the floodplain are vulnerable to floods. These impacts can include structural failure, extensive water damage to the facility, and loss of facility functionality (e.g., damaged home will no longer be habitable, causing residents to seek shelter). This plan considers all buildings located within 100-year flood plain as vulnerable.

Infrastructure

The types of infrastructure potentially impacted by a flood include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available for this plan, it is important to emphasize that a flood could damage any number of these items. The impacts to these items include: broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); or railway failure from broken or impassable railways. Bridges could also fail or become impassable, causing risk to motorists.

Hazus-MH Flood Analysis

Hazus-MH was utilized to generate the flood depth grid for a 100-year return period and made calculations by clipping the USGS one-third-arc-second DEM (~10 m) to the flood boundary. Next, Hazus-MH was used to estimate the damages for Wayne County by utilizing a detailed building inventory database created from assessor and parcel data.

According to this analysis, there are 148 buildings located in the Wayne County 100-year floodplain. The estimated damage to these structures is $3,838,041. It should be noted that the results should be interpreted as degrees of loss rather than exact number of buildings exposed to flooding. Figure 4-17

depicts the building inventory within the 100-year floodplain and Table 4-31 shows the loss estimates by occupancy class.

Figure 4-17. Building Inventory Located within the 100-year Floodplain in Wayne County

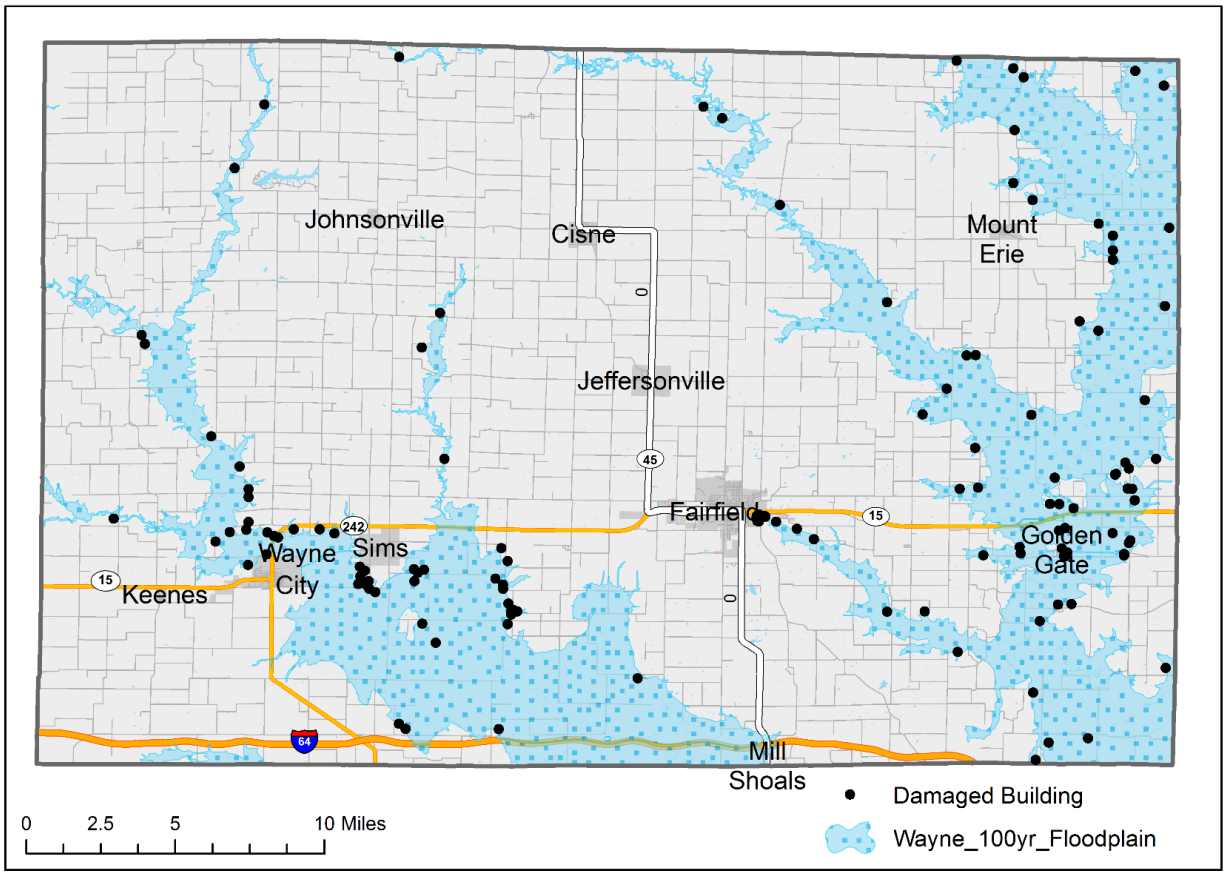


Table 4-31. Estimated Flood Losses within the 100-year Floodplain

Occupancy Class	Number of Structures	Estimated Building Related Losses
Residential	87	$1,514,953
Commercial	3	$25,059
Agricultural	58	$2,298,030
Total:	**148**	**$3,838,042**

Essential Facilities Damage

The analysis identified no essential facilities that are subject to flooding.

Vulnerability Analysis to Future Assets/Infrastructure

Flooding may affect nearly any location within the county; there for all buildings and infrastructure are vulnerable. Table 4-8 includes the building exposure for Wayne County. All essential facilities in the county are at risk. Appendix E include a list of the essential facilities in Wayne County and Appendix F displays a large format map of the locations of all critical facilities within the county. Currently, the municipal planning commission reviews new developments for compliance with the local flood zoning ordinance. At this time no new construction is planned with the 100-year floodplain.

Suggestions for Community Development Trends

Reducing floodplain development is crucial to reducing flood-related damages. Areas with recent development may be more vulnerable to drainage issues. Storm drains and sewer systems are usually most susceptible to drainage issues. Damage to these can cause back-up of water, sewage, and debris into homes and basements, causing structural and mechanical damage as well as creating public health hazards and unsanitary conditions.

4.3.8 Dam and Levee Failure

Hazard Definition for Dam and Levee Failure

Dams are structures that retain or detain water behind a large barrier. When full or partially full, the difference in elevation between the water above the dam and below creates large amounts of potential energy, creating the potential for failure. The same potential exists for levees when they serve their purpose, which is to confine flood waters within the channel area of a river and exclude that water from land or communities land-ward of the levee. Dams and levees can fail due to either: 1) water heights or flows above the capacity for which the structure was designed; or 2) deficiencies in the structure such that it cannot hold back the potential energy of the water. If a dam or levee fails, issues of primary concern include loss of human life/injury, downstream property damage, lifeline disruption (of concern would be transportation routes and utility lines required to maintain or protect life), and environmental damage.

Many communities view both dams and levees as permanent and infinitely safe structures. This sense of security may as well be false, leading to significantly increased risks. Both downstream of dams and on floodplains protected by levees, security leads to new construction, added infrastructure, and increased population over time. Levees in particular are built to hold back flood waters only up to some maximum level, often the 100-year (1% annual probability) flood event. When that maximum is exceeded by more than the design safety margin, then the levee will be overtopped or otherwise fail, inundating communities in the land previously protected by that levee. It has been suggested that climate change, land-use shifts, and some forms of river engineering may be increasing the magnitude of large floods and the frequency of levee-failure situations.

In addition to failure that results from extreme floods above the design capacity, levees and dams can fail due to structural deficiencies. Both dams and levees require constant monitoring and regular maintenance to assure their integrity. Many structures across the U.S. have been under-funded or otherwise neglected, leading to an eventual day of reckoning in the form either of realization that the structure is unsafe or, sometimes, an actual failure. The threat of dam or levee failure may require substantial commitment of time, personnel, and resources. Since dams and levees deteriorate with age, minor issues become larger compounding problems, and the risk of failure increases.

Previous Occurrences of Dam and Levee Failure

According to Wayne County historical records, there are no records or local knowledge of any dam or certified levee failure in the county.

Geographic Location of Dams in Wayne County

The U.S. Army Corps of Engineers maintains the National Inventory of Dams (NID) which identified two dams in Wayne County. According to NID records, two of the dams in Wayne County are classified as high

hazard and zero dams have Emergency Action Plans (EAP). Table 4-32 list of the dams located in Wayne County and their respective classification level.

Table 4-32. Wayne County Dam Inventory

Dam Name	Stream/River	Hazard Rating	EAP
Cox Lake Dam	Trib Watson Creek	Significant	No
Sam Dale Lake	BOH Branch	Significant	No

Hazard Extent for Dam and Levee Failure

Dams are assigned a low hazard potential classification means that failure or incorrect operation of the dam will result in no human life losses and no economic or environmental losses. Losses are principally limited to the owner's property. A significant hazard classification means that failure or incorrect operation results in no probable loss of human life; however, dam or levee failure can cause economic loss, environmental damage, and disruption of lifeline facilities. Significant hazard potential dams are often located in predominantly rural or agricultural areas, but could be located in populated areas with a significant amount of infrastructure. A high hazard potential classification means that failure or incorrect operation has the highest risk to cause loss of human life and to significantly damage buildings and infrastructure.

According to NID records, two dams in Wayne County are classified as high hazard and zero dams have Emergency Action Plans (EAP). An EAP is not required by the State of Illinois but is recommended in the 2003 Illinois Dam Safety & Inspection Manual.

Risk Identification for Dam and Levee Failure

Based on operation and maintenance requirements and local knowledge of the dams and levees in Wayne County, the probability of failure is possible. However, the warning time and duration of a dam failure event would be very short. Based on input from the Planning Team, future occurrence of hazardous materials accident in Wayne County is likely. According to the Risk Priority Index (RPI) and County input, flooding by dam or levee breach is ranked as the number seven hazard.

Risk Priority Index

Probability	x	Magnitude	=	RPI
2	x	2	=	4

Vulnerability Analysis for Dam and Levee Failure

An Emergency Action Plan (EAP) is required to assess the effect of dam failure on these communities. In order to be considered creditable flood protection structures on FEMA's flood maps, levee owners must provide documentation to prove the levee meets design, operation, and maintenance standards for protection against the 1% annual probability flood.

Because all floodplains are susceptible to flooding in Wayne County; therefore, the population and all buildings located within the floodplain are vulnerable to dam and levee failure. To accommodate this risk, this plan considers all buildings located within 100-year flood plain as vulnerable. Failure of dams and levees in the planning area would result in those floodplains adjacent to or downstream of the river to have the greatest impact. For example, if West Lake Dam (located outside the Village of Stoy) were to fail there would be less impact to the upstream floodplains of Hutsonville and Palestine.

To help clarify the potential impacts from dam and levee failure, the gap in the lack of inundation maps must be closed and perhaps identified as a mitigation action for this hazard by communities.

Critical Facilities

All critical facilities within the floodplain are vulnerable to dam and levee failure. An essential facility will encounter many of the same impacts as other buildings within the flood boundary. These impacts can include structural failure, extensive water damage to the facility, and loss of facility functionality (e.g., a damaged police station cannot serve the community). Table 4-7 lists the types and number of critical facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

All buildings within the floodplain are vulnerable to floods as a result of dam and/or levee failure. These impacts can include structural failure, extensive water damage to the facility, and loss of facility functionality (e.g., damaged home will no longer be habitable, causing residents to seek shelter). This plan considers all buildings located within 100-year flood plain as vulnerable.

Infrastructure

The types of infrastructure potentially impacted by a flood include roadways, utility lines/pipes, railroads, and bridges. Since an extensive inventory of the infrastructure is not available for this plan, it is important to emphasize that a flood could damage any number of these items. The impacts to these items include: broken, failed, or impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); or railway failure from broken or impassable railways. Bridges could also fail or become impassable, causing risk to motorists.

Hazus-MH Flood Analysis

See section 4.3.7 Flooding Hazard for the results of the Hazus-MH Flood Analysis.

Vulnerability to Future Assets/Infrastructure for Dam and Levee Failure

Flooding as a result of dam or levee failure may affect nearly any location within the county; therefore all buildings and infrastructure are vulnerable. Table 4-8 includes the building exposure for Wayne County. All essential facilities in the county are at risk. Appendix E includes a list of the essential facilities in Wayne County and Appendix F displays a large format map of the locations of all critical facilities within the county. Currently, the municipal planning commission reviews new developments for compliance with the local flood zoning ordinance. At this time no new construction is planned with the 100-year floodplain.

Suggestions for Community Development Trends

Reducing floodplain development is crucial to reducing flood-related damages. Areas with recent development may be more vulnerable to drainage issues. Storm drains and sewer systems are usually most susceptible to drainage issues. Damage to these can cause back-up of water, sewage, and debris into homes and basements, causing structural and mechanical damage as well as creating public health hazards and unsanitary conditions.

4.3.9 Drought and Extreme Heat Hazard

Hazard Definition for Drought Hazard

Drought is a normal climatic phenomenon that can occur across the state of Illinois and within Wayne County. The meteorological condition that creates a drought is below-normal rainfall over a sustained period of time. Excessive heat can lead to increased evaporation, which enhances drought conditions. Droughts can occur in any month. Drought differs from normal arid conditions found in low-rainfall areas. Drought is the consequence of a reduction in the amount of precipitation over an undetermined length of time (usually a growing season or longer).

The severity of a drought depends on location, duration, and geographical extent. Additionally, drought severity depends on the water supply, usage demands by human activities, vegetation, and agricultural operations. Droughts will affect the quality and quantity of crops, livestock, and other agricultural assets. Droughts can adversely impact forested areas leading to an increased potential for extremely destructive forest and woodland fires that could threaten residential, commercial, and recreational structures.

Drought conditions are often accompanied by extreme heat, which is defined as temperatures that exceed the average high for the area by 10°F or more for the last for several weeks. Such extreme heat can have severe implications for humans. Below are common terms associate with extreme heat:

Heat Wave
Prolonged period of excessive heat often combined with excessive humidity.

Heat Index
A number, in degrees Fahrenheit, which estimates how hot it feels when relative humidity is added to air temperature. Exposure to full sunshine can increase the heat index by 15°F.

Heat Cramps
Muscular pains and spasms due to heavy exertion. Although heat cramps are the least severe, they are often the first signal that the body is having trouble with heat.

Heat Exhaustion
Typically occurs when people exercise heavily or work in a hot, humid place where body fluids are lost through heavy sweating. Blood flow to the skin increases, causing blood flow to decrease to the vital organs, resulting in a form of mild shock. If left untreated, the victim's condition will worsen. Body temperature will continue to rise, and the victim may suffer heat stroke.

Heat and Sun Stroke
A life-threatening condition. The victim's temperature control system, which produces sweat to cool the body, stops working. The body's temperature can rise so high that brain damage and death may result if the body is not cooled quickly.

Previous Occurrences for Drought and Extreme Heat

The NCDC database reported 53 drought/heat wave events in Wayne County since 1950. The most recent recorded event occurred in the summer of 2012. The drought was only eased when remnants of Hurricane Isaac brought widespread rain totals of 2 to 4 inches from September 1st through 3rd. This was followed by additional rainfall throughout the month that resulted in much of the area being downgraded to the Moderate Drought category (D1) or better. Eight west-central Illinois counties along and northwest of a Marshall to Lincoln line remained in the Severe Drought category (D2) through the end of the month. Total crop losses from the extended drought across central and southeast Illinois was estimated to be $1.2 billion. Thanks to beneficial rainfall of 2 to 4 inches from the remnants of Hurricane Isaac, Wayne County

was downgraded to the Moderate Drought category (D1) on September 13th. Total damage to the corn crop was estimated at $3.45 million. Table 4-33 identifies NCDC-recorded drought/heat wave events that caused damage, death, or injury in Wayne County.

Table 4-33. NCDC-recorded Extreme Heat Events that caused Death, Crop Damage or Injury in Wayne County

Location or County*	Date	Deaths	Injuries	Crop Damage
Wayne County	07//31/1999	2	0	$0
Wayne County	07/26/2005	0	20	$0
Wayne County	09/30/2007	0	0	$3,450,000
	Total:	**2**	**20**	**$3,450,000**

Geographic Location for Drought and Extreme Heat

Droughts are regional in nature. Most areas of the United States are vulnerable to the risk of drought and extreme heat.

Hazard Extent for Drought and Extreme Heat

The extent of droughts or extreme heat varies both depending on the magnitude and duration of the heat and the range of precipitation.

Risk Identification for Drought and/or Extreme Heat

Based on historical information, the occurrence of future droughts and/or prolonged extreme heat is highly likely. The County should expect extreme heat and prolonged periods of less than average rainfall in the future. Although historical information equates for a highly likely chance of drought and/or extreme heat events per year for Wayne County, input from the Planning Team suggests drought and/or extreme heat in this area of great magnitude and severity of damage and loss is a likely event. According to the Risk Priority Index (RPI) and County input, drought and/or extreme heat are ranked as the number eight hazard.

Risk Priority Index

Probability	x	Magnitude	=	RPI
3	x	1	=	3

Vulnerability Analysis for Drought and Extreme Heat

Drought and extreme heat are a potential threat across the entire county; therefore, the county is vulnerable to this hazard and can expect impacts within the affected area. According to FEMA, approximately 175 Americans die each year from extreme heat. Young children, elderly, and hospitalized populations have the greatest risk. The entire population and all buildings are at risk. To accommodate this risk, this plan considers all buildings located within the county as vulnerable. Tables 4-7 and 4-8 display the existing buildings and critical infrastructure in Wayne County. Even though the exact areas affected are not known, a discussion of the potential impact are detailed below.

Critical Facilities

All critical facilities are vulnerable to drought. A critical facility will encounter many of the same impacts as any other building within the jurisdiction, which should involve little or no damage. Potential impacts include water shortages, fires as a result of drought conditions, and residents in need of medical care from the heat and dry weather. Table 4-7 lists the types and number of critical facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

Table 4-8 lists the building exposure in terms of types and numbers of buildings for the entire county. The buildings within the county can expect similar impacts to those discussed for critical facilities. These impacts include water shortages, fires as a result of drought conditions, and residents in need of medical care from the heat and dry weather.

Infrastructure

During a drought, the risk to these structures is primarily associated with fire, which could result from hot, dry conditions.

Potential Dollar Losses from Drought and Extreme Heat

According to the NDCD, Wayne County has experienced $3.45 million in crop damages relating to drought and extreme heat events storms since 1950. NCDC records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event. As a result, the potential dollar losses for a future event cannot be reliably constrained.

Vulnerability to Future Assets/Infrastructure from Drought/Extreme Heat Hazard

Future development will remain vulnerable to droughts. Typically, some urban and rural areas are more susceptible than others. For example, urban areas are subject to water shortages during periods of drought. Excessive demands of densely populated areas put a limit on water resources. In rural areas, crops and livestock may suffer from extended periods of heat and drought. Dry conditions can lead to the ignition of wildfires that could threaten residential, commercial, and recreational areas.

Suggestion of Community Development Trends

Because droughts and extreme heat are regional in nature, future development is susceptible to drought. Although urban and rural areas are equally vulnerable to this hazard, those living in urban areas may have a greater risk from the effects of a prolonged heat wave. The atmospheric conditions that create extreme heat tend to trap pollutants in urban areas, adding contaminated air to the excessively hot temperatures and creating increased health problems. Furthermore, asphalt and concrete store heat longer, gradually releasing it at night and producing high nighttime temperatures. This phenomenon is known as the “urban heat island effect.”

Local officials should address drought and extreme heat hazards by educating the public on steps to take before and during the event—for example, temporary window reflectors to direct heat back outside, staying indoors as much as possible, and avoiding strenuous work during the warmest part of the day.

Section 5. Mitigation Strategies

The goal of mitigation is to reduce the future impacts of a hazard, including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery. Throughout the planning process, the Wayne County Planning Team worked to identify existing hazard mitigation policies, develop mitigation goals, and a create a comprehensive range of mitigation strategies specific to each jurisdiction. This work provides a blueprint for reducing the potential loses identified in the risk assessment (section 4).

5.1 Existing Hazard Mitigation Policies, Programs and Resources

This section documents each jurisdictions existing authorities, policies, programs and resources related to hazard mitigation and the ability to improve these existing policies and programs. It is important to highlight the work that has been completed in Wayne County that pertains to hazard mitigation. In addition, the following information also provides an evaluation of these abilities to determine whether they can be improved in order to more effectively reduce the impact of future hazards.

5.1.1 Successful Mitigation Projects

To be successful, mitigation must be a recurrent process that is continually striving to lessen the impact of natural hazards within the county. Wayne County has not successfully completed any projects prior to the development of the Wayne County 2017 Multi-Hazard Mitigation Plan.

5.1.2 National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding. This section covers the County's NIFP status, flood insurance policy and claim statistics, repetitive loss structures, and Community Rating System status.

NFIP Status

In Wayne County, one incorporated community participates in the NFIP. Table 5-1 includes a summary of information for Wayne County participation in the NFIP. Wayne County and community of Golden Gate were both mapped with a flood risk but were sanctioned on January 9, 1982 and June 27, 1976, respectively. Sanctioned communities do not qualify for flood-related Federal disaster assistance for acquisition, construction, or reconstruction purposes in Special Flood Hazard Areas. This may have serious consequences for the community's real estate market and economic viability, as each federally regulated lender must notify the purchaser or lessee that Federal disaster assistance is not available for that property in the event of a flood. Wayne County will continue to provide information to its non-participating jurisdictions regarding the benefits of the National Flood Insurance Program.

No communities are mapped as Non-Special Flood Hazard Areas (NSFHA). NSFHA areas have a moderate-to-low risk flood zone and is not in any immediate danger from flooding caused by overflowing rivers or hard rains. However, it's important to note that structures within a NSFHA are still at risk. In fact, nearly 1 in 4 NFIP flood claims occur in these moderate- to low-risk areas.

Table 5-1: Information on Wayne County's Participation in the NFIP

Community	Participate in the NFIP	Initial Flood Hazard Boundary Map Identified	Initial FIRM Identified	Current Effective Map Date
Fairfield	Yes	02/22/74	04/17/85	04/17/85(M)
Golden Gate	No	06/27/75		06/27/75
Wayne County	No	01/09/81		01/09/81
Cisne	No	01/09/81		01/09/81
Jeffersonville	No	01/09/81		01/09/81
Johnsonville	No	01/09/81		01/09/81
Mill Shoals	No	07/19/74	02/16/12	02/16/12
Mount Erie	No	01/09/81		01/09/81
Sims	No	01/09/81		01/09/81

NFIP status and information are documented in the Community Status Book Report updated on 8/30/2016.
NSFHA – No Special Flood Hazard Area
(M) – No Elevation Determined – All Zone A, C and X

Flood Insurance Policy and Claim Statistics

As of June 30, 2016, 28 households paid flood insurance, insuring $2,499,000 in property value. The total premiums collected for the policies amounted to $22,188. Since the establishment of the NFIP in 1978, nine flood insurance claims were filed in Wayne County, totaling in $66,456.96 in payments. Table 5-2 summarizes the claims since 1978.

Table 5-2: Policy and Claim Statistics for Flood Insurance in Wayne County

Community	Total Losses	Closed Losses	Open Losses	CWOP Losses	Payments
Fairfield	9	8	0	1	$66,456.96

*NFIP policy and claim statistics since 1978 until the most recently updated date of 6/30/2016. Closed Losses refer to losses that are paid; open losses are losses that are not paid in full; CWOP losses are losses that are closed without payment; and total losses refers to all losses submitted regardless of status. Lastly, total payments refer to the total amount paid on losses.

Repetitive Loss Structures

There are two structures (1 single-family structure, 1 non-residential structure) in Wayne County that have experienced repetitive losses due to flooding. FEMA defines a repetitive loss structure as a structure covered by a contract of flood insurance issued under the NFIP that has suffered flood loss damage on two or more occasions during a 10-year period that ends on the date of the second loss, in which the cost to repair the flood damage is ≥ 25% of the market value of the structure at the time of each flood loss. Currently there are over 122,000 Repetitive Loss properties nationwide.

The Illinois Emergency Management Agency and Illinois Department of Natural Resources was contacted to determine the location of repetitive loss structures in Wayne County. Records indicate that there are 2 repetitive loss structures within the county. The total amount paid for building replacement and building contents for damage to these repetitive loss structures is $51,117.90. Table 5-3 describes the repetitive loss structures for each jurisdiction.

Table 5-3. Repetitive Loss Structures for each Jurisdiction in Wayne County

Jurisdiction	Number of Properties	Number of Losses	Total Paid
City of Fairfield	2	4	$51,117.90
Total:	**2**	**4**	**$51,117.90**

Community Rating System Status

Wayne County and its incorporated areas do not participate in the NFIP'S Community Rating System (CRS). The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance. More than 1,200 communities from all 50 states participate in the CRS. Although joining the CRS is free, completing CRS activities and maintain a CRS rating requires a degree of commitment from the community, including dedicated staff. Joining the CRS could be one way Wayne County or its incorporated communities improve their existing floodplain management policies and further reduce the flood hazard risk.

5.1.3 Jurisdiction Ordinances

Hazard Mitigation related ordinances, such as zoning, burning, or building codes, have the potential to reduce the risk from known hazards. These types of regulations provide many effective ways to address resiliency to known hazards. Table 5-4 list Wayne County's current ordinances that directly pertain, or can pertain, to hazard mitigation. It is important to evaluate the local building codes and ordinances to determine if they have the ability to reduce potential damages caused by future hazards. The Wayne County Planning Team worked to identify gaps in the current list of ordinances and suggested changes/additions in Section 5.3.

Table 5-4: Wayne County's Jurisdiction Ordinances

Community	Zoning	Storm water Mgmt	Flood	Subdivision Control	Burning	Seismic	Erosion Mgmt	Land Use Plan	Building Codes
Cisne	N	N	N	N	Y	N	N	N	N
Fairfied	Y	Y	Y	Y	Y	N	Y	Y	Y
Jeffersonville	N	N	N	N	Y	N	N	N	N

*Only those jurisdictions that have ordinances are included in the table.

The adoption of new ordinances, including the adoption of new development standards or the creation of hazard-specific overlay zones tied to existing zoning regulations, present opportunities to discourage hazardous construction and manage the type and density of land uses in areas of known natural hazards. Adopting and enforcing higher regulatory standards for floodplain management (i.e., those that go beyond the minimum standards of the NFIP) is another effective method for minimizing future flood losses, particularly if a community is experiencing growth and development patterns that influence flood hazards in ways that are not accounted for on existing regulatory floodplain maps. Revisions to existing building codes also present the opportunity to address safe growth. Many state and local codes are based

off national or industry standard codes which undergo routine evaluations and updates. The adoption of revised code requirements and optional hazard-specific standards may help increase community resilience.

5.1.4 Fire Insurance Ratings

By classifying communities' ability to suppress fires, the Insurance Service Office (ISO) Public Protection Classification Program helps communities evaluate their public fire-protection services. The program provides a countrywide standard that helps fire departments in planning and budgeting for facilities, equipment, and training. Information is collected on municipal fire-protection efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data using a Fire Suppression Rating Schedule. Rating are assigned from 1 to 10 where Class 1 generally represents superior property fire protection, and Class 10 indicates that the area's fire-suppression program doesn't meet ISO's minimum criteria. Table 5-5 displays each Fire Departments' insurance rating and total number of employees.

Table 5-5: Wayne County Fire Departments, Insurance Ratings, and Number of Employees/Volunteers

Fire Department	Fire Insurance Rating	Number of Employees
Bedford Township FPD	8	52
Fairfield City FD	4	26
Fairfield Rural FPD	7	35
Wayne FPD 1	8	25
Orchardville FPD	8	23
Lamard (Geff) FD	9	24

5.2 Mitigation Goals

In Section 4 of this plan, the risk assessment identified Wayne County as prone to several hazards. The Planning Team members understand that although they cannot eliminate hazards altogether, Wayne County can work towards building disaster-resistant communities. Below is a generalized list of goals, objectives, and actions. The goals represent long-term, broad visions of the overall vision the county would like to achieve for mitigation. The objectives are strategies and steps that will assist the communities in attaining the listed goals.

Goal 1: Lessen the impacts of hazards to new and existing infrastructure

Objective: Retrofit critical facilities and structures with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.

Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.

Objective: Minimize the amount of infrastructure exposed to hazards.

Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.

Objective: Improve emergency sheltering in Wayne County.

Goal 2: Create new or revise existing plans/maps for Wayne County

Objective: Support compliance with the NFIP for each jurisdiction in Wayne County.

Objective: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.

Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.

Goal 3: Develop long-term strategies to educate Wayne County residents on the hazards

Objective: Raise public awareness on hazard mitigation.

Objective: Improve education and training of emergency personnel and public officials.

5.3 Multi-Jurisdictional Mitigation Strategies

After reviewing the Risk Assessment, the Mitigation Planning Team was presented with the task of individually listing potential mitigation activities using the FEMA STAPLEE evaluation criteria (see table 5-6). FEMA uses their evaluation criteria STAPLEE (stands for social, technical, administrative, political, legal, economic and environmental) to assess the developed mitigation strategies. Evaluating possible natural hazard mitigation activities provides decision-makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects. The Planning Team brought their mitigation ideas to Meeting 3.

Table 5-6. FEMA's STAPLEE Evaluation Criteria

Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the community's social and cultural values.
Technical	Mitigation actions are technically most effective if they provide a long-term reduction of losses and have minimal secondary adverse impacts.
Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, comply with federal, state, and local environmental regulations, and are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.

Table 5-7 contains a comprehensive range of specific mitigation actions and projects for each jurisdiction, with an emphasis on new and existing buildings and infrastructure. At least two identifiable mitigation action items have been addressed for each hazard listed in the risk assessment. Each of the incorporated communities within and including Wayne County was invited to participate in brainstorming sessions in which goals, objectives, and strategies were discussed and prioritized. Each participant in these sessions was armed with possible mitigation goals and strategies provided by FEMA, as well as information about mitigation projects discussed in neighboring communities and counties.

All potential strategies and goals that arose through this process are included in Table 5-7. The mitigation strategies are arranged by hazard they directly address. In some cases, certain mitigation strategies can address all hazards. If provided by the jurisdiction, each mitigation strategy contains specific details

pertaining to the implementation, responsible and/or organizing agency, and potential funding source. Potential funding sources are identified by Federal, State, Local, or Private. A code is assigned to each mitigations strategy for ease of reference when reviewing the prioritization of each mitigations strategies in Section 5.4.

Table 5-7: Wayne County's Multi-Jurisdictional Mitigation Strategies

Code	Mitigation Strategy	Jurisdictions Involved	Status	Funding Source*	Responsible Organization or Agency
	ALL HAZARDS				
AH1	**Promote disaster resilience through workshops, education materials, and planning guides** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	County EMA, All Jurisdictions	Proposed/Ongoing	L, S, F	County EMA
AH2	**Develop social media techniques to provide critical weather updates and disseminate critical information** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year. Wayne City CUSD #100 and New Hope School use Blackboard Connect to disseminate information and provide updates to parents.*	County EMA, All schools	Proposed/Ongoing	L, S, F	County EMA
AH3	**Establish local emergency planning committee** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield CHSD #225	Ongoing	L	Fairfield CHSD #225
AH4	**Improve EMA training, staff, resources, and equipment** *Improve education of emergency personnel and public officials. The County EMA will oversee the implementation of this project. Emergency personnel need training, certification, and equipment to handle a wide range of emergencies. Frontier community College will also seek to improve emergency training for employees. Fairfield Memorial Hospital will provide training and funds to conduct local and regional training for the hospital and locally in the community. Implementation is forecasted to be complete within the next year.*	County EMA, Frontier Community College, Fairfield Memorial Hospital	Proposed	L, S, F, P	County EMA
AH5	**Compile and publicize location of safe rooms and/or shelters** *Fairfield and Mill Shoals will oversee this strategy. If funding is available, implementation is forecasted within the next five years.*	Fairfield, Mill Shoals	Proposed	L	Fairfield, Mill Shoals
AH6	**Develop mutual aid agreements** *The county will work with jurisdictions within and without to maintain mutual aid agreements. County EMA will oversee this strategy. Fairfield has verbal aid agreements, but little in writing, so will work to strengthen the agreements. Mutual aid agreements will be developed between various jurisdictions and local utility groups such as Fairfield Utility, Wayne City, Johnsonville, Mt. Erie, Mill Shoals, Clay City, Cisne, and McLeansboro. Fairfield Memorial Hospital will develop mutual aid agreements and emergency plans especially for the situations that can isolate the hospital from vendors, employees and patients. If funding is available, implementation is forecasted within the next three years.*	County EMA, Fairfield, Wayne City, Johnsonville, Cisne, Mill Shoals, Mt. Erie, Fairfield Memorial Hospital	Proposed/Ongoing	L, S	County EMA, Fairfield, Fairfield Memorial Hospital
AH7	**Develop alternative traffic routes** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	FWCAD	Proposed	L	FWCAD
AH8	**Identify and procure backup water supply** *Fairfield will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield	Proposed	F	Fairfield
AH9	**Improve/maintain access to public right-of-ways (Tree Management)** *Wayne and White Counties Electric Coop EMA will oversee this strategy of clearing and maintaining the right of way to prevent utility damage during tornadoes, severe thunderstorms, and winter storms. If funding is available, implementation is forecasted within the next year.*	Wayne and White Counties Electric Coop	Ongoing	F, P	Wayne and White Counties Electric Coop
AH10	**Purchase emergency signage for closures and direction** *County EMA will oversee this strategy. Fairfield has very little signage for any disaster and will work to be more prepared. Wayne City has a great need of signage for various disasters. Mill Shoals needs signage for roads that flood often; current signage is not very visible after dark. If funding is available, implementation is forecasted within the next year.*	County EMA, Fairfield, Wayne City, Mill Shoals	Proposed	L, S, F	County EMA, Fairfield, Wayne City, Mill Shoals
AH11	**Develop and maintain comprehensive plan to incorporate natural hazards** *Wayne City CUSD #100 will oversee this strategy. If funding is available, implementation is forecasted within the next years. Wayne City CUSD #100 has their emergency plan reviewed and in writing.*	Wayne City CUSD #100	Ongoing	L	Wayne City CUSD #100

Code	Mitigation Strategy	Jurisdictions Involved	Status	Funding Source*	Responsible Organization or Agency
AH12	**Create alternative emergency operations center** *Wayne City CUSD #100 and the County EMA will oversee their own application of this strategy. If funding is available, implementation is forecasted within the next three years. Wayne City CUSD #100 has plans to utilize Wayne City Baptist Church as their alternative location in emergencies. The County EMA will explore the Red Cross and various village halls and other locations that can serve as a backup EOC for various jurisdictions. The jurisdictions will choose another location if their initial choices are unavailable and will prepare their sites with gear, supplies, and equipment.*	Wayne City CUSD #100, County EMA, Johnsonville, Cisne, Mt. Erie	Ongoing/Proposed	L	Wayne City CUSD #100, County EMA
AH13	**Equip critical facilities with back-up generators** *Wayne City CUSD #100 will oversee this strategy. If funding is available, implementation is forecasted within the next three years. WC CUSD #100 has a generator for backup lighting in gymnasium and kitchen. WC CUSD #100 will explore further preparing facilities with generators that can handle more functions than backup lighting.* *Fairfield Memorial Hospital will oversee this strategy. If funding is available, implementation is forecasted within the next three years. Fairfield Memorial Hospital's main generator does not feed the Medical Arts Building in the event of a power outage.* *Mill Shoals will oversee this strategy. If funding is available, implementation is forecasted within the next five years.*	Wayne City CUSD #100, Fairfield Memorial Hospital, Mill Shoals	Proposed/Ongoing	S,F	Wayne City CUSD #100, Fairfield Memorial Hospital, Mill Shoals
AH14	**Maintain clearly marked emergency routes** *Wayne City CUSD #100 has prominently displayed emergency route maps in all classrooms, office, restrooms, etc. throughout the building. They will continue to maintain signage around their facilities.*	Wayne City CUSD #100	Proposed	L	Wayne City CUSD #100
AH15	**Utility storm hardening** *Wayne and White Counties Electric Coop will install new and stronger facilities to prevent damage from tornadoes, severe thunderstorms, and winter storms.*	Wayne and White Counties Electric Coop	Proposed	F, P	Wayne and White Counties Electric Coop
AH16	**Continue groups meeting regularly to discuss hazard mitigation** *The Village of Cisne will continue meeting with gas companies, fire departments, and 911 dispatch to discuss hazard mitigation. Local and private funding will continue for this strategy.*	Village of Cisne	Ongoing	L, P	Village of Cisne
AH17	**Supply all critical facilities with basic survival gear, food, and water** *Frontier Community College will oversee this strategy. If funding is available, implementation is forecasted within the next three years*	Frontier community College	Proposed	L, F	Frontier Community College
AH18	**Distribute NOAA Weather Radios** *Mill Shoals will pursue funds to purchase NOAA radios to provide to local residents. If funding is available, implementation is forecasted within the next five years.*	Mill Shoals	Proposed	S, F	Mill Shoals
	TORNADO / SEVERE THUNDERSTROMS				
ST1	**Install lightning detection system** *County EMA will oversee this strategy. Various schools and other buildings in the county need detection systems. If funding is available, implementation is forecasted within the next three years.*	Jasper CCSD #17, County EMA, North Wayne CUSD #200, Frontier Community College	Proposed	L, S, F, P	County EMA

Code	Mitigation Strategy	Jurisdictions Involved	Status	Funding Source*	Responsible Organization or Agency
ST2	**Provide jurisdiction-wide siren warning coverage** *County EMA will oversee this strategy. Fairfield has six storm sirens installed already and will consider necessary expansions of the system. Many schools and much of the county lies outside of the covered area. Rural warning systems are needed. If funding is available, implementation is forecasted within the next year.*	Fairfield, County EMA, Fairfield PSD #112, Jeffersonville CCSD #14, New Hope School, Fairfield CHSD #225, Frontier Community College, Jeffersonville, Sims	Proposed/Ongoing	L, S, F, P	County EMA
ST3	**Require the construction of safe rooms within new public buildings** *County EMA will oversee this strategy with Fairfield Wayne County Area Development. If funding is available, implementation is forecasted within the next three years.*	County EMA, FWCAD	Proposed	S, F	County EMA, FWCAD
ST4	**Construct new safe room(s)** *No safe rooms exist in the school district Fairfield PSD #112 or in Fairfield Memorial Hospital. County EMA will oversee the construction of new safe rooms in locations across the county especially at schools and hospitals. If funding is available, implementation is forecasted within the next year.*	Fairfield PSD #112, Jeffersonville CCSD #14, Jasper CCSD #17, County EMA, New Hope School, Fairfield CHSD #225, Fairfield Memorial Hospital, Frontier Community College, Jeffersonville	Proposed	L, F, S, P	Fairfield, County EMA, Frontier Community College, Jeffersonville
ST5	**Equip critical facilities with lightning protection devices** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield, Sims, Jasper CCSD #17	Proposed	L, F	County EMA
ST6	**Retrofit Structures to withstand high winds** *County EMA will oversee this strategy. The profile on the west end of Jasper CCSD #17 is exposed and needs to be addressed. Other walls and facilities may also need retrofitting. If funding is available, implementation is forecasted within the next three years.*	Jasper CCSD #17	Proposed	F	County EMA
ST7	**Anchor Manufactured Homes and Exterior Attachments** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	County EMA, Fairfield, FWCAD	Proposed	F, L	County EMA, Fairfield
ST8	**Enhance ordinances to exceed minimum construction standards / techniques in regards to high winds** *Fairfield will oversee this strategy. If funding is available, implementation is forecasted within the next three years.*	Fairfield	Proposed	L	Fairfield
ST9	**Develop ordinance to require new development to place all new utility lines underground** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield, Wayne and White Counties Electric Coop	Proposed	L, F, P	Fairfield, Wayne and White Counties Electric Coop
	EARTHQUAKES				
EQ1	**Provide information to residents on structural and non-structural retrofitting** *Fairfield and Sims will oversee this strategy. If funding is available, implementation is forecasted within the next five years.*	Fairfield, Sims	Proposed	L, F	Fairfield, Sims
EQ2	**Retrofit unreinforced masonry structures** *County EMA will oversee this strategy. Among many old buildings in the county,* Jasper CCSD #17 have parts of the building built in 1951 and 1974 which may need reinforcement. *If funding is available, implementation is forecasted within the next three years.*	Jasper CCSD #17	Proposed	F	County EMA

Code	Mitigation Strategy	Jurisdictions Involved	Status	Funding Source*	Responsible Organization or Agency
EQ3	**Retrofit/harden critical facilities** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next years.*	Fairfield, Jasper CCSD #17	Proposed	F	Fairfield, County EMA
EQ4	**Install automatic shutoff valves** *Throughout county, especially at the schools, automatic shutoff valves are needed. County EMA will oversee this strategy of installing necessary hardware. If funding is available, implementation is forecasted within the next year.*	Fairfield, Fairfield PSD #112, Jeffersonville CCSD #14, County EMA, FWCAD, New Hope School, Jeffersonville	Proposed	F, L, S	County EMA
EQ5	**Map and assess community vulnerability to seismic hazards** *Fairfield will oversee this strategy. If funding is available, implementation is forecasted within the next three years.*	Fairfield, County EMA	Proposed	F	Fairfield, County EMA
EQ6	**Perform detailed engineering studies of bridges and buildings** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next three years.*	County EMA	Proposed	F	County EMA
EQ7	**Develop Earthquake Emergency Action Plan** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next five years. A plan needs to be developed to be followed in the case of an earthquake.*	North Wayne CUSD #200, Sims	Proposed/Ongoing	L, S F, P	County EMA
EQ8	**Adopt the 2009 International Existing Building Code or the latest applicable standard for the design of building retrofits for seismically vulnerable buildings** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next three years.*	FWCAD	Proposed	L	FWCAD
EQ9	**Participate in Great American Shakeout** Local schools participate in Great American Shakeout and will continue to do so.	Jeffersonville CCSD #14, Fairfield PSD #112	Ongoing	L	CCSD #14, PSD #112
	WINTER STORMS				
WS1	**Install signs that direct traffic toward shelters and safe travel routes** *Fairfield will oversee this strategy. If funding is available, implementation is forecasted within the next five years.*	Fairfield	Proposed	L, S, F	Fairfield
WS2	**Purchase deicing chemicals** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield, Sims, Jeffersonville, Jeffersonville CCSD #14, Jasper CCSD #17, FWCAD	Proposed/Ongoing	L, S, F	County EMA
WS3	**Purchase snow fences** *Fairfield will oversee this strategy. If funding is available, implementation is forecasted within the next five years.*	Fairfield, Jasper CCSD #17	Proposed	F	Fairfield
WS4	**Establish a network of 4WD/Off-road vehicles to access stranded people** *Jurisdictions involved will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield, FWCAD, Sims	Proposed/Ongoing	L	Fairfield, FWCAD, Sims
WS5	**Develop ordinance to require new development to place all new utility lines underground** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next three years.*	Wayne and White Counties Electric Coop	Proposed	F, P	Wayne and White Counties Electric Coop

Code	Mitigation Strategy	Jurisdictions Involved	Status	Funding Source*	Responsible Organization or Agency
WS6	**Rural snow removal** *County EMA will seek to improve snow removal on local and township roads. Many areas become inaccessible during a heavy snow.*	County EMA	Proposed	L, S	County EMA
	HAZARDOUS MATERIALS RELEASE				
HAZ1	**Develop/update hazmat emergency response plan** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield, Sims, Fairfield PSD #112, Jeffersonville, Jasper CCSD #17, County EMA	Proposed	L, S, F	County EMA
HAZ2	**Improve regulations to reduce train speed along rail lines in populated areas** *Fairfield PSD #112 will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield PSD #112, Fairfield CHSD #225	Proposed/Ongoing	L,S	Fairfield PSD #112, Fairfield CHSD #225
HAZ3	**Equip critical facilities with centralized positive-pressure HVAC systems** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next five years.*	Fairfield, Jasper CCSD #17	Proposed	F	County EMA
HAZ4	**Acquire Protective Gear** *County EMA will oversee this strategy and seek to outfit police departments, fire departments and others with necessary gear. As of 2016,* Jeffersonville or Geff *has no HAZMAT gear. Emergency personnel across the county are under-equipped and need funding. If funding is available, implementation is forecasted within the next years.*	Fairfield, Jeffersonville, County EMA, FWCAD	Proposed	F, L, P	County EMA
HAZ5	**Update hazardous material facilities to current regulations** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	North Wayne CUSD #200	Ongoing	L, S, F	County EMA
HAZ6					
	FLOODING / DAM AND LEVEE FAILURE				
F1	**Update Flood Insurance Rate Map (FIRM)** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	FWCAD	Proposed	F	FWCAD
F2	**Conduct watershed analysis of runoff and drainage systems to predict insufficient capacity in storm drain/natural creek systems** *County EMA will oversee this strategy with Fairfield Wayne County Area Development.* Jeffersonville *experiences flooding in times of high rainfall. If funding is available, implementation is forecasted within the next year.*	Fairfield, Jeffersonville, FWCAD	Proposed	F, S, P	FWCAD, County EMA
F3	**Elevate structures and utilities in flood prone areas** *Wayne and White Counties Electric Coop will oversee this strategy. If funding is available, implementation is forecasted within the next three years.*	Wayne and White Counties Electric Coop	Proposed	F, P	Wayne and White Counties Electric Coop
F4	**Flood proof or elevate critical facilities** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next three years.*	Fairfield, Jasper CCSD #17	Proposed	L, F	Fairfield, County EMA
F5	**Install Backflow Valves and Sump pumps in critical facilities** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next five years.*	Fairfield, Jasper CCSD #17	Proposed	S, F	Fairfield, County EMA
F6	**Regularly perform drainage system maintenance** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield, County EMA	Ongoing	L	Fairfield, County EMA

Code	Mitigation Strategy	Jurisdictions Involved	Status	Funding Source*	Responsible Organization or Agency
F7	**Culvert replacement** *County EMA will oversee this strategy. If funding is available, implementation is forecasted within the next year.*	Fairfield, Sims, Fairfield PSD #112, Jeffersonville CCSD #14	Proposed/Ongoing	S, F	County EMA
F8	**Elevate low-lying roads** *County EMA will oversee this strategy. Many rural roads in the county flood and are under water when the rivers are up. This inhibits emergency personnel from reaching certain areas of the county in an efficient manner. If funding is available, implementation is forecasted within the next year.*	Fairfield, Sims, Fairfield PSD #112, Fairfield Memorial Hospital, County EMA	Proposed/Ongoing	S, F	County EMA
F9	**Develop a list of flood prone streets** *Fairfield with oversee this strategy. If funding is available, implementation is forecasted within the next three years.*	Fairfield	Proposed	L, S, F	Fairfield
F10	**Flood proof residential and non-residential buildings** *Mill Shoals has many buildings in and around the jurisdiction that need to be flood-proofed. Some have already been improved, but funding will be sought to continue this project in the next year.*	Mill Shoals	Ongoing	L, S, F	Mill Shoals
F11	**Develop an Emergency Action Plan (EAP) for Dams** *Create and Emergency Action Plan for the Dams in the county.*	Wayne County, City of Fairfield	Proposed	L, S, F	County EMA
F12	**Inspect and Make Repairs to Dams** *Have an engineering assessment done of the dams and have necessary repairs done.*	Wayne County, City of Fairfield	Proposed	L, S, F	County EMA
	DROUGHT / EXTREME HEAT				
H1	**Develop a Water Action Plan**	County EMA	Proposed	L	County EMA
H2	**Formalize the Cooling Center Protocols** *Wayne County currently has several cooling centers in place that are open during periods of intense heat. County EMA will oversee this strategy.*	County EMA	Proposed	L, S	County EMA
H3	**Develop/Enforce Burn Ordinances during periods of drought** *Some jurisdictions currently have burn ordinances in place.*	County EMA, Fairfield, Cisne, Jeffersonville	Proposed/Ongoing	L	County EMA, Fairfield, Cisne, Jeffersonville

* F – Federal, S – State, L – Local, P – Private

5.4 Prioritization of Multi-Jurisdictional Mitigation Strategies

Implementation of the mitigation strategies is critical to the overall success of the mitigation plan. It is important to decide, based upon many factors, which action will be undertaken first. In order to pursue the top priority first, an analysis and prioritization of the actions is vital. It is important to note that some actions may occur before the top priority due to financial, engineering, environmental, permitting, and site control issues. Public awareness and input of these mitigation actions can increase knowledge to capitalize on funding opportunities and monitoring the progress of an action. It is also critical to take into account the amount of time it will take the community to complete the mitigation project.

Table 5-8 displays the priority ranking for each mitigation strategy. Each code refers to a specific mitigations strategy listed in Table 5-7. For each participating jurisdiction a rating (high, medium, or low) was assessed for each mitigation item. The ranking is the result of the STAPLEE evaluation and the timeframe the community is interested in completing the strategy: H - High 1-3 years; M - Medium 3-5 years; and L - Low 5+years.

Table 5-8. Prioritization of the Wayne County Mitigation Strategies

Priority Ranking																				
Codes	**Wayne County**	**Cisne**	**Fairfield**	**Jeffersonville**	**Johnsonville**	**Mill Shoals**	**Mt. Erie**	**Sims**	**Wayne City**	**Frontier Com. College**	**Jasper CCD #17**	**Geff CCSD #14**	**New Hope School**	**Fairfield PSD #112**	**Fairfield CHS #225**	**Wayne White Co.s El. Coop**	**North Wayne CUSD #200**	**Wayne City CUSD #100**	**Ffld Wayne Co Area Dev.**	**Fairfield Memorial Hospital**
AH1	H	-	H	H	-	-	-	-	-	H	H	H	H	M	H	H	H	H	H	H
AH2	H	-	-	-	-	-	-	-	-	H	-	H	H	H	H	-	H	H	-	-
AH3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-	-	-	-	-
AH4	H	-	-	-	-	-	-	-	-	M	-	-	-	-	-	-	-	-	-	H
AH5	-	-	L	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AH6	-	M	H	-	M	M	H	-	H	-	-	-	-	-	-	-	-	-	-	M
AH7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-
AH8	-	-	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AH9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-	-	-	-
AH10	-	-	M	-	-	H	-	-	M	-	-	-	-	-	-	-	-	-	-	-
AH11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-	-
AH12	M	M	-	-	M	-	L	-	-	-	-	-	-	-	-	-	-	M	-	-
AH13	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	M	-	M
AH14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-	-
AH15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
AH16	-	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AH17	-	-	-	-	-	-	-	-	-	M	-	-	-	-	-	-	-	-	-	-
AH18	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST1	M	-	-	-	-	-	-	-	-	H	M	-	-	-	-	-	L	-	-	-

Priority Ranking																				
Codes	Wayne County	Cisne	Fairfield	Jeffersonville	Johnsonville	Mill Shoals	Mt. Erie	Sims	Wayne City	Frontier Com. College	Jasper CCD #17	Geff CCSD #14	New Hope School	Fairfield PSD #112	Fairfield CHS #225	Wayne White Co.s El. Coop	North Wayne CUSD #200	Wayne City CUSD #100	Ffld Wayne Co Area Dev.	Fairfield Memorial Hospital
ST2	H	-	H	H	-	-	-	H	-	H	-	H	H	H	H	-	-	-	-	-
ST3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M	-
ST4	-	-	-	H	-	-	-	-	-	H	H	H	H	H	H	-	-	-	-	M
ST5	-	-	H	-	-	-	-	L	-	-	M	-	-	-	-	-	-	-	-	-
ST6	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-	-	-	-	-	-
ST7	H	-	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-
ST8	-	-	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST9	-	-	H	-	-	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
EQ1	-	-	L	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
EQ2	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-	-	-	-	-	-
EQ3	-	-	M	-	-	-	-	-	-	-	H	-	-	-	-	-	-	-	-	-
EQ4	-	-	L	H	-	-	-	-	-	-	-	H	L	H	-	-	-	-	H	-
EQ5	M	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EQ6	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EQ7	-	-	M	-	-	-	-	L	-	-	-	-	-	-	-	-	L	-	-	-
EQ8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M	-
EQ9	-	-	-	-	-	-	-	-	-	-	-	H	-	L	-	-	-	-	-	-
WS1	-	-	M		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WS2	-	-	M	H	-	-	-	M	-	-	L	H	-	-	-	-	-	-	-	-
WS3	-	-	L	-	-	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-
WS4	-	-	L	-	-	-	-	M	-	-	-	-	-	-	-	-	-	-	H	-
WS5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
WS6	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HAZ1	M	-	H	H	-	-	-	L	-	-	L	-	-	L	-	-	-	-	-	-
HAZ2	-	-	-	-	-	-	-	-	-	-	-	-	-	H	H	-	-	-	-	-
HAZ3	-	-	L	-	-	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-
HAZ4	M	-	H	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M	-
HAZ5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-	-	-
F1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-
F2	-	-	-	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	H	-
F3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	M	-	-	-	-
F4	-	-	M	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F5	-	-	L	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F6	M	-	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F7	-	-	L	-	-	-	-	M	-	-	-	H	-	M	-	-	-	-	-	-
F8	H	-	M	-	-	-	-	M	-	-	-	-	-	L	-	-	-	-	-	M
F9	-	-	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F10	-	-	-	-	-	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Priority Ranking																				
Codes	**Wayne County**	**Cisne**	**Fairfield**	**Jeffersonville**	**Johnsonville**	**Mill Shoals**	**Mt. Erie**	**Sims**	**Wayne City**	**Frontier Com. College**	**Jasper CCD #17**	**Geff CCSD #14**	**New Hope School**	**Fairfield PSD #112**	**Fairfield CHS #225**	**Wayne White Co.s El. Coop**	**North Wayne CUSD #200**	**Wayne City CUSD #100**	**Ffld Wayne Co Area Dev.**	**Fairfield Memorial Hospital**
H1	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H2	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H3	H	H	H	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Section 6. Plan Implementation and Maintenance

6.1 Implementation through Existing Programs

Throughout the planning process, the Wayne County Planning Team worked to identify existing hazard mitigation policies, develop mitigation goals, and a create a comprehensive range of mitigation strategies specific to each jurisdiction. This work provides a blueprint for reducing the potential loses identified in the Risk Assessment (Section 4). The ultimate goal of this plan is to incorporate the mitigation strategies proposed into ongoing planning efforts within the County. The Wayne County Emergency Management Agency will be the local champion for the mitigation actions. The Wayne County Board and the city and village councils will be an integral part of the implementation process. Federal and state assistance will be necessary for a number of the identified action.

Continued public involvement is also critical to the successful implementation of the MHMP. Comments from the public on the MHMP will be received by the Wayne County Emergency Management Agency and forwarded to the Planning Team for discussion. Education efforts for hazard mitigation will be an ongoing effort of Wayne County. The public will be notified of periodic planning meetings through notices in the local newspaper. Once adopted, a copy of the MHMP will be maintained in each jurisdiction and in the Wayne County Emergency Management Agency.

6.2 Monitoring, Evaluation, and Updating the MHMP

Throughout the five-year planning cycle, the Wayne County Emergency Management Agency will reconvene the Planning Team to monitor, evaluate, and update the plan on an annual basis. Additionally, a meeting will be held in 2022 to address the five-year update of this plan. Members of the planning committee are readily available to engage in email correspondence between annual meetings. If the need for a special meeting, due to new developments or the occurrence of a declared disaster in the county, the team will meet to update mitigation strategies. Depending on grant opportunities and fiscal resources, mitigation projects may be implemented independently by individual communities or through local partnerships.

As part of the update process, the Planning Team will review the county goals and objectives to determine their relevance to changing situations in the county. In addition, state and federal policies will be reviewed to ensure they are addressing current and expected conditions. The team will also review the risk assessment portion of the plan to determine if this information should be updated or modified. The plan revision will also reflect changes in local development and its relation to each hazard. The parties responsible for the various implementation actions will report on the status of their projects, and will include which implementation processes worked well, any difficulties encountered, how coordination efforts are proceeding, and which strategies should be revised.

Updates or modifications to the MHMP during the five-year planning process will require a public notice and a meeting prior to submitting revisions to the individual jurisdictions for approval. The plan will be updated via written changes, submissions as the committee deems appropriate and necessary, and as approved by the Wayne County Board.

The GIS data used to prepare the plan was obtained from existing county GIS data as well as data collected as part of the planning process. This updated Hazus-MH GIS data has been returned to the county for use and maintenance in the county's system. As newer data becomes available, these updated data will be used for future risk assessments and vulnerability analyses.

Definitions

100-year Floodplain	Areas subject to inundation by the 1-percent-annual-chance flood event.
Critical Facility	A structure, because of its function, size, service area, or uniqueness, that has the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if it is destroyed or damaged or if its functionality is impaired. This includes, but are not limited to, water and wastewater treatment facilities, municipal buildings, educations facilities, and non-emergency healthcare facilities.
Community Rating System (CRS)	A voluntary program for National Flood Insurance Program (NFIP) participating communities. The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management.
Comprehensive Plan	A document, also known as a "general plan," covering the entire geographic area of a community and expressing community goals and objectives. The plan lays out the vision, policies, and strategies for the future of the community, including all the physical elements that will determine the community's future developments.
Disaster Mitigation Act of 2000 (DMA 2000)	The largest legislation to improve the planning process. It was signed into law on October 30, 2000. This new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.
Essential Facility	A subset of critical facilities that represent a substantial hazard to human life in the event of failure. This includes (but not limited to) hospital and fire, rescue, ambulance, emergency operations centers, and police stations.
Federal Emergency Management Agency	An independent agency created in 1979 to provide a single point of accountability for all federal activities related to disaster mitigation and emergency preparedness, response, and recovery.
Hazard	A source of potential danger or adverse condition.
Hazard Mitigation	Any sustained action to reduce or eliminate long-term risk to human life and property from hazards.

Hazard Mitigation Grant Program (HMPG)	Authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, HMGP is administered by FEMA and provides grants to states, tribes, and local governments to implement hazard mitigation actions after a major disaster declaration.
Hazus-MH	A geographic information system (GIS)-based disaster risk assessment tool.
Multi-Hazard Mitigation Planning	Identify policies and actions that can be implemented over the long term to reduce risk and future losses from various hazardous events.
National Flood Insurance Program	Administered by the Federal Emergency Management Agency, which works closely with nearly 90 private insurance companies to offer flood insurance to property owners and renters. In order to qualify for flood insurance, a community must join the NFIP and agree to enforce sound floodplain management standards.
Planning Team	A group composed of government, private sector, and individuals with a variety of skills and areas of expertise, usually appointed by a city or town manager, or chief elected official. The group finds solutions to community mitigation needs and seeks community acceptance of those solutions.
Risk Priority Index	Quantifies risk as the product of hazard probability and magnitude so Planning Team members can prioritize mitigation strategies for high-risk-priority hazards.
Risk Assessment	Quantifies the potential loss resulting from a disaster by assessing the vulnerability of buildings, infrastructure, and people.
Strategy	A collection of actions to achieve goals and objectives.
Vulnerability	Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, contents, and the economic value of its functions.

Acronyms

A B **C** **D** **E** **F** **G** **H** **I** J K L **M** **N** O **P** Q **R** **S** T **U** V W X Y Z

A

AEGL – Acute Exposure Guideline Levels
ALOHA – Areal Locations of Hazardous Atmospheres

C

CERI – Center for Earthquake Research and Information
CRS – Community Rating System

D

DEM – Digital Elevation Model
DFIRM – Digital Flood Insurance Rate Map
DMA – Disaster Mitigation Act of 2000

E

EAP – Emergency Action Plan
EMA – Emergency Management Agency
EPA – Environmental Protection Agency

F

FEMA – Federal Emergency Management Agency
FIRM – Flood Insurance Rate Map

G

GIS – Geographic Information System

H

Hazus-MH – Hazards USA Multi-Hazard
HMGP – Hazard Mitigation Grant Program
HUC – Hydrologic Unit Code

I

IA – Individual Assistance
IDNR – Illinois Department of Natural Resources
IDOT – Illinois Department of Transportation
IEMA – Illinois Emergency Management Agency
ISO – Insurance Service Office
ISGS – Illinois State Geological Survey
ISWS– Illinois State Water Survey

M

MHMP – Multi-Hazard Mitigation Plan

N

NCDC – National Climatic Data Center
NEHRP – National Earthquake Hazards Reduction Program
NFIP – National Flood Insurance Program
NID – National Inventory of Dams
NOAA – National Oceanic and Atmospheric Administration
NSFHA – Non-Special Flood Hazard Area

P

PA – Public Assistance
PHMSA– Pipeline and Hazardous Materials Safety Administration
PPM – Parts Per Million

R

RPI – Risk Priority Index

S

SIU – Southern Illinois University Carbondale
SPC – Storm Prediction Center
STAPLEE – Social, Technical, Administrative, Political, Legal, Economic, and Environmental

U

USGS – United States Geological Survey

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Appendix A. Meeting Minutes

Formal Mitigation Planning Meetings

Meeting 1 – November 6th, 2014

Meeting 2 – April 6th, 2015

July 23rd, 2015

Meeting 3 – September 30th, 2015

Meeting 4 – March 10th, 2016

Meeting 5 – December 19th, 2016

Outside Meetings

See Attached Outside Meeting Minutes and Sign-in Sheets

Meeting 1 – November 6th, 2014

Wayne County Multi-Hazard Mitigation Meeting 1

Chairman: Jeff Jake (EMA Coordinator)

Plan Directors: Southern Illinois University and Greater Wabash Regional Planning Commission

Meeting Date: November 6, 2014

Meeting Time:

Place:

Attendance: see attached list

Introduction to the Multi-Hazard Mitigation Planning Process

The planning team was welcomed by Prof. Nicholas Pinter, project director from SIU. Prof. Pinter gave an overview of Southern Illinois University's involvement in Regional Mitigation Planning. He introduced the plan partners: Jeff Jake, Wayne County EMA Coordinator, and Greater Wabash Regional Planning Commission. Next, he turned the meeting over to Amanda Damptz, project manager at SIU.

Amanda explained that the objective of this project is to develop Wayne County's Multi-Hazard Mitigation Plan (MHMP) to meet the requirements of the Illinois Emergency Management Agency (IEMA) and the Federal Emergency Management Agency (FEMA). This project is in response to the Disaster Mitigation Act of 2000, which requires communities to develop and maintain a mitigation plan in order to be eligible for Hazard Mitigation Assistance. Because the county does not participate in the National Flood Insurance Program (NFIP), Amanda stressed that any potential funds can only be used for projects outside of Special Flood Hazard Areas. In addition, the County cannot apply for Flood Mitigation Assistance because it requires NFIP participation.

Next, Amanda explained that the grant requires a 25% match from the county but will be met by sweat equity by an accumulation of time spent at the meetings, on research assignments, surveys, along with the time spent reviewing and producing the planning document.

Finally, Amanda presented a PowerPoint that divided the project into five to six meetings:

Meeting 1 will consist of an overview of the planning process and discussion of schedule and milestones. This meeting will also include a discussion of roles, responsibilities, decision-making processes, administrative procedures, and communication strategies. SIU will collect and organize GIS and assessor's resources to use for the improved risk assessment and will confirm locations of essential and critical facilities.

Meeting 3 will be the public meeting. At the public meeting, the university will present the results of the risk assessment and describe the GIS and Hazus models. The meeting will conclude with open Q&A and an introduction to mitigation strategies.

Meeting 4 will be a mitigation brainstorming session. The group will review the risk assessment from Meeting 2 to assist in prioritizing developed mitigation strategies. At the end of the meeting, the group will develop goals and objectives, as well as determining a 'pre-plan' on how to implement the strategies. Following this meeting, the university will compile a draft version of the mitigation plan.

Meeting 5 is an opportunity for the planning team to review and revise the draft plan. They will make any necessary changes and fill in any gaps, and then submit the revisions to the university. The university partnership does not typically attend this meeting, but is available upon request.

Meeting 6 is not technically a formal meeting. Meeting 6 consists of adopting the final plan upon FEMA's approval. The approval process can take several months, but once the plan is approved, the County will have to the end of their grant period to adopt the plan. The date the County adopts the plan is the date that is set for the five-year update.

Lastly, Prof. Pinter and Amanda Damptz fielded any questions from the planning team about the process of mitigation planning.

Meeting was adjourned.

Wayne County PDMP First Meeting
November 6, 2014 at 1:30 pm
Foundation Fall, Fairfield, IL

Milage 120

	Name	Representing	Phone Number	Address	Email Address	Job Description
1	Courtney Yost	University of Illinois Extension	943-5219	600 Cherry La Lville	yoste@illinois.edu	CED Educator
2	Jeff Jaile	Alanex + WCEMA	6185449748	505 SW 10th Ff	waynecoem@frontier.com	Director
3	Chuck Grissell	City of Ff	516-7236	7 Tarrytown Ln	cmsgri@gmail.com	Mayor
4	Diana Zurliene	Fairfield PBC	842-6501	806 N. 1st St	dzurliene@fairfieldcoHs.com	Supt
5	Mike Everett	Wayne Co. S.O.	(618) 842-6651	305 E. Court	sheriffeverett@gmail.com	
6	Russell Hilliard	Village of Goff	618 847 2650	208 N Merchant	rdh@wabash.net	Mayor
7	Chris Hopfinger	Wayne White Elec	618-842-2296	1501 W Main	chopfinger@wwcec.com	System Eng.
8	Erin Halley	"	"	"	ehalley@wwcec.com	
9	Dennis Seidel	Wayne Co. Highway Dept	618-847-7343	1359 E Main Fairfield	waynehighway@frontier.com	County Engineer
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Wayne County PDMP First Meeting
November 6, 2014 at 1:30 pm
Foundation Fall, Fairfield, IL

	Name	Representing	Phone Number	Address	Email Address	Job Description
17	Gary Sloan	Wayne Co. Rd	618-835-2236	481 Co Hwy 16 Zenia, IL 62889		Chairman
18	Keith Colclasure	Fairfield Police	842-2152	1002 Lewis Rd, Ff	colclasure@fairfieldil.org	Chief of Police
19	Kara Kuykendall	GWRPC	443 3612	Albion IL		
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Meeting 2 – April 6th, 2015

Meeting 2

Wayne County Multi-Hazard Mitigation Plan Meeting 2
Chairman: Jeff Jake (EMA Coordinator)
Plan Directors: Southern Illinois University and Greater Wayne Regional Planning Commission

Meeting Date: April 6, 2015
Meeting Time: 2:30 pm
Place: Frontier Community College- Bob Boyles Hall
Attendance: see sign in sheet

SIU presented historical hazards. The first task of the meeting was to assemble a list of disaster-related threats facing the community. A power point presentation was presented by SIU and discussion took place on the historical disasters that have occurred in Wayne County.

SIU also covered the significant natural hazard events that have historically occurred in Wayne County. This information was used to guide the Hazard Ranking Exercise that the County and each participating jurisdiction must complete.

The next task of the meeting was to assemble a list of disaster-related threats facing Wayne County. The Planning Team evaluated each hazard based on the probability/likelihood each hazard would occur and the impact/severity it would have on Wayne County.

Each jurisdiction within the county is responsible for filling out a separate Risk Assessment and submit it to SIU.

Meeting was adjourned.

Wayne County PDMP Meeting
April 6, 2015 at 2:30 pm
Foundation Hall, Fairfield, IL

	Name	Representing	Phone Number	Address	Email Address	Job Description	Milage
1	Courtney Yost	Unit I Extension		600 Cherry Ln Ville	yostc@illinois.edu	CED	114
2	Diana Zurliene	Fairfield PSD #112		806 North First FF	dzurliene@fairfieldcolls.com	Supt	
3	Gary Sloan	Wayne Co-Board		481 Co Rd 18	—	Co. Bd Member	50
4	ERIN Halley	Wayne White Elec		Drawer E Fairfield	ehalley@wwcec.com	OPS Engineering	
5	Jeff Jake	Wayne Co EMA		505 SW 10TH	WAYNECOEMA@frontier.com	Director	4
6	Flo Simpson	Fairfield Wayne Co Dev		121 E Main	adc@fairfieldwirelss.net		
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Meeting 2 (Redo) – July 23rd, 2015

Wayne County Multi-Hazard Mitigation Plan Meeting 2

Chairman: Jeff Jake (EMA Coordinator)

Plan Directors: Southern Illinois University and Greater Wayne Regional Planning Commission

Meeting Date: July 23, 2015

Meeting Time: 1:30

Place: Frontier Community College- Bob Boyles Hall Fairfield, IL

Attendance: see sign in sheet

SIU presented historical hazards. The first task of the meeting was to assemble a list of disaster-related threats facing the community. A power point presentation was presented by SIU and discussion took place on the historical disasters that have occurred in Wayne County.
SIU also covered the significant natural hazard events that have historically occurred in Wayne County. This information was used to guide the Hazard Ranking Exercise that the County and each participating jurisdiction must complete.
The next task of the meeting was to assemble a list of disaster-related threats facing Wayne County. The Planning Team evaluated each hazard based on the probability/likelihood each hazard would occur and the impact/severity it would have on Wayne County.
Each jurisdiction within the county is responsible for filling out a separate Risk Assessment and submits it to SIU.
Meeting was adjourned.

7/23/15 2 hours

Wayne County PDMP Meeting
July 23, 2015 at 1:30
Bob Boyles Hall, Fairfield, IL

	Name	Representing	Phone Number	Address	Email Address	Job Description	Milage
1	Amanda Dampitz	SIU	618 453 7349	2701 W Kent Dr Carbondale 62901	adampitz@siu.edu	Research II	0
2	~~Gary Stoan~~	Wayne Co. Board	618-835-2256	481 Co. Hwy 18 Keenes IL 62869	N/A	Board Member	50 mi.
3	~~Ann Ennis~~	FMH	Hosp.		cjennis@fairfieldmemorialhosp.org	Chief Nurse	4
4							
5	~~Diana Zurliene~~	FF PSD #12	842-6501	806 North 1st St. FF Il. 62837	dzurliene@fairfieldcolts.com	Supt.	2
6	~~Andy Milner~~	Wayne Co. Sheriffs Office	842-6631	305 E Court St. Fairfield	almilner1@gmail.com	Chief Deputy	2
7	~~Jeff Jones~~	WAYNE CO EMA	599-9748	505 SW 10th	waynecoemaefmaa.com	Director	2
8	~~Russell Hillard~~	Village Goff	897-2680	PO box 6 1307 CH7	rdh@wabash.net	Mayor	6
9	~~Shirley MacDonald~~	County Board	919-0350	Goff IL 62842	shirleymacdavid@gmail.com	retired	8
10	~~Wade Gregory~~	Fairfield City Fire	618-842-2104	108 NW 7th	FFLD Fire@newwave.net	Fire Dept. Captain	4
11	~~Royce Carter~~	Wayne Co Board	618 597 2916	2193 2nd St 62836	royce.c47@yahoo	Board.	5
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15	Name	Representing	Phone Number	Address	Email Address	Job Description	

Wayne County PDMP Meeting
July 23, 2015 at 1:30
Bob Boyles Hall, Fairfield, IL

	Name	Representing	Phone Number	Address	Email Address	Job Description	Milage
1	~~Jill Fulkerson~~	Fairfield Community High School	618-842-2649	300 W King St	jfulkerson@fchs.mules.com	Supt/Principal	24
2	~~David Savage~~	GWRPC	618-445-3612	10 W. North St. Albion, IL	davidsavage@gwrpc.com	Grant MGR	35
3	~~Jay Edgren~~	FCC	618-842-3711	2 Frontier Drive	edgrenj@iecc.edu	President	4
4	~~Keith Aldridge~~	Fairfield Police	618-842-2151	108 Leininger Rd Fairfield		Chief of Police	4
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15	Name	Representing	Phone Number	Address	Email Address	Job Description	

Meeting 3 – September 30th, 2015

Wayne County Multi-Hazard Mitigation Plan Meeting 3
Chairman: Jeff Jake (EMA Coordinator)
Plan Directors: Southern Illinois University and Greater Wabash Regional Planning Commission

Meeting Date: September 30, 2015

Meeting Time: 1:30 p.m.

Place: Frontier Community College- Fairfield, IL

Attendance: see sign in sheet

SIU presented the draft risk assessment, derived from the Hazus-MH and GIS modeling of the identified disasters, to the planning team. The general public was invited to this meeting through a public release in the newspaper. At the end of the meeting, SIU encouraged the general public to ask questions and provide input to the planning process, fulfilling one of FEMA's requirements for public input. A PowerPoint presentation was made by SIU on the historic accounts of natural disasters that have affected the County.
Next meeting: identify and prioritize mitigation strategies

33-1000 P
33-1000 F

Wayne County PDMP Meeting
September 30, 2015 at 1:30 PM
Bob Boyles Hall, Fairfield, IL

Name	Representing	Phone Number	Address	Email Address	Job Description	Milage
Shirley MacDavid	County Board	618-979-0350	1307 CH 7 Geff IL 62842	shirleymacdavid@gmail.com		
Keith Coulsure	Fairfield Police	618 842-2153	1002 Leininger Rd Fairfield, IL 62837	coldhouse@fairfieldpd.org	Chief	4.0
Andrew Miller	Fairfield Fire	618-842-2104	108 NW 7th Fairfield IL 62837	ffldfire@newwavecomm.net	A/C	4.0
Silas Eckleberry	Fairfield Police	618-842-2153	1002 Leininger Rd Fairfield, IL 62837	Eckleberry@fairfieldpd.org	Asst. chief	4.0
Mike Everett	WCSO	618-842-6631	305 E. Court Fairfield IL	sheriffeverett@gmail.	Sheriff	4
Jeff Jake	WCEMA	618-599-9748	505 SW 10th Fairfield IL 62837	waynecoema@frontier.com	Director EMA	4
Jay Edgren	IECC/FCC	618-842-3711	2 Frontier Drive Fairfield, IL 62837	edgrens@iecc.edu	President	6
Jo Simpson	Fairfield Chamber of Commerce	618-842-4802	121 East Main St Fairfield, IL 62837	adc@fairfieldwireless.net	Director	6
Name	Representing	Phone Number	Address	Email Address	Job Description	

Meeting 4 – March 10th, 2016

Wayne County Multi-Hazard Mitigation Plan Meeting 4

Chairman: Jeff Jake (EMA Coordinator)

Plan Directors: Southern Illinois University and Greater Wabash Regional Planning Commission

Meeting Date: March 10, 2016

Meeting Time: 1:00 p.m.

Place: Frontier Community College- Fairfield, IL

Attendance: see sign in sheet

This meeting consisted of a brainstorming session in which the planning team met with SIU and GWRPC to provide local knowledge that identified and prioritized mitigation strategies and projects that can address the threats identified in the risk assessments. Each participant was given a handout for their jurisdiction to fill out mitigation strategies specific to each hazard.

GWRPC will work with the County to get all forms completed and turned in for every jurisdiction.

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Wayne County PDMP Meeting
March 10, 2016 at 1:00 PM
Richard Mason Building, Room 24, Fairfield, IL

Name	Representing	Phone Number	Address	Email Address	Job Description	Mileage
X Robin Johnson	FMH	618 599-8991	303 N 11th FFld	rjohnson@fairfieldmemorial.org	Plant Op Sec/CO	2
X Tim Piper	Village of Wayne City	618/231 /0819			Trustee	34
X Diana Zurliene	FF PSD #112	618-842-6501	806 N. 1st FF	dzurliene@fairfieldcolts.com	Supt	2
X Andy Milner	Wayne Co. Sheriff	618-842-6631	305 E. Court	almilner1@frontier.com	Chief Deputy	2
X Paul Bruinsma	FCC	618 842 3711	2 Frontier Dr	bruinsmape@iecc.edu	Dean	0
X Shirley MacDavid	Wayne County Bd	618-842-0350	1307 CH7 Geff	SWilley MacDavid@gmail.com	retired	10
X Sharon White	Geff CCSD 14	618-897-2465	201 Lafayette St	Swhite@geffsqs.org	Supt	10
X Jay Edgren	FCC	842-3711	2 Frontier Dr.	edgrenj@iecc.edu	President	2
X Flo Simpson	City of FF	618-842-4802	121 E main	fedc@fairfieldwireless.net	Economic	3
X Chris Hopfinger	WWCEC	618-842-9246	1501 W Main	chopfinger@wwcec.com	System Eng.	2
X Erin Halley	WWCEC	618-842-9246	1501 W MAIN	ehalley@wwcec.com	Manager of OPs	2
X Don Mills	Jasper Co	618-842-3448	1026 CR 200N	dmills@jasperco.illinois.com	Sch. Jasper Co	10
X Tim Kropp	SIU	631-905-5772	Carbondale	timkropp@siu.edu	Student	130
X Levi Milliron	SIU					
X Royce Carter	County	618 599 2906	2193 Co Rd 3252 F.F	royecc49@yahoo.com		10

Name | Representing | Phone Number | Address | Email Address | Job Description

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Wayne County PDMP Meeting
March 10, 2016 at 1:00 PM
Richard Mason Building, Room 24, Fairfield, IL

17 X Michael Elliott	Village of Sims	618-927-0686 618-895-2761	6013 South R.R. Sims St	villageofsims@fairfieldwirelessnet	Gas Supt.	20
18 X Silas Eckleberry	Fairfield Police	618 842-2157	1002 Lexington Rd, Fairfield	Ecklebeerly@fairfieldil.org	Asst chief	3
19 X Keith Colchiano	Fairfield Police	618 842-2151	1002 Lexington Rd, Fairfield	coldasmeet@fairfieldpd.org	Chief	3
20 X Gail Harrison	Newtoglia CUSD #6	618-842-3276	804 Co. Rd. 445 N.	jherralsonnh@gmail.com	Newtoglia Supt.	10
21 X Doug Anderson	Wayne Co Farm Bureau	618-842-3342	301 E Court St; FF.	danderson@waynecfb.com	Manager	4
22 X Russell Hallwas	Geff Village Pres	618 897 2680	208 N Merchant PO Box 6	rdh@wabash.com	Mayor	10
23 X Jill Fulkerson	F.C.H.S.	618-842-2649	300 W. King St. Fairfield, IL	jfulkerson@fchsmulis.com	Supt.	4
24 Darin Harper	Fairfield F.D.	618-842-2024	108 N.W. 7th St. Fairfield, IL	darinharper@hotmail.com	Chief	4
25 Jeff Jake	WC EMA	618-599-5248	505 S. W. 1st St Fairfield, IL	waynecoema@frontier.com	Director EMA	4

Meeting 5 – December 19th, 2016

Meeting 5

Wayne County Multi-Hazard Mitigation Plan Meeting 5
Chairman: Jeff Jake (EMA Coordinator)
Plan Directors: Southern Illinois University and Greater Wabash Regional Planning Commission

Meeting Date: December 19, 2016

Meeting Time: Come and Go- informal

Place: GWRPC 10 W. Main St. Albion, IL

Attendance: see sign in sheet

David Savage with GWRPC met with individuals on a one on one basis to hand deliver the plan and explain the process of editing errors. Each person who attended was given a printed copy of the draft plan that was provided by SIU. Each person was asked to spend time reviewing the plan and bring back and editted version with any errors within 2 weeks.

Wayne County Mitigation Planning Committee
Meeting #5 12/19/2016

	A	B	C	D	E
1	Member Name	Representing	Address	Email Address	Employer/Job Description
2	Jay Edgren	Frontier CC			
3	Paul Bauinsma	Frontier CC			
4	Jeff Jake	Wayne Cty			
5	Keith Cloasure	City of Fairfield			
6	Flo Simpson	Fairfield HDC			
7	Shirley Band	Wayne Cty Board			
8	David Savage	GWRPC			
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Wayne County Multi-Hazard Mitigation Plan

Chairman: Jeff Jake (EMA Coordinator)

Plan Directors: Southern Illinois University and Greater Wabash Regional Planning Commission

Members of the Wayne County Planning Team held phone sessions to work with several jurisdictions to help identify and prioritize mitigation strategies and projects outside of meetings.

Call Log

Date	Name	Representing	Job Description	Call Duration	Wayne County Planning Team Member
11/08/16	Jennifer Eckleberry Dave Bullard	Cisne	Village Clerk Utilities Operator	2 hours	GWRPC
11/08/16	Jeff Mitchell	Wayne City CUSD #100	Superintendent	2 hours	GWRPC
2/23/17	Rob Brashear	Johnsonville	Village President	2 hours	GWRPC
2/23/17	Norman McKinney	Mount Erie	Village President	2 hours	GWRPC
2/23/17	Scott Clark	Wayne City	Village Mayor	1 hour	GWRPC
2/23/17	Tim Isaacs	Mill Shoals	Village Mayor	1 hour	GWRPC
2/27/17	Heath Tullis	Mill Shoals	Village Clerk	2 hours	GWRPC

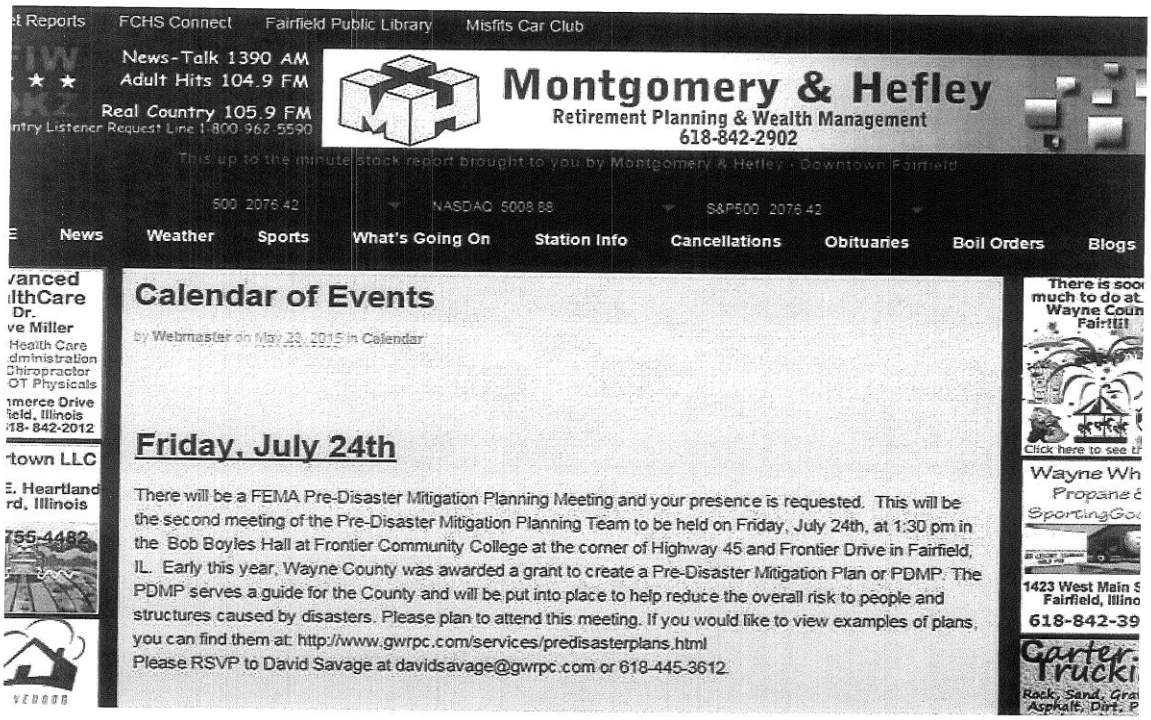
Appendix B. Press Release and Newspaper Articles

March 24, 2016
Press Release- For Immediate Release
For more information, contact:
David Savage, Grant Administrator, Greater Wabash Regional Planning Commission
(618) 445-3612

The Wayne County Hazard Mitigation Steering Committee will host a public meeting at 1:00 p.m. on Thursday, March 10th, in room 24 of the Richard Mason Building, on the campus of Frontier Community College.

The Federal Emergency Management Agency (FEMA) requires each unit of government in the United States to have a FEMA-approved Multi-Hazard Mitigation Plan. In the pursuance of compliance, Wayne County and Southern Illinois University – Carbondale (SIU-C) have worked to identify potential natural hazards and to produce a mitigation plan to address the hazards. The partnership has resulted in a Draft Multi-Hazard Mitigation Plan (MHMP). The draft plan seeks to identify potential natural hazards for Wayne County and establish mitigation measures that are intended to reduce or eliminate the negative impact that a particular hazard may have on the county.

For this meeting, the MHMP jurisdictions will be choosing/writing mitigation strategies. Representatives from SIU-C will bring sample strategies and those of previous plans to help give the group ideas of what they might include in the Wayne County plan. Anyone who has questions or would like to provide input should attend the meeting on March 10th or contact David Savage, Grant Administrator, Greater Wabash Regional Planning Commission at 618-445-3612 or davidsavage@gwrpc.com.



/www.wfiwradio.com/calendar-of-events-2/

Appendix C. Adopting Resolutions

See Attached Adopting Resolutions

Appendix D. Historical Hazards

See Attached Newspaper Clippings and Large Format Map

Appendix E. List of Essential Facilities

Not all data is available for every facility. Other facility specifics may be available upon request.

Emergency Operations Center Facilities

Facility Name	Address	City
Wayne County Civil Defense	Highway 45 S	Fairfield

Fire Station Facilities

Facility Name	Address	City
Bedford Township Fire Protection District	303 Railroad Street	Cisne
Fairfield City Fire Department	108 NW Seventh	Fairfield
Fairfield Rural Fire Protection District	Rt 15 & SE 8th Street	Fairfield
Wayne Fire Protection District #1	201 West Smith Street	Wayne City
Orchardville Fire Protection District	1691 County Road 220 E	Xenia
Lamard (Geff) Fire Station	N All Seasons Street	Jeffersonville

Police Station Facilities

Facility Name	Address	City
Fairfield Auxiliary Police Office	105 North 1st Street	Fairfield
Wayne City Police Department	203 East Mill	Wayne City
Wayne County Sheriff	305 East Court Street	Fairfield

School Facilities

Facility Name	Address	City	Comments
Berry Attendance Center	RR 2	Cisne	Elementary School
Center Street Elementary School	200 West Center Street	Fairfield	Elementary School
Cisne High School	PO Box 70	Cisne	High School
Cisne Middle School	PO Box 69	Cisne	Middle School
Fairfield Community High School	300 West King Street	Fairfield	High School
Geff Elementary School	201 East Lafayette Street	Geff	Elementary School
Jasper Elementary School	RR 3 Box 473	Fairfield	Elementary School
Johnsonville Elementary School	PO Box A	Johnsonville	Elementary School
Mount Erie Elementary School	RR 1 Box 1	Mount Erie	Elementary School
New Hope Elementary School	RR 4 Box 243	Fairfield	Elementary School
North Side Elementary School	806 N 1st Street	Fairfield	Elementary School
Oak Grove Attendance Center	RR 1	Wayne City	Elementary School
Wayne City Attendance Center	PO Box 457	Wayne City	Elementary School
Wayne City High School	PO Box 427	Wayne City	High School

Medical Care Facilities

Facility Name	Address	City	Comments
Fairfield Memorial Hospital	303 NW 11th Street	Fairfield	163 Beds

Appendix F. Critical Facilities Map

See Attached Large Format Map of Critical Facilities.