Macoupin County Multi-Jurisdictional All Hazards Mitigation Plan 2025 Update

Draft

Macoupin County, Illinois

Participants:

Macoupin County
Benld, City of
Brighton, Village of
Brighton Betsey Ann Fire Protection District
Brighton Township
Bunker Hill, City of
Bunker Hill Community Unit School District #8
Carlinville, City of
Carlinville Area Hospital
Carlinville Community Unit School District #1
Community Hospital of Staunton
Eagarville, Village of
Gillespie, City of
Gillespie Community Unit School District #7
Girard, City of
Girard Fire Protection District
Henderson Water District
Jersey County Rural Water
Medora Community Fire Protection District
Mt. Clare, Village of
Mt. Olive Volunteer Fire Protection District
Nilwood, Town of
North Mac Community Unit School District #34
Royal Lakes, Village of
Southwestern Community Unit School District #9
Staunton, City of
Staunton Community Unit School District #6
Unit 7 Fire Protection District
Virden, City of

October 2025

The five year update of this Plan must be completed on or before (date).

Cover photographs were provided courtesy of the Macoupin County Emergency Management Agency.

From top to bottom and left to right:

- *2013 thunderstorm with damaging wind west of Carlinville*
- *October 2, 2014 flash flood damage in unincorporated Macoupin County*
- *May 31, 2013 EF2 tornado damage in Gillespie*

MACOUPIN COUNTY MULTI-JURISDICTIONAL ALL HAZARDS MITIGATION PLAN

MACOUPIN COUNTY, ILLINOIS

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Researched and written for the Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee
by AEC, LLC

1.0 INTRODUCTION

Each year natural hazards (i.e., severe thunderstorms, tornadoes, severe winter storms, flooding, etc.) cause damage to property and threaten the lives and health of the residents of Macoupin County. Since 1982, Macoupin County has been included in six major federally-declared disasters and three emergency declarations. **Figure I-1** identifies each federal declaration including its declaration number, the year the disaster was declared, type of declaration, and the natural hazard that triggered the declaration. Since 2010, the County has been included in eight state disaster proclamations. **Figure I-2** identifies the year the proclamation was issued and the type of natural hazard that triggered the declaration. The natural hazard(s) recognized as contributing to the declaration for Macoupin County is identified in bold. [Local Mitigation Planning Policy Guide Element B1-d]

Figure I-1
Federal Emergency & Major Disaster Declarations: Macoupin County

Declaration #	Year	Declaration Type	Natural Hazard(s) Covered by Declaration
674	1982	Major	**severe storms;** tornadoes; **flooding**
684	1983	Major	**severe storms;** tornadoes; **flooding**
1416	2002	Major	severe storms; **tornadoes**; **flooding**
3230	2005	Emergency	**Hurricane Katrina evacuation**
1681	2006	Major	**severe winter storm**
1800	2008	Major	severe storms; **flooding**
3435	2020	Emergency	**COVID-19**
4489	2020	Major	**COVID-19 pandemic**
3577	2021	Emergency	**severe storms**; straight-line winds; tornadoes

Figure I-2
State Disaster Proclamations: Macoupin County

Year	Hazard(s) Covered by Declaration
2011	**winter weather**
2011	**high wind**; **tornadoes**; torrential rain
2014	**heavy snowfall**; **frigid temperatures**
2019	winter storm **(frigid temperatures)**
2020	**COVID-19**
2021	**winter storms**
2022	**winter storms**
2022	**Monkeypox**

In the last 10 years alone (2014 – 2023), there have been 47 excessive heat events, 38 thunderstorms with damaging winds, 23 severe storms with hail one inch in diameter or greater, 21 extreme cold events, 16 flash flood events, 11 severe winter storms, 8 riverine flood events, 7 tornadoes, 3 verified mine subsidence events, and 2 lightning strikes with verified damages recorded in the County.

While natural hazards cannot be avoided, their impacts can be reduced through effective hazard mitigation planning. This prevention-related concept of emergency management often receives the least amount of attention, yet it is one of the most important steps in creating a hazard-resistant community.

What is hazard mitigation planning?

Hazard mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and man-made hazards. This process helps the County and participating jurisdictions reduce their risk from these hazards by identifying vulnerabilities and developing mitigation actions to lessen and sometimes even eliminate the effects of a hazard. The results of this process are documented in an all hazards mitigation plan.

Why update an all hazards mitigation plan?

By updating and adopting an all hazards mitigation plan, participating jurisdictions become eligible to apply for and receive federal hazard mitigation funds to implement mitigation actions identified in the plan. These funds can help provide local government entities with the opportunity to complete mitigation projects and activities that would not otherwise be financially possible.

The federal hazard mitigation funds are made available through the Disaster Mitigation Act of 2000, an amendment to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, which provides federal aid for mitigation projects, but only if the local government entity has a Federal Emergency Management Agency (FEMA) approved hazard mitigation plan.

How is this plan different from other emergency plans?

An all hazards mitigation plan is aimed at identifying projects and activities that can be conducted prior to a natural or man-made disaster, unlike other emergency plans that provide direction on how to respond to a disaster after it occurs. This is the second time that Macoupin County has updated its hazard mitigation plan, which was last updated in 2019. This update describes in detail the actions that can be taken to help reduce or eliminate damages caused by specific types of natural and man-made hazards.

1.1 PARTICIPATING JURISDICTIONS

[Local Mitigation Planning Policy Guide Element A1-b]

Recognizing the benefits of having an updated all hazards mitigation plan, the Macoupin County Board authorized the update of the Macoupin County All Hazards Mitigation Plan (thereto referred to as the Plan). The County then invited all the local government entities within the County to participate. **Figure I-3** identifies the participating jurisdictions represented in the Plan update who sought Plan approval.

While all of the municipalities within the County were invited and encouraged to participate in the Plan update, the municipalities of Chesterfield, Dorchester, East Gillespie, Hettick, Lake Ka-Ho, Medora, Modesto, Mount Olive Palmyra, Sawyerville, Scottville, Shipman, Standard City, White City, and Wilsonville chose not to engage in the process and therefore are not included as participating jurisdictions in the Plan update.

1.2 COUNTY PROFILE

Macoupin County is located in west-central Illinois and covers approximately 868 square miles. Located at the end of this section, **Figure I-4** provides a location map of the County and the participating municipalities while **Figures I-5** identifies the boundaries of the census tracts located in the County. **Figures I-6, I-7,** and **I-8** identify the boundaries of the townships, school districts, and fire protection districts. Carlinville Area Hospital and the Community Hospital of Staunton serve the entire County while Henderson Water District serves both Macoupin and Montgomery Counties and Jersey County Rural Water serves Jersey, Madison, and Macoupin counties.

Figure I-3
Participating Jurisdictions Represented in the Plan

- Benld, City of
- Brighton, Village of
- Brighton Betsey Ann Fire Protection District
- Brighton Township
- Bunker Hill, City of
- Bunker Hill Community Unit School District #8
- Carlinville, City of
- Carlinville Area Hospital
- Carlinville Community Unit School District #1
- Community Hospital of Staunton
- Eagarville, Village of
- Gillespie, City of
- Gillespie Community Unit School District #7
- Girard, City of
- Girard Fire Protection District
- Henderson Water District
- Jersey County Rural Water
- Macoupin County
- Medora Community Fire Protection District
- Mount Clare, Village of
- Mount Olive Volunteer Fire Protection District
- Nilwood, Town of
- North Mac Community Unit School District #34
- Royal Lakes, Village of
- Southwestern Community Unit School District #9
- Staunton, City of
- Staunton Community Unit School District #6
- Unit 7 Fire Protection District
- Virden, City of

The County is bounded to the north by Morgan and Sangamon Counties, to the east by Montgomery County, to the south by Madison County and to the west by Jersey and Greene Counties. The City of Carlinville is the County seat.

Macoupin County is situated in the Springfield Plain of the Till Plain Section of the Central Lowland Provence of the Interior Plains. The topography is generally flat to gently sloping. The highest elevation in the County is an unnamed hilltop that reaches an elevation of about 700 feet north of Modesto near the County line. The lowest elevation, about 487 feet, occurs where Macoupin Creek leaves the County along the western edge. Macoupin County is part of five watersheds: Sangamon, Illinois River Valley, Macoupin, Mississippi River Valley, and Kaskaskia.

According to the Multi-Resolution Land Characteristics (MRLC) Consortium, in 2023 approximately 95% of the County's land cover was vegetation, including developed open spaces, cultivated crop land, pasture/hay, grassland, and deciduous/evergreen/mixed forest while 7.7% of the County's land cover was considered developed with 1.7% impervious surfaces. Between 2019 and 2023 approximately 0.93% of the land cover in the County changed with 0.88 square miles of development and 0.13 square miles of impervious surfaces gained. **Figure I-9** illustrates the changes by land cover type.

Figure I-9
Macoupin County Land Cover Data: 2016 to 2021

Land Cover Categories	Area 2019	Area Lost	Area Gained	Area 2023	Net Change	Percent Change
Developed, High Intensity	0.97	-0.01	0.02	0.98	0.01	0.93%
Developed, Medium Intensity	5.54	-0.11	0.15	5.58	0.04	0.70%
Developed, Low Intensity	25.74	-0.19	0.32	25.86	0.13	0.50%
Developed, Open Space	33.67	-0.11	0.82	34.37	0.70	2.08%
Cultivated Crops	547.65	-4.91	1.50	544.23	-3.42	-0.62%
Pasture/Hay	76.69	-1.47	3.62	78.84	2.15	2.80%
Grassland	0.27	-0.08	0.16	0.35	0.07	27.40%
Deciduous Forest	165.06	-0.72	1.00	165.34	0.28	0.17%
Evergreen Forest	0.02	0.00	0.00	0.02	0.00	8.00%
Mixed Forest	0.80	-0.01	0.01	0.79	0.00	-0.39%
Scrub/Shrub	0.03	0.00	0.06	0.08	0.06	218.42%
Woody Wetland	3.30	-0.02	0.02	3.30	0.00	0.05%
Emergent Herbaceous Wetland	0.33	-0.02	0.02	0.33	0.00	-1.05%
Barren Land	1.42	-0.05	0.06	1.44	0.01	0.93%
Open Water	6.11	-0.36	0.32	6.08	-0.03	-0.57%
Perennial Snow/Ice	0.00	0.00	0.00	0.00	0.00	0.00%

*All numbers expressed in square miles

Source: Multi-Resolution Land Characteristics Consortium's National Landcover Database.

Agriculture is one of the most important enterprise in Macoupin County. According to the 2022 Census of Agriculture, there were 1,235 farms in Macoupin County occupying almost 83% (458,695 acres) of the total land area in the County. In comparison, there were 1,169 farms occupying approximately 76% (420,688 acres) of the total land area in the County in 2017.

The major crops include corn and soybeans while the major livestock includes cattle and calves, hogs and pigs, and poultry. According to the 2022 Census of Agriculture, Macoupin County ranks 15th in crop cash receipts and 22nd in livestock cash receipts. In comparison, the County ranked 22nd in crop cash receipts and 30th in livestock cash receipts in 2017.

The largest employment sectors in Macoupin County are health care and social assistance; manufacturing; retail trade; educational services; and construction according to the Illinois Department of Commerce and Economic Opportunity. According to the STL 2030 Progress Capital Projects Map, major employers in the County include Carlinville Area Hospital, Community Hospital of Staunton, and Blackburn College.

Figure I-10, located at the end of this section, provides demographic and socio-economic data for the County and participating townships and municipalities. Benld, Brighton, Bunker Hill, Eagarville, Girard, Mount Clare, Nilwood, and Royal Lakes meet the definition of an Economically Disadvantaged Rural Community (EDRC). FEMA defines an EDRC as a community of 3,000 or fewer individuals whose residents have an average per capita annual income not exceeding 80 percent of the U.S. per capita income based on best available data. **Figure I-11,** also located at the end of this section, provides additional demographic information by census tract. In 2020, there were 13 census tracts in Macoupin County.

Figures I-12 and **I-13** provide basic demographic information about the size and populations served by the participating school districts and fire protection district.

Figure I-12
Demographic Data by Participating School District

Participating District	Number of Schools in District	Estimated Population Served	Area Served (Sq. Miles) (2020)	Communities / Unincorp. Areas Served in the County	Census Tracts Falling with the District
Bunker Hill CUSD #8	2	2,200	69	Bunker Hil, Woodburn, Royal Lakes	9566, 9567, 9568
Carlinville CUSD #1	4	6,000	263	Carlinville, Atwater, Chesterfield, Plainview, & Standard City	9563, 9564, 9565, 9566, 9567, 9568
Gillespie CUSD #7	7	5,567	92.5	Gillespie, East Gillespie, Benld, Wilsonville, Sawyerville, Eagarville, Mount Clare, Henderson, & Hornsby	9563, 9565, 9568, 9569, 9570, 9571
North Mac CUSD #34	4	7,000	200	Girard, Virden, Nilwood, Thayer	9560, 9561, 9562, 9563
Southwestern CUSD #9	5	4,825	173	Brighton, Medora, Shipman, Fidelity, Piasa	9565, 9566, 9567, 9568
Staunton CUSD #6	3	8,580	75.9	Staunton, Livingston, Williamson	9568, 9570, 9571, 9572

Source: Capability Assessment Worksheets – School Districts.

Figure I-13
Demographic Data by Participating Fire Protection District

Participating District	Number of Fire Stations	Estimated Population Served	Area Served (Sq. Miles) (2020)	Communities / Unincorp. Areas Served in the County	Census Tracts Falling with the District
Brighton Betsey Ann FPD	2	7,000	67	Brighton, Alton, Godfrey, Jerseyville	9566, 9567
Girard FPD	3	4,000	110	Girard, Nilwood, McVey, Standard City, Sunset Lake, Hillcrest Acres, Red Oak	9561, 9562, 9563
Medora Community FPD	1	2,500	100	Medora, Chesterfield, Piasa, Fidelity, Kemper, Challacombe, Crystal Lake	9565, 9566
Mount Olive Volunteer FPD	1	3,500	65	Mount Olive, White City, & Lake Ka-Ho	9570, 9571
Unit 7 FPD	3	9,000	96	Benld, Dorchester, East Gillespie, Gillespie, Eagarville, Wilsonville, Mount Clare, Sawyerville, Henderson, & Hornsby	9563, 9568, 9569, 9570

Source: Capability Assessment Worksheets – Fire Protection Districts.

Figure I-4
Location Map

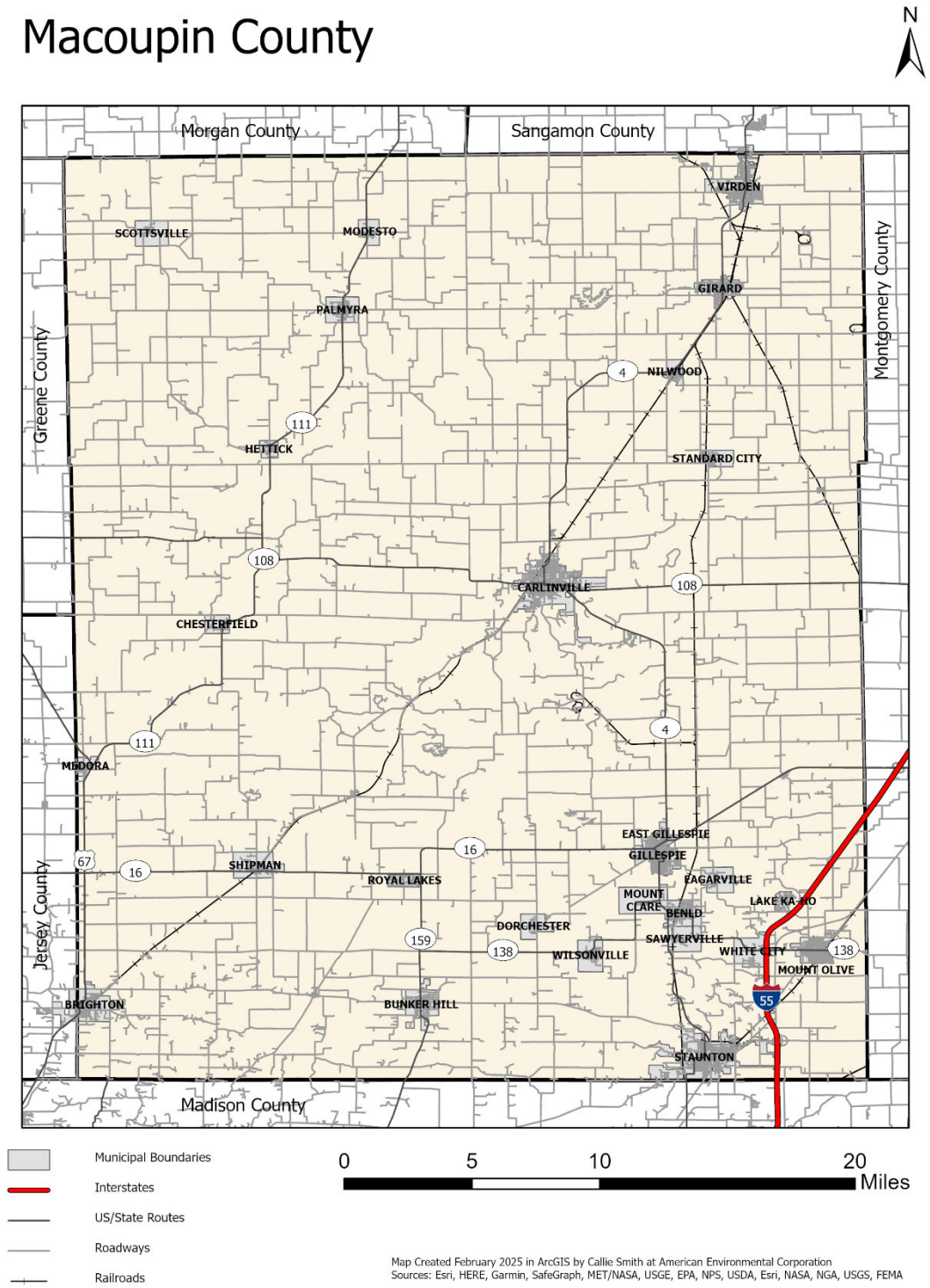


Figure I-5
Macoupin County 2020 Census Tract Map

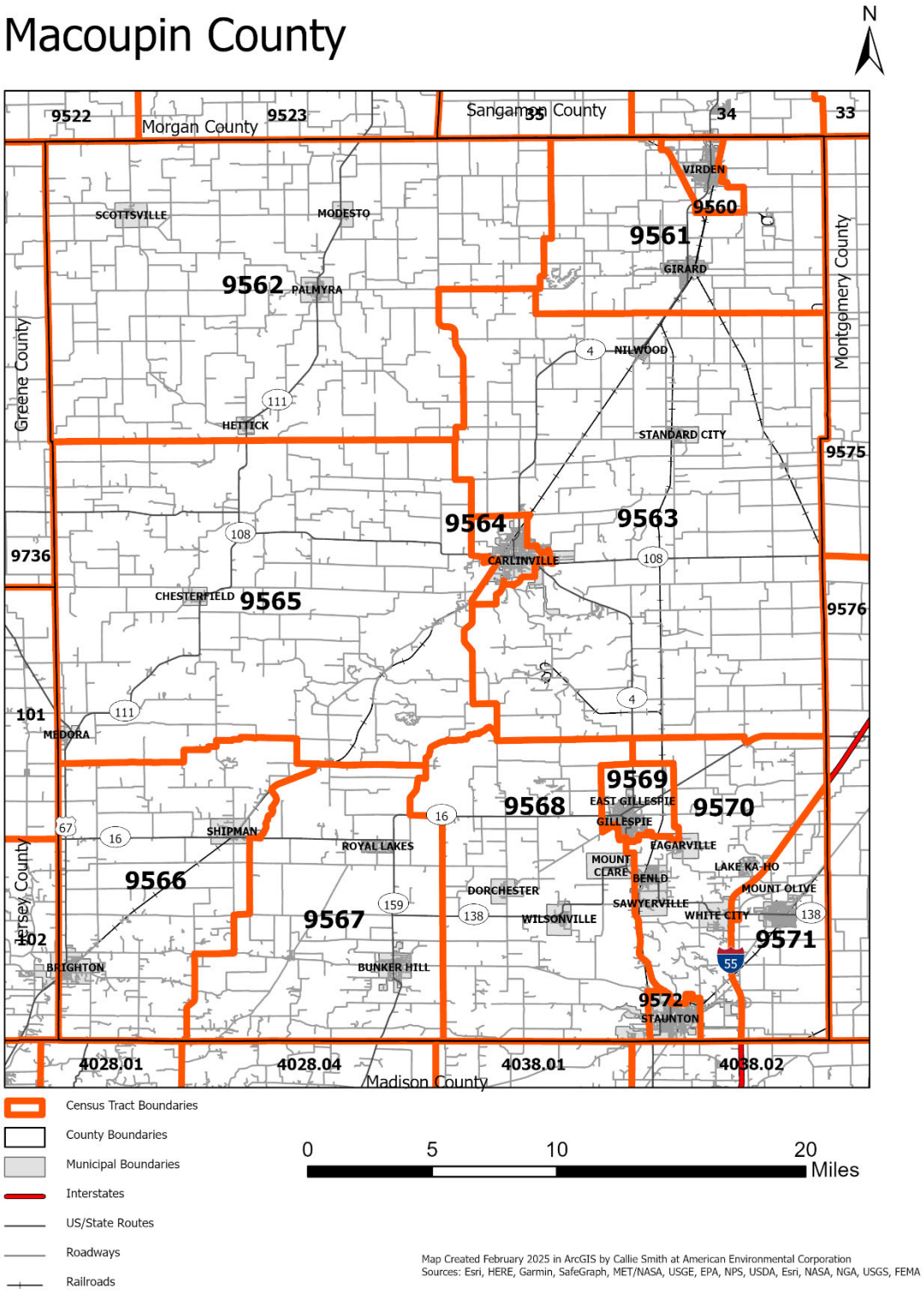


Figure I-6
Township Boundary Map

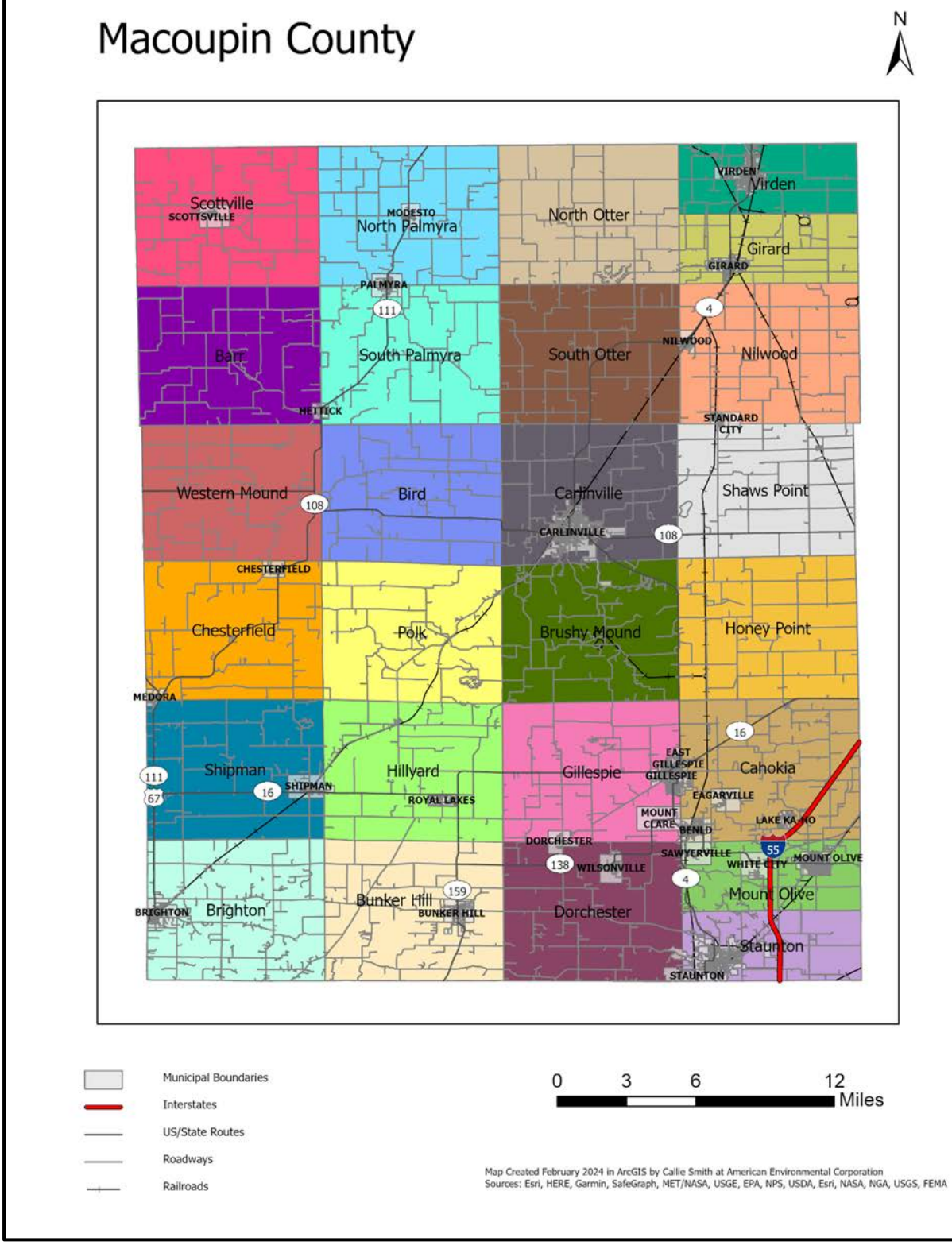


Figure I-7
School District Boundary Map

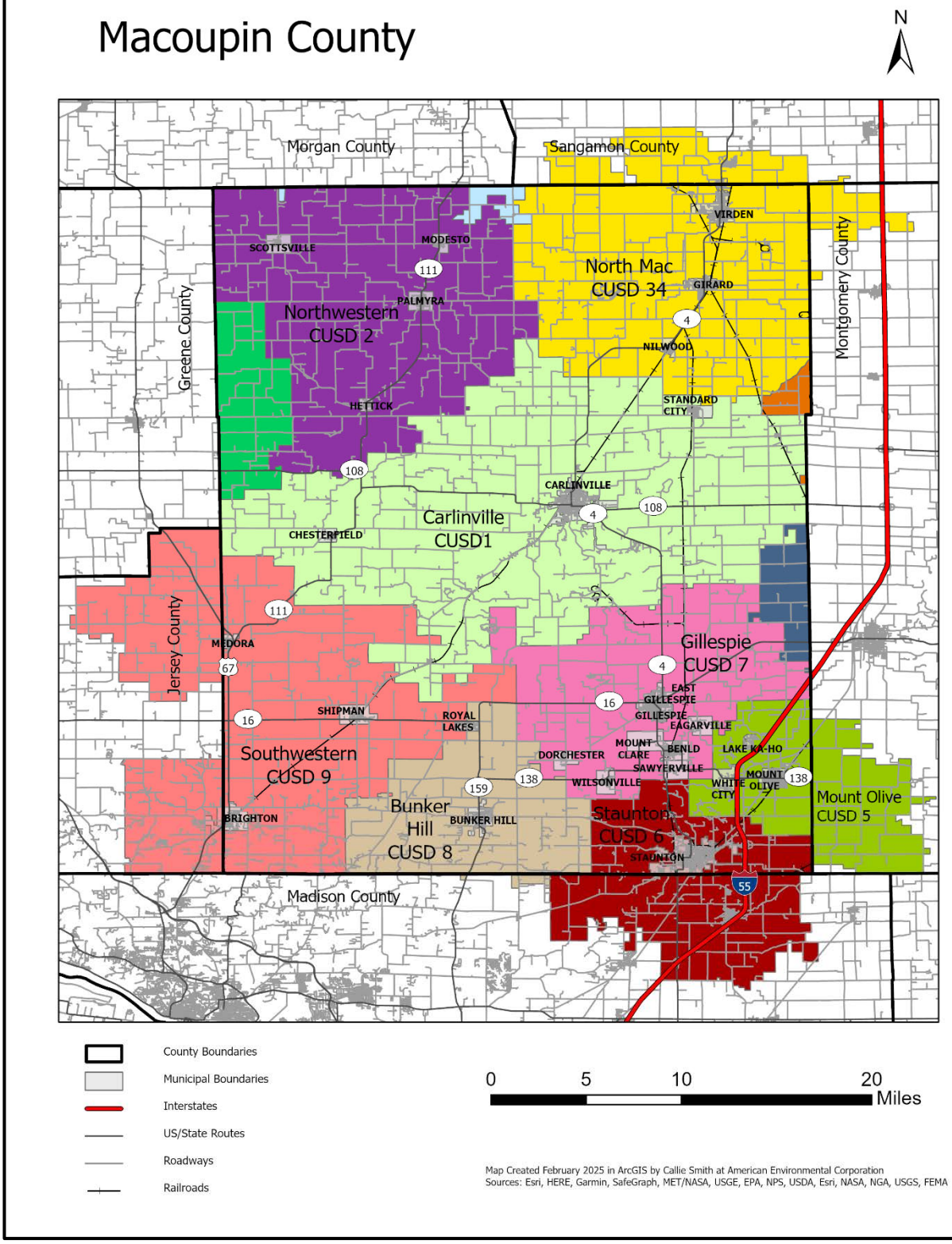


Figure I-8
Fire Protection District Boundary Map

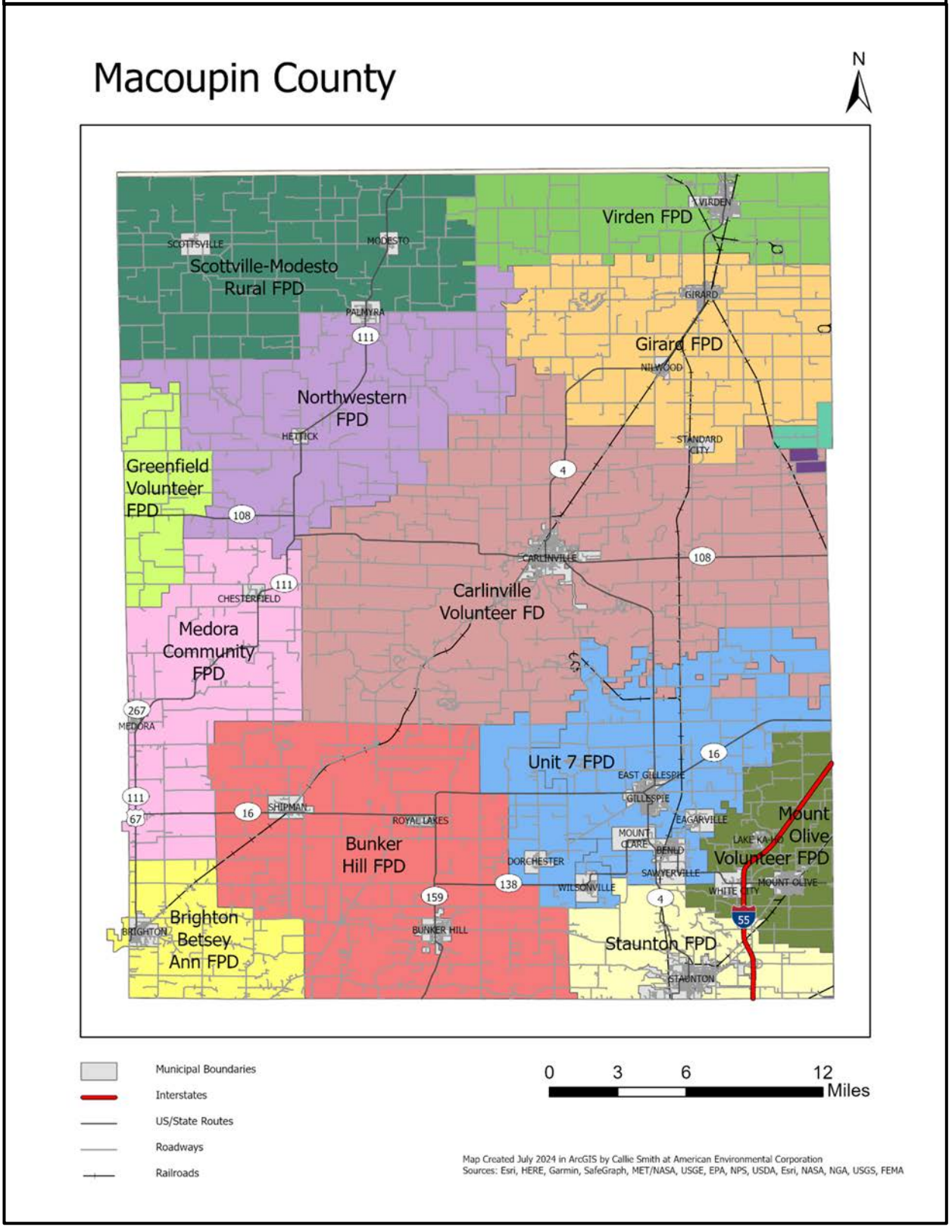


Figure I-10
2020 Demographic Data by Participating Jurisdiction

Participating Jurisdiction	Population (2020)	Projected Population (2030)	Total Land Area (Sq. Miles) (2020)	Number of Housing Units (2018-2022)	Percent Race								Income			Total Assessed Value of Housing Units (2023)
					White (alone)	Black or African American (alone)	Asian (alone)	Hispanic or Latino (of any race)	American Indian & Alaska Native (alone)	Native Hawaiian & Other Pacific Islander (alone)	Some other Race (alone)	Two or more Races	% of People whose Income is below the Poverty Line	Per Capita Income	EDRC*	
Macoupin County (Total)	44,967	42,674	862.974	21,091	93.6%	0.8%	0.4%	1.3%	0.3%	0.0%	0.3%	4.6%	14.7%	$33,665	---	$480,277,622
Macoupin County (Unincorp.)	14,505	13,765	832.718	6,751	92.5%	0.3%	0.2%	0.9%	0.2%	0.0%	0.2%	3.5%	7.80%	---	---	$178,737,263
Benld	1,464	1,389	1.060	881	91.9%	0.5%	0.2%	2.0%	0.5%	0.0%	0.2%	6.8%	18.2%	$30,320	Y	$9,729,298
Brighton	2,221	2,108	1.921	969	94.3%	0.8%	0.3%	1.4%	0.1%	0.0%	0.2%	4.3%	15.6%	$30,330	Y	$26,983,898
Bunker Hill	1,630	1,547	1.274	695	89.7%	1.2%	0.7%	2.6%	0.3%	0.0%	0.4%	7.7%	9.5%	$31,853	Y	$19,201,574
Carlinville	5,710	5,419	3.369	2,574	90.5%	2.2%	0.8%	1.3%	0.4%	0.0%	0.5%	5.7%	25.7%	$32,225	N	$57,580,565
Eagarville	114	108	0.911	67	92.1%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	7.9%	8.3%	$20,650	Y	$929,453
Gillespie	3,168	3,006	1.484	144	93.3%	0.4%	1.9%	1.1%	0.7%	0.0%	0.0%	3.7%	1.4%	$39,924	N	$29,917,077
Girard	1,785	1,694	0.934	1,483	94.4%	0.2%	0.3%	0.9%	0.3%	0.0%	0.3%	4.4%	16.2%	$32,553	N	$14,973,847
Mount Clare	311	295	1.538	759	92.3%	0.6%	0.2%	1.6%	0.4%	0.0%	0.1%	6.4%	26.7%	$22,143	Y	$2,391,401
Nilwood	201	191	0.465	132	97.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	26.3%	$22,145	Y	$1,274,956
Royal Lakes	167	158	0.466	106	92.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	7.3%	$24,624	Y	$1,008,317
Staunton	5,054	4,796	3.974	139	40.7%	50.9%	0.0%	0.6%	1.8%	0.0%	0.0%	6.6%	28.9%	$13,380	Y	$63,928,629
Virden	3,231	3,066	1.889	2,106	93.6%	0.0%	0.5%	1.7%	0.2%	0.0%	0.2%	5.2%	20.3%	$29,001	N	$28,447,599
Brighton Township	3,896	3,697	36.094	1,624	94.7%	0.7%	0.2%	1.0%	0.1%	0.0%	0.2%	4.1%	11.7%	$35,482	N	$53,930,289
Illinois	12,812,508	12,790,000	55,513.180	5,427,357	61.4%	14.1%	5.9%	18.2%	0.8%	0.04%	8.9%	21.1%	11.8%	$43,198	---	---
US	331,449,281	---	3,533,038.328	140,943,613	61.6%	12.4%	6.0%	18.7%	1.1%	0.2%	8.4%	24.0%	12.5%	$41,261	---	---

* For the purposes of FEMA's Hazard Mitigation Assistance grant programs administered by the Illinois Emergency Management Agency, an Economically Disadvantaged Rural Community (EDRC) is defined in Illinois as a community of 3,000 or fewer individuals whose residents have an average per capita annual income not exceeding 80 percent of the U.S. per capita income based on best available data.

Sources: County Clerks.
Illinois Department Public Health, Population Projections – Illinois, Chicago and Illinois Counties by Age and Sex: July 1, 2015, to July 1, 2030 (2019 Edition).
U. S. Census Bureau, American Community Survey, 5-Year Data Profile.

Figure I-11
2018-2022 Demographic Data by Census Tract

Census Tract (2020)	Incorporated Municipalities and Townships that Fall Within Census Tract	Population (2018-2022)	Total Area (Sq. Miles) (2020)	Number of Housing Units (2018-2022)	Percent Race								Income	CEJST
					White (alone)	Black or African American (alone)	Asian (alone)	Hispanic or Latino (of any race)	American Indian & Alaska Native (alone)	Native Hawaiian & Other Pacific Islander (alone)	Some other Race (alone)	Two or more Races	% of People whose Income is below the Poverty Line	Identified as Dis-Advantaged
9560	Virden	3,063	4.582	1,346	99.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	13.1%	Yes
9561	Girard, Virden	2,950	56.075	1,508	96.0%	0.0%	0.6%	1.1%	0.0%	0.2%	0.1%	3.1%	14.6%	Yes
9562	---	2,560	168.897	1,275	97.5%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	2.5%	13.7%	Yes
9563	Carlinville, Nilwood	2,877	184.385	1,296	95.7%	1.6%	0.0%	1.7%	0.0%	0.0%	0.3%	1.4%	5.0%	No
9564	Carlinville	5,323	5.132	2,487	89.0%	2.7%	0.0%	4.2%	0.0%	0.0%	2.2%	6.2%	28.0%	No
9565	---	2,447	163.533	1,170	99.6%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.4%	11.6%	No
9566	Brighton, Brighton Township	4,708	64.515	2,015	97.0%	0.2%	0.0%	1.1%	0.3%	0.0%	0.8%	1.7%	10.4%	No
9567	Bunker Hill, Royal Lakes, Brighton Township	3,844	69.174	1,723	89.8%	5.8%	0.6%	3.5%	0.1%	0.0%	0.8%	2.9%	9.8%	No
9568	Mount Clare	2,493	72.744	1,226	97.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	6.7%	No
9569	Eagarville, Gillespie	3,562	6.494	1,679	96.5%	0.0%	0.0%	0.7%	0.2%	0.0%	0.0%	3.3%	15.6%	Yes
9570	Benld, Eagarville, Mount Clare, Staunton	3,576	41.926	1,953	95.7%	1.1%	0.6%	0.4%	0.6%	0.0%	1.4%	0.7%	14.7%	Yes
9571	---	2,887	22.655	1,304	97.1%	0.3%	2.0%	0.3%	0.0%	0.0%	0.0%	0.6%	10.6%	No
9572	Staunton	4,617	2.862	2,109	95.6%	0.3%	1.1%	0.3%	0.2%	0.0%	0.0%	2.8%	22.8%	No
Macoupin County		44,967	862.974	21,091	93.6%	0.8%	0.4%	1.3%	0.3%	0.0%	0.3%	4.6%	11.7%	---

Sources: CDC/ATSDR Social Vulnerability Index.
U.S. Census Bureau, American Community Survey, 5-Year Data Profile.

2.0 PLANNING PROCESS

[Local Mitigation Planning Policy Guide Element A]

The Macoupin Multi-Jurisdictional All Hazards Mitigation Plan (the Plan) was updated through the Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee (Planning Committee). The Plan was prepared to comply with the Disaster Mitigation Act of 2000 and incorporates the nine recommended tasks for developing or updating a local hazard mitigation plan as outlined in Federal Emergency Management Agency's (FEMA) *Local Mitigation Planning Handbook*. **Figure PP-1** provides a brief description of the process utilized to prepare this Plan.

The Plan update and development was led at the staff level by Susan Lewis, the Macoupin County Emergency Management Agency (EMA) Coordinator. AEC, LLC (formerly American Environmental Corp.) an environmental consulting firm with experience in hazard mitigation, risk assessment and public involvement, was employed to guide the County and participating jurisdictions through the planning process.

2.1 JURISDICTION PARTICIPATION REQUIREMENTS

[Local Mitigation Planning Policy Guide Element A1-a, A1-b]

Participation in the planning process, especially by the County and local government representatives, was crucial to the update and development of the Plan. To ensure that all participating jurisdictions took part in the planning process, participation requirements were established. Each participating jurisdiction agreed to satisfy the following requirements in order to be included in the Plan update. All of the participating jurisdictions met the participation requirements.

- Attend at least one Planning Committee meeting.
- Complete a capability assessment identifying existing capabilities and resources (i.e., plans, policies, ordinances studies, reports, maps, etc.) available to accomplish hazard mitigation.
- Identify/update a list of critical infrastructure and facilities.
- Review the risk assessment and provide additional information on events and damages when available.
- Participate in the update of the mitigation goals and project prioritization methodology.
- Provide information on any mitigation actions started and/or completed since the adoption of the original Plan.
- Identify and submit a list of new mitigation actions, as appropriate.
- Review and comment on the draft Plan update.
- Formally adopt the Plan update.
- Where applicable, incorporate the Plan update into existing planning efforts.
- Participate in the Plan maintenance.

Figure PP-1 Description of Planning Process	
Tasks	**Description**
Task One: Building the Planning Team	The Planning Committee was reformed with broad representation and specific expertise to assist the County and the Consultant in updating the Plan.
Task Two: Outreach Strategy	Early and ongoing public involvement activities were conducted throughout the Plan's development to ensure the stakeholders and public was given every opportunity to participate and provide input.
Task Three: Risk Assessment	The Consultant identified and profiled the natural and man-made hazards that have impacted the County and conducted vulnerability analyses to evaluate the risk to each participating jurisdiction.
Task Four: Capability Assessment	Participating jurisdictions have a unique set of capabilities and resources available to accomplish hazard mitigation. Capabilities that include planning and regulatory, administrative and technical, financial, and education and outreach were identified and cataloged to determine the existing capabilities of each participant related to hazard and loss reduction/prevention.
Task Five: Changes in Conditions	Those jurisdictions who participated in the previous Plan were asked to identify any changes in development and priorities experienced since the previous Plan was adopted. They were also asked to identify progress in local mitigation efforts by identifying mitigation actions that had been started and/or completed since the previous Plan was completed. The Consultant then assisted the previous participants in characterizing how these changes in development and progress altered the vulnerability of the participants.
Task Six: Mitigation Strategy	After reviewing existing plans and local mitigation efforts, and completing the risk assessment, the Consultant assisted the Planning Committee in updating the goals and objectives for the Plan. The participating jurisdictions then were asked to identify any new mitigation actions based on the results of the risk assessment. The compiled lists of new mitigation actions were then reviewed to assure the appropriateness and suitability of each action. Those actions that were not deemed appropriate and/or suitable were either reworded or eliminated. The new and existing mitigation actions retained were then analyzed, categorized, and prioritized.
Task Seven: Plan Maintenance and Update	The method and schedule for monitoring, evaluating, and updating the Plan was reviewed and discussed with the participating jurisdictions. The Plan update will be monitored and evaluated by a Plan Maintenance Subcommittee on an annual basis and updated again in five years.
Task Eight: Review and Adopt the Plan	The draft Plan update summarized the results of Tasks Two through Seven. The Plan was reviewed by the participants and a public forum was held to give the public an additional opportunity to provide input. Comments received were incorporated into the draft Plan update and submitted to the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) and FEMA for review and approval. Comments received from IEMA-OHS and FEMA were incorporated into the final Plan update. The final Plan update was then submitted to the County and participating jurisdictions for adoption.

2.2 MITIGATION PLANNING COMMITTEE

[Local Mitigation Planning Policy Guide Element A1-a, A1-b, A2-a]

As previously mentioned, at the start of the planning process, the Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee was reformed to update the hazard mitigation plan. The Committee included representatives from each participating jurisdiction, including local and regional departments involved in mitigation activities [i.e., public works, emergency management, GIS, floodplain administration (if applicable)] and departments and agencies that have authority to regulate development (i.e., zoning, planning, community and economic development, building officials, planning commissions, other elected officials). In addition, the Committee also included representatives from agriculture, business, economic development, education, emergency services, healthcare, social services, and utilities.

Figure PP-2 details the entities represented on the Planning Committee and the individuals who attended on their behalf. The Planning Committee was chaired by the Macoupin County EMA. Additional technical expertise was provided by the staff at the Illinois Emergency Management Agency and the Illinois Department of Natural Resources Office of Water Resources.

Figure PP-2
Macoupin County Planning Committee Member Attendance Record
(Sheet 1 of 3)

Representing	Name	Title	4/18/2024	6/27/2024	11/14/2024	2/20/2025	10/23/2025
American Environmental Corporation / AEC, LLC	Campbell, Andrea	EMS Manager	X	X	X	X	
American Environmental Corporation / AEC, LLC	Smith, Callie	Environmental Analyst	X	X	X	X	
Benld, City of	Dixon, Josh	Designated Representative		X			
Benld, City of	Fletcher, Dustin	Alderman	X			X	
Benld Fire & Rescue	Fletcher, Dustin	Fire Captain	X			X	
Brighton Betsey Ann Fire Protection District	Jorden, Jeff	Assistant Chief	X	X	X	X	
Brighton, Village of	Bland, Hunter	Designated Representative				X	
Brighton, Village of	Kasten, Matt	Mayor	X				
Brighton Township	Dunnagan, Kristi	Clerk	X				
Brighton Township	Seets, John	Road Commissioner			X		
Bunker Hill, City of	Arzuagas, Carlos	Alderman / ESDA Coordinator		X			
Bunker Hill, City of	Kraus, Heather	Clerk		X			
Bunker Hill CUSD #8	Dugan, Todd	Superintendent	X	X	X	X	
Carlinville, City of	Ambuel, Brad	EMA Director	X				
Carlinville, City of	Graham, Derek	Police Chief	X				
Carlinville, City of	Kaburick, Joe	Assistant EMA Coordinator	X	X			
Carlinville Area Hospital	Link, Tyler	Emergency Preparedness Coordinator	X	X	X		
Carlinville CUSD #1	Schuchman, Becky	Superintendent				X	
Carlinville Rehab	Barnes, Tori	Manager				X	
Carlinville Township	Boston, Dena	Secretary		X			
Carlinville Township	Dugan, Don	Road Commissioner	X	X			
Carlinville Volunteer Fire Department	Kaburick, Joe	President	X	X			
Chesterfield Township	Dorris, Austin	Road Commissioner			X		
Community Hospital of Staunton	Brandmeyer, Eric	Director, Emergency Preparedness		X			
Community Hospital of Staunton	Spour, Larry	President			X	X	
Eagarville, Village of	Dixon, Josh	Trustee	X	X	X	X	

Figure PP-2
Macoupin County Planning Committee Member Attendance Record
(Sheet 2 of 3)

Representing	Name	Title	4/18/2024	6/27/2024	11/14/2024	2/20/2025	10/23/2025
Gillespie, City of	Fritz, Robert F., Jr.	Alderman	X	X	X		
Gillespie, City of	Holesko, George	EMA Coordinator	X				
Gillespie CUSD #7	Owsley, Shane	Superintendent	X		X	X	
Gillespie CUSD #7	Page, Brian	Director of Maintenance	X	X	X	X	
Gillespie Health & Rehab	Schardin, Kim	Administrator		X			
Girard, City of	Hatalla, Michael	Mayor	X		X		
Girard Fire Protection District	Bridges, Craig	Assistant Chief	X	X			
Girard Township	Edwards, Taylor	Road Commissioner	X				
Henderson Water District	Peterson, Scott	Vice Chairman			X		
Henderson Water District	Walter, Tim	Operator	X		X	X	
IEMA - OHS	Rhoades, Walter	Disaster Service Planner		X			
IEMA - OHS	Shipley, William	Disaster Service Planner		X			
IEMA - OHS	Thompson, Jeff	State Hazard Mitigation Officer		X			
Macoupin County - Board	Adden, Ross	Board Member	X				
Macoupin County - Board	Barr, Leann	Board Member	X				
Macoupin County - Board	Schmidt, Larry	Board Chairman	X				
Macoupin County - EMA	Lewis, Susan	Coordinator	X	X	X	X	
Macoupin County - ETSB	Bishop, Aaron	Administrator		X	X	X	
Macoupin County - Housing Authority	Sanson, Dan	Director of Technical Services	X				
Macoupin County - Housing Authority	Wyatt, Dionne	CEO	X				
Macoupin County - Public Health Department	Tiburzi, Derrek	Director of Environmental Health		X	X	X	
Macoupin County - Sheriff's Office	Reiher, Quinn	Chief Deputy	X				
Macoupin County - Supervisor of Assessments	Bresnan, John	Supervisor of Assessments		X	X		
Modesto, Village of	Solomon, Brian	Water Operator	X				
Mount Clare, Village of	Buhs, Klayton	Trustee			X		
Mount Clare, Village of	Miller, Greg	Trustee			X	X	
Mount Clare, Village of	Rondi, Jerry	Mayor		X			
Mount Clare, Village of	Ruckman, Darrel	Mayor	X				
Mount Clare, Village of	Williamson, Jason	Trustee				X	
Mount Olive CUSD #5	Kelly, Brandi	Superintendent		X			
Mount Olive Township	Osmoe, Toby	Road Commissioner	X				
Mount Olive Volunteer Fire Protection District	Nowell, Donnie	Chief		X			
Nilwood, Town of	Caudle, John	Trustee	X				
Nilwood, Town of	Gudgel, John	Trustee		X			
Nilwood Township	Klaus, Jim	Road Commissioner	X		X		
North Mac CUSD #34	Hacke, Kyle	Superintendent	X			X	
North Palmyra Township	Butcher, Paul	Road Commissioner	X	X			
Patterson House Inc.	Allen, Georgia	Residential Director	X	X			
Patterson House Inc.	Carr, Kelsey	Staff Supervisor	X	X			
Patterson House Inc.	Palmer, Nicki	Administrator	X	X			
Royal Lakes, Village of	Huddleston, Parkeoke	Mayor	X	X		X	
Royal Lakes, Village of	Weber, Gary	Trustee				X	
Shaws Point Township	Featherstone, Mike	Road Commissioner	X				
Shaws Point Township	Harms, Phillip	Trustee		X			
Standard City, Village of	Kukowski, Cary	Trustee		X			
Standard City, Village of	Reed, Craig	Mayor		X			
Staunton, City of	Manning, David	Alderman		X			

Figure PP-2
Macoupin County Planning Committee Member Attendance Record
(Sheet 3 of 3)

Representing	Name	Title	4/18/2024	6/27/2024	11/14/2024	2/20/2025	10/23/2025
Staunton CUSD #6	Allen, Brett	Superintendent	X	X	X		
Staunton CUSD #6	Hughes, Alisa	School Nurse	X		X		
Staunton Fire Protection District	Wells, David	Assistant Chief	X				
Staunton Township	Maedge, Ron	Road Commissioner	X				
Unit 7 Fire Protection District	Link, Tyler	Captain	X	X	X		
Virden, City of	Murphy, George	Mayor				X	
Virden Fire Protection District	Britenstine, Brent	Chief		X			
Virden Fire Protection District	Rednour, Charles	Captain		X			
Western Mound Township	Peterson, Janie	Supervisor			X		

Mission Statement

Over the course of the first two meetings, the Planning Committee reviewed and discussed the mission statement which describes their objectives for the Plan update. The following mission statement was approved by the Committee.

"The mission of the Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee is to update the County's mitigation plan to document the risks associated with the natural and man-made hazards that impact the County and identify projects and activities that reduce the negative impacts of these hazards on individuals, infrastructure, critical facilities, and private property."

Planning Committee Meetings

The Planning Committee met five times between April 2024 and October 2025. **Figure PP-2** identifies the representatives by jurisdiction present at each meeting. **Appendices A** and **B** contain copies of the attendance sheets and meeting minutes for each meeting. The purpose of each meeting, including the topics discussed, is provided below.

First Planning Committee Meeting – April 18, 2024

The purpose of this meeting was to explain the plan update process to the Planning Committee members and give them a brief overview of the planning process including what mitigation and a hazard mitigation plan are and why the Plan needs to be updated. A discussion regarding the hazards to be included in the Plan update was conducted. Information needed from each participant was discussed and representatives for the County and the participating jurisdictions were asked to complete the forms entitled "Capability Assessment Worksheet," "Critical Facilities & Infrastructure," "Identification of Severe Weather Shelters," "Drinking Water Supply Worksheet," and "Roadway Overtopping Survey." Those that participated in the previous Plan were also asked to complete the form entitled "Changes in Land Use and Development". All the forms were requested to be returned by the next meeting.

Committee members were then asked to identify any recent or historic natural hazard events that have impacted the County and participants. A "Hazard Events Questionnaire" was distributed to solicit information on hazard events. Community participation was also discussed. The County and participating jurisdictions were asked to make information available on the planning process at their offices and in their communities. A "Citizen Questionnaire" was also distributed

electronically to Committee members prior to the meeting for distribution to their constituents to gauge the public's perception about the hazards that impact the County. Finally, drafts of the previous mission statement and mitigation goals were presented for review.

Second Planning Committee Meeting – July 27, 2024

At the second Committee meeting portions of the updated natural and man-made hazard risk assessment section were presented for review. Following the review of the risk assessment, the Committee members participated in an exercise to calculate the Risk Priority Index (RPI) for the County and participating jurisdictions. The RPI can assist participants in determining which hazards present the highest risks and therefore which ones to focus on when formulating mitigation projects and activities. The Committee then reviewed and discussed the updated mission statement and mitigation goals. Both were approved with no changes.

Next, mitigation actions were defined, and examples were discussed. Previous participants were asked to identify any mitigation projects and activities their jurisdictions had started and/or completed since the previous Plan was completed in 2019. Representatives for the previous participants were asked to complete the form entitled "Existing Mitigation Project/Activity Status" and return at the next meeting. Ideas for new potential mitigation projects and activities were then presented. Representatives for the County and the all the participating jurisdictions were asked to complete the form entitled "New Hazard Mitigation Projects" and return it at the next meeting.

Third Planning Committee Meeting – November 14, 2024

The purpose of the third Committee meeting was to discuss the vulnerability analysis for select natural hazards and the preliminary results of the RPI exercise. The concept of community lifelines was also discussed. Community Lifelines are the most fundamental services in the community that, when stabilized, enable all aspects of society to function. These fundamental services enable the continuous operation of critical government and business functions essential to human health and safety or economic security. While the concept was developed to support emergency response and planning, FEMA has begun applying it to all phases of emergency management, including mitigation. Community lifelines will be included in most project descriptions to create a clear connection to the concept.

The Committee members then discussed vulnerable community assets and completed the form entitled "Assets Vulnerability Survey" which will be used in the vulnerability analyses. Next, an explanation of what a mitigation action prioritization methodology is and how it fits into the Mitigation Strategy was provided. The Committee reviewed the updated mitigation project prioritization methodology and approved it with no changes. Finally, a discussion on how the mitigation projects and activities identified by the participating jurisdictions will be presented in the Plan update was provided. Participants were encouraged to provide their mitigation project lists prior to the 4th meeting when draft lists will be distributed for review.

Fourth Planning Committee Meeting – February 20, 2025

At the fourth Committee meeting, members reviewed the draft jurisdiction-specific mitigation action tables which identified and prioritized the new and existing mitigation projects and activities

provided by the participants. Members were given the opportunity to add additional projects and activities to their tables.

The public forum and adoption process were then discussed, and a date for the public forum was set. Finally, the plan maintenance and update requirements were discussed. The Plan update will be monitored and evaluated on an annual basis by a Plan Maintenance Subcommittee which will be made up of the participating jurisdictions, and key members of the Committee. The Plan must be reviewed, revised, and resubmitted to IEMA and FEMA at least once every five years.

Fifth Planning Committee Meeting – October 23, 2025
At this Planning Committee meeting the public was provided an opportunity to ask questions and provide comments on the draft Plan update.

2.3 PUBLIC OUTREACH STRATEGY

[Local Mitigation Planning Policy Guide Element A3-a]

To engage the public in the planning process, a comprehensive outreach strategy was developed. The strategy was structured to engage the public, including underserved communities and vulnerable populations, in a two-way dialogue, encouraging the exchange of information throughout the planning process. A mix of public involvement techniques and practices were utilized to:

- disseminate information;
- identify additional useful information about natural hazard occurrences and impacts;
- assure that interested residents would be involved throughout the Plan update's development; and
- cultivate ownership of the Plan update, thus increasing the likelihood of adoption by the participating jurisdictions.

The dialogue with the public followed proven risk communication principles to help assure clarity and avoid overstating or understating the impacts posed by the natural hazards identified in the Plan update. The following public involvement techniques and practices were applied to give the public an opportunity to access information and participate in the dialogue at their level of interest and availability.

Citizen Questionnaire
The previous citizen questionnaire was updated and used to gather facts and gauge public perceptions about natural hazards that affect Macoupin County. The questionnaire was distributed electronically to the Committee members who were encouraged to make it available to their residents and the general public. A copy of the questionnaire as well as any social media posts related to the questionnaire are contained in **Appendix C**.

A total of 81 questionnaires were completed and returned to the Committee. Questionnaires were completed by residents in each participating municipality, with the exception of Benld. These responses provide useful information to decision makers as they determine how best to disseminate information on natural hazards and safeguard the public. Additionally, these responses identify

the types of projects and activities the public is most likely to support. The following provides a summary of the results.

- Respondents felt that severe summer storms were the most frequently encountered natural hazard in Macoupin County followed by severe winter storms, floods, excessive heat, and extreme cold. While severe summer storms are encountered most frequently, compiled weather records indicate that excessive heat followed by floods occur more frequently than severe winter storms and extreme cold
- The most effective means of communication identified by respondents to disseminate information about natural hazards were social media and the Internet, followed by mailings and radio. Television and fact sheets disseminated via fire departments/law enforcement also received some support among respondents.
- In terms of the most needed mitigation projects and activities, the following categories received the strongest support:
  - maintain power during storms by burying power lines, trimming trees and/or purchasing backup generators (66%);
  - install/maintain sirens and other alert systems (56%);
  - roadway passage during snow storms and heavy rains (52%);
  - retrofit critical infrastructure (public water supplies, schools, sewage treatment facilities, bridges, hospitals and other important services) to reduce potential damages (49%);
  - flood or drainage protection (45%); and
  - identify residents with special needs in order to provide assistance during a natural hazard event (40%).

FAQ Fact Sheet

A "Frequently Asked Questions" fact sheet was disseminated to help explain what a natural hazards mitigation plan is and briefly describe the planning process. The fact sheet was made available to each participating jurisdiction to provide to their constituents. A copy of the fact sheet is contained in **Appendix D**.

News Releases/Articles & Social Media Posts

News releases were prepared and submitted to The Macoupin county Enquirer Democrat, WSMI 1450 AM/106.1 FM and posted to the Macoupin County EMA's Facebook page prior to each Committee meeting. The releases announced the purpose of the meetings and how the public could become involved in the Plan update's development. **Appendix E** contains copies of the releases, Facebook posts, and any news articles published.

Planning Committee Meetings

All of the meetings conducted by the Planning Committee were open to the public and publicized in advance to encourage public participation. At the end of each meeting, time was set aside for public comment. In addition, Committee members were available throughout the planning process to talk with residents and local government officials and were responsible for relaying any concerns and questions voiced by the public to the Committee. Interested individuals from the

public who attended the Planning Committee meetings were provided handout materials and encouraged though not required to provide their names and/or sign the attendance sheets. Copies of the attendance sheets are included in **Appendix A**.

Public Forum

The final meeting of the Committee, held on October 23, 2025, was conducted as an open-house public forum. The open-house format was chosen for this forum instead of a hearing to provide greater flexibility for residents who wished to participate. Residents were able to come and go at any time during the forum, reducing conflicts with business, family, and social obligations.

In conjunction with the public forum, the draft Plan update was made available for review and comment on the Macoupin County website. A two-page handout summarizing the planning process and a link to a comment survey that could be used to provide feedback on the draft Plan update were also posted on the website.

At the forum, residents could review a draft of the Plan update; meet with representatives from the County, the participating jurisdictions, and the Consultant; ask any questions; and provide verbal and/or written comments on the draft Plan update. Individuals attending the public forum were provided with a two-page handout summarizing the planning process and a comment sheet that could be used to provide feedback on the draft Plan update. **Appendices F** and **G** contain copies of these materials.

Public Comment Period

After the public forum, the updated draft Plan was made available for public review and comment through November 6, 2025 at the Macoupin County Clerk's Office and on the County's website. A two-page handout summarizing the planning process and a link to a comment survey that could be used to provide feedback on the draft Plan update were also posted on the website. **Appendix G** contains a copy of the online comment survey. Residents were encouraged to submit their comments electronically, by mail or through representatives of the Committee.

Results of Outreach Strategy

The public involvement strategy implemented during the planning process created a dialogue among participants and interested residents, which resulted in many benefits, a few of which are highlighted below.

- *Acquired additional information about natural hazards*. Verifiable hazard event and damage information was obtained from participants that presents a clearer assessment of the extent and magnitude of natural hazards that have impacted each County. This information included details about thunderstorms with damaging winds and lightning strikes not available from state and federal databases.
- *Increased awareness of the impacts associated with natural hazard events within the County*. Understanding how mitigation actions can reduce risk to life and property helped generate ***more than 150 new mitigation projects and activities*** at the local level that had not been previously identified in any other planning process.

2.4 PARTICIPATION OPPORTUNITIES FOR INTERESTED PARTIES

[Local Mitigation Planning Policy Guide Element A2-a]

Businesses, schools, not-for-profit organizations, neighboring counties, and other interested parties were provided multiple opportunities to participate in the planning process. Wide-reaching applications were combined with direct, person-to-person contacts to identify anyone who might have an interest or possess information which could be helpful in updating the Plan.

Agricultural Community

Representatives from the agricultural community were invited to serve on the Committee through the Macoupin County Farm Bureau. The Farm Bureau served as a technical partner on the Committee, receiving all electronic communications including surveys, meeting announcements, and meeting handouts to provide its members.

Business/Economic Development

Representatives from business and economic development were invited to serve on the Planning Committee through the Bunker Hill Chamber of Commerce, Carlinville Chamber of Commerce, Girard Chamber of Commerce, Staunton Chamber of Commerce, Virden Area Chamber of Commerce, and the West Central Development Council. These entities served as technical partners on the Committee, receiving all electronic communications including surveys, meeting announcements, and meeting handouts to provide to their members.

Education

Blackburn College, Lewis and Clark Community College, and the school districts serving Macoupin County were invited to serve on the Planning Committee and provide input into the planning process. Bunker Hill Community Unit School District (CUSD) #8, Carlinville CUSD #1, Gillespie CUSD #7, Mount Olive CUSD #5, North Mac CUSD #34, Southwestern CUSD #9, and Staunton CUSD #6 served on the Planning Committee and provided input into the planning process. Bunker Hill Community Unit School District (CUSD) #8, Carlinville CUSD #1, Gillespie CUSD #7, North Mac CUSD #34, Southwestern CUSD #9, and Staunton CUSD #6 chose to be included as participating jurisdictions in the Plan update.

Healthcare & Social Service Agencies

Input was sought from the healthcare community and social service agencies. The assisted living and nursing home facilities serving the County were invited to serve on the Planning Committee as well as representatives from the Macoupin County Health Department, American Red Cross, Carlinville Area Hospital, and the Community Hospital of Staunton. They all received electronic communications including surveys, meeting announcements, and meeting handouts and provided input into the planning process. Carlinville Area Hospital and the Community Hospital of Staunton chose to be included as participating jurisdiction in the Plan update.

Emergency Services

The fire departments/fire protection districts in Macoupin County were contacted and invited to participate in the Plan update. The Benld Fire & Rescue, Brighton Betsey Ann Fire Protection District (FPD), Carlinville Volunteer Fire Department, Girard FPD, Medora Community FPD, Mount Olive Volunteer FPD, Staunton FPD, Unit 7 FPD, and Virden FPD served on the Committee and provided input into the planning process. Brighton Betsey Ann FPD, Girard FPD,

Medora Community FPD, Mount Olive Volunteer FPD, and Unit 7 FPD chose to be included as participating jurisdictions in the Plan update.

Utilities

Ameren Illinois as well as the electric cooperatives and water districts serving the County were invited to serve on the Committee. Ameren served as a technical partner, providing information on electrical outages experienced in Macoupin County while Henderson Water District and Jersey County Rural Water served on the Planning Committee and chose to be included as participating jurisdictions in the Plan update.

Other Government Entities

The townships within Macoupin County were invited to participate in the Plan update. Brighton Township, Carlinville Township, Chesterfield Township, Girard Township, Mount Olive Township, Nilwood Township, North Palmyra Township, Shaws Point Township, Staunton Township, and Western Mound Township served on the Committee and provided input into the planning process. Brighton Township chose to be included as a participating jurisdiction in the Plan update.

Neighboring Counties

A memo was sent to EMA coordinators in the neighboring counties inviting them to participate in the mitigation planning process. The counties contacted included Sangamon, Montgomery, Madison, Jersey, Greene, and Morgan. **Appendix H** contains a copy of the invitation memo.

3.0 RISK ASSESSMENT

[Local Mitigation Planning Policy Guide Element B]

Risk assessment is the process of evaluating the vulnerability of assets in order to estimate the potential loss of life, personal injury, economic loss, and property damage resulting from natural and man-made hazards. Assets are determined by each participant and can include people; structures (i.e., critical facilities, lifelines, and infrastructure); systems (i.e., networks such as electrical and communications, etc.); and natural, historic, and cultural resources). This section summarizes the results of the risk assessment conducted on the natural and man-made hazards in Macoupin County. The information contained in this section was gathered by evaluating local, state, and federal records from the last 20 to 70 years. In order to identify/solicit information on recent and historic hazard events at a local level, Planning Committee members were asked to complete a "Hazard Events Questionnaire". The information gathered was incorporated into the risk assessment.

This risk assessment identifies the natural and man-made hazards deemed most important to the Planning Committee and includes a profile of each hazard that identifies past occurrences, the severity or extent of the events, and the likelihood of future occurrences. It also provides a vulnerability analysis that identifies the impacts to public health and property, evaluates the assets of the participating jurisdictions and estimates the potential impacts each natural hazard would have on the evaluated assets. Where applicable, the differences in vulnerability between participating jurisdictions are described.

The subsequent sections provide detailed information on each of the selected natural hazards. The sections are color coded and ordered by the frequency with which the natural hazard has previously occurred within the County. Each natural hazard section contains three subsections:

- **Hazard Identification** profiles each hazard selected for inclusion in the Plan and identifies any alerts that may be issued prior and during an event;
- **Hazard Profile** identifies past occurrences; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-e); and
- **Hazard Vulnerability** identifies impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities (Local Mitigation Planning Policy Guide Element B1-f, B2-a through B2-c).

Hazard Selection

[Local Mitigation Planning Policy Guide Element B1-a]

One of the responsibilities of the Committee was to review the hazards detailed in the original Plan and decide if additional hazards should be included in the Plan update. Over the course of the first two meetings, the Committee members discussed their experiences with natural and man-made hazard events and reviewed information on various hazards. After discussing the information provided, the Committee chose not to add any additional hazards to this Plan update. The following identifies the hazards included in this update:

- severe storms (thunderstorms, hail, lightning & heavy rain)
- excessive heat
- floods (riverine & flash)
- severe winter storms (snow & ice)
- extreme cold
- tornadoes
- drought
- earthquakes
- mine subsidence
- dam failures
- man-made hazards including:
  - hazardous substances (generation, transportation & storage/handling)
  - waste disposal
  - hazardous materials incidents
  - waste remediation
  - terrorism

The Planning Committee chose not to include the following hazards in the Plan: levee failures, and landslides. A review of the U.S. Army Corps of Engineers' National Levee Database indicates there are no public or private levees located in Macoupin County.

A review of the U.S. Landslide Inventory and Susceptibility Mapper, NASA's Global Landslide Catalog, and the Illinois State Geological Survey's (ISGS) 1985 *Landslide Inventory of Illinois* identified three landslide events within the County, two natural-occurring earth slumps and one man-induced unclassified landslide. Aside from areas immediately adjacent to the major rivers and streams, Macoupin County has a low susceptibility to landslides according to the U.S. Landslide Inventory and Susceptibility Mapper. In addition, discussions with the Planning Committee did not reveal any recent occurrences of landslides.

Based on the information provided, the Committee did not consider either hazard warranted inclusion in the Plan update.

Risk Priority Index

After reviewing the preliminary results of the risk assessment at the second meeting, Committee members and the participating jurisdictions were asked to complete a Risk Priority Index (RPI) exercise for the hazards that have the potential to impact the County and participating jurisdictions. The RPI provides quantitative guidance for ranking the hazards and offers participants another tool to determine which hazards present the highest risk and therefore which ones to focus on when formulating mitigation actions.

Each hazard was scored on three categories: 1) frequency, 2) impacts on life and health, and 3) impacts on property and infrastructure. A scoring system was developed that assigned specific factors to point values ranging from 1 to 4 for each category. For those hazards that were not applicable to a particular jurisdiction, a value of "NA" was assigned to each category. The higher the point value, the greater the risk associated with that hazard. **Figure R-1**, located at the end of this section, identifies the factors and values/point values associated with each category. Participants were asked to score the selected hazards based on the perspective of the entity they represented on the Committee.

The Consultant took the point values assigned to each category and averaged the remaining results and came up with an overall value for each category. The values for each category were then

added together to calculate an RPI score for each hazard. A ranking was then assigned to each hazard based on the RPI score. **Figure R-2**, located at the end of this section, provides the hazard rankings for the participating jurisdictions.

FEMA's National Risk Index

[Local Mitigation Planning Policy Guide Element B1-e]

The National Risk Index (NRI) is an online mapping and data-based interface that helps illustrate a community's risk to 18 identified natural hazards. The natural hazards identified by the NRI and included in this Plan are cold wave, drought, earthquake, hail, heat wave, ice storm, lightning, riverine flooding, strong wind, tornado, and winter weather. The NRI leverages available source data for natural hazard and community risk factors, such as social vulnerability and community resilience, to develop a baseline relative risk measurement for each county and census tract in the U.S. The goal is to help individuals better understand the natural hazard risk of their communities.

In the NRI, risk is defined as the potential for negative impacts as a result of a natural hazard. The risk equation behind the NRI includes three components: a natural hazards risk component (expected annual loss), a consequence enhancing component (social vulnerability), and a consequence reduction component (community resilience). Social vulnerability represents the susceptibility of social groups to the adverse impacts of natural hazards. Community resilience represents the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions.

The scores and ratings generated by the NRI describe a county's or census tract's relative position among all other U.S. counties and census tracts for a given component. Dataset Update Version 1.19.0 released March 2023 was used in this analysis. Scores can range from 0 (the lowest possible value) to 100 (the highest possible value). For every score there is assigned one of five qualitative ratings: "Very Low", "Relatively Low", "Relatively Moderate", "Relatively High", and "Very High." Because all ratings are relative, there are no specific numeric values that determine the rating.

In order to provide the participating jurisdictions and public with additional information on the natural hazards included in the Plan, **Figure R-3** located at the end of this section, presents the overall NRI scores and ratings for each census tract as well as for the County. 2020 census tract information was used in this version of the NRI. In 2020, there were 13 census tracts in Macoupin County and two census tracks in Sangamon County and Jersey County that include the municipalities of Virden and Brighton respectively. Ten of the 13 census tracts have a Risk Index rating of "Relatively Moderate" and three census tracts have a Risk Index rating of "Relatively Low". One of the census tracks has a Social Vulnerability rating of "Very High", one is "Relatively High", four are "Relatively Moderate", five are "Relatively Low" , and two are "Very Low".

Figure R-4, located at the end of this section, provides the NRI scores and ratings by hazard type for each census tract as well as the County. Hazard ratings of "Relatively High" and "Very High" are highlighted in yellow by census tract. The hazards with the highest relative ratings include hail, lightning, ice storm, extreme cold, excessive heat, and tornadoes.

Critical Facilities & Infrastructure

[Local Mitigation Planning Policy Guide Element B2-b]

Critical facilities and infrastructure include structures, lifelines, systems, networks, and institutions that are critical for life, safety, and economic viability and necessary for a community's response to and recovery from emergencies. The loss of function of any of these assets can intensify the severity of the impacts and speed of recovery associated with a hazard event. Critical facilities and infrastructure may include, but are not limited to, the following:

- **Essential Facilities**: Facilities essential to the health and welfare of the whole population including hospitals and other medical facilities, police and fire stations, emergency operations centers, evacuation shelters, and schools.
- **Government Facilities**: Facilities associated with the continued operations of government services such as courthouses, city/village halls, township buildings, and highway/maintenance centers.
- **Infrastructure Systems**: Infrastructure associated with drinking water, wastewater, transportation (roads, railways, waterways), communication systems, electric power, natural gas and oil.
- **Housing Facilities**: Facilities that serve populations that have access and function needs such as nursing homes, skilled and memory care facilities, residential group homes, and day care centers.
- **High Potential Loss Facilities**: Facilities that would have an impact or high loss associated with them if their functionality is compromised such as nuclear power plants, dams, levees, military installations and facilities housing industrial or hazardous materials.
- **Gathering Places**: Facilities such as parks, libraries, community centers, and churches.

As part of the planning process each participating jurisdiction reviewed and/or completed a "Critical Facilities & Infrastructure" survey to identify the critical facilities and infrastructure located within their jurisdiction, both publicly and privately-owned. **Figure R-5**, located at the end of this section, identifies the number of critical facilities and infrastructure located in each participating jurisdiction for select categories. Identifying these assets makes local leaders more aware of the critical facilities and infrastructure located within their jurisdictions and helps them make informed choices on how to better protect these key resources.

While considered a "local government entity" for planning purposes, Brighton Township, the six school districts, five fire protection districts, two hospitals, and two water districts do not have an extensive inventory of critical facilities/infrastructure assets to consider when conducting the risk assessment.

The critical facilities/infrastructure assets for Bunker Hill CUSD #8, Carlinville CUSD #1, Gillespie CUSD #7, Nor Mac CUSD #34, Staunton CUSD #6, Carlinville Area Hospital, and Community Hospital of Staunton are all located within a participating municipality and are a subset of these municipalities' critical facilities. As such their risk is considered to be the same or similar to the risk experienced by the municipalities for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.). For those hazards where the risk to these critical facilities varies from the risk

facing the municipalities, a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

The critical facilities/infrastructure assets for Brighton Township, Henderson Water District, and Jersey County Rural Water are located in unincorporated Macoupin County. Their risk is considered to be the same or similar to the risk experienced by the County for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.) For those hazards where the risk to these critical facilities varies from the risk facing the planning area (i.e., the County), a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

The critical facilities/infrastructure assets for Medora Community FPD and Mount Olive Volunteer FPD are located in the municipalities of Medora and Mount Olive respectively. The risk for these municipalities is considered to be the same or similar to the risk experienced by the participating municipalities and County for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.) For those hazards where the risk to these critical facilities varies from the risk facing the planning area (i.e., the County), a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

The critical facilities/infrastructure assets for Southwestern CUSD #9 are located in Brighton, Medora, Piasa, and Shipman while Unit 7 FPD's critical facilities/infrastructure assets are located Benld, Dorchester, and Gillespie. The risk to the critical facilities in Dorchester, Medora, Piasa, and Shipman is the same or similar to the risk experienced by Benld, Brighton, and Gillespie for those for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.). For those hazards where the risk to these critical facilities varies from the risk facing the planning area (i.e., the County), a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

The critical facilities/infrastructure assets for Girard FPD's are located in Girard, Nilwood and Sunset Lake in unincorporated Macoupin County. The risk to the critical to the District's critical facilities at Sunset Lake are considered to be the same or similar to the risk experienced by the County for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.) For those hazards where the risk to these critical facilities varies from the risk facing the planning area (i.e., the County), a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

The critical facilities/infrastructure assets for Brighton Betsey Ann FPD are located in Brighton and west of Brighton in unincorporated Jersey County. The risk to the critical facilities in unincorporated Jersey County is considered to be the same or similar to the risk experienced by Macoupin County for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.) For those hazards where the risk to the these critical facilities varies from the risk facing the planning area (i.e., the

County), a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

Assets Vulnerability Survey

[Local Mitigation Planning Policy Guide Element B2-a]

The participating jurisdictions were also asked to complete an "Assets Vulnerability Survey" at the first meeting to assist them in creating problem statements summarizing the consequences and/or effects the studied hazards have on their assets. The Survey asked participants to describe their jurisdiction's greatest vulnerabilities to natural hazards and which assets they felt have the greatest vulnerabilities and the hazards to which they are most vulnerable. **Appendix I** contains copies of the completed surveys.

Figure R-1
Risk Priority Index Scoring System

Category	Factors	Point Value
Hazard Frequency	An event is anticipated to occur within the next year. Based on previous history, at least one event is expected to occur in any given year.	4
	An event is likely to occur in the next 1 to 3 years. Based on previous history, an event has at least a 33% chance of occurring in any given year.	3
	An event is possible in the next 3 to 10 years. Based on previous history, an event has a 10% to 33% chance of occurring in any given year.	2
	An event is unlikely to occur within the next 10 years. These events occur infrequently and based on previous history have a less than 10% chance of occurring in any given year.	1
Impacts on Life & Health	Fatalities are expected to occur during the event.	4
	While fatalities are unlikely, injuries, some requiring hospitalization, may occur during the event.	3
	Minor injuries not requiring hospitalization may occur during the event.	2
	Injuries or fatalities are unlikely to occur during the event.	1
Impacts on Property & Infrastructure	- Substantial property damage is likely to occur, including damage to infrastructure and critical facilities. AND/OR - Loss of access/operations at multiple infrastructure and critical facilities (i.e., road & school closures, loss of power to drinking water/wastewater treatment facilities, municipal buildings, etc.) is anticipated for an extended period of time (i.e., a day or more).	4
	- Property damage is expected to occur, including superficial damage to infrastructure and critical facilities. AND/OR - Loss of access/operations at multiple infrastructure and critical facilities is anticipated for a period of time (i.e., a day or less).	3
	- Some minor property damage is anticipated (i.e., shingles & siding torn off homes, windows broken, etc.) but no damage to infrastructure or critical facilities is anticipated. AND/OR - Loss of access/operations to infrastructure and critical facilities is anticipated but only for a short period of time (i.e., up to a couple of hours).	2
	Property damage is likely to be negligible and no loss of access/operations is anticipated at any infrastructure/critical facilities during the event.	1

Figure R-2
Risk Priority Index Hazard Ranking by Participating Jurisdiction
(Sheet 1 of 5)

Hazard	Hazard Ranking by Participating Jurisdiction						
	Macoupin County	Benld	Brighton	Bunker Hill	Carlinville	Eagarville	Gillespie
Dam Failures	16	n/a	13/14/15	n/a	n/a	n/a	n/a
Drought	11/12	4/5/6	8/9/10/11/12	2/3	2/3	7/8/9/10/11	10/11/12/13/14/15
Earthquakes	13/14	14/15	13/14/15	13/14/15	12/13/14/15	7/8/9/10/11	10/11/12/13/14/15
Excessive Heat	2/3/4	7	**1**	5	6/7/8/9	3/4	2
Extreme Cold	6/7/8	8/9/10/11	3/4/5/6/7	6/7/8	12/13/14/15	7/8/9/10/11	3/4/5/6/7
Floods	13/14	13	13/14/15	13/14/15	12/13/14/15	12	3/4/5/6/7
Hail	10	12	8/9/10/11/12	2/3	10/11	7/8/9/10/11	10/11/12/13/14/15
HazMat Incidents - Fixed Facility	2/3/4	8/9/10/11	3/4/5/6/7	13/14/15	6/7/8/9	13/14/15	8/9
HazMat Incidents - Transportation	**1**	8/9/10/11	3/4/5/6/7	11/12	2/3	13/14/15	8/9
Heavy Rain	11/12	8/9/10/11	8/9/10/11/12	6/7/8	4/5	5/6	3/4/5/6/7
Lightning	6/7/8	4/5/6	8/9/10/11/12	9/10	10/11	7/8/9/10/11	10/11/12/13/14/15
Mine Subsidence	6/7/8	**1**	n/a	11/12	**1**	3/4	**1**
Terrorism	15	14/15	8/9/10/11/12	9/10	12/13/14/15	13/14/15	10/11/12/13/14/15
Thunderstorms with Damaging Winds	2/3/4	2/3	3/4/5/6/7	4	6/7/8/9	**1/2**	3/4/5/6/7
Tornadoes	5	2/3	3/4/5/6/7	**1**	4/5	**1/2**	3/4/5/6/7
Winter Storms	9	4/5/6	2	6/7/8	6/7/8/9	5/6	10/11/12/13/14/15

Figure R-2
Risk Priority Index Hazard Ranking by Participating Jurisdiction
(Sheet 2 of 5)

Hazard	Hazard Ranking by Participating Jurisdiction						
	Girard	Mt. Clare	Nilwood	Royal Lakes	Staunton	Virden	Brighton Township
Dam Failures	n/a	n/a	n/a	n/a	n/a	n/a	14/15
Drought	12/13/14	7/8/9/10	13/14/15	10/11/12/13/14	7/8/9/10	12/13/14	13
Earthquakes	3/4/5/6	11/12/13/14/15	5/6/7/8/9/10/11/12	10/11/12/13/14	7/8/9/10	15	9
Excessive Heat	12/13/14	**1**	5/6/7/8/9/10/11/12	8/9	**1/2**	6/7/8/9/10/11	**1/2/3/4/5**
Extreme Cold	12/13/14	4/5/6	5/6/7/8/9/10/11/12	**1/2/3/4/5/6**	**1/2**	6/7/8/9/10/11	**1/2/3/4/5**
Floods	8/9/10/11	11/12/13/14/15	13/14/15	7	14	6/7/8/9/10/11	10/11/12
Hail	8/9/10/11	7/8/9/10	5/6/7/8/9/10/11/12	**1/2/3/4/5/6**	5/6	6/7/8/9/10/11	10/11/12
HazMat Incidents - Fixed Facility	8/9/10/11	11/12/13/14/15	5/6/7/8/9/10/11/12	10/11/12/13/14	15	12/13/14	14/15
HazMat Incidents - Transportation	7	11/12/13/14/15	2/3/4	10/11/12/13/14	7/8/9/10	12/13/14	6/7/8
Heavy Rain	3/4/5/6	7/8/9/10	5/6/7/8/9/10/11/12	**1/2/3/4/5/6**	11/12/13	5	10/11/12
Lightning	8/9/10/11	4/5/6	2/3/4	**1/2/3/4/5/6**	11/12/13	**1**	6/7/8
Mine Subsidence	2	4/5/6	**1**	n/a	5/6	6/7/8/9/10/11	n/a
Terrorism	15	11/12/13/14/15	13/14/15	10/11/12/13/14	11/12/13	6/7/8/9/10/11	6/7/8
Thunderstorms with Damaging Winds	3/4/5/6	2/3	2/3/4	**1/2/3/4/5/6**	7/8/9/10	2/3/4	**1/2/3/4/5**
Tornadoes	**1**	2/3	5/6/7/8/9/10/11/12	8/9	3/4	2/3/4	**1/2/3/4/5**
Winter Storms	3/4/5/6	7/8/9/10	5/6/7/8/9/10/11/12	**1/2/3/4/5/6**	3/4	2/3/4	**1/2/3/4/5**

Figure R-2
Risk Priority Index Hazard Ranking by Participating Jurisdiction
(Sheet 3 of 5)

Hazard	Hazard Ranking by Participating Jurisdiction					
	Bunker Hill CUSD #8	Carlinville CUSD #1	Gillespie CUSD #7	North Mac CUSD #34	Southwestern CUSD #9	Staunton CUSD #6
Dam Failures	n/a	n/a	n/a	n/a	n/a	n/a
Drought	13	14/15	14/15	3/4/5/6/7/8/9/10/11/12/13/14/15	14	15
Earthquakes	14/15	4/5/6/7/8	11/12/13	3/4/5/6/7/8/9/10/11/12/13/14/15	2/3	12/13/14
Excessive Heat	6/7/8	4/5/6/7/8	6/7/8/9/10	3/4/5/6/7/8/9/10/11/12/13/14/15	10/11/12/13	10/11
Extreme Cold	9/10/11	4/5/6/7/8	6/7/8/9/10	3/4/5/6/7/8/9/10/11/12/13/14/15	10/11/12/13	9
Floods	2/3/4/5	**1/2**	3/4/5	3/4/5/6/7/8/9/10/11/12/13/14/15	10/11/12/13	10/11
Hail	12	9/10/11/12/13	3/4/5	3/4/5/6/7/8/9/10/11/12/13/14/15	4/5	7/8
HazMat Incidents - Fixed Facility	2/3/4/5	9/10/11/12/13	14/15	3/4/5/6/7/8/9/10/11/12/13/14/15	6/7	2/3/4
HazMat Incidents - Transportation	9/10/11	4/5/6/7/8	11/12/13	3/4/5/6/7/8/9/10/11/12/13/14/15	4/5	2/3/4
Heavy Rain	2/3/4/5	9/10/11/12/13	6/7/8/9/10	3/4/5/6/7/8/9/10/11/12/13/14/15	8/9	12/13/14
Lightning	9/10/11	9/10/11/12/13	3/4/5	3/4/5/6/7/8/9/10/11/12/13/14/15	6/7	5/6
Mine Subsidence	6/7/8	14/15	6/7/8/9/10	3/4/5/6/7/8/9/10/11/12/13/14/15	n/a	12/13/14
Terrorism	14/15	9/10/11/12/13	6/7/8/9/10	3/4/5/6/7/8/9/10/11/12/13/14/15	10/11/12/13	7/8
Thunderstorms with Damaging Winds	6/7/8	3	2	**1/2**	2/3	2/3/4
Tornadoes	**1**	**1/2**	**1**	**1/2**	**1**	**1**
Winter Storms	2/3/4/5	4/5/6/7/8	11/12/13	3/4/5/6/7/8/9/10/11/12/13/14/15	8/9	5/6

Figure R-2
Risk Priority Index Hazard Ranking by Participating Jurisdiction
(Sheet 4 of 5)

Hazard	Hazard Ranking by Participating Jurisdiction				
	Brighton Betsey Ann FPD	Girard FPD	Medora Community FPD	Mt. Olive Volunteer FPD	Unit 7 FPD
Dam Failures	n/a	n/a	n/a	n/a	n/a
Drought	8/9/10/11/12	7/8/9	2/3/4/5	14/15	11/12/13/14
Earthquakes	13/14	14/15	9/10/11/12/13/14/15	5/6/7/8	15
Excessive Heat	**1**	4/5/6	2/3/4/5	3/4	7/8/9/10
Extreme Cold	3/4/5/6/7	4/5/6	6/7/8	**1**	11/12/13/14
Floods	13/14	14/15	2/3/4/5	14/15	5/6
Hail	8/9/10/11/12	**1/2/3**	6/7/8	3/4	5/6
HazMat Incidents - Fixed Facility	3/4/5/6/7	10	9/10/11/12/13/14/15	12	3/4
HazMat Incidents - Transportation	3/4/5/6/7	7/8/9	9/10/11/12/13/14/15	9/10/11	3/4
Heavy Rain	8/9/10/11/12	**1/2/3**	6/7/8	5/6/7/8	7/8/9/10
Lightning	8/9/10/11/12	7/8/9	9/10/11/12/13/14/15	5/6/7/8	11/12/13/14
Mine Subsidence	n/a	11/12	9/10/11/12/13/14/15	9/10/11	7/8/9/10
Terrorism	8/9/10/11/12	13	9/10/11/12/13/14/15	13	7/8/9/10
Thunderstorms with Damaging Winds	3/4/5/6/7	**1/2/3**	**1**	9/10/11	2
Tornadoes	3/4/5/6/7	11/12	2/3/4/5	5/6/7/8	**1**
Winter Storms	2	4/5/6	9/10/11/12/13/14/15	2	11/12/13/14

Figure R-2
Risk Priority Index Hazard Ranking by Participating Jurisdiction
(Sheet 5 of 5)

Hazard	Hazard Ranking by Participating Jurisdiction			
	Carlinville Area Hospital	Community Hospital of Staunton	Henderson Water District	Jersey County Rural Water
Dam Failures	n/a	n/a	n/a	n/a
Drought	11/12/13/14	3/4/5/6	9/10/11/12/13/14/15	7/8/9/10/11/12/13
Earthquakes	15	3/4/5/6	9/10/11/12/13/14/15	2/3/4
Excessive Heat	7/8/9/10	3/4/5/6	3/4/5/6	7/8/9/10/11/12/13
Extreme Cold	11/12/13/14	3/4/5/6	**1/2**	5/6
Floods	5/6	11/12/13/14	7/8	5/6
Hail	5/6	7/8/9/10	**1/2**	7/8/9/10/11/12/13
HazMat Incidents - Fixed Facility	3/4	15	9/10/11/12/13/14/15	14
HazMat Incidents - Transportation	3/4	11/12/13/14	9/10/11/12/13/14/15	7/8/9/10/11/12/13
Heavy Rain	7/8/9/10	7/8/9/10	3/4/5/6	2/3/4
Lightning	11/12/13/14	7/8/9/10	3/4/5/6	7/8/9/10/11/12/13
Mine Subsidence	7/8/9/10	11/12/13/14	9/10/11/12/13/14/15	15
Terrorism	7/8/9/10	11/12/13/14	9/10/11/12/13/14/15	7/8/9/10/11/12/13
Thunderstorms with Damaging Winds	2	7/8/9/10	3/4/5/6	2/3/4
Tornadoes	**1**	**1/2**	9/10/11/12/13/14/15	**1**
Winter Storms	11/12/13/14	**1/2**	7/8	7/8/9/10/11/12/13

Figure R-3
National Risk Index Overall Scores/Ratings by Census Tract

Census Tract No.	Participating Jurisdiction Located in Census Tract	Risk Index Score	Risk Index Rating	Social Vulnerability Score	Social Vulnerability Rating	Community Resilience Score	Community Resilience Rating
9560	North Mac CUSD #34, Virden	48.71	Relatively Low	37.35	Relatively Low	*	*
9561	Girard, Girard FPD, North Mac CUSD #34, Virden	65.57	Relatively Moderate	47.83	Relatively Moderate	*	*
9562	Girard FPD, North Mac CUSD #34	78.84	Relatively Moderate	43.15	Relatively Moderate	*	*
9563	Carlinville, Carlinville CUSD #1, Gillespie CUSD #7, Girard FPD, Nilwood, North Mac CUSD #34, Unit 7 FPD	75.73	Relatively Moderate	10.64	Very Low	*	*
9564	Carlinville, Carlinville Area Hospital, Carlinville CUSD #1	80.75	Relatively Moderate	83.84	Very High	*	*
9565	Carlinville CUSD #1, Gillespie CUSD #7, Medora Community FPD, Southwestern CUSD #9	68.04	Relatively Moderate	13.81	Very Low	*	*
9566	Brighton Betsey Ann FPD, Brighton, Brighton Township, Bunker Hill CUSD #8, Carlinville CUSD #1, Medora Community FPD, Southwestern CUSD #9	75.61	Relatively Moderate	29.65	Relatively Low	*	*
9567	Brighton Betsey Ann FPD, Brighton Township, Bunker Hill, Bunker Hill CUSD #8, Carlinville CUSD #1, Royal Lakes, Southwestern CUSD #9	82.37	Relatively Moderate	53.85	Relatively Moderate	*	*
9568	Benld, Bunker Hill CUSD #8, Carlinville CUSD #1, Gillespie, Gillespie CUSD #7, Mount Clare, Staunton, Staunton CUSD #6, Southwestern CUSD #9, Unit 7 FPD	66.51	Relatively Moderate	25.30	Relatively Low	*	*
9569	Eagerville, Gillespie, Gillespie CUSD #7, Unit 7 FPD	57.61	Relatively Low	25.61	Relatively Low	*	*
9570	Benld, Eagarville, Gillespie CUSD #7, Mount Clare, Mount Olive Volunteer FPD, Staunton, Staunton CUSD #6, Unit 7 FPD	71.14	Relatively Moderate	62.29	Relatively High	*	*
9571	Gillespie CUSD #7, Mount Olive Volunteer FPD, Staunton CUSD #6	54.40	Relatively Low	20.63	Relatively Low	*	*
9572	Staunton, Staunton CUSD #6, Community Hospital of Staunton	73.49	Relatively Moderate	41.85	Relatively Moderate	*	*
34 (Sangamon County)	Virden	70.49	Relatively Moderate	17.46	Very Low		
102 (Jersey County)	Brighton	37.46	Relatively Low	11.34	Very Low	*	*
Macoupin County		72.22	Relatively Low	13.88	Very Low	73.20	Relatively High

Figure R-4
NRI Hazard Scores/Ratings by Hazard by Census Tract
(Sheet 1 of 2)

		Severe Storms						Severe Winter Storms				Riverine Floods	
Census Tract No.	Participating Jurisdiction Located in Census Tract	Hail Score	Hail Rating	Lightning Score	Lightning Rating	Strong Wind Score	Strong Wind Rating	Ice Storm Score	Ice Storm Rating	Winter Weather Score	Winter Weather Rating	Score	Rating
9560	North Mac CUSD #34, Virden	91.59	RH	88.41	RH	52.32	RL	85.53	RM	73.00	RM	0.00	NR
9561	Girard, Girard FPD, North Mac CUSD #34, Virden	94.65	RH	89.97	RH	57.06	RM	89.99	RH	80.97	RM	28.01	VL
9562	Girard FPD, North Mac CUSD #34	96.40	RH	84.21	RH	56.62	RM	92.48	RH	85.24	RM	31.16	VL
9563	Carlinville, Carlinville CUSD #1, Gillespie CUSD #7, Girard FPD, Nilwood, North Mac CUSD #34, Unit 7 FPD	95.82	RH	81.89	RH	54.94	RL	91.48	RH	83.60	RM	36.67	RL
9564	Carlinville, Carlinville Area Hospital, Carlinville CUSD #1	97.04	RH	97.90	VH	73.12	RM	94.47	RH	88.16	RH	55.89	RL
9565	Carlinville CUSD #1, Gillespie CUSD #7, Medora Community FPD, Southwestern CUSD #9	95.38	RH	76.94	RH	52.37	RL	89.97	RH	81.73	RM	32.18	VL
9566	Brighton Betsey Ann FPD, Brighton, Brighton Township, Bunker Hill CUSD #8, Carlinville CUSD #1, Medora Community FPD, Southwestern CUSD	96.26	RH	92.68	RH	63.36	RM	90.08	RH	83.49	RM	0.00	NR
9567	Brighton Betsey Ann FPD, Brighton Township, Bunker Hill, Bunker Hill CUSD #8, Carlinville CUSD #1, Royal Lakes, Southwestern CUSD #9	97.01	RH	94.03	VH	65.27	RM	91.37	RH	85.45	RM	25.38	VL
9568	Benld, Bunker Hill CUSD #8, Carlinville CUSD #1, Gillespie, Gillespie CUSD #7, Mount Clare, Staunton, Staunton CUSD #6,	94.03	RH	82.92	RH	51.87	RL	85.53	RM	76.22	RM	30.27	VL
9569	Eagerville, Gillespie, Gillespie CUSD #7, Unit 7 FPD	92.91	RH	89.04	RH	54.74	RL	84.21	RM	74.03	RM	42.50	RL
9570	Benld, Eagarville, Gillespie CUSD #7, Mount Clare, Mount Olive Volunteer FPD, Staunton, Staunton CUSD #6, Unit 7 FPD	95.26	RH	93.01	RH	61.24	RM	88.44	RH	80.81	RM	25.76	VL
9571	Gillespie CUSD #7, Mount Olive Volunteer FPD, Staunton CUSD #6	91.76	RH	81.13	RH	48.16	RL	81.57	RM	70.16	RM	28.61	VL
9572	Staunton, Staunton CUSD #6, Community Hospital of Staunton	95.24	RH	94.40	VH	63.65	RM	88.66	RH	81.10	RM	46.56	RL
34 (Sangamon County)	Virden	89.31	RH	48.12	RM	91.17	RH	89.08	RH	88.12	RH	80.67	RM
102 (Jersey County)	Brighton	86.19	RM	73.05	RM	75.87	RM	69.64	RM	71.74	RM	32.51	VL
Macoupin County		94.37	RM	81.89	RM	31.08	RL	83.34	RM	63.09	RM	10.79	VL

Rating Abbreviations: NR = No Rating; VL = Very Low; RL = Relatively Low; RM = Relatively Moderate; RH = Relatively High; VH = Very High

Figure R-4
NRI Hazard Scores/Ratings by Hazard by Census Tract
(Sheet 2 of 2)

		Extreme Cold		Excessive Heat		Tornadoes		Drought		Earthquakes	
Census Tract No.	Participating Jurisdiction Located in Census Tract	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating
9560	North Mac CUSD #34, Virden	89.68	RM	77.74	RM	68.61	RM	81.26	RL	80.25	RM
9561	Girard, Girard FPD, North Mac CUSD #34, Virden	91.50	RH	80.99	RH	78.93	RH	91.32	RL	84.13	RM
9562	Girard FPD, North Mac CUSD #34	90.63	RH	79.08	RH	85.26	RH	94.25	RM	88.61	RM
9563	Carlinville, Carlinville CUSD #1, Gillespie CUSD #7, Girard FPD, Nilwood, North Mac CUSD #34, Unit 7 FPD	89.86	RM	77.74	RM	82.53	RH	93.55	RL	87.79	RM
9564	Carlinville, Carlinville Area Hospital, Carlinville CUSD #1	96.47	RH	91.33	RH	91.47	RH	80.84	VL	87.05	RM
9565	Carlinville CUSD #1, Gillespie CUSD #7, Medora Community FPD, Southwestern CUSD #9	88.17	RM	74.78	RM	79.32	RH	92.62	RL	85.23	RM
9566	Brighton Betsey Ann FPD, Brighton, Brighton Township, Bunker Hill CUSD #8, Carlinville CUSD #1, Medora Community FPD, Southwestern CUSD #9	93.25	RH	84.70	RH	83.24	RH	90.17	RL	87.09	RM
9567	Brighton Betsey Ann FPD, Brighton Township, Bunker Hill, Bunker Hill CUSD #8, Carlinville CUSD #1, Royal Lakes, Southwestern CUSD #9	93.75	RH	85.67	RH	86.37	RH	91.14	RL	89.91	RH
9568	Benld, Bunker Hill CUSD #8, Carlinville CUSD #1, Gillespie, Gillespie CUSD #7, Mount Clare, Staunton, Staunton CUSD #6, Southwestern CUSD #9, Unit 7 FPD	88.45	RM	75.46	RM	72.02	RM	90.40	RL	86.02	RM
9569	Eagerville, Gillespie, Gillespie CUSD #7, Unit 7 FPD	90.30	RM	78.90	RH	69.91	RM	82.23	RL	83.20	RM
9570	Benld, Eagarville, Gillespie CUSD #7, Mount Clare, Mount Olive Volunteer FPD, Staunton, Staunton CUSD #6, Unit 7 FPD	92.80	RH	83.76	RH	79.05	RH	88.53	RL	86.00	RM
9571	Gillespie CUSD #7, Mount Olive Volunteer FPD, Staunton CUSD #6	86.73	RM	72.67	RM	65.02	RM	86.80	RL	83.74	RM
9572	Staunton, Staunton CUSD #6, Community Hospital of Staunton	93.54	RH	85.39	RH	79.92	RH	76.01	VL	86.88	RM
34 (Sangamon County)	Virden	91.18	RH	80.66	RH	92.86	RH	94.20	RM	82.06	RM
102 (Jersey County)	Brighton	82.09	RM	87.63	RH	67.18	RM	87.93	RL	71.53	RL
Macoupin County		83.71	RH	82.06	RM	75.50	RM	64.17	RL	93.29	RL

Rating Abbreviations: NR = No Rating; VL = Very Low; RL = Relatively Low; RM = Relatively Moderate; RH = Relatively High; VH = Very High

Figure R-5
Critical Facilities & Infrastructure by Jurisdiction
(Sheet 1 of 2)

Participating Jurisdiction	Critical Facilities				Critical Infrastructure						
	Government[1]	Emergency Protection[2]	Medical & Healthcare[3]	Schools	Drinking Water[4]	Wastewater Treatment[5]	Rail Lines	Bridges	Interstates US/State Routes & Key Roads	Power Plants	Comm. Systems
Macoupin County	29	33	32	---	---	---	3	2	7	---	---
Benld	4	2	---	---	1	6	1	---	7	---	---
Brighton	2	3	1	1	2	5	---	---	6	---	---
Bunker Hill	1	2	3	3	3	6	---	---	2	---	---
Carlinville	3	2	11	5	3	1	2	---	4	---	---
Eagarville	1	---	---	---	---	2	---	---	---	---	---
Gillespie	5	4	4	---	3	3	---	---	2	---	---
Girard	1	2	2	3	1	3	2	---	3	---	---
Mount Clare	1	---	1	---	1	6	---	---	2	---	---
Nilwood	2	1	---	---	1	2	2	---	1	---	---
Royal Lakes	1	---	---	---	---	2	---	1	4	---	---
Staunton	3	6	2	4	4	8	1	---	5	---	---
Virden	5	3	2	2	1	4	2	---	4	---	---

[1] Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, libraries, etc.
[2] Emergency Protection includes: sheriff's department, police, fire, ambulance, emergency operations centers, jail/correctional facilities and evacuation shelters.
[3] Medical & Healthcare includes: public health departments, hospitals, urgent/prompt care and medical clinics, nursing homes, skilled nursing facilities, memory care facilities, residential group homes, etc.
[4] Drinking Water includes: drinking water treatment plants, drinking water wells, and water storage towers/tanks.
[5] Wastewater Treatment includes: wastewater treatment plants and lift stations.
--- Indicates the jurisdiction does not own/maintain any critical facilities within that category.

Figure R-5
Critical Facilities & Infrastructure by Jurisdiction
(Sheet 2 of 2)

Participating Jurisdiction	Critical Facilities				Critical Infrastructure						
	Government[1]	Emergency Protection[2]	Medical & Healthcare[3]	Schools	Drinking Water[4]	Wastewater Treatment[5]	Rail Lines	Bridges	Interstates US/State Routes & Key Roads	Power Plants	Comm. Systems
Brighton Township	1	---	---	---	---	---	---	---	---	---	---
Bunker Hill CUSD #8	---	---	---	4	---	---	---	---	---	---	---
Carlinville CUSD #1	---	---	---	5	---	---	---	---	---	---	---
Gillespie CUSD #7	---	---	---	5	---	---	---	---	---	---	---
North Mac CUSD #34	---	---	---	4	---	---	---	---	---	---	---
Southwestern CUSD #9	---	---	---	5	---	---	---	---	---	---	---
Staunton CUSD #6	---	---	---	3	---	---	---	---	---	---	---
Brighton Betsey Ann FPD	---	3	---	---	---	---	3	---	4	---	---
Girard FPD	---	4	---	---	---	---	2	---	2	---	---
Medora Community FPD	---	1	---	---	---	---	---	2	---	---	---
Mount Olive Volunteer FPD	---	4	---	---	---	---	2	---	3	---	---
Unit 7 FPD	---	3	---	---	---	---	---	---	---	---	---
Carlinville Area Hospital	---	---	4	---	---	---	---	---	---	---	---
Community Hospital of Staunton	---	---	2	---	---	---	---	---	---	---	---
Henderson Water District	4	4	1	---	2	---	3	---	3	---	---
Jersey County Rural Water	---	---	---	---	2	---	---	---	---	---	---

[1] Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, libraries, etc.
[2] Emergency Protection includes: sheriff's department, police, fire, ambulance, emergency operations centers, jail/correctional facilities and evacuation shelters.
[3] Medical & Healthcare includes: public health departments, hospitals, urgent/prompt care and medical clinics, nursing homes, skilled nursing facilities, memory care facilities, residential group homes, etc.
[4] Drinking Water includes: drinking water treatment plants, drinking water wells, and water storage towers/tanks.
[5] Wastewater Treatment includes: wastewater treatment plants and lift stations.
--- Indicates the jurisdiction does not own/maintain any critical facilities within that category.

3.1 SEVERE STORMS (THUNDERSTORMS, HAIL, LIGHTNING & HEAVY RAIN)

HAZARD IDENTIFICATION

What is the definition of a severe storm?

The National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) defines a "severe storm" as any thunderstorm that produces one or more of the following:

- winds with gust of 50 knots (58 mph) or greater;
- hail that is at least one inch in diameter (quarter size) or larger; and/or
- a tornado.

While severe storms are capable of producing deadly lightning and heavy rain that may lead to flash flooding, the NWS does not use lightning/either to define a severe storm. However, a discussion of both lightning and heavy rain is included in this section because both are capable of causing extensive damage. For the purposes of this report, tornadoes and flooding are categorized as separate hazards and are not discussed under severe storms.

What is a thunderstorm?

A thunderstorm is a rain shower accompanied by lightning and thunder. An average thunderstorm is approximately 15 miles in diameter, affecting a relatively small area when compared to winter storms or hurricanes, and lasts an average of 30 minutes. Thunderstorms can bring heavy rain, damaging winds, hail, lightning and tornadoes.

There are four basic types of thunderstorms: single-cell, multi-cell, squall line, and supercell. The following provides a brief description of each.

Single-cell Thunderstorm

Single cell storms are small, weak storms that only last about ½ hour to an hour and are not usually considered severe. They are typically driven by heating on a summer afternoon. Occasionally a single cell storm will become severe, but only briefly. When this happens, it is called a pulse severe storm.

Multi-cell Thunderstorm

Multi-cell storms are the most common type of thunderstorms. A multi-cell storm is organized in clusters of at least two to four short-lived cells. Each cell usually lasts 30 to 60 minutes while the system as whole may persist for many hours. Multi-cell storms may produce hail, strong winds, brief tornadoes, and/or flooding.

Squall Line

A Squall line is a group of storms arranged in a line, often accompanied by "squalls" of high wind and heavy rain. The line of storms can be continuous or there can be gaps and breaks in the line. Squall lines tend to pass quickly and can be hundreds of miles long but are typically only 10 to 20 miles wide. A "bow echo" is a radar signature of a squall line that "bows out" as winds fall behind the line and circulation develops on either end.

Supercell Thunderstorm

Supercell storms are long-lived (greater than one hour) and highly organized storms that feed off a rising current of air (an updraft). The main characteristic that sets a supercell storm apart from other thunderstorm types is the presence of rotation in the updraft. The rotating updraft of a supercell (called a mesocyclone when visible on radar) helps a supercell storm produce extreme weather events. Supercell storms are potentially the most dangerous storm type and have been observed to generate the vast majority of large and violet tornadoes, as well as downburst winds and large hail.

Despite their size, all thunderstorms are dangerous and capable of threatening life and property. Of the estimated 100,000 thunderstorms that occur each year in the U.S., roughly 10% are classified as severe.

What kinds of damaging winds are produced by a thunderstorm?

Aside from tornadoes, thunderstorms can produce straight-line winds. A straight-line wind is defined as any wind produced by a thunderstorm that is not associated with rotation. There are several types of straight-line winds including downdrafts, downbursts, microbursts, gust fronts and derechos.

Damage from straight-line winds is more common than damage from tornadoes and accounts for most thunderstorm wind damage. Straight-line wind speeds can exceed 87 knots (100 mph), produce a damage pathway extending for hundreds of miles and can cause damage equivalent to a strong tornado.

The NWS measures a storm's wind speed in knots or nautical miles. A wind speed of one knot is equal to approximately 1.15 miles per hour. **Figure SS-1** shows conversions from knots to miles per hour for various wind speeds.

Figure SS-1
Wind Speed Conversions

Knots (kts)	Miles Per Hour (mph)	Knots (kts)	Miles Per Hour (mph)
50 kts	58 mph	60 kts	69 mph
52 kts	60 mph	65 kts	75 mph
55 kts	63 mph	70 kts	81 mph
58 kts	67 mph	80 kts	92 mph

What is hail?

Hail is precipitation in the form of spherical or irregular-shaped pellets of ice that occur within a thunderstorm when strong rising currents of air (updrafts) carry raindrops upward into extremely cold areas of the atmosphere where they freeze into ice.

Hailstones grow by colliding with supercooled water drops. The supercooled water drops freeze on contact with ice crystals, frozen rain drops, dust, etc. Thunderstorms with strong updrafts continue lifting the hailstones to the top of the cloud where they encounter more supercooled water and continue to grow. Eventually the updraft can no longer support the weight of the hail, or the updraft weakens, and the hail falls to the ground.

In the U.S., hail causes more than $1 billion in damages to property and crops annually. Hail has been known to cause injuries, although it rarely causes fatalities or serious injury.

How is the severity of a hail event measured?

The severity or magnitude of a hail event is measured in terms of the size (diameter) of the hailstones. The hail size is estimated by comparing it to known objects. **Figure SS-2** provides descriptions for various hail sizes.

Figure SS-2
Hail Size Descriptions

Hail Diameter (inches)	Description	Hail Diameter (inches)	Description
0.25 in.	pea	1.75 in.	golf ball
0.50 in.	marble/mothball	2.50 in.	tennis ball
0.75 in.	penny	2.75 in.	baseball
0.88 in.	nickel	3.00 in.	teacup
1.00 in.	quarter	4.00 in.	grapefruit
1.50 in.	ping pong ball	4.50 in.	softball

Source: NOAA, National Severe Storm Laboratory.

Hail size can vary widely. Hailstones may be as small as 0.25 inches in diameter (pea-sized) or, under extreme circumstances, as large as 4.50 inches in diameter (softball-sized). Typically hail that is one (1) inch in diameter (quarter-sized) or larger is considered severe.

The severity of a hail event can also be measured or rated using the TORRO Hailstorm Intensity Scale. This scale was developed in 1986 by the Tornado and Storm Research Organisation of the United Kingdom. It measures the intensity or damage potential of a hail event based on several factors including: maximum hailstone size, distribution, shape and texture, numbers, fall speed and strength of the accompanying winds.

The Hailstorm Intensity Scale identifies ten different categories of hail intensity, H0 through H10. **Figure SS-3** gives a brief description of each category. This scale is unique because it recognizes that, while the maximum hailstone size is the most important parameter relating to structural damage, size alone is insufficient to accurately categorize the intensity and damage potential of a hail event.

It should be noted that the typical damage impacts associated with each intensity category reflect the building materials predominately used in the United Kingdom. These descriptions may need to be modified for use in other countries to take into account the differences in building materials typically used (i.e., whether roofing materials are predominately shingle, slate or concrete, etc.).

What is lightning?

Lightning, a component of all thunderstorms, is a visible electrical discharge that results from the buildup of charged particles within storm clouds. It can occur from cloud-to-ground, cloud-to-cloud, within a cloud or cloud-to-air. The air near a lightning strike is heated to approximately

50,000°F (hotter than the surface of the sun). The rapid heating and cooling of the air near the lightning strike causes a shock wave that produces thunder.

Figure SS-3
TORRO Hailstorm Intensity Scale

Intensity Category		Typical Hail Diameter		Description	Typical Damage Impacts
		millimeters (approx.)*	inches (approx.)*		
H0	Hard Hail	5 mm	0.2”	pea	no damage
H1	Potentially Damaging	5-15 mm	0.2” – 0.6”	pea / mothball	slight general damage to plants, crops
H2	Significant	10-20 mm	0.4” – 0.8”	dime / penny	significant damage to fruit, crops, vegetation
H3	Severe	20-30 mm	0.8” – 1.2”	nickel / quarter	severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40 mm	1.0” – 1.6”	half dollar / ping pong ball	widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50 mm	1.2” – 2.0”	golf ball	wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60 mm	1.6” – 2.4”	golf ball / egg	bodywork of grounded aircraft dented; brick walls pitted
H7	Destructive	50-75 mm	2.0” – 3.0”	egg / tennis ball	severe roof damage, risk of serious injuries
H8	Destructive	60-90 mm	2.4” – 3.5”	tennis ball / teacup	severe damage to aircraft bodywork
H9	Super Hailstorms	75-100 mm	3.0” – 4.0”	teacup / grapefruit	extensive structural damage, risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	> 100 mm	> 4.0”	softball	extensive structural damage, risk of severe or even fatal injuries to persons caught in the open

* Approximate range since other factors (i.e., number and density of hailstones, hail fall speed and surface wind speed) affect severity.

Source: Tornado and Storm Research Organisation, TORRO Hailstorm Intensity Scale Table.

Lightning on average causes 60 fatalities and 400 injuries annually in the U.S. Most fatalities and injuries occur when people are caught outdoors in the summer months during the afternoons and evenings. In addition, lightning can cause structure and forest fires. Many of the wildfires in the western U.S. and Alaska are started by lightning. According to the NWS lightning strikes cost more than $1 billion in insured losses each year.

Are alerts issued for severe storms?

Yes. The NWS Weather Forecast Office in St. Louis, Missouri is responsible for issuing severe thunderstorm watches and warnings for Macoupin County depending on the weather conditions. The following provides a brief description of each type of alert.

- **Severe Thunderstorm Watch.** A severe thunderstorm watch is issued when severe thunderstorms are possible in or near the watch area. Individuals should stay alert for the latest weather information and be prepared to take shelter.
- **Severe Thunderstorm Warning.** A severe thunderstorm warning is issued when severe weather has been reported by spotters or indicated by radar. Warnings indicate imminent danger to life and property for those who are in the path of the storm and individuals should seek safe shelter.

HAZARD PROFILE

The following identifies past occurrences of severe storms; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-f).

When have severe storms occurred previously? What is the extent of these previous severe storms?

Tables 1, 2, and **3** located in **Appendix J,** summarize the previous occurrences as well as the extent or magnitude of severe storm events recorded in Macoupin County. Severe storm events are separated into four categories: thunderstorms with damaging winds, hail, lightning, and heavy rain.

Thunderstorms with Damaging Winds

NOAA's Storm Events Database was used to document 197 reported occurrences of thunderstorms with damaging winds in Macoupin County between 1970 and 2023. Of the 197 occurrences, 166 had reported wind speeds of 50 knots or greater. There were 31 occurrences, however, where the wind speed was not recorded. Included in the 197 thunderstorms with damaging wind events is one event that contributed to a federal emergency declaration. Five additional events contributed to a state disaster proclamation in Macoupin County.

Severe Storms Fast Facts – Occurrences

Number of recorded Thunderstorms with Damaging Winds (1970 – 2023): ***197***

Number of recorded Severe Hail Events (1980 – 2023): ***126***

Number recorded of Lightning Strike Events (2001 – 2023): ***8***

Highest Recorded Wind Speed: ***91 knots (May 20, 2013)***

Largest Hail Recorded: ***3.00 inches (April 9, 2015)***

Most Likely Month for Thunderstorms with Damaging Winds to Occur: ***May & June***

Most Likely Month for Severe Hail to Occur: ***May***

Number of Federal Emergency & Major Disaster Declarations Related to Severe Storms: ***1 (2021)***

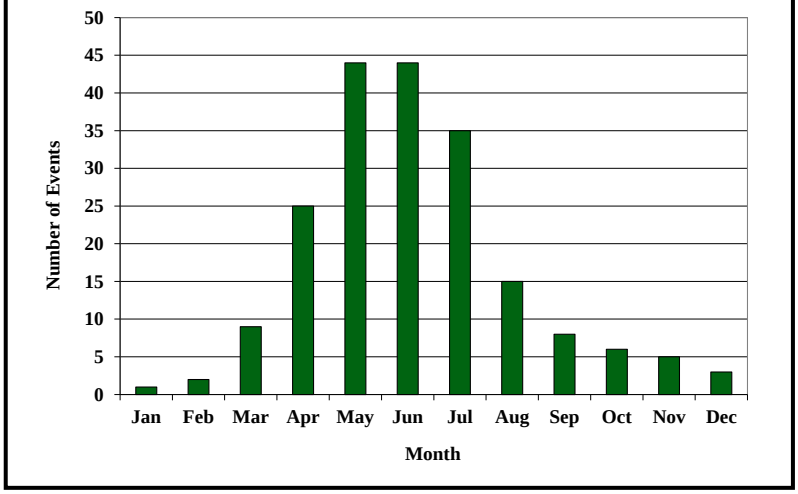
Number of State Disaster Proclamation Related to Severe Storms: ***1 (2011)***

The highest wind speed recorded in Macoupin County occurred in Mount Olive on May 20, 2013 when winds reached 91 knots (105 mph) during a thunderstorm event. Thunderstorms with damaging winds have been *recorded* in every participating municipality within the County on multiple occasions.

Figure SS-4 charts the reported occurrences of thunderstorms with damaging winds by month. Of the 197 events, 123 (62%) took place in May, June, and July making this the peak period for thunderstorms with damaging winds in Macoupin County. Of those 123 events, 44 (36%) occurred

during May and 44 (36%) occurred during June, making these the peak months for thunderstorms with damaging winds. Of the 197 occurrences, 77% of all thunderstorms with damaging winds occurred during the p.m. hours.

Figure SS-4
Thunderstorms with Damaging Winds by Month
1970 – 2023



Hail

NOAA's Storm Events Database was used to document 126 reported occurrences of severe storms with hail one (1) inch in diameter or greater in Macoupin County between 1980 and 2023. Of the 126 occurrences, 72 produced hailstones 1.50 inches or larger in diameter.

The largest hail documented in Macoupin County measured 3.00 inches in diameter (size of a tea cup) and fell on April 9, 2015 at Gillespie. Hail one inch in diameter or greater has been *recorded* in every participating municipality, with the exception of Eagarville, on at least one occasion.

Figure SS-5 charts the reported occurrences of hail by month. Of the 126 occurrences, 102 (81%) took place in April, May, and June, making this the peak period for hail in Macoupin County. Of these 102 events, 46 (45%) occurred during May, making this the peak month for hail events. Of the 126 occurrences, 92% of all sever storms with hail occurred during the p.m. hours.

Lightning

While lightning strike events occur regularly across west-central Illinois, NOAA's Storm Events Database and Committee member records were only able to identify eight recorded occurrences of lightning strikes in Macoupin County between 2001 and 2023. The data limitations are almost certainly due to the rural nature of the County and the fact that lightning strikes are rarely report. Three of the events took place during September, two each took place in April and July, and one took place in May. For the six lightning strike events that had a recorded time, one was in the a.m. and five were in the p.m.

According to data from Vaisala's National Lightning Detection Network, Macoupin County averaged close to 12 to 20 cloud-to-ground lightning flashes per square mile annually between 2009 and 2018. **Figure SS-6** illustrates the cloud-to-ground lightning flash density (number of cloud-to-ground flashes per square mile per year) by county for the continental U.S. In comparison, Illinois averaged 12.7 cloud-to-ground lightning flashes per square mile from 2009 to 2018, ranking it eighth in the Country for lightning flash density.

Figure SS-5
Hail Events by Month
1980 – 2023

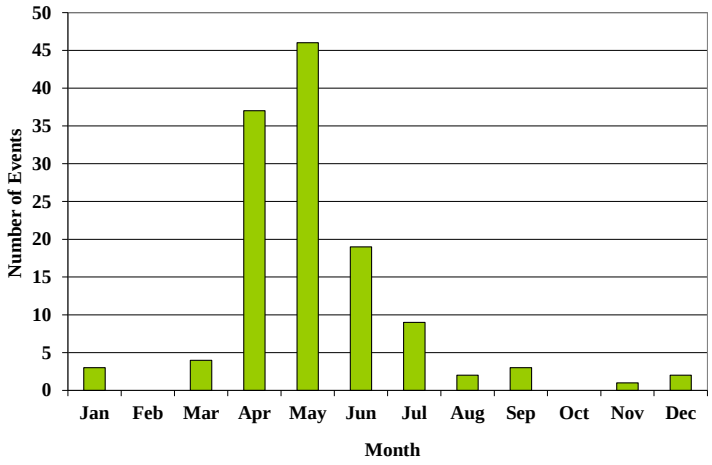
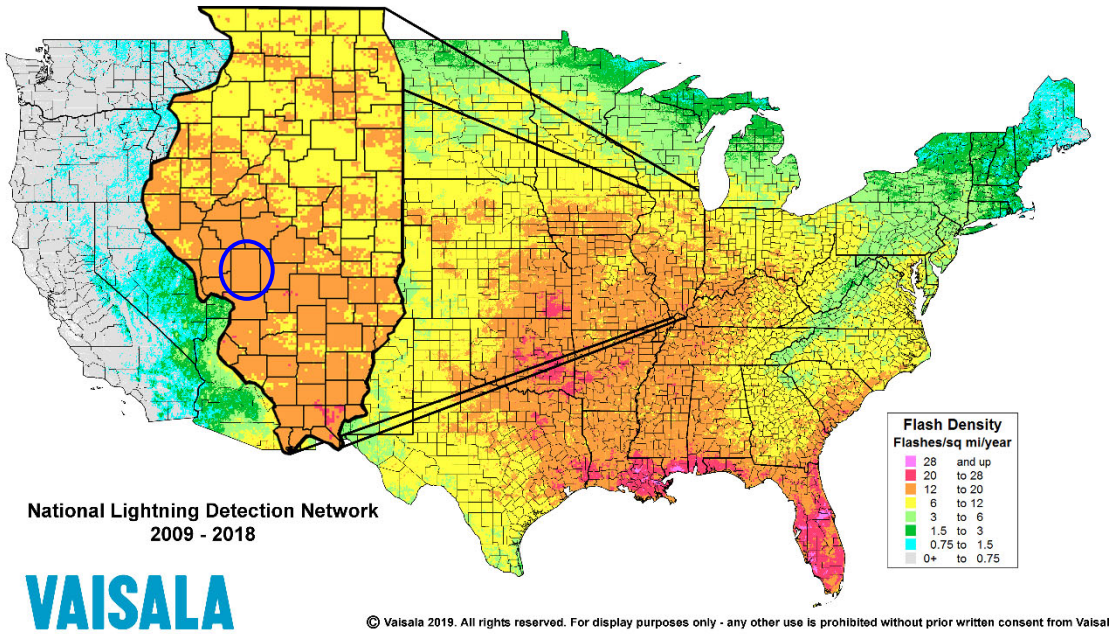


Figure SS-6
Cloud-to-Ground Lightning Flash Density: Continental U.S.



Heavy Rain

While heavy rain events occur on a fairly regular basis across west-central Illinois, NOAA's Storm Events Database records was not able to identify any occurrences of heavy rain in Macoupin County. This may be due in part to a lack of uniform reporting guidelines for heavy rain events. While specific events were not identified in NOAA's Storm Events Database, one heavy rain event was identified as contributing to a state disaster proclamation for Macoupin County in 2011.

What locations are affected by severe storms?

Severe storms affect the entire County. A single severe storm event will generally extend across the entire County and affect multiple locations. Severe storms have been recorded in every participating jurisdiction within the County on multiple occasions.

What is the probability of future severe storm events occurring based on historical data?

Thunderstorms with Damaging Winds

Macoupin County has had 197 verified occurrences of thunderstorms with damaging winds between 1970 and 2023. With 197 occurrences over the past 54 years, Macoupin County would expect to experience at least three thunderstorms with damaging winds in any given year. There were 23 years over the last 54 years where multiple (three or more) thunderstorms with damaging winds occurred. This indicates that the probability that multiple thunderstorms with damaging winds may occur during any given year within the County is 43%.

A Thunderstorm with damaging winds destroyed two storage sheds near Nilwood on May 19, 2017.

Photo provided by James Pitchford, former Macoupin County EMA Coordinator

Hail

There have been 126 verified occurrences of hail one (1) inch in diameter or greater between 1980 and 2023. With 126 occurrences over the past 44 years, Macoupin County would expect to experience at least two severe storms with hail one (1) inch in diameter or greater in any given year. There were 21 years over the last 44 years where two or more hail events occurred. This indicates that the probability that more than one severe storm with hail may occur during any given year within the County is 48%.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions; specifies the unique and varied risk differences across the planning area and between participating jurisdictions; identifies the impacts on public health and property (if known); and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from severe storms (Local Mitigation Planning Policy Guide Element B1-f, B2-a, and B2-b).

Are the participating jurisdictions vulnerable to severe storms?

Yes. All of Macoupin County is vulnerable to the dangers presented by severe storms due to the topography of the region and its location in relation to the movement of weather fronts across

central Illinois. Since 2014, Macoupin County has recorded 38 thunderstorms with damaging winds, 23 severe storms with hail one (1) inch in diameter or greater, and two lightning strikes with verified damages.

Figure SS-7 details the number of thunderstorms with damaging winds and hail events that were recorded in or near each participating municipality while **Figure SS-8** details the number of thunderstorms with damaging winds and hail events that were recorded in or near unincorporated areas of Macoupin County.

Figure SS-7
Verified Severe Storm Events by Participating Municipality

Participating Municipality	Number of Events	
	Thunderstorm & High Wind	Severe Hail
Benld[4,12]	8	1
Brighton[1,6,8]	16	12
Bunker Hill[2]	23	23
Carlinville[3,13]	31	16
Eagarville[7,12]	4	0
Gillespie[4,12,13]	16	10
Girard[5,9,13]	16	4
Mount Clare[4,12]	5	2
Nilwood[5]	10	2
Royal Lakes[2,6]	3	1
Staunton[7,14]	18	4
Virden[5]	14	6

Figure SS-8
Verified Severe Storm Events in Unincorporated Macoupin County

Unincorporated Area	Number of Events	
	Thunderstorm & High Wind	Severe Hail
Atwater[3]	2	2
Beaver Dam State Park[3]	2	1
Comer[3]	2	1
Hornsby[4,12]	2	1
McVey[5,9]	2	0
Otter Lake[3,5]	1	1
Piasa[6,10]	4	0
Plainview[3]	4	0
Sunset Lake[5,9]	1	2
Womac[3]	6	2
Woodburn[2]	7	7

[1]Brighton Township [2]Bunker Hill CUSD #8 [3]Carlinville CUSD #1 [4]Gillespie CUSD #7
[5]North Mac CUSD #34 [6]Southwestern CUSD #9 [7]Staunton CUSD #6 [8]Brighton Betsey Ann FPD
[9]Girard FPD [10]Medora Community FPD [11]Mount Olive Volunteer FD [12]Unit 7 FPD
[13]Carlinville Area Hospital [14]Communmity Hospital of Staunton

Areas in and around Girard sustained damage as a result of a May 25, 1989 thunderstorm with damaging winds. Several cars were destroyed when trees fell onto them.

Photo provided by James Pitchford, former Macoupin County EMA Coordinator

Of the participating municipalities, Carlinville has had more recorded occurrences of thunderstorms with damaging winds while Bunker Hill has had more recorded occurrences of severe storms with hail. . The differences in the number of recorded events between participating municipalities is likely due to the relative size of the municipalities as well as the fact that there has been a long-term NWS COOP Observation Station located in Carlinville.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) classifies Macoupin County's hazard rating

for hail as "high", for wind (thunderstorms) as "medium", and lightning as "very low". IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.

FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively Low" for strong wind (thunderstorms) and "Relatively Moderate" for lightning and hail. For hail, all 13 census tracts are rated "Relatively High". For lightning, three census tracts are rated "Very High" and the remaining 10 census tracts are rated "Relatively High". For strong wind (thunderstorms), seven census tracts are rated "Relatively Moderate" and six census tracts are rated "Relatively Low". **Figure R-4** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of severe storms?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, all of the participants considered specific assets within their jurisdiction vulnerable to severe storms. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to severe storms.

What impacts resulted from the recorded severe storms?

Severe storms as a whole have caused an estimated $6.7 million in recorded property damages. The following provides a breakdown of impacts by category. **Appendix K** contains select historic news articles and photographs provided by former Macoupin County EMA Coordinator James Pitchford that show the extent of the property damage sustained during the May 25, 1989 severe storm event.

Severe Storms Fast Facts – Impacts/Risk

Thunderstorms with Damaging Winds Impacts:
- Total Property Damage (19 events): ***$381,000***
- Total Crop Damage: ***n/a***
- Injuries (2 events): ***3***
- Fatalities: ***n/a***

Severe Hail Impacts:
- Total Property Damage: (6 events): ***$6,161,000***
- Total Crop Damage: ***n/a***
- Injuries (1 event): ***6***
- Fatalities: ***n/a***

Lightning Strike Impacts:
- Total Property Damage (2 events): ***$123,003***
- Total Crop Damage: ***n/a***
- Injuries: ***n/a***
- Fatalities (3 events): ***3***

Severe Storms Risk/Vulnerability:
- Public Health & Safety: ***Low***
- Buildings/Infrastructure/Critical Facilities: ***Medium***

Thunderstorms with Damaging Winds

Data obtained from NOAA's Storm Events Database and Committee member records indicates that between 1980 and 2023, 19 of the 197 thunderstorms with damaging winds caused $381,000 in property damages. Property damage information was either unavailable or none was recorded for the remaining 178 reported occurrences.

NOAA's Storm Events Database documented three injuries as the result of two separate thunderstorm with damaging wind events. The following provides a brief description of each event.

- On May 25, 1989 two people sustained minor injuries when a thunderstorm with straight-line winds overturned and destroyed their mobile home in Girard.

- The driver of a semi suffered minor injuries on May 23, 2011 when a thunderstorm with damaging winds blew his semi off Interstate 55 into a ditch just south of the Staunton Exit.

Hail

Data obtained from NOAA's Storm Events Database and Committee member records indicates that between 1980 and 2023, six of the 126 hail events caused $6,161,000 in property damages. Damage information was either unavailable or none was recorded for the remaining 120 reported occurrences. NOAA's Storm Events Database documented six injuries as a result of a May 25, 1989 hail event in Carlinville. Detailed information on the type and severity of the injuries was unavailable. No fatalities were reported.

Lightning

Data obtained from NOAA's Storm Events Database, NOAA's Storm Data Publications, and Committee member records indicates that between 2001 and 2023, two of the eight lightning strike events caused $123,003 in property damage. The property damage figure provided above is composed entirely of infrastructure and critical facilities damages. Damage information was either unavailable or none was recorded for the remaining six reported occurrences.

A Thunderstorm with damaging winds destroyed several outbuildings at a farm west of Carlinville in 2013.

Photo provided by James Pitchford, former Macoupin County EMA Coordinator

NOAA's Storm Events Database documented three fatalities as a result of three separate lightning strike events. The following provides a brief description of each event.

- On April 10, 2001 a 49-year old woman as struck and killed by lightning while working outside her home at Sunset Lake west of Girard. The woman was planting flowers and had knelt down at the edge of the Lake to dip some water out when the lightning struck.
- A man was struck and killed by lightning while working on the roof in the Sawyerville area on September 6, 2001. A group of workers saw the storm approaching and were climbing off the roof, however the last man did not make it off in time.
- On September 19, 2015 an 89-year old man died in his home from smoke inhalation due to a fire that started as the result of a lightning strike. The man was found in the rubble of the home which was completely destroyed by the fire.

What other impacts can result from severe storms?

In Macoupin County, the greatest risk to health and safety from severe storms is vehicle accidents. Hazardous driving conditions resulting from severe storms (i.e., wet pavement, poor visibility, high winds, etc.) can contribute to accidents that result in injuries and fatalities. Traffic accident data assembled by the Illinois Department of Transportation from 2018 through 2022 indicates that wet road surface conditions were present for 12.1% to 18.2% of all crashes recorded annually in the County.

While other circumstances cause wet road surface conditions (i.e., melting snow, condensation, light showers, etc.), law enforcement officials agree that hazardous driving conditions caused by severe storms add to the number of crashes. **Figure SS-9** provides a breakdown by year of the number of crashes and corresponding injuries and fatalities that occurred when wet road surface conditions were present.

Figure SS-9
Severe Weather Crash Data for Macoupin County

Year	Total # of Crashes	Presence of Wet Road Surface Conditions		
		# of Crashes	# of Injuries	# of Fatalities
2018	724	110	20	0
2019	742	96	21	0
2020	680	124	27	2
2021	712	95	15	1
2022	762	92	22	2
Total:	**3,620**	**517**	**105**	**5**

Source: Illinois Department of Transportation.

What is the level of risk/vulnerability to public health and safety from severe storms?

For Macoupin County the level of risk or vulnerability posed by severe storms to public health and safety is considered to be ***low***. This assessment is based on the fact that despite their relative frequency, the number of injuries and fatalities is low. In addition to Carlinville Area Hospital and Community Hospital of Staunton, nearby hospitals in Carrollton (Greene County), Jerseyville (Jersey County), Litchfield and Hillsboro (Montgomery County) and Jacksonville (Morgan County) as well as regional centers in Springfield (Sangamon County) and the Metro East St. Louis area (Madison County) are equipped to provide care to persons injured during a severe storm.

Are existing buildings, infrastructure, and critical facilities vulnerable to severe storms?

Yes. All existing buildings, infrastructure and critical facilities located in Macoupin County and the participating jurisdictions are vulnerable to damage from severe storms. Structural damage to buildings is a relatively common occurrence with severe storms. Damage to roofs, siding, awnings, and windows can occur from hail, flying and falling debris and high winds. Lightning strikes can damage electrical components and equipment (i.e., appliances, computers etc.) and can cause fires that consume buildings. If the roof is compromised or windows are broken, rain can cause additional damage to the structure and contents of a building.

A 2013 severe storm brought down power lines west of Carlinville.

Photo provided by James Pitchford, former Macoupin County EMA Coordinator

Infrastructure and critical facilities tend to be just as vulnerable to severe storm damage as buildings. The infrastructure and critical facilities that are the most vulnerable to severe storms are related to power distribution and

communications. High winds, lightning and flying and falling debris have the potential to cause damage to communication and power lines; power substations; transformers and poles; and communication antennas and towers.

The damage inflicted by severe storms often leads to disruptions in communication and creates power outages. Depending on the damage, it can take anywhere from several hours to several days to restore service. Tony O'Neal, Ameren Illinois Senior Emergency Response Specialist – Illinois Crisis Management, served as a technical partner on the Planning Committee and was able to provide information on the impacts and damages sustained by Ameren as the result of severe storms from 2006 through 2023. This information, while regional in nature, helps quantify the damages sustained by critical infrastructure in Macoupin County and is summarized in **Figure SS-10**.

Figure SS-10
Ameren Illinois – Regional Power Outages Experienced in Macoupin County as a Result of Severe Storm Events: 2006 – 2023

Event Date	Event Type	Customers without Power	Maximum Duration of Outage (days)	Wires Downed	Poles Replaced	Tree Orders*	Responding Personnel
7/19/2006	Thunderstorm	---	12	---	1,014	---	---
8/5/2008	Thunderstorm	33,000	5	96	112	34	734
4/9/2011	Thunderstorm	112,000	5	1,463	626	459	1,901
5/23/2011	Thunderstorm	107,000	4	1,055	165	637	1,448
5/20/2013	Thunderstorm	35,117	2	403	66	211	629
5/30/2013	Thunderstorm	73,611	4	735	278	425	1,285
3/7/2017	Thunderstorm	53,000	1	52	187	36	902
7/23/2017	Thunderstorm	40,021	2	410	160	454	1,391
5/23/2019	Thunderstorm	24,836	2.5	286	80	25	315
6/17/2012	Thunderstorm	53,905	2.5	220	115	42	1,344

* Tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed.

Power outages and disruptions in communications can impair vital services, particularly when backup power generators are not available. **Figure SS-11**, located at the end of this section, identifies by participating jurisdiction critical facilities and infrastructure for select categories that are supported by backup power generators. Of the 29 participating jurisdictions, 19 acknowledged the need for emergency backup generators to allow continued operation of critical facilities and infrastructure such as administrative buildings, schools, fire stations, warming and cooling centers, emergency shelters, drinking water pump stations lift stations, and stormwater pump stations.

In addition to affecting power distribution and communications, debris and flooding from severe storms can block state and local roads hampering travel. When transportation is disrupted, emergency and medical services are delayed, rescue efforts are hindered, and government services can be affected. Based on responses to a Roadway Overtopping Survey distributed to the County and Brighton Township, heavy rains and/or flooding can cause overtopping of roadways that exceeds six inches in some parts of the County. **Figure SS-12**, located at the end of this section, identifies the roadway, overtopping location, waterbody (if applicable), and jurisdiction

responsible for the roadway. According to the County Engineer, Hillcrest Road is closed to due scour around structure 05-3034 foundation from Joe's Creek about ½ mile north of Hagaman Road. The road surface of Hagaman Road has been damaged and mud deposited on it during flooding.

Based on the frequency with which severe storms occur in Macoupin County, the amount of property damage previously reported and the potential for disruptions to power distribution and communication; the risk or vulnerability to buildings, infrastructure and critical facilities from severe storms is ***medium***.

Are future buildings, infrastructure, and critical facilities vulnerable to severe storms?

Yes. Neither the County nor any of the municipalities, with the exception of Gillespie, have building codes in place that will likely help lessen the vulnerability of new buildings and critical facilities to damage from severe storms. In addition, infrastructure such as new communication and power lines will continue to be vulnerable to severe storms as long as they are located above ground. High winds, lightning and flying and falling debris can disrupt power and communication. Steps to bury all new lines would eliminate the vulnerability, but this action would be cost prohibitive in most areas.

What are the potential dollar losses to vulnerable structures from severe storms?

Unlike other natural hazards, such as tornadoes, there are no standard loss estimation models or methodologies for severe storms. With only 27 of the 331 recorded events listing property damage numbers for all categories of severe storms, there is no way to accurately estimate future potential dollar losses. However, according to the Macoupin County Clerk the total equalized assessed values of all residential, commercial, and industrial buildings in the planning area is $851,011,847. Since all of the structures in the planning area are vulnerable to damage, this total represents the countywide property exposure to severe storm events.

Figure SS-11
Critical Facilities & Infrastructure Supported by Backup Generators by Jurisdiction
(Sheet 1 of 2)

Participating Jurisdiction	Government/ Administrative [1]	Emergency Protection [2]	Medical & Healthcare [3]	Schools	Warming/ Cooling Centers	Drinking Water [4]	Wastewater Treatment [5]
Macoupin County	---	2	---	---	---	---	---
Benld	---	1	---	---	---	---	---
Brighton	1	2	1	---	---	1	4
Bunker Hill	1	1	---	---	---	---	---
Carlinville	1	2	3	---	---	---	1
Eagarville	---	---	---	---	---	---	---
Gillespie	1	3	---	4	---	1	---
Girard	1	2	---	---	---	---	1
Mount Clare	---	---	1	---	---	---	---
Nilwood	---	---	---	---	---	---	2
Royal Lakes	---	---	---	---	---	---	---
Staunton	3	2	---	---	---	2	4
Virden	1	2	---	---	---	---	---
Brighton Township	---	---	---	---	---	---	---

[1] Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, libraries, etc.
[2] Emergency Protection includes: sheriff's department, police, fire, ambulance, emergency operations centers, jail/correctional facilities and evacuation shelters.
[3] Medical & Healthcare includes: public health departments, hospitals, urgent/prompt care and medical clinics, nursing homes, skilled nursing facilities, memory care facilities, residential group homes, etc.
[4] Drinking Water includes: drinking water treatment plants, drinking water wells, and water storage towers/tanks.
[5] Wastewater Treatment includes: wastewater treatment plants and lift stations.
--- Indicates the jurisdiction does not own/maintain any critical facilities within that category.

Figure SS-11
Critical Facilities & Infrastructure Supported by Backup Generators by Jurisdiction
(Sheet 2 of 2)

Participating Jurisdiction	Government/ Administrative[1]	Emergency Protection[2]	Medical & Healthcare[3]	Schools	Warming/ Cooling Centers	Drinking Water[4]	Wastewater Treatment[5]
Bunker Hill CUSD #8	---	---	---	---	---	---	---
Carlinville CUSD #1	---	---	---	---	---	---	---
Gillespie CUSD #7	---	---	---	---	---	---	---
North Mac CUSD #34	---	---	---	---	---	---	---
Southwestern CUSD #9	---	---	---	1	---	---	---
Staunton CUSD #6	---	---	---	---	---	---	---
Brighton Betsey Ann FPD	---	3	---	---	---	---	---
Girard FPD	---	1	---	---	---	---	---
Medora Community FPD	---	1	---	---	---	---	---
Mount Olive Volunteer FPD	---	2	---	---	---	---	---
Unit 7 FPD	---	2	---	---	---	---	---
Carlinville Area Hospital	---	---	1	---	---	---	---
Community Hospital of Staunton	---	---	1	---	---	---	---
Henderson Water District	1	4	---	---	---	---	---
Jersey County Rural Water	---	---	---	---	---	---	---

[1] Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, libraries, etc.
[2] Emergency Protection includes: sheriff's department, police, fire, ambulance, emergency operations centers, jail/correctional facilities and evacuation shelters.
[3] Medical & Healthcare includes: public health departments, hospitals, urgent/prompt care and medical clinics, nursing homes, skilled nursing facilities, memory care facilities, residential group homes, etc.
[4] Drinking Water includes: drinking water treatment plants, drinking water wells, and water storage towers/tanks.
[5] Wastewater Treatment includes: wastewater treatment plants and lift stations.
--- Indicates the jurisdiction does not own/maintain any critical facilities within that category.

Figure SS-12
Roadway Overtopping Locations Reported in Macoupin County

Road Name/ Number	Overtopping Location	Waterbody Name (if applicable)	Responsible Jurisdiction
Nine Mine Road	West of Lead Line Road	West of Lead Line Road	Macoupin County
Hagaman Road	0.5 mile north of IL 108	Nassa Creek	Macoupin County
Hagaman Road	West of structure 059-3037	Soloman Creek	Macoupin County
Hagaman Road	West of structure 059-3336	Joe's Creek	Macoupin County
Stagecoach Road	1.5 miles south of Lake Catatoga Road	Branch of Dry Fork Creek	Macoupin County
WaggonerRoad	Structure 059-3233; 0.25 mile west of Boston Chapel Road	Horse Creek	Macoupin County
Hettick Road	0.25 miles mile west of Handover Road	Lick Creek	Macoupin County
Hillcrest Road	South of structure 059-3034; 0.5 mile north of Hagaman Road	Joe's Creek	Macoupin County
Otten Road	Emmerson Airline Road intersection	Branch of Otter Creek	Macoupin County
Quarton Road	0.25 miles mile south of Emmerson Airline	Branch of Otter Creek	Macoupin County

3.2 EXCESSIVE HEAT

HAZARD IDENTIFICATION

What is the definition of excessive heat?

Excessive heat is generally characterized by a prolonged period of summertime weather that is substantially hotter and more humid than the average for a location at that time of year. Excessive heat criteria typically shift by location and time of year. As a result, reliable fixed absolute criteria are not generally specified (i.e., a summer day with a maximum temperature of at least 90°F).

Excessive heat events are usually a result of both high temperatures and high relative humidity. (Relative humidity refers to the amount of moisture in the air.) The higher the relative humidity or the more moisture in the air, the less likely that evaporation will take place. This becomes significant when high relative humidity is coupled with soaring temperatures.

On hot days the human body relies on the evaporation of perspiration or sweat to cool and regulate the body's internal temperature. Sweating does nothing to cool the body unless the water is removed by evaporation. When the relative humidity is high, then the evaporation process is hindered, robbing the body of its ability to cool itself.

Excessive heat is a leading cause of weather-related fatalities in the U.S. According to the Centers for Disease Control and Prevention, a total of 15,707 people died from heat-related illnesses between 1999 and 2020, an average of 714 fatalities a year.

What is the Heat Index?

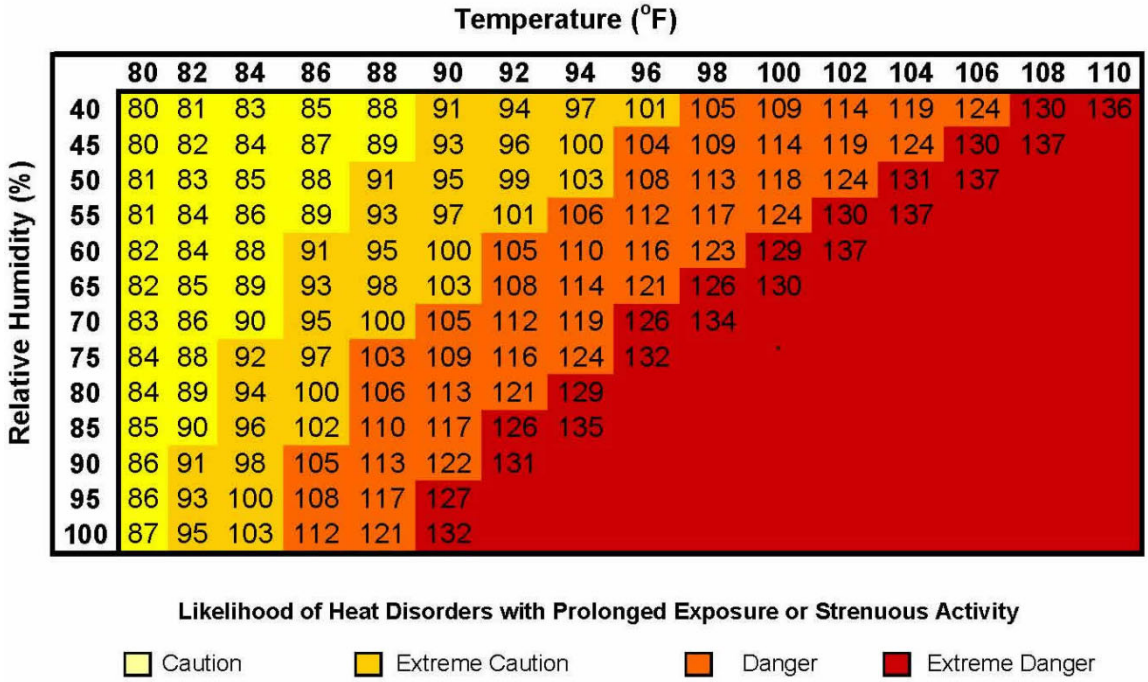
In an effort to raise the public's awareness of the hazards of excessive heat, the National Weather Service (NWS) devised the "Heat Index". The Heat Index, sometimes referred to as the "apparent temperature", is a measure of how hot it feels when relative humidity is added to the actual air temperature. **Figure EH-1** shows the Heat Index as it corresponds to various air temperatures and relative humidity.

As an example, if the air temperature is 96°F and the relative humidity is 65%, then the Heat Index would be 121°F. It should be noted that the Heat Index values were devised for shady, light wind conditions. Exposure to full sunshine can increase Heat Index values by up to 15°F. Also, strong winds, particularly with very hot, very dry air, can be extremely hazardous. When the Heat Index reaches 105°F or greater, there is an increased likelihood that continued exposure and/or physical activity will lead to individuals developing severe heat disorders.

What are heat disorders?

Heat disorders are a group of illnesses caused by prolonged exposure to hot temperatures and are characterized by the body's inability to shed excess heat. These disorders develop when the heat gain exceeds the level the body can remove or if the body cannot compensate for fluids and salt lost through perspiration. In either case the body loses its ability to regulate its internal temperature. All heat disorders share one common feature: the individual has been overexposed to heat, or over exercised for their age and physical condition on a hot day. The following describes the symptoms associated with the different heat disorders.

Figure EH-1
Heat Index



Source: NOAA, National Weather Service.

- **Heat Rash.** Heat rash is a skin irritation caused by excessive sweating during hot, humid weather and is characterized by red clusters of small blisters on the skin. It usually occurs on the neck, chest, groin or in elbow creases.
- **Sunburn.** Sunburn is characterized by redness and pain of skin exposed too long to the sun without proper protection. In severe cases it can cause swelling, blisters, fever and headaches and can significantly retard the skin's ability to shed excess heat.
- **Heat Cramps.** Heat cramps are characterized by heavy sweating and muscle pains or spasms, usually in the abdomen, arms or legs that during intense exercise. The loss of fluid through perspiration leaves the body dehydrated resulting in muscle cramps. This is usually the first sign that the body is experiencing trouble dealing with heat.
- **Heat Exhaustion.** Heat exhaustion is characterized by heavy sweating, muscle cramps, tiredness, weakness, dizziness, headache, nausea or vomiting and faintness. Breathing may become rapid and shallow and the pulse thready (weak). The skin may appear cool, moist and pale. If not treated, heat exhaustion may progress to heat stroke.
- **Heat Stroke (Sunstroke).** Heat stroke is a life-threatening condition characterized by a high body temperature (106°F or higher). The skin appears to be red, hot and dry with very little perspiration present. Other symptoms include a rapid and strong pulse, throbbing headache, dizziness, nausea and confusion. There is a possibility that the individual will become unconscious. If the body is not cooled quickly, then brain damage and death may result.

Studies indicate that, all things being equal, the severity of heat disorders tends to increase with age. Heat cramps in a 17-year-old may be heat exhaustion in someone 40 and heat stroke in a person over 60. Elderly persons, small children, chronic invalids, those on certain medications and persons with weight or alcohol problems are particularly susceptible to heat reactions.

Figure EH-2 below indicates the heat index at which individuals, particularly those in higher risk groups, might experience heat-related disorders. Generally, when the heat index is expected to exceed 105°F, the NWS will initiate excessive heat alert procedures.

Figure EH-2
Relationship between Heat Index and Heat Disorders

Heat Index (°F)	Heat Disorders
80°F – 90°F	Fatigue is possible with prolonged exposure and/or physical activity
90°F – 105°F	Heat cramps, heat exhaustion and heat stroke possible with prolonged exposure and/or physical activity
105°F – 130°F	Heat cramps, heat exhaustion and heat stroke likely; heat stroke possible with prolonged exposure and/or physical activity
130°F or Higher	Heat stroke highly likely with continued exposure

Source: NOAA, Heat Wave: A Major Summer Killer.

Are alerts issued for excessive heat events?

Yes. A heat or excessive heat alert is an advisory or warning issued by the NWS when the Heat Index is expected to have a significant impact on public safety. The expected severity of the heat determines the type of alert issued. The NWS Weather Forecast Office in St. Louis, Missouri is responsible for issuing heat or excessive heat alerts for Macoupin County. The following provides a brief description of each type of alert.

- **Excessive Heat Watch.** An excessive heat watch is issued when conditions are favorable for an excessive heat event to occur within the next 24 to 72 hours.
- **Heat Advisory.** An excessive heat advisory is issued when the heat index is expected to be around 105°F, *or* when the heat index will range from 100°F to 104°F for at least four (4) consecutive days.
- **Excessive Heat Warning.** An excessive heat warning is issued when the heat index is expected to be around 110°F for two (2) days, *or* when the heat index is expected to reach 105°F for four (4) consecutive days.

HAZARD PROFILE

The following identifies past occurrences of excessive heat, details the severity or extent of each event (if known); identifies the locations potentially affected and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-f).

When have excessive heat events occurred previously? What is the extent of these events?

Table 4, located in **Appendix J**, summarizes the previous occurrences as well as the extent or magnitude of excessive heat events in Macoupin County. NOAA's Storm Events Database, Iowa

State University's National Weather Service Watch, Warning, and Advisories database, Midwestern Regional Climate Center's cli-MATE database, and NWS's COOP Data records were used to document 134 occurrences of excessive heat in Macoupin County between 1995 and 2023.

Excessive Heat Fast Facts – Occurrences

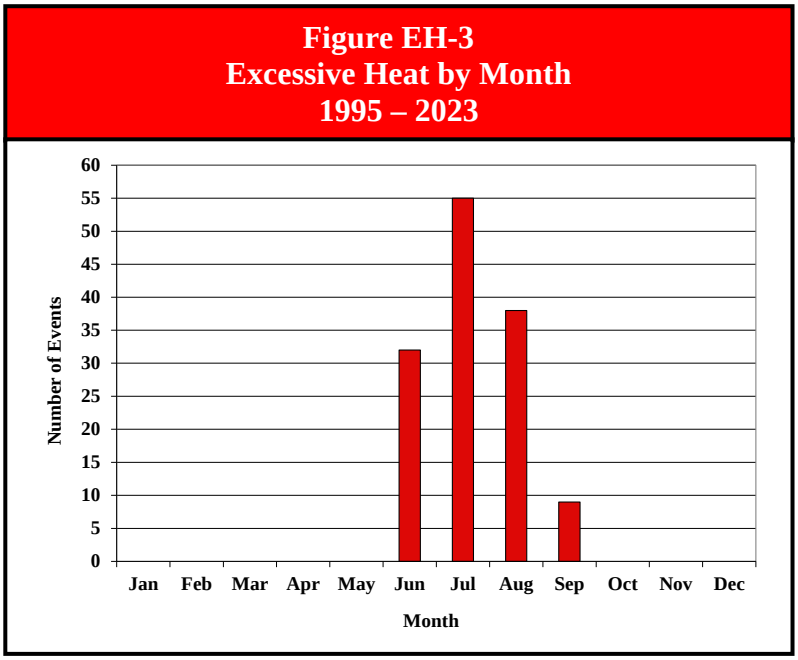
Number of Excessive Heat Events Reported (1995 – 2023): ***134***

Hottest Temperature Recorded in the County: ***114°F (July 14, 1954)***

Most Likely Month for Excessive Heat Events to Occur: ***July***

Figure EH-3 charts the reported occurrences of excessive heat by month. Fifty-five of the 134 events (41%) began in July making this the peak month for excessive heat events in Macoupin County. There were 11 events that spanned two months; however, for illustration purposes only the month the event started is graphed.

Figure EH-3
Excessive Heat by Month
1995 – 2023



According to the Midwestern Regional Climate Center, continuous temperature records for Macoupin County were kept from 1893 to 2014 by the Carlinville COOP Observation Station and from 1948 to 2011 by the Virden COOP Observation Station. Due to the lack of temperature observation data in the County, temperature records from the Hillsboro COOP Observation Station in Montgomery County were used to extrapolate recent excessive heat events in the County. **Figures EH-4** and **EH-5** list the hottest days recorded at the Carlinville and Virden COOP Observation Stations. Based on the available records, the hottest temperature recorded in Macoupin County was 114°F at the Virden Observation Station on July 14, 1954.

What locations are affected by excessive heat?

Excessive heat affects the entire County. Excessive heat events, like drought and severe winter storms, generally extend across an entire region and affect multiple counties.

Figure EH-4
Hottest Days Recorded at the Carlinville NWS COOP Observation Station

	Date	Temperature		Date	Temperature
1	07/24/1934	113°F	6	07/14/1936	112°F
2	07/15/1936	113°F	7	07/14/1954	112°F
3	07/08/1954	113°F	8	07/22/1901	111°F
4	07/20/1934	112°F	9	07/28/1930	111°F
5	07/23/1934	112°F	10	07/21/1934	111°F

Source: Midwest Regional Climate Center cli-MATE

Figure EH-5
Hottest Days Recorded at the Virden NWS COOP Observation Station

	Date	Temperature		Date	Temperature
1	07/14/1954	114°F	7	07/13/1954	104°F
2	07/12/1954	110°F	8	07/19/1954	104°F
3	07/18/1954	110°F	9	07/20/1954	104°F
4	06/26/1954	107°F	10	07/10/1966	104°F
5	07/15/1954	107°F	11	07/12/1966	104°F
6	08/20/1983	105°F	12	07/13/1966	104°F

Source: Midwest Regional Climate Center cli-MATE

Do any of the participating jurisdictions have designated cooling centers?
Yes, eight of the 26 participating municipalities, townships, school districts, fire protection districts, and healthcare facilities have designated cooling centers based on the responses received from participants to the "Identification of Severe Weather Shelters" survey. A "designated" cooling center is identified as any facility that has been *formally* identified by the municipality (through emergency planning, resolution, Memorandum of Agreement, etc.) as a location available for use by residents of the jurisdiction during excessive heat events.

Figure EH-6 identifies the location of each cooling center by jurisdiction. At this time Benld, Brighton Township, Bunker Hill, Bunker Hill CUSD #8, Carlinville, Carlinville CUSD #1, Community Hospital of Staunton, Eagarville, Gillespie CUSD #7, Girard FPD, Mount Clare, Nilwood, North Mac CUSD #34, Royal Lakes, Southwestern CUSD #9, Staunton CUSD #6, Unit 7 FPD, and Virden do not have any cooling centers designated. In addition, there are no State of Illinois-designated warming centers in Macoupin County.

What is the probability of future excessive heat events occurring based on historical data?
Macoupin County has experienced 134 verified occurrences of excessive heat between 1995 and 2023. With 134 occurrences over the past 29 years, Macoupin County should expect to experience at least four excessive heat events per year. There were 20 years over the last 29 years where multiple (four or more) excessive heat events occurred. This indicates that the probability that multiple excessive heat events may occur during any given year within the County is 69%.

It is important to keep in mind that there are gaps in the excessive heat data. More events have almost certainly occurred than are documented in this section, which means that the probability is almost certainly higher than reported.

Figure EH-6
Designated Cooling Centers by Participating Jurisdictions

Name/Address	Name/Address
Brighton / Brighton Betsey Ann Fire Protection District	*Medora Community Fire Protection District*
Village Hall, 206 S. Main St.	Mt. Pleasant Baptist Church, 107 N. Jefferson St.
St. Paul UMC Cartwright Building, 101 Green St.	*Mt. Olive Volunteer Fire Protection District*
Carlinville Area Hospital	Mt. Olive City Hall, 215 East Main
Cross Church, 1030 W. Main St.	*Staunton*
Gillespie	Concordia Hall, 709 S. Union St.
Civic Center, 115 N. Macoupin St.	VFW, 120 E. Henry St.
Girard	
City Hall, 1st St. & Madison St.	

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions; specifies the unique and varied risk differences across the planning area and between participating jurisdictions; identifies the impacts on public health and property (if known); and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from excessive heat (Local Mitigation Planning Policy Guide Element B1-f, B2-a, and B2-b).

Are the participating jurisdictions vulnerable to excessive heat?

Yes. All of Macoupin County, including the participating jurisdictions, is vulnerable to the dangers presented by excessive heat. Since 2014 Macoupin County has experienced 47 excessive heat events.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by IEMA-OHS classifies Macoupin County's hazard rating for heat wave as "medium." IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.

For excessive heat, FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively Moderate". Eight of the 13 census tracts are rated "Relatively High" and the other five census tracts are rated "Relatively Moderate" for excessive heat. **Figure R-4** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of excessive heat?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, 26 of the participants considered specific assets within their jurisdiction vulnerable to excessive heat. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to excessive heat.

What impacts resulted from the recorded excessive heat events?

Damage information was either unavailable or none was recorded, and no injuries or fatalities were reported as the result of any of the excessive heat events. This does not mean that additional injuries or fatalities didn't occur; it simply means that excessive heat was not identified as the primary cause. This is especially true for fatalities. Usually, heat is not listed as the primary cause of death, but rather an underlying cause. The heat indices were sufficiently high for all the excessive heat events to produce heat cramps or heat exhaustion with the possibility of heat stroke in cases of prolonged exposure or physical activity.

Excessive Heat Fast Facts – Impacts/Risk

Excessive Heat Impacts:

- Total Property Damage: ***n/a***
- Total Crop Damage: ***n/a***
- Fatalities: ***n/a***
- Injuries: ***n/a***

Excessive Heat Risk/Vulnerability:

- Public Health & Safety – General Population: ***Low***
- Public Health & Safety – Sensitive Populations: ***Medium***
- Buildings/Infrastructure/Critical Facilities: ***Low***

In comparison, Illinois averages 74 heat-related fatalities annually according to the Illinois State Water Survey's Climate Atlas of Illinois.

What other impacts can result from excessive heat events?

Other impacts of excessive heat include road buckling, power outages, stress on livestock, early school dismissals and school closings. In addition, excessive heat events can also lead to an increase in water usage and may result in municipalities imposing water use restrictions. In Macoupin County, all of the participating municipalities rely exclusively on surface water sources for their drinking water. Excessive heat may also impact residents in unincorporated Macoupin County who rely on shallow private wells for their drinking water.

What is the level of vulnerability to public health and safety from excessive heat?

Even if injuries and fatalities due to excessive heat were under reported in Macoupin County, the level of risk or vulnerability posed by excessive heat to the public health and safety of the *general population* is considered to be ***low***. This assessment is based on the frequency with which excessive heat occurs within the County; the impacts associated with these events; the types of living conditions (such as older, poorly-ventilated high rise buildings and low-income neighborhoods) that tend to contribute to heat-related injuries and fatalities; as well as the fact that injuries and fatalities due to excessive heat may be under reported. For the purposes of this analysis, *general population* includes healthy, able-bodied individuals who should have the ability to physiologically acclimatize to hot conditions over a period of days to weeks. Should that prove difficult, cooling centers are available at select participants to provide relief during peak heat hours.

The level of risk or vulnerability posed by excessive heat to the public health and safety of *sensitive populations* is considered to be ***medium***. Sensitive populations such as older adults (those 75 years of age and older) and small children (those younger than 5 years of age) are more susceptible to heat-related reactions and therefore their risk is elevated. **Figure EH-7** identifies the percent of sensitive populations by participating municipality, township, and the County based on the U.S. Census Bureau's 2020 decennial census data. In addition, individuals with chronic conditions, those on certain medications, and persons with weight or alcohol problems are also considered

sensitive populations. However, demographic information is not available for these segments of the population.

Figure EH-7
Sensitive Populations by Participating Jurisdictions

Participating Jurisdiction	% of Population 75 year of age & Older	% of Population Younger than 5 years of age	Total % of Sensitive Population
Benld[3,11]	8.5%	5.0%	13.5%
Brighton[5,7]	9.2%	5.1%	14.3%
Bunker Hill[1]	7.9%	5.2%	13.1%
Carlinville[2,12]	9.8%	6.0%	15.8%
Eagarville[6,11,]	5.3%	5.3%	10.6%
Gillespie[3,11,12]	8.1%	5.9%	14.0%
Girard[4,8,12]	9.3%	5.4%	14.7%
Mount Clare[3,11]	22.2%	3.5%	25.7%
Nilwood[4]	8.5%	3.5%	12.0%
Royal Lakes[1,5,13]	11.4%	4.2%	15.6%
Staunton[6]	9.7%	5.7%	15.4%
Virden[4]	9.6%	5.5%	15.1%
Benld[3,11]	8.5%	5.0%	13.5%
Brighton[5,7]	9.2%	5.1%	14.3%
Brighton Township[6,7]	8.7%	5.0%	13.7%
Unincorp. Macoupin County	8.9%	4.4%	13.3%
Macoupin County	19.2%	5.1%	24.3%
State of Illinois	6.7%	5.5%	12.2%

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[55]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[99]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[213]Communmity Hospital of Staunton
Source: U.S. Census Bureau.

Are existing buildings, infrastructure, and critical facilities vulnerable to excessive heat?

No. In general, existing buildings, infrastructure and critical facilities located in the County and the participating jurisdictions are not vulnerable to excessive heat. The primary concern is for the health and safety of those living in the County (including all of the municipalities).

While buildings do not typically sustain damage from excessive heat, in rare cases infrastructure and critical facilities may be directly or indirectly damaged. While uncommon, excessive heat has been known to contribute to damage caused to roadways within Macoupin County. The combination of excessive heat and vehicle loads has caused pavement cracking and buckling.

Excessive heat has also been known to indirectly contribute to disruptions in the electrical grid. When the temperatures rise, the demand for energy also rises in order to operate air conditioners, fans, and other devices. This increase in demand places stress on the electrical grid components, increasing the likelihood of power outages. While not common in Macoupin County, there is the potential for this to occur. The potential may increase over the next two decades if new power

sources are not built to replace the state's aging nuclear power facilities that are expected to be decommissioned.

In general, the risk or vulnerability to buildings, infrastructure and critical facilities from excessive heat is considered ***low***, even taking into consideration the potential for damage to roadways and disruptions to the electrical grid.

Are future buildings, infrastructure, and critical facilities vulnerable to excessive heat?

No. Future buildings, infrastructure and critical facilities within the County and participating jurisdictions are no more vulnerable to excessive heat events than the existing building, infrastructure, and critical facilities. As discussed above, buildings do not typically sustain damage from excessive heat. Infrastructure and critical facilities may, in rare cases, be damaged by excessive heat, but very little can be done to prevent this.

What are the potential dollar losses to vulnerable structures from excessive heat?

Unlike other natural hazards there are no standard loss estimation models or methodologies for excessive heat. With none of the recorded events listing property damage figures, there is no way to accurately estimate future potential dollar losses from excessive heat. Since excessive heat typically does not cause structure damage, it is unlikely that future dollar losses will be extreme. The primary concern associated with excessive heat is the health and safety of those living in the County and municipalities, especially sensitive populations such as the elderly, infants, young children, and those with medical conditions.

3.3 FLOODS

HAZARD IDENTIFICATION

What is the definition of a flood?

The Federal Emergency Management Agency (FEMA) defines a "flood" as a general or temporary condition where two or more acres of normally dry land or two or more properties are inundated by:

- overflow of inland or tidal waters;
- unusual and rapid accumulation or runoff of surface waters from any source;
- mudflows; or
- a sudden collapse or subsidence of shoreline land.

The severity of a flooding event is determined by a combination of topography and physiography, ground cover, precipitation and weather patterns and recent soil moisture conditions. On average, flooding causes more than $5 billion in damages each year in the U.S. Floods cause utility damage and outages, infrastructure damage (both to transportation and communication systems), structural damage to buildings, crop loss, decreased land values and impede travel.

What types of flooding occur in the County?

There are two main types of flooding that affect Macoupin County: general flooding and flash flooding. General flooding can be broken down into two categories: riverine flooding and shallow flooding. The following provides a brief description of each type.

General Flooding – Riverine Flooding

Riverine flooding occurs when the water in a river or stream gradually rises and overflows its banks. This type of flooding affects low lying areas near rivers, streams, lakes, and reservoirs and generally occurs when:

- persistent storm systems enter the area and remain for extended periods of time,
- winter and spring rains combine with melting snow to fill river basins with more water than the river or stream can handle,
- ice jams create natural dams which block normal water flow, and
- torrential rains from tropical systems make landfall.

General Flooding – Shallow Flooding

Shallow flooding occurs in flat areas where there are no clearly defined channels (i.e., rivers and streams) and water cannot easily drain away. There are two main types of shallow flooding: sheet flow and ponding. If the surface runoff cannot find a channel, it may flow out over a large area at a somewhat uniform depth in what's called sheet flow. In other cases, the runoff may collect in depressions and low-lying areas where it cannot drain out, creating a ponding effect. Ponding floodwaters do not move or flow away, they remain in the temporary ponds until the water can infiltrate the soil, evaporate, or are pumped out.

Flash Floods

Flash flooding occurs when there is a rapid rise of water along a stream or low-lying area. This type of flooding generally occurs within six hours of a significant rain event and is usually produced when heavy localized precipitation falls over an area in a short amount of time. Considered the most dangerous type of flood event, flash floods happen quickly with little or no warning. Typically, there is no time for the excess water to soak into the ground nor are the storm sewers able to handle the sheer volume of water. As a result, streams overflow their banks and low-lying (such as underpasses, basements etc.) areas can rapidly fill with water.

Flash floods are very strong and can tear out trees, destroy buildings and bridges and roll boulders the size of cars. Flash flood-producing rains can also weaken soil and trigger debris flows that damage homes, roads, and property. A vehicle caught in swiftly moving water can be swept away in a matter of seconds. Twelve inches of water can float a car or small SUV and 18 inches of water can carry away large vehicles.

What is a base flood?

A base flood refers to any flood having a 1% chance of occurring in any given year. It is also known as the 100-year flood or the one percent annual chance flood. The base flood is the national standard used by the National Flood Insurance Program (NFIP) and the State of Illinois for the purposes of requiring the purchase of flood insurance and regulating new development.

Many individuals misinterpret the term "100-year flood". This term is used to describe the risk of future flooding; it does not mean that it will occur once every 100 years. Statistically speaking, a 100-year flood has a 1/100 (1%) chance of occurring in any given year. In reality, a 100-year flood could occur two times in the same year or two years in a row, especially if there are other contributing factors such as unusual changes in weather conditions, stream channelization or changes in land use (i.e., open space land developed for housing or paved parking lots). It is also possible not to have a 100-year flood event over the course of 100 years.

While the base flood is the standard most commonly used for floodplain management and regulatory purposes in the U.S., the 500-year flood is the national standard for protecting critical facilities, such as hospitals and power plants. A 500-year flood has a 1/500 (0.2%) chance of occurring in any given year.

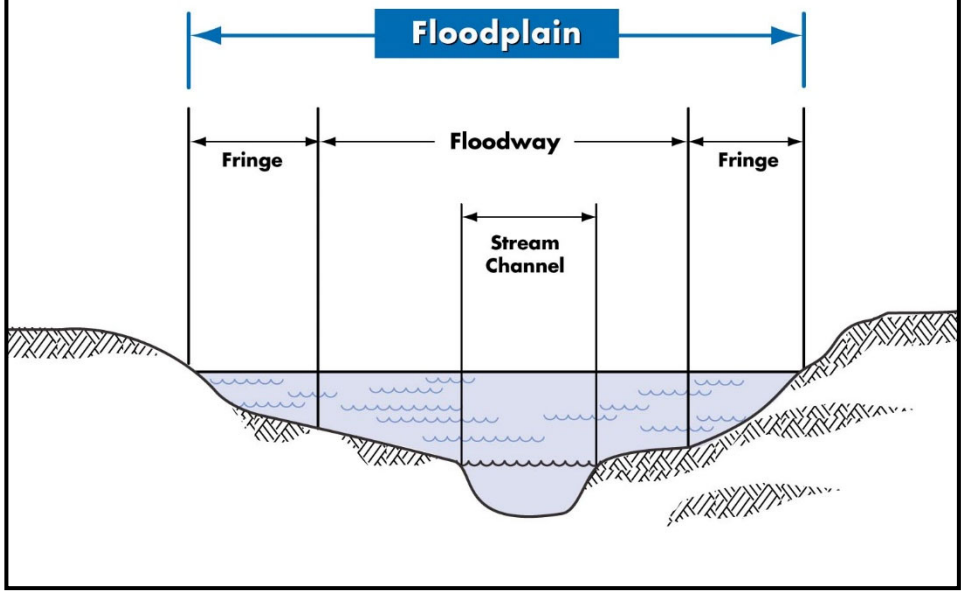
What is a floodplain?

The general definition of a floodplain is any land area susceptible to being inundated or flooded by water from any source (i.e., river, stream, lake, estuary, etc.). This general definition differs slightly from the regulatory definition of a floodplain.

A regulatory or base floodplain is defined as the land area that is covered by the floodwaters of the base flood. This land area is subject to a 1% chance of flooding in any given year. The base floodplain is also known as the 100-year floodplain or a Special Flood Hazard Area (SFHA). It is this second definition that is generally most familiar to people and the one that is used by the NFIP and the State of Illinois.

A base floodplain is divided into two parts: the floodway and the flood fringe. **Figure F-1** illustrates the various components of a base floodplain.

Figure F-1
Floodplain Illustration



Source: Illinois Department of Natural Resources, Quick Guide to Floodplain Management.

The floodway is the channel of a river or stream and the adjacent floodplain that is required to store and convey the base flood without increasing the water surface elevation. Typically, the floodway is the most hazardous portion of the floodplain because it carries the bulk of the base flood downstream and is usually the area where water is deepest and is moving the fastest. Floodplain regulations prohibit construction within the floodway that results in an increase in the floodwater's depth and velocity.

The flood fringe is the remaining area of the base floodplain, outside of the floodway, which is subject to shallow inundation and low velocity flows. In general, the flood fringe plays a relatively insignificant role in storing and discharging floodwaters. The flood fringe can be quite wide on large streams and quite small or nonexistent on small streams. Development within the flood fringe is typically allowed via permit if it will not significantly increase the floodwater's depth or velocity and the development is elevated above or otherwise protected to the base flood elevation.

What is a Special Flood Hazard Area?

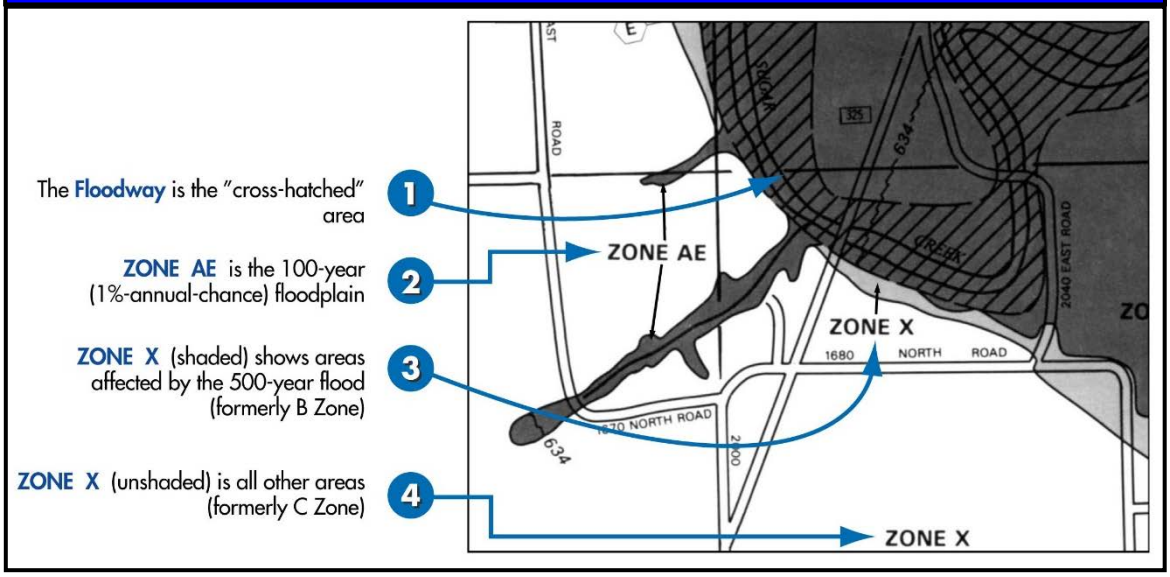
A Special Flood Hazard Area (SFHA) is the base floodplain. As discussed previously, this is the land area that is covered by the floodwaters of the base flood and has a 1% chance of flooding in any given year. The term SFHA is most commonly used when referring to the based floodplain on the Flood Insurance Rate Maps (FIRM) produced by FEMA. The SFHA is the area where floodplain regulations must be enforced by a community as a condition of participation in the NFIP and the area where mandatory flood insurance purchase requirements apply. SFHA are delineated

on the FIRMs and may be designated as Zones A, AE, A1-30, AO, AH, AR, and A99 depending on the amount of flood data available, the severity of the flood hazard or the age of the flood map.

What are Flood Insurance Rate Maps?

Flood Insurance Rate Maps (FIRMs) are maps that identify both the SFHA and the risk premium zones applicable to a community. These maps are produced by FEMA in association with the NFIP for floodplain management and insurance purposes. Digital versions of these maps are referred to as DFIRMs. **Figure F-2** shows an example of a FIRM.

Figure F-2
Example of a Flood Insurance Rate Map (FIRM)



Source: Illinois Department of Natural Resources, Quick Guide to Floodplain Management.

A FIRM will generally show a community's base flood elevations, flood zones and floodplain boundaries. The information presented on a FIRM is based on historic, meteorological, hydrologic, and hydraulic data as well as open-space conditions, flood-control projects, and development. ***These maps only define flooding that occurs when a creek or river becomes overwhelmed. They do not define overland flooding that occurs when an area receives extraordinarily intense rainfall and storm sewers, and roadside ditches are unable to handle the surface runoff.***

What are flood zones?

Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk and type of flooding. These zones are depicted on a community's FIRM. The following provides a brief description of each flood zone.

- **Zone A.** Zone A, also known as the Special Flood Hazard Area (SFHA) or base floodplain, is defined as the floodplain area that has a 1% chance of flooding in any given year. There are multiple Zone A designations, including Zones A, AO, AH, A1-30, AE, AR or A99. Land areas located within Zone A are considered high-risk flood areas.

During a 30-year period, the length of many mortgages, there is at least a 1 in 4 chance that flooding will occur in a SFHA. The purchase of flood insurance is mandatory for all buildings in SFHAs receiving federal or federally-related financial assistance.

- **Zone X (shaded).** Zone X (shaded), formerly known as Zone B, is defined as the floodplain area between the limits of the base flood (Zone A) and the 0.2% chance or 500-year flood. Land areas located within Zone X (shaded) are affected by the 500-year flood and are considered at a moderate risk for flooding.

  Zone X (shaded) is also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood, shallow flooding areas with average depths of less than one foot or drainage areas less than one square mile. While flood insurance is not federally required in Zone X (shaded), it is recommended for all property owners and renters.

- **Zone X (unshaded).** Zone X (unshaded), formerly known as Zone C, is defined as all other land areas outside of Zone A and Zone X (shaded). Land areas located in Zone X (unshaded) are considered to have a low or minimal risk of flooding. While flood insurance is not federally required in Zone X (unshaded), it is recommended for all property owners and renters.

What is a Repetitive Loss Structure or Property?

FEMA defines a "repetitive loss structure" as a National Flood Insurance Program-insured structure that has received two or more flood insurance claim payments of more than $1,000 each within any 10-year period since 1978. These structures/properties account for approximately one-fourth of all National Flood Insurance Program (NFIP) insurance claim payments since 1978.

Currently, repetitive loss properties make up about 2% of all NFIP policies, and account for approximately $9 billion in claims or approximately 16% of the total claims paid over the history of the Program. These structures not only increase the NFIP's annual losses, but they also drain funds needed to prepare for catastrophic events. As a result, FEMA and the NFIP are working with states and local governments to mitigate these properties.

What is a Severe Repetitive Loss Property?

FEMA defines a "severe repetitive loss" property as a National Flood Insurance Program-insured residential property that has four or more separate flood insurance claim payments of more than $5,000 each (including building and contents) or two or more separate flood insurance claim payments (building only) where the total of the payments is greater than the property's current value within any 10-year period since 1978. Severe repetitive loss properties are a subset of repetitive loss

What is floodplain management?

Floodplain management is the administration of an overall community program of corrective and preventative measures to reduce flood damage. These measures take a variety of forms and generally include zoning, subdivision or building requirements, special-purpose floodplain ordinances, flood control projects, education, and planning. Where floodplain development is permitted, floodplain management provides a framework that minimizes the risk to life and

property from floods by maintaining a floodplain's natural function. Floodplain management is a key component of the National Flood Insurance Program.

What is the National Flood Insurance Program?

The National Flood Insurance Program (NFIP) is a federal program, administered by FEMA, that:

- mitigates future flood losses nationwide through community-enforced building and zoning ordinances; and
- provides access to affordable, federally-backed insurance protection against losses from flooding to property owners in participating communities.

It is designed to provide an insurance alternative to disaster assistance to meet escalating costs of repairing damage to buildings and their contents due to flooding. The U.S. Congress established the NFIP on August 1, 1968 with the passage of the National Flood Insurance Act of 1968. This Program has been broadened and modified several times over the years, most recently with the passage of the Flood Insurance Reform Act of 2004.

Prior to the creation of the NFIP, the national response to flood disasters was generally limited to constructing flood-control projects such as dams, levees, sea-walls, etc. and providing disaster relief to flood victims. While flood-control projects were able to initially reduce losses, their gains were offset by unwise and uncontrolled development practices within floodplains. In light of the continued increase in flood losses and the escalating costs of disaster relief to taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for protection.

Participation in the NFIP is voluntary and based on an agreement between local communities and the federal government. If a community agrees to adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in a SFHA (base floodplain), then the government will make flood insurance available within the community as a financial protection against flood losses.

If a community chooses not to participate in the NFIP or a participating community decides not to adopt new floodplain management regulations or amend its existing regulations to reference new flood hazard data provided by FEMA, then the following sanctions will apply.

- Property owners will not be able to purchase NFIP flood insurance policies and existing policies will not be renewed.
- Federal disaster assistance will not be provided to repair or reconstruct insurable buildings located in identified flood hazard areas for presidentially-declared disasters that occur as a result of flooding.
- Federal mortgage insurance and loan guarantees, such as those written by the Federal Housing Administration and the Department of Veteran Affairs, will not be provided for acquisition or construction purposes within an identified flood hazard area. Federally-insured or regulated lending institutions, such as banks and credit unions, are allowed to make conventional loans for insurable buildings in identified flood hazard areas

of non-participating communities. However, the lender must notify applicants that the property is in an identified flood hazard area and that it is not eligible for federal disaster assistance.

- Federal grants or loans for development will not be available in identified flood hazard areas under programs administered by federal agencies such as the Environmental Protection Agency, Small Business Administration and the Department of Housing and Urban Development.

What is the NFIP's Community Rating System?

The NFIP's Community Rating System (CRS) is a voluntary program developed by FEMA to provide incentives (in the form of flood insurance premium discounts) for NFIP participating communities that have gone beyond the minimum NFIP floodplain management requirements to develop extra measures to provide protection from flooding. CRS discounts on flood insurance premiums range from 5% up to 45%. The discounts provide an incentive for communities to implement new flood protection activities that can help save lives and property when a flood occurs.

Are alerts issued for flooding?

Yes. The National Weather Service Weather Forecast Office in St. Louis, Missouri is responsible for issuing flood watches and warnings for Macoupin County depending on the weather conditions. The following provides a brief description of each type of alert.

- **Flood Watches.** A flood watch is issued when flooding or flash flooding is possible. It does not mean that flooding will occur, just that conditions are favorable. Individuals need to be prepared.
- **Flood Advisories.** A flood advisory is issued when flooding may cause significant inconvenience but is not expected to pose an immediate threat to life and/or property. Individuals need to be aware.
- **Warnings.** Warnings indicate a serious threat to life and/or property.
  - **Flood Warning**. A flood warning is issued when flooding is occurring or will occur soon and is expected to last for several days or weeks.
  - **Flash Flood Warning.** A flash flood warning is issued when flash flooding is occurring or is imminent. Flash flooding occurs very quickly so individuals are advised to take action immediately.

HAZARD PROFILE

The following identifies past occurrences of floods; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-f).

When has flooding occurred previously? What is the extent of these previous floods?

Tables 5 and **6**, located in **Appendix J**, summarize the previous occurrences as well as the extent or magnitude of flood events recorded in Macoupin County. The flood events are separated into two categories: general floods (riverine and shallow/overland) and flash floods.

General Floods

NOAA's Storm Events Database and Iowa State University's National Weather Service Watch, Warning, and Advisories database were used to document 17 occurrences of general flooding in Macoupin County between 2003 and 2023. While not included in the documented events, Macoupin County was included in two major federal disaster declarations for flooding from 1982 and 1983.

Flood Fast Facts – Occurrences

Number of General Floods Reported (2003 – 2023): ***17***

Number of Flash Floods Reported (1999 – 2023): ***47***

Most Likely Month for General Floods to Occur: ***October***

Most Likely Month for Flash Floods to Occur: ***July***

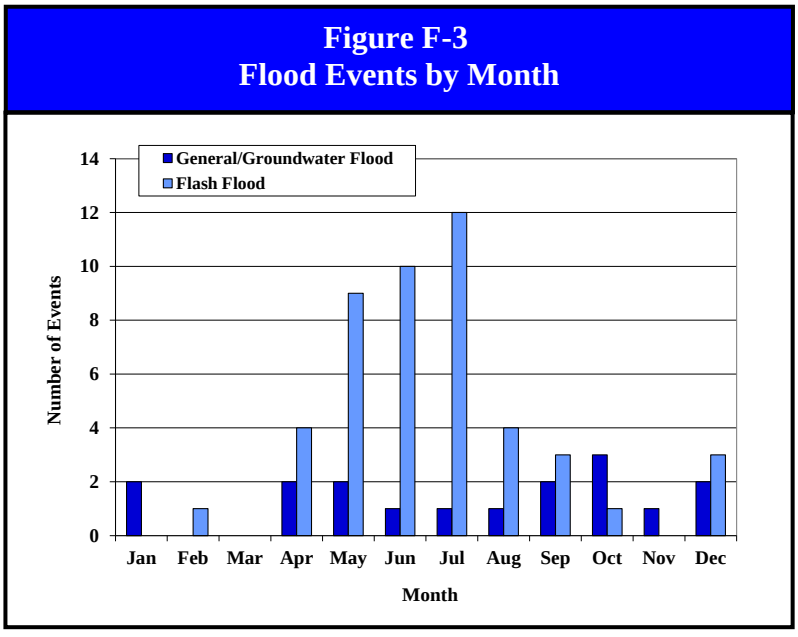
Number of Federal Emergency & Major Disaster Declarations Related to General and Flash Flooding: ***4 (1982, 1983, 2002, 2008)***

Flash Floods

NOAA's Storm Events Database and Iowa State University's National Weather Service Watch, Warning, and Advisories database were used to document 47 reported occurrences of flash flooding in Macoupin County between 1999 and 2023. Included in the 47 general flood events are four events that contributed to two federal emergency or major federal disaster declarations in Macoupin County from 2002 and 2008.

Figure F-3 charts the reported occurrences of flooding by month. Of the 17 general flood events, four (24%) began in April and May and five (29%) began in September and October making these the peak periods for general flooding. Of those nine events, three (33%) began during October making this the peak month for general flooding. There were two events that spanned two or more months; however, for illustration purposes only the month the event started in is graphed.

Figure F-3
Flood Events by Month



In comparison, 31 of the 47 flash flood events (66%) took place May, June, and July making this the peak period for flash floods. Of these 31 events, 12 (39%) occurred in July making this the peak month for flash flooding. Of the flash flood events with recorded times, 74% began during the a.m. hours.

What locations are affected by floods?
While specific locations are affected by general flooding, most areas of the County can be impacted by overland and flash flooding because of the topography and seasonally high water table of the area. In Macoupin County, only 2.4% of the area in the County is designated as being within the base floodplain and susceptible to riverine floods.

FIRMs in Macoupin County have only been developed for three of the municipalities: Carlinville, Gillespie, and Staunton. These maps became effective between July 17, 1981 and August 4, 1987. **Appendix L** contains the current effective FIRMs for each of the participating municipalities. While FIRMs have not been developed for the County, Flood Hazard Boundary Maps (FHBMs) were developed and became effective on January 6, 1978. No other FIRMs have been developed for any of the other participating municipalities in the County.

According to the Illinois State Water Survey's (ISWS) Coordinated Hazard Assessment and Mapping Program (CHAMP), the County is currently in the data development phase of FEMA's Risk MAP project to create FIRMs. The ISWS held a project initiation community coordination call on March 2, 2021 and a flood risk review meeting on September 8, 2023 with federal, state, county, and municipal officials to discuss the development of new floodplain studies for Macoupin County. Anticipated funding for preliminary maps was scheduled for fiscal year 2024. No additional updates were available at the time this report was completed.

Figure F-4 identifies the bodies of water within or immediately adjacent to participating jurisdictions that are known to cause flooding or have the potential to flood. Water bodies with Special Flood Hazard Areas located within a participating jurisdiction (as identified on the DFIRMs) are identified in bold.

Figure F-4
Bodies of Water Subject to Flooding
(Sheet 1 of 2)

Participating Jurisdiction	Water Bodies
Benld	unnamed tributary Cahokia Creek
Brighton	Briarwood Lak, unnamed tributary Little Piasa Creek
Bunker Hill	Paddock Creek, unnamed tributary Indian Creek
Carlinville	**Briar Creek**
Eagarville	Bear Creek, Columbia Quarry Lake, Spring Creek, unnamed tributary of Bear Creek, unnamed tributary of Cakokia Creek
Gillespie	**Bear Creek**
Girard	unnamed tributary East Fork Otter Creek
Mount Clare	Big Branch, unnamed tributaries of Big Branch
Nilwood	Shearles Branch
Royal Lakes	Coop Branch, Meshach Lake, Shad Lake, Shadrach Lake
Staunton	**unnamed tributary Ginseng Creek**
Virden	---

Figure F-4 Bodies of Water Subject to Flooding (Sheet 2 of 2)	
Participating Jurisdiction	**Water Bodies**
Unincorporated Macoupin County	**Adams Branch**, **Apple Creek**, Anderson Creek, **Baitter Branch**, Beam Branch, Bear Creek, Bear Creek, Beaver Dam Lake, **Big Branch Creek**, **Briar Creek**, Briarwood Lake, Brush Creek, **Bullard Lake**, Bunker Hill Old Lake, Bunker Hill Reservoir, Bunn Lake, **Cahokia Creek**, Carlinville Lake, Cone Branch, **Coop Branch**, Cottonwood Creek, Crooked Creek, Deer Run Lake, **Dry Fork**, East Creek, **East Fork Otter Creek**, **East Fork Wood River**, Elm Creek, Evergreen Lake, Fox Branch, **Ginseng Creek**, Girder Branch, Goose Creek, Hicks Creek, Hodges Creek, Honey Creek, Honeycut Branch, Horse Creek, Hurricane Creek, I Beam Branch, Indian Creek, Jacobie Lake, **Joes Creek**, Kent Branch, **Kent Creek**, Lake Catatoga, Lake Edward, Lake Ka-Ho, Lake Rinaker, Lake Williamson, Lands Branch, **Left Fork Apple Creek**, **Lick Branch**, **Lick Creek**, Little Negro Lick, Little Piasa Creek, Lynn Grove Branch, **Macoupin Creek**, Matodd Branch, **May Branch**, Miller Branch, Mowens Lake, Mt. Olive Lake, **Nassa Creek**, New Gillespie Lake, Old Gillespie Lake, Old Mt. Olive Reservoir, **Otter Creek**, Otter Lake, Paddock Creek, Palmyra-Modesto City Lake, **Panther Creek**, Panther Creek, Piasa Creek, Prairie Branch, Richardson Branch, **Rock Branch**, Shaw Point Branch, Shearles Branch, **Sherry Creek**, Shipman Reservoir, **Silver Creek**, Smith Lake, **Solomon Creek**, **Spanish Needle Creek**, Spring Creek, Staunton Reservoir, Steer Creek, Steidley Branch, Sugar Camp Creek, **Sugar Creek**, Sugar Creek, Sugar Creek, Sunset Lake, Taylor Creek, Timber Creek, Turner Creek, **West Fork Cahokia Creek**, West Fork Otter Creek, West Fork Wood River, Whites Pond, Wolf Branch

Sources: FEMA's FIRMs and FHBMs
USGS National Map Viewer

Municipal, Township, and County officials have reported overland flood issues outside of the base floodplain in most of the participating municipalities and many unincorporated portions of the County. This overland flooding is known to impair travel.

Based on responses to a Roadway Overtopping Survey distributed to the County and Brighton Township, heavy rains and/or flooding can cause overtopping of roadways that exceeds six inches in some parts of the County. **Figure F-5**, located at the end of this section, identifies the roadway, overtopping location, waterbody (if applicable), and jurisdiction responsible for the roadway. According to the County Engineer, Hillcrest Road is closed to due scour around structure 05-3034 foundation from Joe's Creek about ½ mile north of Hagaman Road. The road surface of Hagaman Road has been damaged and mud deposited on it during flooding.

What jurisdictions within the County take part in the NFIP?
[Local Mitigation Planning Policy Guide Element C2-a]

Participating Jurisdictions
Macoupin County, Brighton, Bunker Hill, Carlinville, Gillespie, Staunton, and Virden participate in the NFIP. **Figure F-6** ***provides information on each NFIP-participating jurisdiction,*** including the date each participant joined, the date of their current effective FIRM and the year of their most recently adopted floodplain zoning ordinance. Benld, Eagarville, Girard, Mount Clare,

Nilwood, and Royal Lakes have no identified flood hazard boundaries within their corporate limits and are not required to participate in the NFIP.

Figure F-5
Roadway Overtopping Locations Reported in Macoupin County

Road Name/ Number	Overtopping Location	Waterbody Name (if applicable)	Responsible Jurisdiction
Nine Mine Road	West of Lead Line Road	West of Lead Line Road	Macoupin County
Hagaman Road	0.5 mile north of IL 108	Nassa Creek	Macoupin County
Hagaman Road	West of structure 059-3037	Soloman Creek	Macoupin County
Hagaman Road	West of structure 059-3336	Joe's Creek	Macoupin County
Stagecoach Road	1.5 miles south of Lake Catatoga Road	Branch of Dry Fork Creek	Macoupin County
WaggonerRoad	Structure 059-3233; 0.25 mile west of Boston Chapel Road	Horse Creek	Macoupin County
Hettick Road	0.25 miles mile west of Handover Road	Lick Creek	Macoupin County
Hillcrest Road	South of structure 059-3034; 0.5 mile north of Hagaman Road	Joe's Creek	Macoupin County
Otten Road	Emmerson Airline Road intersection	Branch of Otter Creek	Macoupin County
Quarton Road	0.25 miles mile south of Emmerson Airline	Branch of Otter Creek	Macoupin County

Figure F-6
NFIP Participating Jurisdictions

Participating Jurisdictions	Participation (Date)	Current Effective FIRM (Date)	Floodplain Zoning/FIRM Adoption Ordinance (Year)	Adoption of Minimum NFIP Criteria (Yes/No)	Local Floodplain Management Regulations Implemented & Enforced (Yes/No)	Position Responsible for Implementation of NFIP Commitments/ Requirements	CRS Participation (Entry Date & Class if applicable)
Macoupin County	09/18/1996	01/06/1978 (FHBMs)	1996	Yes	Yes	Supervisor of Assessments	No
Brighton	05/13/2009	04/02/2009 (Jersey Co.) (NSFHA)	2009	Yes	Yes	President	No
Bunker Hill	10/11/2019	---	2019	Yes	Yes	Administrator	No
Carlinville	09/04/1986	09/04/1986	2006	Yes	Yes	Zoning Administrator	No
Gillespie	08/04/1987	08/04/1987	1987	Yes	Yes	Mayor	No
Staunton	07/17/1981	07/17/1981	2003	Yes	Yes	Zoning Administrator	No
Virden	05/25/1978	05/03/2004 (Sangamon Co.) (NSFHA)	2019	Yes	Yes	Director of Operations	No

Discussions with the individuals responsible for implementation of the NFIP commitments and requirements within their jurisdiction and a review of the participating jurisdictions floodplain ordinances indicates that each monitor flood events and, when applicable, conduct substantial damage determinations for structures within the floodplain. For structures that meet the definition of substantial damage, the owners are notified, and the structure must be brought back into compliance with local floodplain management regulations.

Participating jurisdictions will continue to comply with the NFIP by implementing mitigation projects and activities that enforce this ordinance to reduce future flood risks to new construction within the SFHA. At this time no new construction is planned within the base floodplain. Continued compliance with NFIP requirements is addressed in the Mitigation Action Tables of the participating jurisdictions found in Section 6.6.

Non-Participating Jurisdictions
Chesterfield, Dorchester, East Gillespie, Hettick, Lake Ka-Ho, Medora, Modesto, Mount Olive, Palmyra, Sawyerville, Scottville, Shipman, Standard City, and White City have no identified flood hazard boundaries within their corporate limits and have chosen not to participate in the Program.

What is the probability of future flood events occurring based on historical data?

General Floods
Macoupin County has had 17 verified occurrences of general flooding between 2003 and 2023. With 17 occurrences over the past 21 years, the probability or likelihood that a general flood will occur somewhere in the County in any given year is 81%. It is important to keep in mind there are gaps in the general flood data. More events have almost certainly occurred than are documented in this section, which means that the probability is most likely higher than reported.

There were three years over the past 21 years where two or more general flood events occurred. This indicates that the probability or likelihood that more than one general flood event may occur during any given year within the County is 14%.

Flash Floods
There have been 47 verified flash flood events between 1999 and 2023. With 47 occurrences over the past 25 years, the County should expect at least one flash flood event in any given year. There were 13 years over the past 25 years where two or more flash flood events occurred. This indicates that the probability that more than one flash flood event may occur during any given year within the County is approximately 52%.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions; specifies the unique and varied risk differences across the planning area and between participating jurisdictions; identifies the impacts on public health and property (if known); and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from floods (Local Mitigation Planning Policy Guide Element B1-f; B2-a through B2-c).

Several factors including topography, precipitation, and an abundance of rivers and streams make Illinois especially vulnerable to flooding. According to the Illinois State Water Survey's Climate Atlas of Illinois, since the 1940s Illinois climate records have shown an increase in heavy precipitation, which has led to increased flood peaks on Illinois rivers.

Are the participating jurisdictions vulnerable to flooding?

Yes. Macoupin County and the participating jurisdictions are vulnerable to the dangers presented by flooding. Precipitation levels and topography are factors that cumulatively make virtually the entire County susceptible to some form of flooding. Flooding occurs along the floodplains of all the rivers, streams, and creeks within the County as well as outside of the floodplains in low-lying areas where drainage problems occur. Since 2014, Macoupin County has experienced eight general flood events and 16 flash flood events.

All of the general flood and flash flood events impacted either a large portion of the County or the entire County and were not location specific.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by IEMA-OHS classifies Macoupin County's hazard rating for riverine flooding and flash flooding as "medium". IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.

For riverine floods, FEMA's National Risk Index (NRI) rates the County as a whole as "Very Low". Seven of the 13 census tracts are rated "Very Low", four census tracts are rated "Relatively Low", and two have "No Rating". **Figure R-4** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

Vulnerability to flooding can change depending on several factors, including land use. As land used primarily for agricultural and open space purposes is converted for residential and commercial/industrial uses, the number of buildings and impervious surfaces (i.e., parking lots, roads, sidewalks, etc.) increases. As the number of buildings and impervious surfaces increases, so too does the potential for flash flooding. Rather than infiltrating the ground slowly, rain and snowmelt that falls on impervious surfaces runs off and fills ditches and storm drains quickly creating drainage problems and flooding.

According to the Multi-Resolution Land Characteristics (MRLC) Consortium, in 2023 approximately 7.7% of the County's land cover was considered developed with 1.7% impervious surfaces. Areas with impervious surface rates approaching or exceeding 12 to 15 percent will likely experience negative impacts to water quality. Between 2019 and 2023 approximately 0.93% of the land cover in the County changed with 0.88 square miles of development and 0.13 square miles of impervious surfaces gained.

Section 5.1 Land Use and Development Trends describes the planned changes in land use (from forested, open, and agricultural land to residential, commercial, and industrial) for the participating jurisdictions. Significant changes are not anticipated within the unincorporated County or participating municipalities in the immediate future.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of flooding?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, all of the participants, with the exception of Brighton Betsey Ann FPD and Nor Mac CUSD #34, considered specific assets within their jurisdiction vulnerable to flooding.

Appendix I contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to flooding.

What impacts resulted from the recorded floods?

Floods as a whole have caused a minimum of $1.3 million in property damages and $5,000 in crop damages. The following provides a breakdown by category. In comparison, the State of Illinois has averaged an estimated $257 million annually in property damage losses, making flooding the single most financially damaging natural hazard in Illinois.

Flood Fast Facts – Impacts/Risk

General Flood Impacts:
- Total Property Damage: ***n/a***
- Total Crop Damage: ***n/a***
- Injuries: ***n/a***
- Fatalities: ***n/a***

Flash Flood Impacts:
- Total Property Damage (4 events): ***$1,331,099***
- Total Crop Damage (1 event): ***$5,000***
- Injuries: ***n/a***
- Fatalities: ***n/a***

Flood Risk/Vulnerability to:
- Public Health & Safety – General Flooding: ***Low***
- Public Health & Safety – Flash Flooding: ***Medium***
- Buildings/Infrastructure/Critical Facilities: ***Medium to High***

General Floods

Damage information was either unavailable or none was recorded for any of the reported general flood events. No injuries or fatalities were reported as a result of any of the recorded events.

Flash Floods

Data obtained from NOAA's Storm Events Database and FEMA Public Assistance figures indicates that between 1999 and 2023, four of the 47 flash flood events caused $1,331,099 in property damages and $5,000 in crop damages. Damage information was either unavailable or none was recorded for the remaining 43 reported occurrences. No injuries or fatalities were reported as a result of any of the recorded events.

What other impacts can result from flooding?

One of the primary threats from flooding is drowning. Nearly half of all flash flood fatalities occur in vehicles as they are swept downstream. Most of these fatalities take place when people drive into flooded roadway dips and low drainage areas. It only takes two feet of water to carry away most vehicles.

Floodwaters also pose biological and chemical risks to public health. Flooding can force untreated sewage to mix with floodwaters. The polluted floodwaters then transport the biological contaminants into buildings and basements and onto streets and public areas. If left untreated, the floodwaters can serve as breeding grounds for bacteria and other disease-causing agents. Even if floodwaters are not contaminated with biological material, basements and buildings that are not properly cleaned can grow mold and mildew, which can pose a health hazard, especially for small children, the elderly, and those with specific allergies.

Flooding can also cause chemical contaminants such as gasoline and oil to enter the floodwaters if underground storage tanks or pipelines crack and begin leaking during a flood event. Depending on the time of year, floodwaters also may carry away agricultural chemicals that have been applied to farm fields.

Structural damage, such as cracks forming in a foundation, can also result from flooding. In most cases, however, the structural damage sustained during a flood occurs to the flooring, drywall, and wood framing. In addition to structural damage, a flood can also cause serious damage to a building's content.

Infrastructure and critical facilities are also vulnerable to flooding. Roadways, culverts, and bridges can be weakened by floodwaters and have been known to collapse under the weight of a vehicle. Buried power and communication lines are also vulnerable to flooding. Water can infiltrate lines and cause disruptions in power and communication.

What is the level of vulnerability to public health and safety from floods?

While both general and flash floods occur on a regular basis within the County, the number of injuries and fatalities is low. In terms of the risk or vulnerability to public health and safety from general floods, the risk is seen as ***low***. However, almost three-quarters of the recorded flood events were the result of flash flooding. Since there is very little warning associated with flash flooding the risk to public health and safety from flash floods is elevated to ***medium***.

Are there any repetitive loss/severe repetitive loss properties within Macoupin County?
[Local Mitigation Planning Policy Guide Element B2-c]

Yes. According to information obtained from FEMA, there is one repetitive loss property and no severe repetitive loss properties located in the County. The one repetitive loss property is located in Gillespie. As described previously, FEMA defines a "repetitive loss structure" as an NFIP-insured structure that has received two or more flood insurance claim payments of more than $1,000 each within any 10-year period since 1978.

Figure F-7 identifies the repetitive flood loss structures by jurisdiction and provides the total flood insurance claim payments. The exact location and/or address of the insured structure is not included in this Plan to protect the owners' privacy. According to FEMA, there have been four flood insurance claim payments totaling $13,320.55 for the one repetitive flood loss structure.

Figure F-7
Repetitive Loss Properties

Jurisdiction	Structure Type	Number of Structures	Number of Claim Payments	Flood Insurance Claim Payments		Total Flood Insurance Claim Payments
				Structure	Contents	
Gillespie	Single Family	1	4	$10,486.55	$2,834.00	$13,320.55

Source: Federal Emergency Management Agency

Are existing buildings, infrastructure and critical facilities vulnerable to flooding?

Yes. **Figure F-8** identifies the *estimated number* of existing structures by participating jurisdiction located within a base floodplain. These counts were prepared by the Consultant using FEMA's FIRMs. Discussions with municipal officials did not identify any new structures built in the floodplains since the 2019 Plan update. It should be noted that while the identified structures are located in a floodplain, the actual number impacted may differ during a real flood event.

Figure F-8 Existing Residential Structures Located within a Base Floodplain by Participating Jurisdiction			
Participating Jurisdiction	**Number of Residential Structures**	**Participating Jurisdiction**	**Number of Residential Structures**
Benld[4,12]	0	Girard[5,9,13]	0
Brighton[1,6,8]	0	Mount Clare[4,12]	0
Bunker Hill[2]	0	Nilwood[5]	0
Carlinville[3,13]	1	Royal Lakes[2,6]	0
Eagarville[7,12]	0	Staunton[7,14]	4
Gillespie[4,12,13]	0	Virden[5]	0

[1]Brighton Township [2]Bunker Hill CUSD #8 [3]Carlinville CUSD #1 [4]Gillespie CUSD #7
[5]North Mac CUSD #34 [6]Southwestern CUSD #9 [7]Staunton CUSD #6 [8]Brighton Betsey Ann FPD
[9]Girard FPD [10]Medora Community FPD [11]Mount Olive Volunteer FD [12]Unit 7 FPD
[13]Carlinville Area Hospital [14]Communmity Hospital of Staunton

Only three of the municipalities within the County have current effective FIRMs: Carlinville, Gillespie, and Staunton. None of the other municipalities have been mapped. While Flood Hazard Boundary Maps were developed for the unincorporated portions of Macoupin County, FIRMs have not been developed. As a result, estimates of existing residential structures in unincorporated Macoupin and the townships are not included. Macoupin County has the smallest percentage of acres located in the floodplain of any county in the State. This fact, coupled with the lack of mapping is the primary reason that there are so few residential structures located in the floodplain.

Aside from key roads, bridges, electrical substations, and buried power and communication lines, none of participating jurisdictions have specific infrastructure/ critical facilities located within a floodplain.

While only 2.4% of the land area in Macoupin County lies within the base floodplain and is susceptible to riverine flooding, ***almost the entire County is vulnerable to flash flooding***. As a result, ***a majority of the buildings, infrastructure and critical facilities that may be impacted by flooding are located outside of the base floodplain and are not easily identifiable.***

The risk or vulnerability of existing buildings, infrastructure and critical facilities to all forms of flooding is considered to be ***medium*** based on: (a) the frequency and severity of recorded flood events within the County; (b) the fact that most of the County is vulnerable to flash flooding; and (c) a majority of the buildings, infrastructure and critical facilities that may be impacted are located outside of the base floodplain.

Are future buildings, infrastructure and critical facilities vulnerable to flooding?

The answer to this question depends on the type of flooding being discussed.

Riverine Flooding

In terms of riverine flooding, the vulnerability of future buildings, infrastructure and critical facilities located within NFIP-participating jurisdictions is low as long as the existing floodplain ordinances are enforced. Enforcement of the floodplain ordinance is the mechanism that ensures

that new structures either are not built in flood-prone areas or are elevated or protected to the base flood elevation.

Flash Flooding
In terms of flash flooding, all future buildings, infrastructure and critical facilities are still vulnerable depending on the amount of precipitation that is received, the topography and any land use changes undertaken within the participating jurisdictions.

What are the potential dollar losses to vulnerable structures from flooding?
An estimate of the potential dollar losses to vulnerable *residential structures* located within the *participating municipalities* can be calculated if several assumptions are made. These assumptions represent a probable scenario based on the reported occurrences of flooding in Macoupin County.

The purpose of providing an estimate is to help residents and local officials make informed decisions about how they can better protect themselves and their communities. These estimates are meant to provide a ***general idea*** of the magnitude of the potential damage that could occur from a flood event in each of the participating municipalities.

Assumptions
To calculate the overall potential dollar losses to vulnerable residential structures from a flood, a set of decisions/assumptions must be made regarding:

- type of flood event;
- scope of the flood event;
- number of potentially-damaged housing units;
- value of the potentially-damaged housing units; and
- percent damage sustained by the potentially-damaged housing units (i.e., damage scenario.)

The following provides a detailed discussion of each decision/assumption.

Type of Flood Event. The first step towards calculating the potential dollar losses to vulnerable residential structures is to determine the type of flood event that will be used for this scenario. While flash flooding has occurred more frequently and has caused more recorded flood damages in the County than riverine flooding, identifying residential structures vulnerable to flash flooding is problematic because most are located outside of the base floodplain and the number of structures impacted can change with each event depending on the amount of precipitation received, the topography and the land use of the area.

Assumption #1

A riverine flood event will impact vulnerable residential structures.

Therefore, a riverine flood event will be used since it is (a) relatively easy to identify vulnerable residential structures within each municipality (i.e., those structures located within the base floodplain or Special Flood Hazard Areas of any river, stream or creek); and (b) the number of structures impacted is generally the same from event to event.

Scope of the Flood Event. To establish the number of vulnerable residential structures (potentially-damaged housing units), the scope of the riverine flood event must first be determined. In this scenario, the scope refers to the number of rivers, streams and creeks that overflow their banks and the degree of flooding experienced along base floodplains for each river, stream and creek.

Assumption #2

All base floodplains will flood and experience the same degree of flooding.

Generally speaking, a riverine flood event only affects one or two rivers or streams at a time depending on the cause of the event (i.e., precipitation, snow melt, ice jam, etc.) and usually does not produce the same degree of flooding along the entire length of the river, stream or creek. However, for this scenario, it was decided that:

- ❖ all rivers, streams and creeks with base floodplains would overflow their banks, and
- ❖ the base floodplains of each river, stream and/or creek located within the corporate limits of each municipality would experience the same degree of flooding.

This assumption results in the following conditions for each jurisdiction:

- ➢ Benld, Brighton, Bunker Hill, Eagarville, Girard, Mount Clare, Nilwood, Royal Lakes and Virden would not experience any flooding since there are no rivers, streams or creeks with base floodplains located within their municipal limits;
- ➢ *Carlinville*: Briar Creek and its tributaries would overflow their banks and flood a small portion along the south and eastern edges of the City;
- ➢ *Gillespie*: Bear Creek and its tributaries would overflow their banks and flood a small portion of the central part of the City; and
- ➢ *Staunton*: an unnamed tributary of Ginseng Creek would overflow its banks and flood a small portion of the central part of the City.

Number of Potentially-Damaged Housing Units. Since this scenario assumes that all the base floodplains will experience the same degree of flooding, the number of existing residential structures located within the base floodplain(s) can be used to determine the number of potentially-damaged housing units. **Figure F-8** identifies the total number of existing residential structures located within the base floodplains(s) of each participating jurisdiction. These counts were prepared by the Consultant.

Assumption #3

The number of existing residential structures located within the base floodplain(s) will be used to determine the number of potentially-damaged housing units.

Value of Potentially-Damaged Housing Units. Now that the number of potentially-damaged housing units has been determined, the monetary value of the units must be calculated. Typically, when damage estimates are prepared after a natural disaster such as a flood, they are based on the market value of the structure. Since it would be impractical to determine the individual market

Assumption #4

The average market value for a residential structure will be used to determine the value of potentially-damaged housing units.

value of each potentially-damaged housing unit, the average market value for a residential structure will be used.

To determine the average market value, the average assessed value must first be calculated. The average assessed value is determined by taking the total assessed value of residential buildings within a jurisdiction and dividing that number by the total number of housing units within the jurisdiction. The average market value is then determined by taking the average assessed value and multiplying that number by three (the assessed value of a structure in Macoupin County is approximately one-third of the market value.) **Figure F-9** provides a sample calculation. The total assessed value is based on 2023 tax assessment information provided by the Macoupin County Clerk. **Figure F-10** provides the average assessed value and average market value for each participating municipality.

Figure F-9
Sample Calculation of Average Assessed Value & Average Market Value – Carlinville

Average Assessed Value

Total Assessed Value of Residential Buildings in the Jurisdiction÷ Total Housing Units in the Jurisdiction = Average Assessed Value

Carlinville: $57,580,565 ÷ 2,574 housing units = $22,370.07

Average Market Value

Average Assessed Value x 3 = Average Market Value (Rounded to the Nearest Dollar)

Carlinville: $22,370.07 x 3 = $67,110

Figure F-10
Average Market Value of Housing Units by Participating Municipality

Participating Jurisdiction	Total Assessed Value of Residential Buildings (2023)	Total Housing Units (2018-2022)	Average Assessed Values	Average Market Value (2023)
Benld[3,11]	$9,729,298	881	$11,043	$33,129
Brighton[5,7]	$26,983,898	969	$27,847	$83,541
Bunker Hill[1]	$19,201,574	695	$27,628	$82,884
Carlinville[2,12]	$57,580,565	2,574	$22,370	$67,110
Eagarville[6,11]	$929,453	67	$13,872	$41,616
Gillespie[3,11,12]	$29,917,077	1,483	$20,173	$60,519
Girard[4,8,12]	$14,973,847	759	$19,728	$59,184
Mount Clare[3,11]	$2,391,401	132	$18,117	$54,351
Nilwood[4]	$1,274,956	106	$12,028	$36,084
Royal Lakes[1,5]	$1,008,317	139	$7,254	$21,762
Staunton[6,13]	$63,928,629	2,106	$30,355	$91,065
Virden[4]	$28,447,599	1,411	$20,161	$60,483

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton
Source: Macoupin County Clerk.

Damage Scenario. The final decision that must be made to calculate potential dollar losses is to determine the percent damage sustained by the structure and the structure's contents during the flood event. In order to determine the percent damage using FEMA's flood loss estimation tables, assumptions must be made regarding (a) the type of residential structure flooded (i.e., manufactured home, one story home without a basement, one- or two-story home with a basement, etc.) and (b) the flood depth. **Figure F-11.** calculates the percent loss to a structure and its contents for different scenarios based on flood depth and structure type.

Assumption #5

The potentially-damaged housing units are one-story homes with basements and the flood depth is two feet.
Structural Damage = 20%
Content Damage = 30%

Figure F-11
FEMA Flood Loss Estimation Tables

Flood Building Loss Estimation Table

Flood Depth (feet)	One Story No Basement (% Building Damage)	Two Story No Basement (% Building damage)	One or Two Story With Basement (% Building damage)	Manufactured Home (% Building damage)
-2	0	0	4	0
-1	0	0	8	0
0	9	5	11	8
1	14	9	15	44
2	22	13	20	63
3	27	18	23	73
4	29	20	28	78
5	30	22	33	80
6	40	24	38	81
7	43	26	44	82
8	44	29	49	82
>8	45	33	51	82

Flood Content Loss Estimation Table

Flood Depth (feet)	One Story No Basement (% Contents Damage)	Two Story No Basement (% Contents damage)	One or Two Story With Basement (% Contents damage)	Manufactured Home (% Contents damage)
-2	0	0	6	0
-1	0	0	12	0
0	13.5	7.5	16.5	12
1	21	13.5	22.5	66
2	33	19.5	30	90
3	40.5	27	34.5	90
4	43.5	30	42	90
5	45	33	49.5	90
6	60	36	57	90
7	64.5	39	66	90
8	66	43.5	73.5	90
>8	67.5	49.5	76.5	90

Source: FEMA, Understanding Your Risks: Identifying Hazards and Estimating Losses

For this scenario it is assumed that the potentially-damaged housing units are one-story homes without basements and the flood depth is two feet. With these assumptions the expected percent damage sustained by the ***structure*** is estimated to be 20% and the expected percent damage sustained by the structure's ***contents*** is estimated to be 30%.

Potential Dollar Losses

Now that all of the decisions/assumptions have been made, the potential dollar losses can be calculated. First the potential dollar losses to the ***structure*** of the potentially-damaged housing units must be determined. This is done by taking the average market value for a residential structure and multiplying that by the percent damage 20% to get the average structural damage per unit. Next the average structural damage per unit is multiplied by the number of potentially-damaged housing units. **Figure F-12** provides a sample calculation.

Figure F-12 ***Structure:* Potential Dollar Loss Sample Calculation – Carlinville**
Average Market Value of a Housing Unit with the Jurisdiction x Percent Damage = Average Structural Damage per Housing Unit Carlinville: $67,110 x 20% = $13,422.00 per housing unit
Average Structural Damage x Number of Potentially-Damaged Housing Units within the Jurisdiction = *Structure* Potential Dollar Losses (Rounded to the Nearest Dollar) Carlinville: $13,422.00 per housing unit x 1 housing unit = $13,422

Next the potential dollar losses to the ***content*** of the potentially-damaged housing units must be determined. Based on FEMA guidance, the value of a residential housing unit's content is approximately 50% of its market value. Therefore, start by taking one-half the average market value for a residential structure and multiply that by the percent damage 30% to get the average content damage per unit. Then take the average content damage per unit and multiply that by the number of potentially-damaged housing units. **Figure F-13** provides a sample calculation.

Figure F-13 ***Content:* Potential Dollar Loss Sample Calculation – Carlinville**
½ (Average Market Value of a Housing Unit with the Jurisdiction) x Percent Damage = Average Content Damage per Housing Unit Carlinville: ½ ($67,110) x 30% = $10,066.50 per housing unit
Average Content Damage per Housing Unit x Number of Potentially-Damaged Housing Units within the Jurisdiction = *Content* Potential Dollar Losses (Rounded to the Nearest Dollar) Carlinville: $10,066.50 per housing unit x 1 housing unit = $10,067

Finally, the ***total potential dollar losses*** may be calculated by adding together the potential dollar losses to the structure and the content. **Figure F-14** provides a breakdown of the total potential dollar losses by participating municipality.

This assessment illustrates the potential dollar losses that should be considered when participating jurisdictions are deciding which mitigation projects to pursue. Potential dollar losses caused by riverine flooding to vulnerable structures within the participating municipalities would be expected to ***range from $23,489 in Carlinville to $127,491 in Staunton***. There are 10 participating jurisdictions in this scenario who do not have any residences considered vulnerable to riverine flooding.

Vulnerability of Infrastructure/Critical Facilities

The calculations presented above are meant to provide the reader with a sense of the scope or magnitude of a large riverine flood event in dollars. These calculations do not include the physical damages sustained by businesses or other infrastructure and critical facilities.

Figure F-14
Estimated Potential Dollar Losses to Potentially-Damaged Housing Units from a Riverine Flood Event by Participating Jurisdiction

Participating Jurisdiction	Average Market Value (2023)	Potentially-Damaged Housing Units	Potential Dollar Losses		Total Potential Dollar Losses
			Structure	Content	
Benld[3,11]	$33,129	0	$ 0	$ 0	$ 0
Brighton[5,7]	$83,541	0	$ 0	$ 0	$ 0
Bunker Hill[1]	$82,884	0	$ 0	$ 0	$ 0
Carlinville[2,12]	$67,110	1	$13,422	$10,067	$23,489
Eagarville[6,11]	$41,616	0	$ 0	$ 0	$392,700
Gillespie[3,11,12]	$60,519	0	$ 0	$ 0	$ 0
Girard[4,8,12]	$59,184	0	$ 0	$ 0	$ 0
Mount Clare[3,11]	$54,351	0	$ 0	$ 0	$ 0
Nilwood[4]	$36,084	0	$ 0	$ 0	$ 0
Royal Lakes[1,5]	$21,762	0	$ 0	$ 0	$ 0
Staunton[6,13]	$91,065	4	$72,852	$54,639	$127,491
Virden[4]	$60,483	0	$ 0	$ 0	$ 0

[1]Brighton Township [2]Bunker Hill CUSD #8 [3]Carlinville CUSD #1 [4]Gillespie CUSD #7
[5]North Mac CUSD #34 [6]Southwestern CUSD #9 [7]Staunton CUSD #6 [8]Brighton Betsey Ann FPD
[9]Girard FPD [10]Medora Community FPD [11]Mount Olive Volunteer FD [12]Unit 7 FPD
[13]Carlinville Area Hospital [14]Communmity Hospital of Staunton

In terms of businesses, the impacts from a flood event can be physical and/or monetary. Monetary impacts can include loss of sales revenue either through temporary closure or loss of critical services (i.e., power, drinking water and sewer). Depending on the magnitude of the flood event, the damage sustained by infrastructure and critical facilities can be extensive in nature and expensive to repair. As a result, ***the cumulative monetary impacts to businesses and infrastructure can exceed the cumulative monetary impacts to residences.*** While average dollar amounts cannot be supplied for these items at this time, they should be taken into account when discussing the overall impacts that a large-scale riverine flood event could have on the participating jurisdictions.

In terms of specific infrastructure vulnerability, none of the municipalities that are mapped have infrastructure within or adjacent to the base floodplain. No above-ground infrastructure within the participating jurisdictions, other than key roads, bridges and electrical substations, were identified as being vulnerable to riverine flooding.

Considerations

While the potential dollar loss scenario was only for a riverine flood event, the participating jurisdictions have been made aware through the planning process of the impacts that can result from flash flood events. Macoupin County has experienced multiple events over the last 20 to 30 years, as have adjoining and nearby counties. These events illustrate the need for officials to consider the overall monetary impacts of all forms of flooding on their communities. All participants should carefully consider the types of activities and projects that can be taken to minimize their vulnerability.

3.4 SEVERE WINTER STORMS

HAZARD IDENTIFICATION

What is the definition of a severe winter storm?

A severe winter storm can range from moderate snow over a few hours to significant accumulations of sleet and/or ice to blizzard conditions with blinding, wind-driven snow that lasts several days. The amount of snow or ice, air temperature, wind speed and event duration all influence the severity and type of severe winter storm that results. In general, there are three types of severe winter storms: blizzards, heavy snowstorms and ice storms. The following provides a brief description of each type as defined by the National Weather Service (NWS).

- **Blizzards.** Blizzards are characterized by strong winds of at least 35 miles per hour and are accompanied by considerable falling and/or blowing snow that reduces visibility to ¼ mile or less. Blizzards are the most dangerous of all winter storms.
- **Heavy Snowstorms.** Heavy snowstorms are generally defined as producing snowfall accumulations of four inches or more in 12 hours or less or six inches or more in 24 hours or less.
- **Ice Storms.** An ice storm occurs when substantial accumulations of ice, generally ¼ inch or more, build up on the ground, trees and utility lines as a result of freezing rain.

What is snow?

Snow is precipitation in the form of ice crystals. These ice crystals are formed directly from the freezing of water vapor in wintertime clouds. As the ice crystals fall toward the ground, they cling to each other creating snowflakes. Snow will only fall if the temperature remains at or below 32°F from the cloud base to the ground.

What is sleet?

Sleet is precipitation in the form of ice pellets. These ice pellets are composed of frozen or partially frozen rain drops or refrozen partially melted snowflakes. Sleet typically forms in winter storms when snowflakes partially melt while falling through a thin layer of warm air. The partially melted snowflakes then refreeze and form ice pellets as they fall through the colder air mass closer to the ground. Sleet usually bounces after hitting the ground or other hard surfaces and does not stick to objects.

What is freezing rain?

Freezing rain is precipitation that falls in the form of a liquid (i.e., rain drops), but freezes into a glaze of ice upon contact with the ground or other hard surfaces. This occurs when snowflakes descend into a warmer layer of air and melt completely. When the rain drops that result from this melting fall through another thin layer of freezing air just above the surface they become "supercooled", but they do not have time to refreeze before reaching the ground. However, because the raindrops are "supercooled", they instantly refreeze upon contact with anything that is at or below 32°F (i.e., the ground, trees, utility lines, etc.).

Are alerts issued for severe winter storms?

Yes. The NWS Weather Forecast Office in St. Louis, Missouri is responsible for issuing winter storm watches and warnings for Macoupin County depending on the weather conditions. The following provides a brief description of each type of alert.

- **Winter Storm Watch.** A winter storm watch is issued when the risk of hazardous winter weather has increased significantly and there is a strong possibility that conditions will reach warning criteria for the area within the next 12 to 48 hours.
- **Advisories.** Winter advisories are issued for lesser winter weather events that while presenting an inconvenience, do not pose an immediate threat of injury, death or significant property damage. The following advisories will be issued when an event is occurring, is imminent or has a high probability of occurring.
  - **Winter Weather Advisory.** Depending on the time of occurrence and the temperature, a winter weather advisory is issued for:
    - snowfall of 1 to 5 inches;
    - sleet accumulations of less than ½ inch; or
    - a combination of winter precipitation, including freezing rain, which will produce hazardous conditions.
- **Warnings.** Winter weather warnings are issued for events that can be life threatening. The following warnings will be issued when an event is occurring, is imminent, or has a high probability of occurring.
  - **Blizzard Warning.** A blizzard warning is issued when sustained winds or frequent gusts greater than or equal to 35 mph are accompanied by falling and/or blowing snow that frequently reduces visibility to less than ¼ mile for three hours or more.
  - **Ice Storm Warning.** An ice storm warning is issued when freezing rain is expected to produce ice accumulations of ¼ inch or more.
  - **Winter Storm Warning.** A winter storm warning is issued when:
    - 5 inches or more of snow is expected;
    - ½ inch or more of sleet accumulations are expected; or
    - a combination of winter precipitation will produce life threatening conditions.

HAZARD PROFILE

The following identifies past occurrences of severe winter storms; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-f).

When have severe winter storms occurred previously? What is the extent of these previous severe winter storms?

Table 7, located in **Appendix J**, summarizes the previous occurrences as well as the extent or magnitude of severe winter storms (snow & ice) recorded in Macoupin County.

Severe Winter Storm Fast Facts – Occurrences

Number of Severe Winter Storm Events Reported (1950 – 2023): ***138***

Maximum 24-Hour Snow Accumulation: ***14.0 inches (November 5 & 6, 1951)***

Most Likely Month for Severe Winter Storms to Occur: ***January***

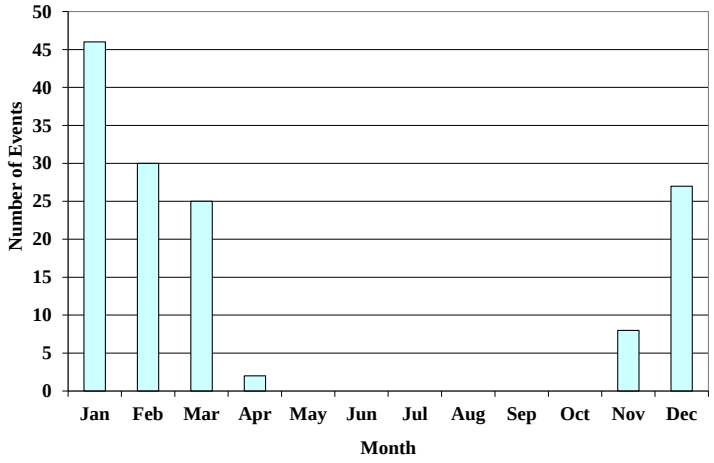
Number of Federal Emergency & Major Disaster Declarations Related to Severe Winter Storms: ***1 (2006)***

Number of State Disaster Proclamations Related to Severe Winter Storms: ***4 (2011, 2014, 2021, 2022)***

NOAA's Storm Events Database, Midwestern Regional Climate Center's cli-MATE database, and NWS's COOP data records were used to document 138 reported occurrences of severe winter storms (snow, ice and/or a combination of both) in Macoupin County between 1950 and 2023. Of the 138 recorded occurrences there were 100 heavy snowstorms or blizzards; 29 combination events (freezing rain, sleet, ice and/or snow); and nine ice or sleet storms. Included in the 138 severe winter storms was one event that contributed to a major federal disaster declaration in Macoupin County. Four of the 138 events contributed to four separate state disaster proclamations in Macoupin County.

Figure SWS-1 charts the reported occurrences of severe winter storms by month. Of the 138 events, 103 (75%) took place in December, January, and February making this the peak period for severe winter storms. Of these 103 events, 46 (45%) occurred during January, making this the peak month for severe winter storms. There were five events that spanned two months; however, for illustration purposes only the month when the event started is graphed. Of the winter storm events with recorded times, 56% began during the a.m. hours.

Figure SWS-1
Severe Winter Storms by Month
1950 – 2023



According to the NWS's COOP data records, the maximum 24-hour snow accumulation in Macoupin County is 14.0 inches, which occurred on November 5 and 6, 1951 at the Medora COOP Observation Station.

What locations are affected by severe winter storms?
Severe winter storms affect the entire County. All communities in Macoupin County have been affected by severe winter storms. Severe winter storms generally extend across the entire County and affect multiple locations.

What is the probability of future severe winter storms occurring based on historical data?
Macoupin County has had 138 verified occurrences of severe winter storms between 1950 and 2023. With 138 occurrences over the past 74 years, Macoupin County should expect at least one severe winter storm in any given year. There were 40 years over the past 74 years where two or more severe winter storms occurred. This indicates the probability that two or more severe winter storms may occur during any given year within the County is 54%.

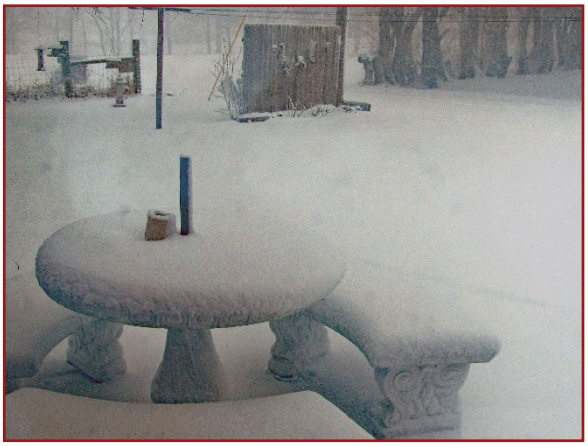
HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions; specifies the unique and varied risk differences across the planning area and between participating jurisdictions; identifies the impacts on public health and property (if known); and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from severe winter storms (Local Mitigation Planning Policy Guide Element B1-f, B2-a, and B2-b).

Are the participating jurisdictions vulnerable to severe winter storms?
Yes. All of Macoupin County, including the participating jurisdictions, is vulnerable to the dangers presented by severe winter storms. Severe winter storms are among the more frequently occurring natural hazards in Illinois. Since 2014, Macoupin County has experienced 11 severe winter storms.

Severe winter storms have immobilized portions of the County, blocking roads; downing power lines, trees, and branches; causing power outages and property damage; and contributing to vehicle accidents. In addition, the County, township, and municipalities must budget for snow removal and de-icing of roads and bridges as well as for roadway repairs.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by IEMA-OHS classifies Macoupin County's hazard rating for winter storms as "high" and ice storms as "low". IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.



Approximately 8 inches of snow fell in Girard as a result of the March 24, 2013 heavy snow event.

Photo provided by James Pitchford, former Macoupin County EMA Coordinator

For winter weather and ice storm, FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively Moderate". For winter weather, one of the 13 census tracts have a rating of

"Relatively High", and the reminding 12 census tracts are rated "Relatively Moderate". For ice storm, nine census tracts are rated "Relatively High" and the remaining four census tracts are rated "Relatively Moderate". **Figure R-4** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of severe winter storms?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, all of the jurisdictions considered specific assets within their jurisdiction vulnerable to severe winter storms. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to extreme cold.

What impacts resulted from the recorded severe winter storms?

Data obtained from NOAA's Storm Events Database, Committee member records, and FEMA Public Assistance figures indicates that between 1950 and 2023, two of the 138 severe winter storms caused $1,530,938 in property damages. Damage information was either unavailable or none was recorded for any of the remaining 136 reported occurrences. No injuries or fatalities were reported as a result of any of the recorded events.

Severe Winter Storms & Extreme Cold Events
Fast Facts – Impacts/Risk

Severe Winter Storm (Snow & Ice) Impacts:

- Total Property Damage (2 events): ***$1,530,938***
- Injuries: ***n/a***
- Fatalities: ***n/a***

Severe Winter Storm Risk/Vulnerability:

- Public Health & Safety: ***Low to Medium***
- Buildings/Infrastructure/Critical Facilities: ***Medium***

In comparison, the State of Illinois has averaged $102 million annually in winter storm losses according to the Illinois State Water Survey's Climate Atlas of Illinois, ranking winter storms second only to flooding in terms of economic loss in the State. While behind floods in terms of the amount of property damage caused, severe winter storms have a greater ability to immobilize larger areas, with rural areas being particularly vulnerable.

What other impacts can result from severe winter storms?

In Macoupin County, vehicle accidents are the largest risk to health and safety from severe winter storms. Hazardous driving conditions (i.e., reduced visibility, icy road conditions, strong winds, etc.) contribute to the increase in accidents that result in injuries and fatalities. A majority of all severe winter storm injuries result from vehicle accidents.

Traffic accident data assembled by the Illinois Department of Transportation from 2018 through 2022 indicates that treacherous road conditions caused by snow/slush and ice were present for 4.5% to 8.4% of all crashes recorded annually in the County. **Figure SWS-2** provides a breakdown by year of the number of crashes and corresponding injuries and fatalities that occurred when treacherous road conditions caused by snow and ice were present.

Figure SWS-2 Severe Winter Weather Crash Data for Macoupin County				
Year	**Total # of Crashes**	**Presence of Treacherous Road Conditions caused by Snow/slush and Ice**		
		# of Crashes	**# of Injuries**	**# of Fatalities**
2018	724	38	9	1
2019	742	62	15	0
2020	680	47	5	0
2021	712	32	5	0
2022	762	58	10	0
Total:	**3,620**	**237**	**44**	**1**

Source: Illinois Department of Transportation.

Persons who are outdoors during and immediately following severe winter storms can experience other health and safety problems. Frostbite to hands, feet, ears and nose and hypothermia are common injuries. Treacherous walking conditions also lead to falls which can result in serious injuries, including fractures and broken bones, especially in the elderly. Overexertion from shoveling driveways and walks can lead to life-threatening conditions such as heart attacks in middle-aged and older adults who are susceptible.

What is the level of risk/vulnerability to public health and safety from severe winter storms?

While severe winter storms occur regularly in Macoupin County, the number of injuries and fatalities is relatively low. Taking into consideration the potential for hazardous driving conditions, snow-removal related injuries, and power outages that could leave individuals vulnerable to hypothermia, the risk to public health and safety of the *general population* from severe winter storms safety is seen as ***low*** to ***medium***.

The level of risk or vulnerability posed by severe winter storms to the public health and safety of *sensitive populations* is considered to be ***medium***. Sensitive populations such as older adults (those 75 years of age and older) are more susceptible to slips and falls caused by treacherous walking conditions and therefore their risk is elevated. **Figure SWS-3** identifies the percent of sensitive populations by participating municipality, township, and the County based on the U.S. Census Bureau's 2020 decennial census data.

Are existing buildings, infrastructure, and critical facilities vulnerable to severe winter storms?

Yes. All existing buildings, infrastructure, and critical facilities located in Macoupin County and the participating jurisdictions are vulnerable to damage from severe winter storms.

Structural damage to buildings caused by severe winter storms (snow and ice) is very rare but can occur particularly to flat rooftops. Information gathered from Macoupin County residents indicates that snow and ice accumulations on communication and power lines as well as key roads presents the greatest vulnerability to infrastructure and critical facilities within the County. Snow and ice accumulations on lines often lead to disruptions in communications and create power outages. Depending on the damage, it can take anywhere from several hours to several days to restore service.

Figure SWS-3
Sensitive Populations by Participating Jurisdictions

Participating Jurisdiction	% of Population 75 year of age & Older
Benld[3,11]	8.5%
Brighton[5,7]	9.2%
Bunker Hill[1]	7.9%
Carlinville[2,12]	9.8%
Eagarville[6,11]	5.3%
Gillespie[3,11,12]	8.1%
Girard[4,8,12]	9.3%
Mount Clare[3,11]	22.2%
Nilwood[4]	8.5%
Royal Lakes[1,5,13]	11.4%
Staunton[6,13]	9.7%
Virden[4]	9.6%
Brighton Township[6,7]	8.7%
Unincorp. Macoupin County	8.9%
Macoupin County	19.2%
State of Illinois	6.7%

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7
[4]North Mac CUSD #34 [5]Southwestern CUSD #9 [6]Staunton CUSD #6
[7]Brighton Betsey Ann FPD [8]Girard FD [9]Medora Community FPD
[10]Mt. Olive Volunteer FD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton

Source: U.S. Census Bureau.

Tony O'Neal, Ameren Illinois Senior Emergency Response Specialist – Illinois Crisis Management, served as a technical partner to the Planning Committee and was able to provide information on the impacts and damages sustained by Ameren as the result of severe winter storms from 2006 through 2023. This information, while regional in nature, helps quantify the damages sustained by critical infrastructure in Macoupin County and is summarized in **SWS-4**.

Figure SWS-4
Ameren Illinois – Regional Power Outages Experienced in Macoupin County as a Result of Severe Winter Storm Events: 2006 – 2023

Event Date	Event Type	Customers without Power	Maximum Duration of Outage (days)	Wires Downed	Poles Replaced	Tree Orders*	Responding Personnel
11/30/2006	Winter Storm	370,322	10	6,290	1,880	---	3,190
12/9/2007	Ice Storm	16,500	4	195	92	148	425
12/18/2008	Ice Storm	45,000	5	600	369	315	1,056
1/31/2011	Winter Storm	14,000	3	1,494	104	718	1,144
1/1/2021	Winter Storm	5,987	3	---	---	---	---

* Tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed.

In addition to affecting communication and power lines, snow and ice accumulations on state and local roads hampers travel and can cause dangerous driving conditions. Blowing and drifting snow can lead to road closures and increases the risk of automobile accidents. Even small accumulations of ice can be extremely dangerous to motorists since bridges and overpasses freeze before other surfaces.

When transportation is disrupted, schools close, emergency, and medical services are delayed, some businesses close and government services can be affected. When a severe winter storm hits there is also an increase in cost to the County, township, and municipalities for snow removal and de-icing. Road resurfacing and pothole repairs are additional costs incurred each year as a result of severe winter storms.

Based on the frequency with which severe winter storms have occurred in Macoupin County; the damages described; the amount of property damage previously reported; and the potential for disruptions to power distribution and communication; the risk or vulnerability to buildings, infrastructure and critical facilities from severe winter storms is ***medium***.

Are future buildings, infrastructure, and critical facilities vulnerable to severe winter storms?

Yes. Neither the County nor any of the municipalities, with the exception of Gillespie, have building codes in place that will likely help lessen the vulnerability of new buildings and critical facilities to damage from severe winter storms. In addition, infrastructure such as new communication and power lines will continue to be vulnerable to severe winter storms, especially to ice accumulations, as long as they are located above ground. Rural areas of the County have experienced extended periods without power due to severe winter storms. Steps to bury all new lines would eliminate the vulnerability, but this action would be cost prohibitive in most areas. In terms of new roads and bridges, there is very little that can be done to reduce or eliminate their vulnerability to severe winter storms.

What are the potential dollar losses to vulnerable structures from severe winter storms?

Unlike other natural hazards, such as tornadoes, there are no standard loss estimation models or methodologies for severe winter storms. Since only two of the 138 recorded events listed property damage numbers for severe winter storms, it is difficult to accurately estimate future potential dollar losses. However, according to the Macoupin County Clerk the total equalized assessed values of all residential, commercial, and industrial buildings in the planning area is $851,011,847. Since all of the structures in the planning area are vulnerable to damage, this total represents the countywide property exposure to severe winter storms.

3.5 EXTREME COLD

HAZARD IDENTIFICATION

What is the definition of extreme cold?

Extreme cold is generally characterized by temperatures well below what is considered normal for an area during the winter months and is often accompanied or is left in the wake of a severe winter storm. Extreme cold criteria vary from region to region. As a result, reliable fixed absolute criteria are not generally specified (i.e., a winter day with a maximum temperature of 0°F).

Whenever the temperature drops below normal and the wind speeds increase, heat can leave the body more rapidly. This can lead to dangerous situations for susceptible individuals, such as those without shelter or who are stranded, or those who live in a home that is poorly insulated or without heat.

Extreme cold is a leading cause of weather-related fatalities in Illinois. According to a 2020 study published by the University of Illinois Chicago, 1,935 individuals died from cold-related illnesses between 2011 and 2018. This is 94% of all temperature-related fatalities recorded in the State during that time period.

Extreme cold can also cause infrastructure damage, especially to residential water pipes and water distribution lines and mains. According to State Farm, in 2020 Illinois was once again the national leader in losses related to frozen pipes.

What is wind chill?

Wind chill, or wind chill factor, is a measure of the rate of heat loss from exposed skin resulting from the combined effects of wind and temperature. As the wind increases, heat is carried away from the body at a faster rate, driving down both the skin temperature and eventually the internal body temperature.

The unit of measurement used to describe the wind chill factor is known as the wind chill temperature. The wind chill temperature is calculated using a formula. **Figure EC-1** identifies the formula and calculates the wind chill temperatures for certain air temperatures and wind speeds.

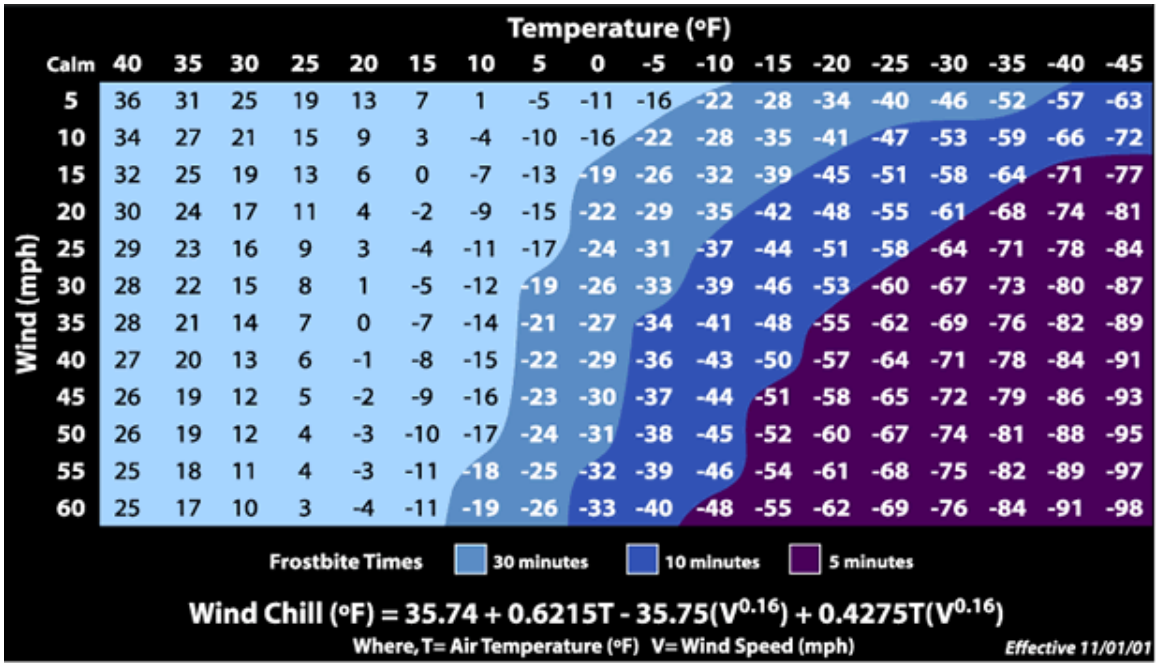
As an example, if the air temperature is 5°F and the wind speed is 20 miles per hour, then the wind chill temperature would be -15°F. The wind chill temperature is only defined for air temperatures at or below 50°F and wind speeds above three miles per hour. In addition, the wind chill temperature does not take into consideration the effects of bright sunlight which may increase the wind chill temperature by 10°F to 18°F.

Use of the current Wind Chill Temperature (WCT) index was implemented by the NWS on November 1, 2001. The new WCT index was designed to more accurately calculate how cold air feels on human skin. The new index uses advances in science, technology and computer modeling to provide an accurate, understandable and useful formula for calculating the dangers from winter

winds and freezing temperatures. The former index was based on research done in 1945 by Antarctic researchers Siple and Passel.

Exposure to extreme wind chills can be life threatening. As wind chills edge toward -19°F and below, there is an increased likelihood that exposure will lead to individuals developing cold-related illnesses.

Figure EC-1
Wind Chill Chart



Source: NOAA, National Weather Service.

What cold-related illnesses are associated with extreme cold?

Frostbite and hypothermia are both cold-related illnesses that can result when individuals are exposed to dangerously low temperatures and wind chills. The following provides a brief description of the symptoms associated with each.

- **Frostbite.** During exposure to extremely cold weather the body reduces circulation to the extremities (i.e., feet, hands, nose, cheeks, ears, etc.) in order to maintain its core temperature. If the extremities are exposed, then this reduction in circulation coupled with the cold temperatures can cause the tissue to freeze.

  Frostbite is characterized by a loss of feeling and a Macoupin or pale appearance. At a wind chill of -19°F, exposed skin can freeze in as little as 30 minutes. Seek medical attention immediately if frostbite is suspected. It can permanently damage tissue and in severe cases can lead to amputation.

- **Hypothermia.** Hypothermia occurs when the body's temperature begins to fall because it is losing heat faster than it can produce it. If an individual's body temperature falls below 95°F, then hypothermia has set in, and immediate medical attention should be sought.

  Hypothermia is characterized by uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and exhaustion. Left untreated, hypothermia will lead to death. Hypothermia occurs most commonly at very cold temperatures but can occur at cool temperatures (above 40°F) if an individual isn't properly clothed or becomes chilled.

Are alerts issued for extreme cold events?

Yes. A cold weather or extreme cold alert is an advisory or warning issued by the NWS when the ambient or wind chill temperature is expected to have a significant impact on public safety. The expected severity of cold temperatures and wind speed determines the type of alert issued. The NWS Weather Forecast Office in St. Louis, Missouri is responsible for issuing cold weather or extreme cold alerts for Macoupin County depending on the weather conditions. The following provides a brief description of each type of alert.

- **Extreme Cold Watch.** An extreme cold watch is issued when widespread ambient or wind chill temperatures of -20°F or colder are possible.
- **Cold Weather Advisory.** A cold weather advisory is issued when ambient or wind chill temperatures of -10°F and -20°F are expected.
- **Extreme Cold Warning.** An extreme cold warning is issued when ambient or wind chill temperatures are expected to be -20°F or below.

HAZARD PROFILE

The following identifies past occurrences of extreme cold events; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-f).

When have extreme cold events occurred previously? What is the extent of these events?

Table 8, located in **Appendix J**, summarizes the previous occurrences as well as the extent or magnitude of regional extreme cold events in Macoupin County. NOAA's Storm Events Database, Iowa State University's National Weather Service Watch, Warning, and Advisories database, Midwestern Regional Climate Center's cli-MATE database, and NWS's COOP Data records were used to document 50 occurrences of extreme cold in Macoupin County between 1995 and 2023. Two events contributed to two state disaster proclamations in Macoupin County.

Extreme Cold Fast Facts – Occurrences

Number of Extreme Cold Events Reported (1995 – 2023): ***50***

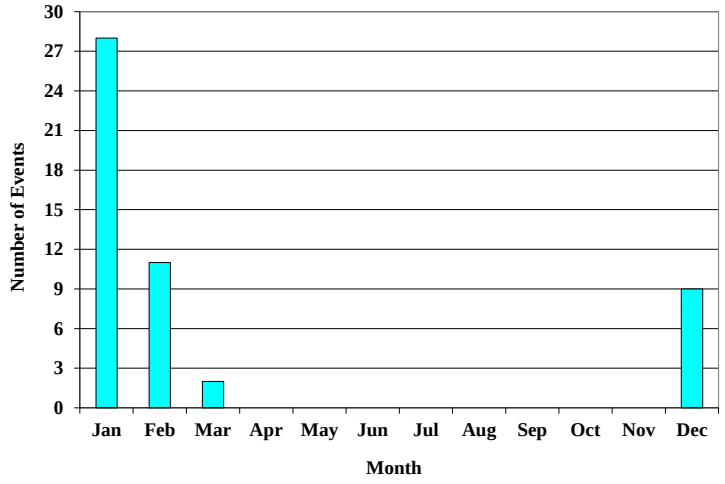
Coldest Temperature Recorded in the County: ***-23°F (February 13, 1905)***

Most Likely Months for Extreme Cold Events to Occur: ***January***

Number of State Disaster Proclamations Related to Extreme Cold: ***2 (2014, 2019)***

Figure EC-2 charts the reported occurrences of extreme cold by month. Of the 50 events, 27 (56%) took place in January, making this the peak month for extreme cold events. There was one event that spanned two months; however, for illustration purposes only the month the event started in is graphed.

Figure EC-2
Extreme Cold by Month
1995 - 2023



According to the Midwestern Regional Climate Center, continuous temperature records for Macoupin County were kept from 1893 to 2014 by the Carlinville COOP Observation Station and from 1948 to 2011 by the Virden COOP Observation Station. Due to the lack of temperature observation data in the County, temperature records from the Hillsboro COOP Observation Station in Montgomery County were used to extrapolate recent extreme cold events in the County. **Figures EC-3** and **EC-4** list the coldest days recorded at the Carlinville and Virden COOP Observation Stations. Based on these records, the coldest temperature recorded in Macoupin County was -23°F at the Carlinville Observation Station on February 13, 1905.

Figure EC-3
Coldest Days Recorded at the Carlinville
NWS COOP Observation Station

	Date	Temperature		Date	Temperature
1	02/13/1905	-23°F	7	01/18/1930	-20°F
2	01/07/1912	-22°F	8	12/22/1989	-20°F
3	01/25/1894	-21°F	9	01/24/1915	-19°F
4	02/12/1899	-21°F	10	01/10/1982	-19°F
5	01/12/1918	-21°F	11	01/20/1985	-19°F
6	02/09/1899	-20°F			

Source: Midwest Regional Climate Center cli-MATE

Figure EC-4
Coldest Days Recorded at the Virden
NWS COOP Observation Station

	Date	Temperature			Date	Temperature
1	01/17/1977	-22°F		6	02/03/1996	-19°F
2	12/21/1989	-20°F		7	02/09/1979	-18°F
3	12/23/1989	-20°F		8	01/10/1982	-18°F
4	01/12/1974	-19°F		9	01/17/1982	-18°F
5	01/20/1985	-19°F		10	02/10/1982	-18°F

Source: Midwest Regional Climate Center cli-MATE

What locations are affected by extreme cold?
Extreme cold affects the entire County. Extreme cold, like excessive heat and severe winter storms, generally extends across the entire County and affects multiple locations.

Do any of the participating jurisdictions have designated warming centers?
Yes, nine of the 26 participating municipalities, townships, school districts, fire protection districts, and healthcare facilities have designated warming centers based on the responses received from participants to the "Identification of Severe Weather Shelters" survey. A "designated" warming center is identified as any facility that has been *formally* identified by the jurisdiction (through emergency planning, resolution, Memorandum of Agreement, etc.) as a location available for use by residents during severe winter storms and extreme cold events.

Figure EC-5 identifies the location of each warming center by jurisdiction. In addition to those designated warming centers identified by the participants, the State of Illinois, Department of Human Services Center and Department of Human Services Macoupin County Family Community Resource Center, the Macoupin County Health Department, Carlinville Senior Citizens Center, Oakland Avenue Clinic, and the Macoupin County Morgan Street Clinc also serves as a warming enter. At this time Benld, Brighton Township, Bunker Hill, Bunker Hill CUSD #8, Carlinville, Carlinville CUSD #1, Community Hospital of Staunton, Eagarville, Gillespie CUSD #7, Girard FPD, Mount Clare, North Mac CUSD #34, Royal Lakes, Southwestern CUSD #9, Staunton CUSD #6, Unit 7 FPD, and Virden do not have any warming centers designated.

Figure EC-5
Designated Warming Centers by Participating Jurisdiction

Name/Address	Name/Address
Brighton / Brighton Betsey Ann Fire Protection District	*Medora Community Fire Protection District*
Village Hall, 206 S. Main St.	Medora Fire Station, 221 E. Washington St.
St. Paul UMC Cartwright Building, 101 Green St.	Mt. Pleasant Baptist Church, 107 N. Jefferson St.
Carlinville Area Hospital	*Mount Olive Volunteer Fire Protection District*
Cross Church, 1030 W. Main St.	City Hall, 215 East Main
Gillespie	*Nilwood*
Civic Center, 115 N. Macoupin St.	Village Hall, 27 Morean St.
Girard	*Staunton*
City Hall, 1st St. & Madison St.	Concordia Hall, 709 S. Union St.
	VFW, 120 E. Henry St.

What is the probability of future extreme cold events occurring based on historical data?

Macoupin County has experienced 50 verified occurrences of extreme cold between 1995 and 2023. With 50 occurrences over the past 29 years, Macoupin County should expect to experience at least one extreme cold event in any given year. There were 15 years over the last 29 years where multiple (two or more) extreme cold events occurred. This indicates that the probability that multiple extreme cold events may occur during any given year within the County is 52%.

It is important to keep in mind that there are gaps in the extreme cold data. More events have almost certainly occurred than are documented in this section, which means that the probability is almost certainly higher than reported.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions; specifies the unique and varied risk differences across the planning area and between participating jurisdictions; identifies the impacts on public health and property (if known); and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from extreme cold (Local Mitigation Planning Policy Guide Element B1-f, B2-a, and B2-b).

Are the participating jurisdictions vulnerable to extreme cold?

Yes. All of Macoupin County, including the participating jurisdictions, is vulnerable to the dangers presented by extreme cold. Since 2014, Macoupin County has experienced 21 extreme cold events.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by IEMA-OHS classifies Macoupin County's hazard rating for cold wave as "medium". IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.

For extreme cold, FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively High". Seven of the 13 census tracts are rated "Relatively High" and the remaining six census tracts are rated "Relatively Moderate" for extreme cold. **Figure R-4** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of extreme cold?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, all of the participants, with the exception of the Brighton Betsey Ann FPD, considered specific assets within their jurisdiction vulnerable to extreme cold. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to extreme cold.

What impacts resulted from the recorded extreme cold events?

Damage information was either unavailable or none was recorded as a result of any of the extreme cold events. NOAA's Storm Events Database documented one fatality as a result of the December 16, 2000 extreme cold event. A 79-year old man from Springfield, suffering from early stages of

dementia, left his home on January 16 and apparently became disoriented. He headed south into Macoupin County where he died from hypothermia and was found in an open field on January 20.

In comparison, the State of Illinois averages 18 cold-related fatalities annually according to the Illinois State Water Survey's Climate Atlas of Illinois.

Extreme Cold Fast Facts – Impacts/Risk

Extreme Cold Impacts:
- Total Property Damage: ***n/a***
- Injuries: ***n/a***
- Fatalities (1 event): ***1***

Extreme Cold Risk/Vulnerability:
- Public Health & Safety – General Population: ***Low to Medium***
- Public Health & Safety – Sensitive Populations: ***Medium***
- Buildings/Infrastructure/Critical Facilities: ***Low***

What other impacts can result from extreme cold events?

Other impacts of extreme cold include early school dismissals and school closing, power outages and frozen and ruptured water pipes and water mains. Individuals who are outdoors during and immediately following extreme cold events can experience health and safety problems. Frostbite to hands, feet, ears and nose and hypothermia are common injuries.

What is the level of risk/vulnerability to public health and safety from severe winter storms and extreme cold?

For Macoupin County the level of risk or vulnerability posed by extreme cold to public health and safety of the *general population* is considered to be ***low to medium.*** This assessment is based on the fact that while extreme cold events occur regularly, the number of injuries and fatalities reported is low and select participants have designated warming centers.

The level of risk or vulnerability posed by extreme cold to the public health and safety of *sensitive populations* is considered to be ***medium***. Sensitive populations such as individuals with dementia and access and functional needs populations may be more susceptible to cold-related exposures if they become disoriented outdoors during an event and therefore their risk is elevated. However, demographic information is not available for these segments of the population.

Are existing buildings, infrastructure, and critical facilities vulnerable to extreme cold?

Yes. All existing buildings, infrastructure and critical facilities located in Macoupin County and the participating jurisdictions are vulnerable to damage from extreme cold. Individual water pipes and distribution lines and mains are especially susceptible to freezing during extreme cold events. This freezing can lead to cracks or ruptures in the pipes in buildings as well as in buried service lines and mains. As a result, flooding can occur as well as disruptions in service. Since most buried service lines and water mains are located under local streets and roads, fixing a break requires portions of the street or road to be blocked off, excavated, and eventually repaired. These activities can be costly and must be carried out under less than ideal working conditions.

Tony O'Neal, Ameren Illinois Senior Emergency Response Specialist – Illinois Crisis Management, served as a technical partner on the Planning Committee and was able to provide information on the impacts and damages sustained by Ameren as the result of extreme cold from 2006 through 2023. During the January 6, 2014 extreme cold event, 52,337 customers were without power for up to 2.5 days with 145 Ameren personnel responding to the event. A total of

140 wires were downed, 30 poles were replaced, and 46 tree orders were received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed. This information, while regional in nature, helps quantify the damages sustained by critical infrastructure in Macoupin County.

Based on the frequency with which extreme cold events have occurred in Macoupin County; the damages described; the amount of property damage previously reported; and the potential for disruptions to power distribution and communication; the risk or vulnerability to buildings, infrastructure and critical facilities from extreme cold events is ***low***.

Are future buildings, infrastructure, and critical facilities vulnerable to extreme cold?

Yes and No. The County and all of the participating municipalities have building codes in place that will likely help lessen the vulnerability of new buildings and critical facilities to damage from extreme cold. However, infrastructure such as residential water pipes will continue to be vulnerable as long as they are located in areas such as outside walls, attics and crawl spaces that do not contain proper insulation.

What are the potential dollar losses to vulnerable structures from extreme cold?

Unlike other natural hazards, such as tornadoes, there are no standard loss estimation models or methodologies for extreme cold events. With none of the recorded events listing property damage figures, there is no way to accurately estimate future potential dollar losses from extreme cold. However, according to the Macoupin County Clerk the total equalized assessed values of all residential, commercial, and industrial buildings in the planning area is $851,011,847. Since all of the structures in the planning area are vulnerable to damage, this total represents the countywide property exposure to extreme cold.

3.6 TORNADOES

HAZARD IDENTIFICATION

What is the definition of a tornado?

A tornado is a narrow violently rotating column of air, often visible as a funnel-shaped cloud that extends from the base of a thunderstorm cloud formation to the ground. The most violent tornadoes can have wind speeds of more than 300 miles per hour and can create damage paths in excess of one mile wide and 50 miles long.

Not all tornadoes have a visible funnel cloud. Some may appear nearly transparent until dust and debris are picked up or a cloud forms within the funnel. Generally, tornadoes move from southwest to northeast, but they have been known to travel in any direction, even backtracking. A typical tornado travels at around 10 to 20 mile per hour, but this may vary from almost stationary to 60 miles per hour. Tornadoes can occur at any time of the year and happen at any time of the day or night, although most occur between 4 p.m. and 9 p.m.

About 1,200 tornadoes hit the U.S. yearly, with an average 52 tornadoes occurring annually in Illinois. The destruction caused by a tornado may range from light to catastrophic depending on the intensity, size and duration of the storm. Tornadoes cause crop and property damage, power outages, environmental degradation, injuries and fatalities. Tornadoes are known to blow roofs off buildings, flip vehicles and demolish homes. Typically, tornadoes cause the greatest damage to structures of light construction, such as residential homes. On average, tornadoes cause 60 to 65 facilities and 1,500 injuries in the U.S. annually.

How are tornadoes rated?

Originally tornadoes were rated using the Fujita Scale (F-Scale), which related the degree of damage caused by a tornado to the intensity of the tornado's wind speed. The Scale identified six categories of damage, F0 through F5. **Figure T-1** gives a brief description of each category.

Use of the original Fujita Scale was discontinued on February 1, 2007 in favor of the Enhanced Fujita Scale. The original scale had several flaws including basing a tornado's intensity and damages on wind speeds that were never scientifically tested and proven. It also did not take into consideration that a multitude of factors (i.e., structure construction, wind direction and duration, flying debris, etc.) affect the damage caused by a tornado. In addition, the process of rating the damage itself was based on the judgment of the damage assessor. In many cases, meteorologists and engineers, highly experienced in damage survey techniques, often came up with different F-scale ratings for the same damage.

The Enhanced Fujita Scale (EF-Scale) was created to remedy the flaws in the original scale. It continues to use the F0 through F5 categories, but it incorporates 28 different damage indicators (mainly various building types, towers/poles and trees) as calibrated by engineers and meteorologists. For each damage indicator there are eight degrees of damage ranging from barely visible damage to complete destruction of the damage indicator. The wind speeds assigned to each category are estimates, not measurements, based on the damage assessment. **Figure T-1** identifies the Enhanced Fujita Scale.

Figure T-1 Fujita & Enhanced Fujita Tornado Measurement Scales				
F-Scale		**EF-Scale**		**Description**
Category	**Wind Speed (mph)**	**Category**	**Wind Speed (mph)**	
F0	40 – 72	EF0	65 – 85	Light damage – some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; damage to sign boards
F1	73 – 112	EF1	86 – 110	Moderate damage – peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads
F2	113 – 157	EF2	111 – 135	Considerable damage – roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground
F3	158 – 207	EF3	136 – 165	Severe damage – roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown
F4	208 – 260	EF4	166 – 200	Devastating damage – well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown, and large missiles generated
F5	261 – 318	EF5	Over 200	Incredible damage – strong frame houses lifted off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 yards; trees debarked; incredible phenomena will occur

Source: NOAA, Storm Prediction Center.

The idea behind the EF-Scale is that a tornado scale needs to take into account the typical strengths and weaknesses of different types of construction, instead of applying a "one size fits all" approach. This is due to the fact that the same wind speed can cause different degrees of damage to different kinds of structures. In a real-life application, the degree of damage to each of the 28 indicators can be mapped together to create a comprehensive damage analysis. As with the original scale, the EF-Scale rates the tornado as a whole based on the most intense damage within the tornado's path.

While the EF-Scale is currently in use, **the historical data presented in this report is based on the original F-Scale**. None of the tornadoes rated before February 1, 2007 will be re-evaluated using the EF-Scale.

Are alerts issued for tornadoes?

Yes. The National Weather Service Weather Forecast Office in St. Louis, Missouri is responsible for issuing tornado watches and warnings for Macoupin County depending on the weather conditions. The following provides a brief description of each type of alert.

- **Tornado Watch.** A tornado watch is issued when tornadoes are possible in the area. Individuals need to be alert and prepared. Watches are typically large, covering numerous counties or even states.

- **Tornado Warning.** A tornado warning is issued when a tornado has been sighted or indicated by weather radar. Warnings indicate imminent danger to life and property for those who are in the path of the tornado. Individuals should see shelter immediately. Typically, warnings encompass a much smaller area, such as a city or small county.

HAZARD PROFILE

The following identifies past occurrences of tornadoes; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-f).

When have tornadoes occurred previously? What is the extent of these previous tornadoes?

Table 9, located in **Appendix J**, summarizes the previous occurrences as well as the extent or magnitude of tornado events recorded in Macoupin County. NOAA's Storm Events Database, Storm Data Publication, and Storm Prediction Center have documented 43 occurrences of tornadoes in Macoupin County between 1950 and 2023. Included in the 43 tornado events is one tornado that contributed to a major federal disaster declaration. There was also an additional tornado that contributed to a state disaster proclamation in Macoupin County. In comparison, there have been 2,904 tornadoes statewide between 1950 and 2023 according to NOAA's Storm Prediction Center. **Figure T-2** charts the reported occurrences of tornadoes by magnitude. Of the 43 reported occurrences there were: 7 – F2s, 8 – F1s, 13 – F0s, 1 – EF3, 2 – EF2s, 3 – EF1s, 7 – EF0s, and 2 – EFUs.

Tornado Fast Facts – Occurrences

Number of Tornadoes Reported (1950 – 2023): ***43***

Highest F-Scale Rating Recorded: ***EF3 (April 19, 2011)***

Most Likely Months for Tornadoes to Occur: ***May***

Average Length of a Tornado: ***3.52 miles***

Average Width of a Tornado: ***73 yards***

Average Damage Pathway of a Tornado: ***0.15 sq. mi.***

Longest Tornado Path in the County: ***27.9 miles (May 12, 1978)***

Widest Tornado Path in the County: ***700 yards (May 12, 1978)***

Number of Federal Emergency & Major Disaster Declarations Related to Tornadoes: ***1 (2002)***

Number of State Disaster Proclamations Related to Tornadoes: ***1 (2011)***

Figure T-3 charts the reported tornadoes by month. Of the 43 events, 27 (63%) took place in April, May, and June making this the peak period for tornadoes in Macoupin County. Of the 43 events, 13 (30%) occurred during May making this the peak month for tornadoes. In comparison, 1,773 of the 2,904 tornadoes (61%) recorded in Illinois from 1950 through 2023 took place in April, May, and June.

Approximately 84% of all tornadoes occurred during the p.m. hours, with 25 of the events (58%) taking place between 2 p.m. and 8 p.m. In comparison, more than half of all Illinois tornadoes occur between 2 p.m. and 8 p.m.

The tornadoes that have impacted Macoupin County have varied from 0.10 miles to 27.9 miles in length and from 10 yards to 700 yards in width. The average length of a tornado in Macoupin County is 3.52 miles and the average width is 73 yards.

Figure T-2
Tornadoes by Magnitude
1950 – 2023

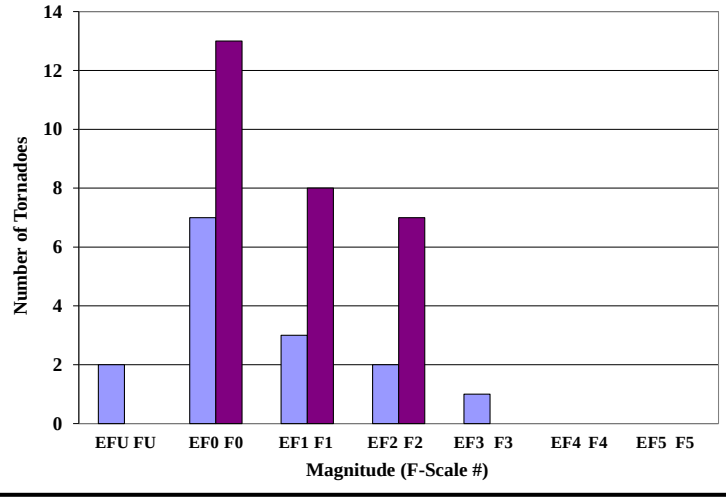
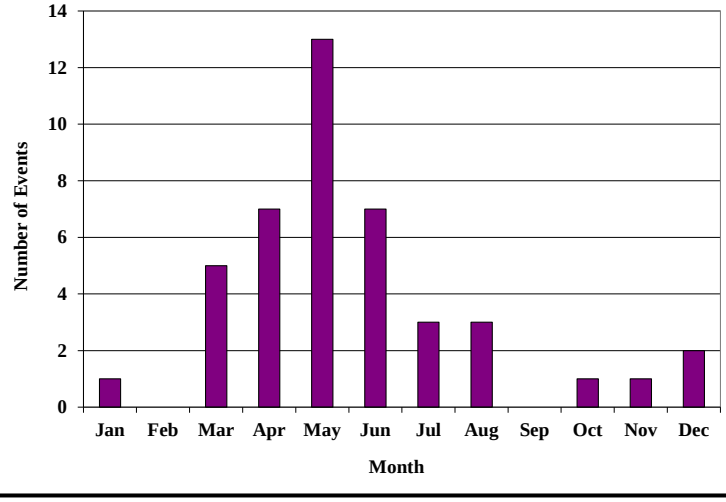


Figure T-3
Tornadoes by Month
1950 – 2023



Figures T-4 and **T-5** show the pathway of each reported tornado. The numbers next to each tornado correspond with the tornado description in **Table 9** located in **Appendix J.** Unlike other natural hazards (i.e., severe winter storms, drought, and excessive heat), tornadoes impact a relatively small area. Typically, the area impacted by a tornado is less than four square miles. In Macoupin County, the average damage pathway or area impacted by a tornado is 0.15 square miles. The average area impacted by a tornado decreased by 0.03 square miles since the 2019 Plan was completed.

Figure T-4
F0, EF0, & EFU Tornado Pathways in Macoupin County

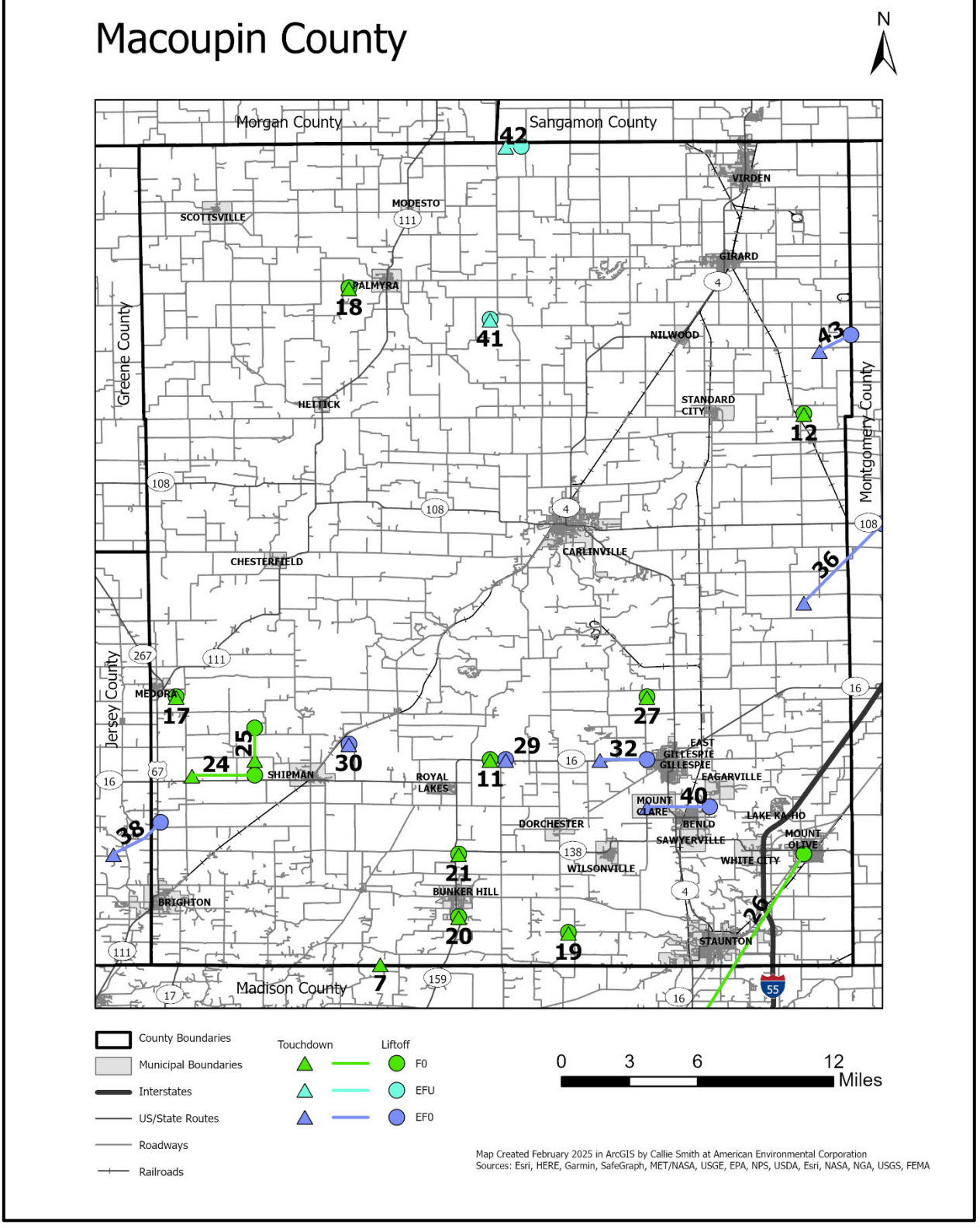
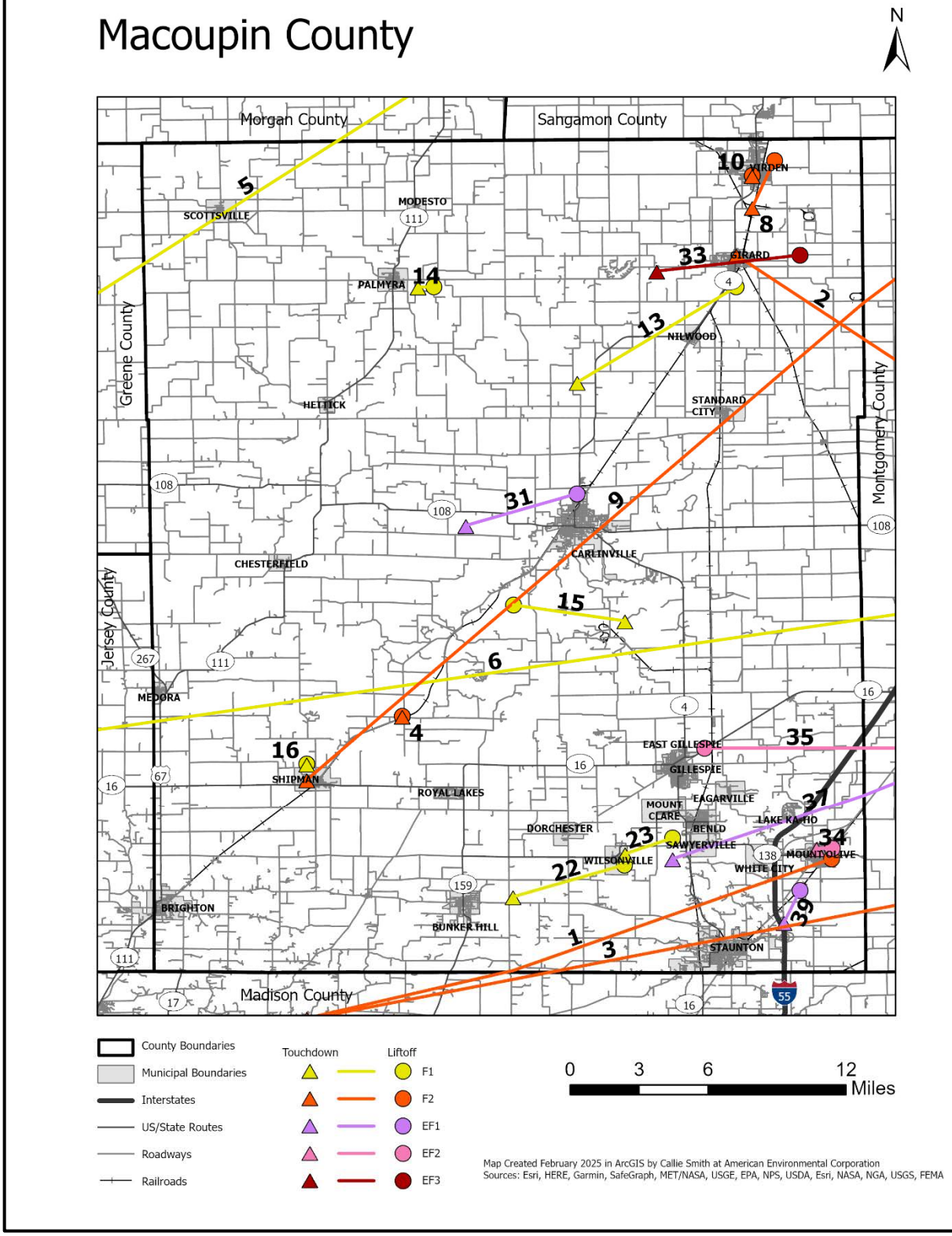


Figure T-5
F1 – F2 & EF1 – EF3 Tornado Pathways in Macoupin County



The longest and widest tornado recorded in Macoupin County occurred on May 12, 1978. This F2 tornado, measuring 34.1 miles in length and 700 yards in width, touched down in Shipman and traveled northeast passing just north of the center of Carlinville before lifting off northeast of Farmersville in Montgomery County. The tornado was on the ground in Macoupin County for approximately 27.9 miles. The damage pathway of this tornado covered 13.6 square miles, with approximately 11.1 square miles occurring in Macoupin County.

The second story of a brick building was blown off by an EF2 tornado that ripped through Mt. Olive on May 20, 2013.

Photo provided by James Pitchford, former Macoupin County EMA Coordinator

What locations are affected by tornadoes?

Tornadoes have the potential to affect the entire County. Eight of the 12 participating municipalities , including Benld, Bunker Hill, Carlinville, Gillespie, Girard, Mount Clare, Staunton, and Virden have had reported occurrences of tornadoes within their corporate limits.

What is the probability of future tornadoes occurring based on historical data?

Macoupin County has had 43 verified occurrences of tornadoes between 1950 and 2023. With 43 tornadoes over the past 74 years, the probability or likelihood that a tornado will touch down somewhere in the County in any given year is 58%. There were 10 years over the last 74 years where more than one tornado occurred. This indicates that the probability that more than one tornado may occur during any given year within the County is 13.5%.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions; specifies the unique and varied risk differences across the planning area and between participating jurisdictions; identifies the impacts on public health and property (if known); and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from tornadoes (Local Mitigation Planning Policy Guide Element B1-f, B2-a, and B2-b).

Are the participating jurisdictions vulnerable to tornadoes?

Yes. All of Macoupin County, including the participating jurisdictions, is vulnerable to the dangers presented by tornadoes. Since 2014, seven tornadoes have been recorded in Macoupin County.

Eight of the 12 participating municipalities have had a tornado touch down or pass through their municipal boundaries. **Figure T-6** lists the verified tornadoes that have touched down in or near or passed through each participating municipality and township. **Figure T-7** lists the verified tornadoes that have touched down in or passed through each of the non-municipal participating jurisdictions (i.e., townships, school districts, fire protection districts, etc.)

Figure T-6
Verified Tornadoes in or Near Participating Municipalities

Participating Municipality	Number of Verified Tornadoes	Year	
		Touched Down/Passed Through Municipality / Township	Touched Down/Passed Near Municipality
Benld	1	2019	---
Brighton	0	---	---
Bunker Hill	6	2005	1966, 2003, 2005, 2005, 2006
Carlinville[1]	3	1978	1999, 2009
Eagarville	0	---	---
Gillespie[1]	3	2009, 2013	1961
Girard[1]	3	1959	1996, 2011
Mount Clare	1	2019	---
Nilwood	2	---	1996, 2023
Royal Lakes	2	---	1990, 2007
Staunton[2]	2	1959	2006
Virden	2	1967	1990

[1]Carlinville Area Hospital [2]Communmity Hospital of Staunton

Figure T-7
Verified Tornadoes that have Touched Down/Passed Through Non-Municipal Participants

Non-Municipal Participant	Number of Verified Tornadoes	Year Tornado Touched Down/Passed Through Non-Municipal Participant's Jurisdiction
Brighton Township	1	2017
Bunker Hill CUSD #8	8	1950, 1959, 1966, 1990, 2003, 2005, 2005, 2005
Carlinville CUSD #1	7	1960, 1961, 1978, 1993, 1999, 2009, 2013
Gillespie CUSD #7	8	2005, 2005, 2006, 2007, 2009, 2013, 2017, 2019
North Mac CUSD #34	8	1959, 1967, 1978, 1990, 1996, 2011, 2021, 2023
Southwestern CUSD #9	9	1960, 1978, 1990, 2000, 2000, 2006, 2006, 2007, 2017
Staunton CUSD #6	4	1950, 1959, 2006, 2018
Brighton Betsey Ann FPD	1	2017
Girard FPD	5	1959, 1978, 1996, 2011, 2023
Medora Community FPD	4	1961, 2000, 2006, 2017
Mount Olive Volunteer FPD	6	1950, 2006, 2013, 2013, 2017, 2018
Unit 7 FPD	10	1961, 1999, 2005, 2005, 2006, 2007, 2009, 2013, 2017, 2019

In terms of unincorporated areas vulnerable to tornadoes, Plainview and Piasa each had three tornadoes touch down in or near their vicinity, while Atwater and Womac each had one. **Figure T-8** details the verified tornadoes that have touched down in or near unincorporated areas of Macoupin County.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by IEMA-OHS classifies Macoupin County's hazard rating for tornadoes as "medium." IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.

Figure T-8
Verified Tornadoes in or near Unincorporated Areas of Macoupin County

Unincorporated Area	Number of Verified Tornadoes	Year	
		Touched Down/Passed ***Through*** Unincorporated Area	Touched Down/Passed ***Near*** Unincorporated Area
Atwater[2]	1	---	1993
Piasa[5,9,13]	3	1960	1961, 1978
Plainview[2]	3	2006	2006, 2017
Womac[2]	1	---	2013

[12]Hernderson Water District [13]Jersey Rural Water District

FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively Moderate" for tornadoes. Eight of the 13 census tracts are rated "Relatively High" for tornadoes, while the remaining five census tracts are rated "Relatively Moderate". **Figure R-4** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of tornadoes?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, all of the participants considered specific assets within their jurisdiction vulnerable to tornadoes. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to tornadoes.

What impacts resulted from the recorded tornadoes?

Data obtained from NOAA's Storm Events Database, Storm Data Publications, and Committee member records indicates that between 1950 and 2023, 15 of the 43 tornadoes caused $4,832,750 in property damages. Property damage information was either unavailable or none was recorded for the remaining 28 reported occurrences. **Appendix M** contains select photographs provided by former Macoupin County EMA Coordinator James Pitchford that illustrate the extent of the property damage sustained during the EF3 tornado that passed near Girard on April 19, 2011.

Tornado Fast Facts – Impacts/Risk

Tornado Impacts:
- Total Property Damage (15 events): ***$4,832,750***
- Total Crop Damage: ***n/a***
- Injuries (5 events): ***9***
- Fatalities (1 event): ***3***

Tornado Risk/Vulnerability:
- Public Health & Safety – Rural Areas: ***Low to Medium***
- Public Health & Safety – Municipalities: ***High***
- Buildings/Infrastructure/Critical Facilities – Rural Areas: ***Low to Medium***
- Buildings/Infrastructure/Critical Facilities – Municipalities/Populated Unincorp. Areas: ***High***

NOAA's Storm Events Database documented three fatalities and nine injuries as a result of five tornado events. Detailed information on the injuries sustained was only available for two of the events. The following provides a brief description.

- A man sustained cuts on his hands when the windows of the vehicle he had taken shelter in were shattered during an F2 tornado on May 12, 1978.
- During the April 19, 2011 EF3 tornado, two individuals sustained minor cuts and bruises while trying to seek shelter in a basement.

In comparison, Illinois averages roughly four tornado fatalities annually; however, this number varies widely from year to year.

What impacts resulted from the historic tornadoes?

The most destructive tornado in terms of impacts ever recorded in Macoupin County occurred on March 19, 1948. This F4 tornado was 28 miles long and 400 yards wide. It developed near Alton in Madison County and moved northeast through Fosterburg before entering Macoupin County and decimating Bunker Hill and ravaging Gillespie.

Appendix K contains historic news articles and photograph detailing the extent of the damages experienced as a result of this tornado.

An F4 tornado destroyed approximately 80% of Bunker Hill on March 19, 1948.

Courtesy of James Pitchford, former Macoupin County EMA Coordinator

A total of 33 fatalities, 449 injuries and $3.6 million in property damages was recorded for this tornado. Based on the Bureau of Labor Statistics (BLS) Consumer Price Index (CPI) Inflation Calculator, the property damages sustained equal over $47.1 million in 2023. The following provides a breakdown of the damages by jurisdiction.

Bunker Hill

- 80% of the City was destroyed (2,000 buildings including 250 homes)
- 19 fatalities and approximately 165 injuries were recorded
- Property damages were estimated at $1.5 million (approximately $19.6 million in 2023 according to the BLS CPI Inflation Calculator)

Gillespie

- 150 homes were destroyed
- 5 fatalities were recorded

What other impacts can result from tornadoes?

In addition to causing damage to buildings and properties, tornadoes can damage infrastructure and critical facilities such as roads, bridges, railroad tracks, drinking water treatment facilities, water towers, communication towers, antennae, power substations, transformers, and poles. Depending on the damage done to the infrastructure and critical facilities, indirect impacts on individuals could range from inconvenient (i.e., adverse travel) to life-altering (i.e., loss of utilities for extended periods of time).

What is the level of risk/vulnerability to public health and safety from tornadoes?

For Macoupin County, the level of risk or vulnerability posed by tornadoes to public health and safety depends on not only frequency, but other factors as well including population distribution and density, the ratings and pathways of previously recorded tornadoes, the presence of high-risk living accommodations (such as high-rise buildings, mobile homes, etc.), and adequate access to health care for those injured following a tornado. All these must be examined when assessing vulnerability.

In terms of adequate access to health care, Carlinville Area Hospital and Community Hospital of Staunton are equipped to provide continuous care to persons injured by a tornado assuming that they are not directly impacted. In addition, there are hospitals in Carrollton (Greene County), Jerseyville (Jersey County), Litchfield and Hillsboro (Montgomery County) and Jacksonville (Morgan County) as well as regional centers in Springfield (Sangamon County) and the Metro East St. Louis area (Madison County) which are equipped to provide care and have sufficient capacity for the influx of additional patients from one or more counties.

A piece of metal was driven into a tree during the EF3 tornado that passed just north of Gillespie on April 19, 2011.

Photo provided by James Pitchford, former Macoupin County EMA Coordinator

Macoupin County (including townships & fire protection districts)

For Macoupin County the level of risk or vulnerability posed by tornadoes to public health and safety is considered to be ***low*** to ***medium***. This assessment is based on the fact that tornadoes do not occur frequently in the County and a large majority of the tornadoes that have impacted the County have touched down in rural areas away from concentrated populations. In addition, outside of the participating municipalities, the County is not densely populated and there is not a large number of high-risk living accommodations present.

Participating Municipalities (including school districts & healthcare facilities)

In general, if a tornado were to touch down or pass through any of the participating municipalities (which include participating school district facilities and healthcare facilities), the risk to the public health and safety would be considered ***high***. This is based on the fact that many of the participating jurisdictions have relatively dense and evenly distributed populations within their municipal boundaries. As a result, if a tornado were to touch down anywhere within the corporate limits of these municipalities it will have a greater likelihood of causing injuries or even fatalities.

Do any participating jurisdictions have community safe rooms?

No. Based on the responses received from participants to the "Identification of Severe Weather Shelters" survey, none of the participating jurisdictions have community safe rooms within their jurisdictions. As a result, if a tornado were to touch down or pass through any of the population centers in the County, then there would be a greater likelihood of injuries and fatalities due to the lack of structures specifically designed and constructed to provide life-safety protection. Each jurisdiction should consider whether the potential impacts to public health and safety from a tornado are considered great enough to warrant the consideration of community safe rooms as a mitigation action.

Are existing buildings, infrastructure, and critical facilities vulnerable to tornadoes?

Yes. All existing buildings, infrastructure, and critical facilities located within the County and participating municipalities are vulnerable to tornado damage. Buildings, infrastructure, and

critical facilities located in the path of a tornado usually suffer extensive damage, if not complete destruction.

While some buildings adjacent to a tornado's path may remain standing with little or no damage, all are vulnerable to damage from flying debris. It is common for flying debris to cause damage to roofs, siding, and windows. In addition, mobile homes, homes on crawlspaces, and buildings with large spans (i.e., schools, barns, airport hangers, factories, etc.) are more likely to suffer damage. Most workplaces and many residential units do not provide sufficient protection from tornadoes.

The damages sustained by infrastructure and critical facilities during a tornado are similar to those experienced during a severe storm. There is a high probability that power, communication, and transportation will be disrupted in and around the affected area.

Assessing the Vulnerability of Existing Residential Structures

One way to assess the vulnerability of existing residential structures is to estimate the number of housing units that may be potentially damaged if a tornado were to touch down or pass through any of the participating municipalities, townships, or the County. In order to accomplish this, a set of decisions/assumptions must be made regarding:

- the size (area impacted) of the tornado;
- the method used to estimate the area impacted by the tornado within each jurisdiction; and
- the method used to estimate the number of potentially-damaged housing units.

The following provides a brief discussion of each decision/assumption.

Assumption #1: Size of Tornado. To calculate the number of existing residential structures vulnerable to a tornado, the size (area impacted) of the tornado must first be determined. There are several scenarios that can be used to calculate the size, including the worst case and the average. For this analysis, the area impacted by an average-sized tornado in Macoupin County will be used since it has a higher probability of recurring. This average is based on more than 70 years of data. In Macoupin County, the area impacted by an average-sized tornado is 0.15 square miles. This average has decreased 0.03 square miles since the 2019 Plan was completed.

Assumption #1

Size of Tornado = 0.15 sq. miles

Assumption #2: Method for Estimating the Area Impacted. Next, a method for determining the area within each jurisdiction impacted by the average-sized tornado needs to be chosen. There are several methods that can be used including creating an outline of the area impacted by the average-sized tornado and overlaying it on a map of each jurisdiction (most notably the municipalities) to see if any portion of the area falls outside of the corporate limits (which would require additional calculations) or just assume that the entire area of the average-sized tornado falls within the limits of each jurisdiction. For this discussion, it is assumed that the entire area of the average-sized tornado will fall within the limits of the participating jurisdictions.

Assumption #2

The entire area impacted by the average-sized tornado falls within the limits of each participating jurisdiction.

This method is quicker, easier, and more likely to produce consistent results when the Plan is updated again. There is, however, a greater likelihood that the number of potentially-damaged housing units will be overestimated for those municipalities that have irregular shaped boundaries or occupy less than one square mile.

Assumption #3: Method for Estimating Potentially-Damaged Housing Units. With the size of the tornado selected and a method for estimating the area impacted chosen, a decision must be made on an approach for estimating the number of potentially-damaged housing units. There are several methods that can be used including overlaying the average-sized tornado on a map of each jurisdiction and counting the impacted housing units or calculating the average housing unit density to estimate the number of potentially-damaged housing units.

Assumption #3

The average housing unit density for each jurisdiction will be used to determine the number of potentially-damaged housing units.

For this analysis, the average housing unit density will be used since it provides a realistic perspective on potential residential damages without conducting extensive counts. Using the average housing unit density also allows future updates to the Plan to be easily recalculated and provides an exact comparison to previous estimates.

Calculating Average Housing Unit Density

The average housing unit density can be calculated by taking the number of housing units in a jurisdiction and dividing that by the land area within the jurisdiction. **Figure T-9** provides a sample calculation.

Figure T-9
Calculation of Average Housing Unit Density – Macoupin County

Total Housing Units in the Jurisdiction ÷ Land Area within the Jurisdiction = Average Housing Unit Density
(Rounded Up to the Nearest Whole Number)

Macoupin County: 21,091 housing units ÷ 862.974 sq. miles = 24.440 housing units/sq. mile
(25 housing units)

Figure T-10 provides a breakdown of housing unit densities by participating municipality as well as for the unincorporated areas of the County and the County as a whole.

While the average housing unit density provides an adequate assessment of the number of housing units in areas where the housing density is fairly constant, such as municipalities, it does not provide a realistic assessment for those counties with large, sparsely populated rural areas such as Macoupin County.

In Macoupin County, as well as many other west-central Illinois counties, there are pronounced differences in housing unit densities. A majority of all housing units (76%) are located in nine of the County's 26 townships (Brighton, Bunker Hill, Cahokia, Carlinville, Gillespie, Girard, Mount

Olive, Staunton, and Virden), while approximately 72% of all mobile homes are located in eight of the townships (Brighton, Bunker Hill, Cahokia, Carlinville, Mount Olive, North Palmyra, South Palmyra, Staunton, and Virden). **Figure I-6**, located in Section 1.2, identifies the township boundaries. Tornado damage to buildings (especially mobile homes), infrastructure and critical facilities in the more densely populated townships is likely to be greater than in the rest of the County. While Benld, Bunker Hill, Carlinville, Girard, Mount Clare, Nilwood, and Virden have ordinances that require anchoring systems for mobile home that would help limit the damage from lower rated tornadoes, the County and the remaining five participating municipalities do not.

Figure T-10
Average Housing Unit Density by Participating Jurisdiction

Participating Jurisdiction	Township Location	Total Housing Units (2018-2022)	Mobile Homes (2018-2022)	Land Area (Sq. Miles) (2020)	Average Housing Unit Density (Units/Sq. Mi.) (Raw)
Benld[3,11]	Cahokia, Gillespie	881	12	1.060	831.132
Brighton[5,7]	Brighton	969	24	1.921	504.425
Bunker Hill[1]	Bunker Hill	695	23	1.274	545.526
Carlinville[2,12]	Brushy Mound, Carlinville	2,574	253	3.369	764.025
Eagarville[6,11]	Cahokia	67	4	0.911	---
Gillespie[3,11,12]	Cahokia, Gillespie	1,483	0	1.484	999.326
Girard[4,8,12]	Girard, Nilwood	759	35	0.934	---
Mount Clare[3,11]	Gillespie	132	2	1.538	85.826
Nilwood[4]	Nilwood, South Otter	106	18	0.465	---
Royal Lakes[1,5]	Hilyard	139	28	0.466	---
Staunton[6,13]	Dorchester, Staunton	2,106	227	3.974	529.945
Virden[4]	Virden	1,411	60	1.889	746.956
Unincorp. County		6,751	708	832.258	8.112
County		21,091	1,715	862.974	24.440

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton

Source: U.S. Census Bureau, American Community Survey, 5-Year Data Profile.

This substantial difference in density skews the average *county* housing unit density in Macoupin County and is readily apparent when compared to the average housing unit densities for each of the townships within the County. **Figure T-11** provides a breakdown of housing unit densities by township and illustrates the differences between the various townships and the County as a whole.

For 17 of the 26 townships, the *average county* housing unit density is greater (in some cases considerably greater) than the *average township* housing unit densities. However, the *average county* housing unit density is less than the housing unit densities for the nine most populated townships.

Figure T-11
Average Housing Unit Density by Township

Township	Incorporated Municipalities Located in Township	Total Housing Units (2018-2022)	Mobile Homes (2018-2022)	Land Area (Sq. Miles) (2020)	Average Housing Unit Density (Units/Sq. Mi.) (Raw)
Barr	Hettick	170	24	36.645	4.639
Bird[2]		131	0	36.172	3.622
Brighton[1,5,7]	Brighton	1,624	95	36.094	44.994
Brushy Mound[2,3,11]	Carlinville	346	57	35.316	9.797
Bunker Hill[1,5]	Bunker Hill	1,417	114	36.203	39.140
Cahokia[3,10,11]	Benld, Eagarville, East Gillespie, Gillespie, Lake Ka-Ho	1,747	136	36.605	47.726
Carlinville[2,12]	Carlinville	2,872	253	35.359	81.224
Chesterfield[2,5,9]	Chesterfield, Medora	391	64	35.814	10.918
Dorchester[1,3,6,11]	Dorchester, Staunton, Wilsonville	727	13	35.979	20.206
Gillespie[3,11,12]	Benld, Dorchester, East Gillespie, Gillespie, Mount Clare	1,736	67	35.656	48.687
Girard[4,8,12]	Girard	996	35	18.067	55.128
Hilyard[1,2,5]	Royal Lakes, Shipman	252	43	36.093	6.982
Honey Point[2,3,11]		95	0	37.019	2.566
Mount Olive[3,6,10,11]	Mount Olive, Sawyerville, White City	1,564	89	18.018	86.802
Nilwood[2,4,8]	Girard, Nilwood, Standard City	230	24	36.461	6.308
North Otter[4,8]		356	7	35.708	9.970
North Palmyra	Palmyra	468	81	36.161	12.942
Polk[2,5]		268	16	35.948	7.455
Scottville	Scottville	176	18	36.744	4.790
Shaws Point[2,8]	Standard City	194	21	34.075	5.693
Shipman[5,9]	Medora, Shipman	588	18	35.806	16.422
South Otter[2,4,8]	Nilwood	167	0	35.751	4.671
South Palmyra[2]	Hettick, Palmyra	389	104	36.158	10.758
Staunton[6,10,13]	Staunton	2,497	361	18.118	137.819
Virden[4]	Virden	1,553	60	17.976	86.393
Western Mound[2,9]		137	15	35.027	3.911
Townships - 9 most populated		16,006	1,210	252.096	63.492
Townships - 17 least populated		5,085	505	610.877	8.324

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton

Source: U.S. Census Bureau, American Community Survey, 5-Year Data Profile.

Estimating the Number of Potentially-Damaged Housing Units

Before an estimate of the number of potentially-damaged housing units can be calculated for the participating municipalities, an additional factor needs to be taken into consideration: the presence of commercial/industrial developments and/or large tracts of undeveloped land. Occasionally villages and cities will annex large tracts of undeveloped land or have commercial/industrial parks/developments located within their corporate limits. In many cases these large tracts of land include very few residential structures. Consequently, including these tracts of land in the calculations to determine the number of potentially-damaged housing units skews the results, especially for very small municipalities. Therefore, to provide a more realistic assessment of the number of potentially-damaged housing units, these areas were subtracted from the land area figures obtained from the U.S. Census Bureau for the analysis for this update.

In Macoupin County, all of the participating municipalities have large undeveloped land and/or commercial/industrial areas within their municipal boundaries. These areas account for approximately 25% to 95% of the land area in these municipalities. If these areas are subtracted from the U.S. Census Bureau land area figures, then the remaining land areas have fairly consistent housing unit densities and contain a majority of the housing units. **Figure T-12** provides a breakdown of the refined land area figures for the municipalities. These refined land area figures will be used to update the average housing unit density calculations for these municipalities.

Figure T-12
Refined Land Area Figures for Participating Municipalities with Large Tracts of Commercial/Industrial and Undeveloped Land Areas

Participating Jurisdiction	Land Area (Sq. Miles) (2020)	Estimated Open Land Area & Commercial/ Industrial Tracts (Sq. Miles)	Refined Land Area (Sq. Miles)
Benld	1.060	0.580	0.480
Brighton	1.921	0.970	0.951
Bunker Hill	1.274	0.610	0.664
Carlinville	3.369	1.070	2.299
Eagarville	0.911	0.870	0.041
Gillespie	1.484	0.420	1.064
Girard	0.934	0.360	0.574
Mount Clare	1.538	1.430	0.108
Nilwood	0.465	0.370	0.095
Royal Lakes	0.466	0.370	0.096
Staunton	3.974	1.140	2.834
Virden	1.889	0.620	1.269

With updated average housing unit densities calculated it is relatively simple to provide an estimate of the number of existing potentially-damaged housing units. This can be done by multiplying the average housing unit density by the area impacted by the average-sized Macoupin County tornado. **Figure T-13** provides a sample calculation.

Figure T-13
Sample Calculation of Potentially-Damaged Housing Units – Macoupin County

Average Housing Unit Density x Area Impacted by the Average-Sized Macoupin County Tornado = Potentially-Damaged Housing Units
(Rounded Up to the Nearest Whole Number)

Macoupin County: 24.440 housing units/sq. mile x 0.15 sq. miles = 3.67 housing units
(4 housing units)

For municipalities that cover less than one square mile, the average housing unit density cannot be used to calculate the number of potentially-damaged housing units. The average housing unit density assumes that the land area within the municipality is at least one square mile and as a result distorts the number of potentially-damaged housing units for very small municipalities.

To calculate the number of potentially-damaged housing units for these municipalities, the area impacted by the averaged-sized Macoupin County tornado is divided by the land area within the municipality to get the impacted land area. The impacted land area is then multiplied by the total number of housing units within the municipality to get the number of potentially-damaged housing units. **Figure T-14** provides a sample calculation.

Figure T-14
Sample Calculation of Potentially-Damaged Housing Units for Municipalities Covering Less Than One Square Mile – Brighton

Area Impacted by the Average-Sized Macoupin County Tornado ÷ Land Area within the Jurisdiction x Total Housing Units in the Jurisdiction = Potentially-Damaged Housing Units
(Rounded Up to the Nearest Whole Number)

Brighton: 0.15 sq. mile ÷ 0.951 sq. miles x 969 housing units = 152.84
(153 housing units)

Since the refined land area of Eagarville, Mount Clare, Nilwood, and Royal Lakes, are less than the average area impacted, it is assumed that all of the housing units within these villages will be potentially damaged.

Figures T-15 and **T-16** provide a breakdown of the number of potentially-damaged housing units by participating municipality, as well as by township and for the unincorporated areas of the County and the County as a whole. It is important to note that for the most densely populated townships, the estimated number of potentially-damaged housing units would only be reached if a tornado's pathway included the major municipality within the township. If the tornado remained in the rural portion of the township, then the number of potentially-damaged housing units would be considerably lower.

Figure T-15
Estimated Number of Housing Units by Participating Jurisdiction
Potentially Damaged by a Tornado

Participating Jurisdiction	Total Housing Units (2018-2022)	Land Area/Refined Land Area (Sq. Miles) (2020)	Average Housing Unit Density (Units/Sq. Mi.) (Raw)	Potentially-Damaged Housing Units (Units/0.15 Sq. Mi.) (Raw)	Potentially-Damaged Housing Units (Units/0.15 Sq. Mi.) (Rounded Up)
Benld[3,11]	881	0.480	---	275.31	276
Brighton[5,7]	969	0.951	---	152.84	153
Bunker Hill[1]	695	0.664	---	157.00	158
Carlinville[2,12]	2,574	2.299	1,119.617	167.94	168
Eagarville[6,11]	67	0.041	---	67.00	67
Gillespie[3,11,12]	1,483	1.484	999.326	149.90	150
Girard[4,8,12]	759	0.574	---	198.34	199
Mount Clare[3,11]	132	0.108	---	132.00	132
Nilwood[4]	106	0.095	---	106.00	106
Royal Lakes[1,5]	139	0.096	---	139.00	139
Staunton[6,13]	2,106	2.834	743.119	111.47	112
Virden[4]	1,411	1.269	1,111.899	166.78	167
Unincorp. County	6,751	832.258	8.112	1.22	2
County	21,091	862.974	24.440	3.67	4

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton

What is the level of risk/vulnerability to existing buildings, infrastructure, and critical facilities vulnerable from tornadoes?

There are several factors that must be examined when assessing the vulnerability of existing buildings, infrastructure, and critical facilities to tornadoes. These factors include tornado frequency, population distribution and density, the ratings and pathways of previously recorded tornadoes, and the presence of high-risk living accommodations (such as high-rise buildings, mobile homes, etc.).

Unincorporated Macoupin County (including townships and fire protection districts)

For unincorporated Macoupin County, the level of risk or vulnerability posed by tornadoes to existing buildings, infrastructure and critical facilities is considered to be ***low***. This assessment is based on the frequency with which tornadoes have occurred in the County, as well as the amount of damage that has been sustained tempered by the low population density throughout most the County and the relative absence of high risk living accommodations. While previously recorded tornadoes have followed largely rural pathways, they have caused significant damage on several occasions.

Figure T-16
Estimated Number of Housing Units by Township Potentially Damaged by a Tornado

Township	Total Housing Units (2018-2022)	Land Area (Sq. Mi.) (2020)	Average Housing Unit Density (Units/Sq. Mi.) (Raw)	Potentially-Damaged Housing Units (Units/0.15 Sq. Mi.) (Raw)	Potentially-Damaged Housing Units (Units/0.15 Sq. Mi.) (Rounded Up)
Barr	170	36.645	4.639	0.70	1
Bird[2]	131	36.172	3.622	0.54	1
Brighton[1,5,7]	1,624	36.094	44.994	6.75	7
Brushy Mound[2,3,11]	346	35.316	9.797	1.47	2
Bunker Hill[1,5]	1,417	36.203	39.140	5.87	6
Cahokia[3,10,11]	1,747	36.605	47.726	7.16	8
Carlinville[2,12]	2,872	35.359	81.224	12.18	13
Chesterfield[2,5,9]	391	35.814	10.918	1.64	2
Dorchester[1,3,6,11]	727	35.979	20.206	3.03	4
Gillespie[3,11,12]	1,736	35.656	48.687	7.30	8
Girard[4,8,12]	996	18.067	55.128	8.27	9
Hilyard[1,2,5]	252	36.093	6.982	1.05	2
Honey Point[2,3,11]	95	37.019	2.566	0.38	1
Mount Olive[3,6,10,11]	1,564	18.018	86.802	13.02	14
Nilwood[2,4,8]	230	36.461	6.308	0.95	1
North Otter[4,8]	356	35.708	9.970	1.50	2
North Palmyra	468	36.161	12.942	1.94	2
Polk[2,5]	268	35.948	7.455	1.12	2
Scottville	176	36.744	4.790	0.72	1
Shaws Point[2,8]	194	34.075	5.693	0.85	1
Shipman[5,9]	588	35.806	16.422	2.46	3
South Otter[2,4,8]	167	35.751	4.671	0.70	1
South Palmyra[2]	389	36.158	10.758	1.61	2
Staunton[6,10,13]	2,497	18.118	137.819	20.67	21
Virden[4]	1,553	17.976	86.393	12.96	13
Western Mound[2,9]	137	35.027	3.911	0.59	1
Townships - 9 most populated	16,006	252.096	63.492	9.52	10
Townships - 17 least populated	5,085	610.877	8.324	1.25	2

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton

Participating Municipalities (including school districts and healthcare facilities)

In general, if a tornado were to touch down or pass through any of the participating municipalities, which include participating schools and healthcare facilities, the risk to existing buildings, infrastructure, and critical facilities would be considered ***high***. This assessment is based on the population and housing unit distribution within the municipalities where wide expanses of open spaces do not generally exist. As a result, if a tornado were to touch down within any of the municipalities it would have a greater likelihood of causing substantial property damage.

Are future buildings, infrastructure, and critical facilities vulnerable to tornadoes?

Yes. Neither the County nor any of the municipalities, with the exception of Gillespie, have building codes in place that will likely help lessen the vulnerability of new buildings and critical facilities to damage from tornadoes. However, even new buildings and critical facilities built to code are vulnerable to the risks posed by a higher rated tornado.

Infrastructure such as new communication and power lines will continue to be vulnerable to tornadoes as long as they are located above ground. Flying debris can disrupt power and communication lines even if they are not directly in the path of the tornado. Steps to bury all new lines would eliminate the vulnerability, but this action would be cost prohibitive in most areas.

What are the potential dollar losses to vulnerable structures from tornadoes?

Unlike other hazards, such as flooding, there are no standard loss estimation models or methodologies for tornadoes. However, a rough estimate of potential dollar losses to the *potentially-damaged housing units* determined previously can be calculated if several additional decisions/assumptions are made regarding:

- the value of the potentially-damaged housing units; and
- the percent damage sustained by the potentially-damaged housing units (i.e., damage scenario).

These assumptions represent a ***probable scenario*** based on the reported historical occurrences of tornadoes in Macoupin County. The purpose of providing a rough estimate is to help residents and government officials make informed decisions to better protect themselves and their communities. These estimates are meant to provide a ***general idea*** of the magnitude of the potential damage that could occur. The following provides a brief discussion of each decision/assumption.

Assumption #4: Value of Potentially-Damaged Housing Units. In order to determine the potential dollar losses to the potentially-damaged housing units, the monetary value of the units must first be calculated. Typically, when damage estimates are prepared after a natural disaster such as a tornado, they are based on the market value of the structure. Since it would be impractical to determine the individual market value of each potentially-damaged housing unit, the average market value of residential structures in each municipality will be used.

Assumption #4

The average market value for residential structures in each participating jurisdiction will be used to determine the value of potentially-damaged housing units.

To determine the average market value, the average assessed value must first be calculated. The average assessed value is calculated by taking the total assessed value of residential buildings within a jurisdiction and dividing that number by the total number of housing units within the jurisdiction. The average market value is then determined by taking the average assessed value and multiplying that number by three (the assessed value of a structure in Macoupin County is approximately one-third of the market value). **Figure T-17** provides a sample calculation. The total assessed value is based on 2023 tax assessment information obtained from the Macoupin County Clerk.

Figure T-17
Sample Calculation of Average Assessed Value & Average Market Value – Brighton

Average Assessed Value

Total Assessed Value of Residential Buildings in the Jurisdiction÷ Total Housing Units in the Jurisdiction = Average Assessed Value (Rounded to the Nearest Dollar)

Brighton: $26,983,898 ÷ 969 housing units = $27,847

Average Market Value

Average Assessed Value x 3 = Average Market Value

Brighton: $27,847 x 3 = $83,541

($83,541)

Figures T-18 and **T-19** provide the average assessed value and average market value for each participating municipality as well as by township and for the unincorporated areas of the County and the County as a whole.

Figure T-18
Average Market Value of Housing Units by Participating Jurisdiction

Participating Jurisdiction	Total Assessed Value of Residential Buildings (2023)	Total Housing Units (2018-2022)	Average Assessed Values	Average Market Value (2023)
Benld[3,11]	$9,729,298	881	$11,043	$33,129
Brighton[5,7]	$26,983,898	969	$27,847	$83,541
Bunker Hill[1]	$19,201,574	695	$27,628	$82,884
Carlinville[2,12]	$57,580,565	2,574	$22,370	$67,110
Eagarville[6,11]	$929,453	67	$13,872	$41,616
Gillespie[3,11,12]	$29,917,077	1,483	$20,173	$60,519
Girard[4,8,12]	$14,973,847	759	$19,728	$59,184
Mount Clare[3,11]	$2,391,401	132	$18,117	$54,351
Nilwood[4]	$1,274,956	106	$12,028	$36,084
Royal Lakes[1,5]	$1,008,317	139	$7,254	$21,762
Staunton[6,13]	$63,928,629	2,106	$30,355	$91,065
Virden[4]	$28,447,599	1,411	$20,161	$60,483
Unincorp. County	$178,737,263	6,751	$26,476	$79,428
County	$480,277,622	21,091	$22,772	$68,316

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton

Source: Macoupin County Clerk.

Figure T-19
Average Market Value of Housing Units by Township

Township	Total Assessed Value of Residential Buildings (2023)	Total Housing Units (2018-2022)	Average Assessed Values	Average Market Value (2023)
Barr	$1,749,877	170	$10,293	$30,880
Bird[2]	$2,349,264	131	$17,933	$53,800
Brighton[1,5,7]	$53,930,289	1,624	$33,208	$99,625
Brushy Mound[2,3,11]	$11,143,582	346	$32,207	$96,621
Bunker Hill[1,5]	$37,416,635	1,417	$26,406	$79,217
Cahokia[3,10,11]	$24,406,915	1,747	$13,971	$41,912
Carlinville[2,12]	$71,795,869	2,872	$24,999	$74,996
Chesterfield[2,5,9]	$4,157,403	391	$10,633	$31,898
Dorchester[1,3,6,11]	$16,563,049	727	$22,783	$68,348
Gillespie[3,11,12]	$35,752,704	1,736	$20,595	$61,785
Girard[4,8,12]	$17,583,558	996	$17,654	$52,963
Hilyard[1,2,5]	$3,786,179	252	$15,025	$45,074
Honey Point[2,3,11]	$853,932	95	$8,989	$26,966
Mount Olive[3,6,10,11]	$31,106,628	1,564	$19,889	$59,667
Nilwood[2,4,8]	$3,393,648	230	$14,755	$44,265
North Otter[4,8]	$18,473,426	356	$51,892	$155,675
North Palmyra	$7,296,416	468	$15,591	$46,772
Polk[2,5]	$9,187,675	268	$34,282	$102,847
Scottville	$1,493,630	176	$8,487	$25,460
Shaws Point[2,8]	$5,849,983	194	$30,155	$90,464
Shipman[5,9]	$9,945,295	588	$16,914	$50,741
South Otter[2,4,8]	$4,288,454	167	$25,679	$77,038
South Palmyra[2]	$4,856,445	389	$12,484	$37,453
Staunton[6,10,13]	$70,980,351	2,497	$28,426	$85,279
Virden[4]	$31,206,915	1,553	$20,095	$60,284
Western Mound[2,9]	$709,500	137	$5,179	$15,536
Townships - 9 most populated	$374,179,864	16,006	$23,377	$70,132
Townships - 17 least populated	$106,097,758	5,085	$20,865	$62,595

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton
Source: Macoupin County Clerk.

Assumption #5: Damage Scenario. Finally, a decision must be made regarding the percent damage sustained by the potentially-damaged housing units and their contents. For this scenario, the expected percent damage sustained by the structure and its contents is 100%; in other words, all of the potentially-damaged housing units would be

Assumption #5

The tornado would completely destroy the potentially-damaged housing units.

Structural Damage = 100%
Content Damage = 100%

completely destroyed. While it is highly unlikely that each and every housing unit would sustain the maximum percent damage, identifying and calculating different degrees of damage within the average area impacted is complex and provides an additional complication when updating the Plan.

Calculating Potential Dollar Losses

With all the decisions and assumptions made, the potential dollar losses can now be calculated. First, the potential dollar losses to the ***structure*** of a potentially-damaged housing unit must be determined. This is done by taking the average market value for a residential structure and multiplying it by the percent damage (100%) to get the average structural damage per unit. Next the average structural damage per unit is multiplied by the number of potentially-damaged housing units. **Figure T-20** provides a sample calculation.

Figure T-20
***Structure:* Potential Dollar Loss Sample Calculation – Brighton**

Average Market Value of a Housing Unit with the Jurisdiction x Percent Damage = Average Structural Damage per Housing Unit
Brighton: $83,541 x 100% = $83,541 per housing unit

Average Structural Damage per Housing Unit x Number of Potentially-Damaged Housing Units within the Jurisdiction = *Structure* Potential Dollar Losses
Brighton: $83,541 per housing unit x 153 housing units = $12,781,773
($12,781,773)

Next, the potential dollar losses to the ***content*** of a potentially-damaged housing unit must be determined. Based on FEMA guidance, the average value of a residential housing unit's content is approximately 50% of its market value. Therefore, start by taking one-half the average market value for a residential structure and multiply by the percent damage (100%) to get the average content damage per unit. Next the average content damage per unit is multiplied by the number of potentially-damaged housing units. **Figure T-21** provides a sample calculation.

Figure T-21
***Content:* Potential Dollar Loss Sample Calculation – Brighton**

½ (Average Market Value of a Housing Unit) with the Jurisdiction x Percent Damage = Average Content Damage per Housing Unit
Brighton: ½ ($83,541) x 100% = $41,770.50 per housing unit

Average Content Damage per Housing Unit x Number of Potentially-Damaged Housing Units within the Jurisdiction = *Content* Potential Dollar Losses
Brighton: $41,770.50 per housing unit x 153 housing units = $6,390,886.50
($6,390,887)

Finally, the ***total potential dollar losses*** may be calculated by adding together the potential dollar losses to the structure and content. **Figures T-22** and **T-23** give a breakdown of the total potential dollar losses by municipality and township. For comparison, an estimate of potential dollar losses was calculated for the entire County, the unincorporated portions of the County, the nine most populated townships and the 17 least populated townships.

Figure T-22
Estimated Potential Dollar Losses to Potentially-Damaged Housing Units from a Tornado by Participating Jurisdiction

Participating Jurisdiction	Average Market Value (2023)	Potentially-Damaged Housing Units (Rounded Up)	Potential Dollar Losses		Total Potential Dollar Losses
			Structure	Content	
Benld[3,11]	$33,129	276	$9,143,604	$4,571,802	$13,715,406
Brighton[5,7]	$83,541	153	$12,781,773	$6,390,887	$19,172,660
Bunker Hill[1]	$82,884	158	$13,095,672	$6,547,836	$19,643,508
Carlinville[2,12]	$67,110	168	$11,274,480	$5,637,240	$16,911,720
Eagarville[6,11]	$41,616	67	$2,788,272	$1,394,136	$4,182,408
Gillespie[3,11,12]	$60,519	150	$9,077,850	$4,538,925	$13,616,775
Girard[4,8,12]	$59,184	199	$11,777,616	$5,888,808	$17,666,424
Mount Clare[3,11]	$54,351	132	$7,174,332	$3,587,166	$10,761,498
Nilwood[4]	$36,084	106	$3,824,904	$1,912,452	$5,737,356
Royal Lakes[1,5]	$21,762	139	$3,024,918	$1,512,459	$4,537,377
Staunton[6,13]	$91,065	112	$10,199,280	$5,099,640	$15,298,920
Virden[4]	$60,483	167	$10,100,661	$5,050,331	$15,150,992
Unincorp. County	$79,428	2	$158,856	$79,428	$238,284
County	$68,316	4	$273,264	$136,632	$409,896

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton

This assessment illustrates why potential residential dollar losses should be considered when jurisdictions are deciding which mitigation projects to pursue. ***Potential dollar losses caused by an average tornado in Macoupin County would be expected to exceed at least $4.1 million in any of the participating municipalities.***

Potential dollar losses caused by an average tornado in Macoupin County townships would be expected to range from $23,304 in Western Mound Township to at least $2.6 million in Staunton Township. As discussed previously, the estimate for the entire County is skewed because it does not take into consideration the differences in the housing density.

Vulnerability of Commercial/Industrial Businesses and Infrastructure/Critical Facilities

The calculations presented above are meant to provide the reader with a sense of the scope or magnitude of an average-sized tornado in term of residential dollar losses. These calculations do not include damages sustained by businesses or other infrastructure and critical facilities within the participating jurisdictions.

In terms of businesses, the impacts from an average-sized tornado event can be physical and/or monetary. Monetary impacts can include loss of sales revenue either through temporary closure or loss of critical services (i.e., power, drinking water, and sewer). Depending on the magnitude of the event, the damage sustained by infrastructure and critical facilities can be extensive in nature

and expensive to repair. As a result, the cumulative monetary impacts to businesses and infrastructure can exceed the cumulative monetary impacts to residences. ***While average dollar amounts cannot be supplied for these items at this time, they should be taken into account*** when discussing the impacts that an average-sized tornado could have on the participating jurisdictions.

Figure T-23
Estimated Potential Dollar Losses to Potentially-Damaged Housing Units from a Tornado by Township

Township	Average Market Value (2023)	Potentially-Damaged Housing Units (Rounded Up)	Potential Dollar Losses		Total Potential Dollar Losses
			Structure	Content	
Barr	$30,880	1	$30,880	$15,440	$46,320
Bird[2]	$53,800	1	$53,800	$26,900	$80,700
Brighton[1,5,7]	$99,625	7	$697,375	$348,688	$1,046,063
Brushy Mound[2,3,11]	$96,621	2	$193,242	$96,621	$289,863
Bunker Hill[1,5]	$79,217	6	$475,302	$237,651	$712,953
Cahokia[3,10,11]	$41,912	8	$335,296	$167,648	$502,944
Carlinville[2]	$74,996	13	$974,948	$487,474	$1,462,422
Chesterfield[2,5,9]	$31,898	2	$63,796	$31,898	$95,694
Dorchester[1,3,6,11]	$68,348	4	$273,392	$136,696	$410,088
Gillespie[3,11]	$61,785	8	$494,280	$247,140	$741,420
Girard[4,8]	$52,963	9	$476,667	$238,334	$715,001
Hilyard[1,2,5]	$45,074	2	$90,148	$45,074	$135,222
Honey Point[2,3,11]	$26,966	1	$26,966	$13,483	$40,449
Mount Olive[3,6,10,11]	$59,667	14	$835,338	$417,669	$1,253,007
Nilwood[2,4,8]	$44,265	1	$44,265	$22,133	$66,398
North Otter[4,8]	$155,675	2	$311,350	$155,675	$467,025
North Palmyra	$46,772	2	$93,544	$46,772	$140,316
Polk[2,5]	$102,847	2	$205,694	$102,847	$308,541
Scottville	$25,460	1	$25,460	$12,730	$38,190
Shaws Point[2,8]	$90,464	1	$90,464	$45,232	$135,696
Shipman[5,9]	$50,741	3	$152,223	$76,112	$228,335
South Otter[2,4,8]	$77,038	1	$77,038	$38,519	$115,557
South Palmyra[2]	$37,453	2	$74,906	$37,453	$112,359
Staunton[6,10]	$85,279	21	$1,790,859	$895,430	$2,686,289
Virden[4]	$60,284	13	$783,692	$391,846	$1,175,538
Western Mound[2,9]	$15,536	1	$15,536	$7,768	$23,304
Townships - 9 most populated	$70,132	10	$701,320	$350,660	$1,051,980
Townships - 17 least populated	$62,595	2	$125,190	$62,595	$187,785

[1]Bunker Hill CUSD #8 [2]Carlinville CUSD #1 [3]Gillespie CUSD #7 [4]North Mac CUSD #34
[5]Southwestern CUSD #9 [6]Staunton CUSD #6 [7]Brighton Betsey Ann FPD [8]Girard FPD
[9]Medora Community FPD [10]Mount Olive Volunteer FPD [11]Unit 7 FPD [12]Carlinville Area Hospital
[13]Communmity Hospital of Staunton

3.7 DROUGHTS

HAZARD IDENTIFICATION

What is the definition of a drought?

While difficult to define, the National Drought Mitigation Center (NDMC) considers "drought" in its most general sense to be a deficiency of precipitation over an extended period of time, usually a season or more, resulting in a water shortage.

Drought is a normal and recurrent feature of climate and can occur in all climate zones, though its characteristics and impacts vary significantly from one region to another. Unlike other natural hazards, drought does not have a clearly defined beginning or end. Droughts can be short, lasting just a few months, or they can persist for several years. There have been 28 drought events with losses exceeding $1 billion each (CPI-Adjusted) across the U.S. between 1980 and 2022. This is due in part to the sheer size of the areas affected.

What types of drought occur?

There are four main types of drought that occur: meteorological, agricultural, hydrological, and socioeconomic. They are differentiated based on the use and need for water. The following provides a brief description of each type.

- **Meteorological Drought.** Meteorological drought is defined by the degree of dryness or rainfall deficit and the duration of the dry period. Due to climate differences, what might be considered a drought in one location of the country may not be in another location.
- **Agricultural Drought.** An agricultural drought refers to a period when rainfall deficits, soil moisture deficits, reduced ground water or reservoir levels needed for irrigation impact crop development and yields.
- **Hydrological Drought.** Hydrological drought refers to a period when precipitation deficits (including snowfall) impact surface (stream flow, reservoir and lake levels) and subsurface (aquifers) water supply levels.
- **Socioeconomic Drought.** Socioeconomic drought refers to a period when the demand for an economic good (fruit, vegetables, grains, etc.) exceeds the supply as a result of weather-related shortfall in the water supply.

How are droughts measured?

There are numerous quantitative measures (indicators and indices) that have been developed to measure drought. How these indicators and indices measure drought depends on the discipline affected (i.e., agriculture, hydrology, meteorology, etc.) and the region being considered. There is no single index or indicator that can account for and be applied to all types of drought.

Although none of the major indices are inherently superior to the rest, some are better suited than others for certain uses. The first comprehensive drought index developed in the U.S. was the Palmer Drought Severity Index (PDSI). The PDSI is calculated based on precipitation and temperature data, as well as the local Available Water Content of the soil. It is the most effective

measuring drought impacts on agriculture. For many years it was the only operational drought index, and it is still very popular around the world.

The Standardized Precipitation Index (SPI), developed in 1993, uses precipitation records for any location to develop a probability of precipitation for any time scale in order to reflect the impact of drought on the availability of different water resources (groundwater, reservoir storage, streamflow, snowpack, etc.) In 2009, the World Meteorological Organization recommended SPI as the main meteorological drought index that countries should use to monitor and follow drought conditions.

The first operational 'composite' approach applied in the U.S. was the U.S. Drought Monitor (USDM). The USDM utilizes five key indicators, numerous supplementary indicators, and local reports from expert observers around the country to produce a drought intensity rating that is ideal for monitoring droughts that have many impacts, especially on agriculture and water resources during all seasons over all climate types. NOAA's Storm Events Database records include USDM ratings and utilized them along with additional weather information to describe the severity of the drought conditions impacting affected counties. Therefore, this Plan will utilize USDM ratings to identify and describe previous drought events recorded within the County. The following provides a more detailed discussion of the USDM to aid the Plan's developers and the general public in understanding how droughts are identified and categorized.

U.S. Drought Monitor (USDM)

Established in 1999, the USDM is a relatively new index that combines quantitative measures with input from experts in the field. It is designed to provide the general public, media, government officials and others with an easily understandable "big picture" overview of drought conditions across the U.S. It is unique in that it combines a variety of numeric-based drought indices and indicators with local expert input to create a single composite drought indicator, the results of which are illustrated via a weekly map that depicts the current drought conditions across the U.S. The USDM is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the U.S. Department of Agriculture (USDA), and the National Oceanic and Atmospheric Administration (NOAA).

The USDM has a scale of five intensity categories, D0 through D4, that are utilized to identify areas of drought. **Figure DR-1** provides a brief description of each category.

Because the ranges of the various indicators often don't coincide, the final drought category tends to be based on what a majority of the indictors show and on local observations. The authors also weigh the indices according to how well they perform in various parts of the country and at different times of the year. It is the combination of the best available data, location observations and experts' best judgment that make the U.S. Drought Monitor more versatile than other drought indices.

In addition to identifying and categorizing general areas of drought, the USDM also identifies whether a drought's impacts are short-term (typically less than 6 months – agriculture, grasslands) or long-term (typically more than 6 months – hydrology, ecology). **Figure DR-2** shows an

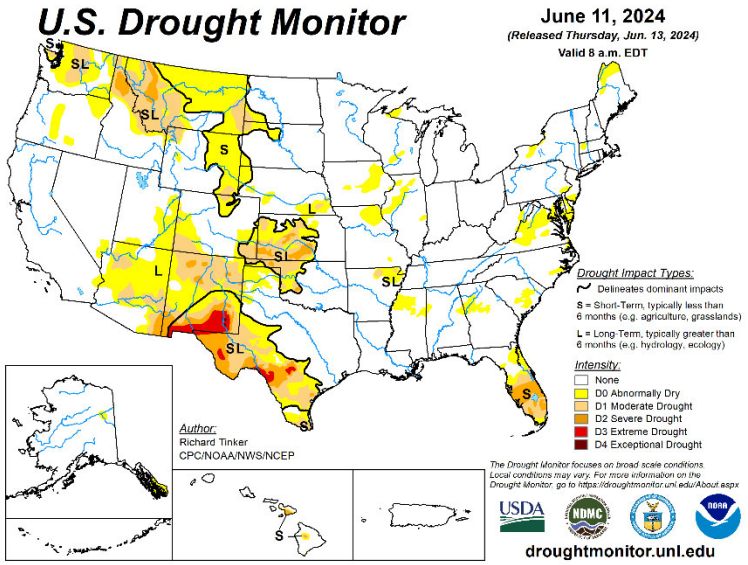
example of the USDM weekly map. The USDM is designed to provide a consistent big-picture look at drought conditions in the U.S. It is not designed to infer specifics about local conditions.

Figure DR-1
U.S. Drought Monitor – Drought Intensity Categories

Category	Possible Impacts
D0 (Abnormally Dry)	• Going into drought: - short-term dryness slowing planting, growth of crops or pastures. • Coming out of drought: - some lingering water deficits - pastures or crops not fully recovered
D1 (Moderate Drought)	• Some damage to crops, pastures • Streams, reservoirs, or wells low; some water shortages developing or imminent • Voluntary water-use restrictions requested
D2 (Severe Drought)	• Crop or pasture losses likely • Water shortages are common • Water restrictions imposed
D3 (Extreme Drought)	• Major crop/pasture losses • Widespread water shortages or restrictions
D4 (Exceptional Drought)	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies

Source: U.S. Drought Monitor.

Figure DR-2
U. S. Drought Monitor



The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the U.S. Department of Agriculture, and the National Oceanic and Atmospheric Administration. Map Courtesy of NDMC.

HAZARD PROFILE

The following identifies past occurrences of drought, details the severity or extent of each event (if known); identifies the locations potentially affected and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-f).

When have droughts occurred previously? What is the extent of these previous droughts?

Drought Fast Facts – Occurrences

Number of Drought Events Reported (1980 – 2023): ***5***

Number of Drought Events County was Designated a USDA Primary Natural Disaster Area: ***2 (2005 & 2012)***

Table 10, located in **Appendix J**, summarizes the previous occurrences as well as the extent or magnitude of the drought events recorded in Macoupin County. NOAA's Storm Events Database, the Illinois State Water Survey, the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS), the NDMC at the University of Nebraska-Lincoln, and the USDA have documented five official droughts for Macoupin County between 1980 and 2023. The County was designated a USDA Primary Natural Disaster area for both the 2005 and 2012 droughts.

The drought events with recorded durations ranged in length from 3.5 to 18.5 months. Of the four drought events with a recorded starting month, two began in June and one each began in May and August. Three of the drought events were assigned drought intensity category ratings by the USDM, with the 2005 and 2012 droughts reaching D3, extreme drought, and the 2011 drought reaching D2, severe drought.

The State of Illinois Drought Preparedness and Response Plan identified seven additional outstanding statewide droughts since 1900 based on statewide summer values of the PDSI provided by NOAA's National Center for Environmental Information. Those seven droughts occurred in 1902, 1915, 1931, 1934, 1936, 1954 and 1964; however, the extent to which Macoupin County was impacted was unavailable.

What locations are affected by drought?

Drought events affect the entire County. Droughts, like excessive heat and severe winter storms, tend to impact large areas, extending across an entire region and affecting multiple counties.

What is the probability of future drought events occurring based on historical data?

Macoupin County, including the participating jurisdictions, has experienced five droughts between 1980 and 2023. With five occurrences over 44 years, the probability or likelihood that the County may experience a drought in any given year is 11%. However, if earlier recorded droughts are factored in, then the probability that Macoupin County may experience a drought in any given year decreases to 10%.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions; specifies the unique and varied risk differences across the planning area and between participating jurisdictions; identifies the impacts on public health and property (if known); and estimates the potential impacts on public

health and safety as well as buildings, infrastructure, and critical facilities from drought (Local Mitigation Planning Policy Guide Element B1-f, B2-a, and B2-b).

Are the participating jurisdictions vulnerable to drought?

Yes. All of Macoupin County, including the participating jurisdictions, is vulnerable to drought. Neither the amount nor the distribution of precipitation; soil types; topography; or water table conditions provides protection for any area within the County.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by IEMA-OHS classifies Macoupin County's hazard rating for drought as "very low". IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.

For drought, FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively Low". Ten census tracts are rated "Relatively Low", two census tracts are rated "Very Low", and one census tract is rated "Relatively Moderate" for drought. **Figure R-4** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of drought?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, 21 of the participants considered specific assets within their jurisdiction vulnerable to drought. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to drought.

What impacts resulted from the recorded drought events?

Data obtained from the NOAA's Storm Events Database and the USDA Risk Management Agency indicates that between 1980 and 2023, three of the five droughts caused an estimated $75,461,465 in damages to insured crops in Macoupin County. Damage information was either unavailable or none was recorded for the remaining two reported occurrences.

Of the five drought events, disaster relief payment information was only available for one of the events. In 1988, landowners and farmers in Illinois were paid in excess of $382 million in relief payments; however, a breakdown by county was unavailable.

Drought Fast Facts – Impacts/Risk

Drought Impacts:
- Total Property Damage: ***n/a***
- Total Crop Damage (3 events): ***$75.46 million***

Drought Risk/Vulnerability:
- Public Health & Safety: ***Low***
- Buildings/Infrastructure/Critical Facilities: ***Low***

What other impacts can result from drought events?

Based on statewide drought records available from the Illinois State Water Survey, the most common impacts that result from drought events in Illinois include reductions in crop yields and drinking water shortages.

Crop Yield Reductions

Agriculture is one of the most important economic enterprises in Macoupin County. Farmland accounts for approximately 83% of all the land in the County. According to the 2022 Census of

Agriculture, there were 1,235 farms in Macoupin County occupying 458,695 acres. In comparison, there were 1,169 farms occupying approximately 76% (420,688 acres) of the total land area in the County in 2017.

According to the 2022 Census of Agriculture, total crop and livestock sales accounted for $443.9 million in revenue. This is an 88% increase in revenue from the 2017 Census of Agriculture when total crop and livestock sales accounted for $236.5 million. Macoupin County ranked 15th in crop cash receipts and 22nd in livestock cash receipts in 2022. A severe drought would have a major financial impact on the large agricultural community, particularly if it occurred during the growing season. Dry weather conditions, particularly when accompanied by excessive heat, can result in diminished crop yields and place stress on livestock.

A reduction in crop yields was seen as a result of the 1983, 1988, 2005, 2011, and 2012 droughts. **Figure DR-3** illustrates the reduction yields seen for corn and soybeans during the recorded drought events. The USDA's National Agricultural Statistics Service records show that the yield reductions for corn were most severe for the 1983 drought when there was a 56.9% reduction in corn yields and a 43.4% reduction in soybean yields reductions.

Figure DR-3
Crop Yield Reductions Due to Drought – Macoupin County

Year	Corn		Soybeans	
	Yield (bushel)	% Reduction Previous Year	Yield (bushel)	% Reduction Previous Year
1982	130.0	--	38.0	--
1983	**56.0**	**56.9%**	**21.5**	**43.4%**
1984	111.0	--	32.0	--
1987	131.0	--	34.0	--
1988	**90.0**	**31.3%**	**28.5**	**16.2%**
1989	134.0	--	41.0	--
2004	189.0	--	50.0	--
2005	**153.0**	**19.0%**	**43.0**	**14.0%**
2006	**144.0**	**5.9%**	47.0	--
2007	157.0	--	**37.0**	**21.3%**
2010	146.9	--	55.3	--
2011	**131.1**	**10.8%**	**40.2**	**27.3%**
2012	**85.7**	**34.6%**	46.0	--
2013	170.5	--	49.1	--

Source: USDA, National Agricultural Statistics Service.

Drinking Water Shortages

Municipalities that rely on surface water sources for their drinking water supplies are more vulnerable to shortages as a result of drought. In Macoupin County, ***all of the participating municipalities rely exclusively on surface water sources*** for their drinking water supply. Carlinville and Staunton both obtain their water from community-owned surface water supplies (Carlinville Lake and Staunton Reservoir). Benld, Eagarville, and Mount Clare obtain their drinking water from Gillespie which obtains its water from Gillespie Lake. Girard, Nilwood, and

Virden obtain their drinking water from the Otter Lake Water Commission which obtains its water from Otter Lake. Brighton and Bunker Hill obtain their drinking water from Fosterburg Public Water District which obtains its water from Illinois American Water – Alton and the Mississippi River. Royal Lakes obtains its drinking water from Jersey County Rural Water which obtains its water from Illinois American Water – Alton and the Mississippi River. The Henderson Water District obtains its drinking water from Litchfield (Lake Litchfield and Lake Lou Yeager) and Otter Lake Water Commission (Otter Lake).

According to Illinois State Water Survey's *Drought Risk Analysis Tool for Illinois' Community Surface Water Systems*, Carlinville, Gillespie, and Staunton water supplies are classified as "At Risk" while Litchfield's water supply is considered "Adequate". No data was available for Otter Lake Water Commission or Illinois American Water – Alton through the *Drought Risk Analysis Tool.*

A prolonged drought or a series of droughts in close succession also have the potential to impact water levels in aquifers used for individual drinking water wells in rural areas. This is because individual (private) water wells tend to be shallower than typical municipal (public) water wells in the region.

What is the level of vulnerability to public health and safety from drought?

Unlike other natural hazards that affect the County, drought events do not typically cause injuries or fatalities. The primary concern centers on the financial impacts that result from loss of crop yields and livestock and potential drinking water shortages. Even taking into consideration the potential impacts that a water shortage may have on the general public, the risk or vulnerability to public health and safety from drought is ***low***.

Are existing buildings, infrastructure, and critical facilities vulnerable to drought?

No. In general, existing buildings, infrastructure and critical facilities located in Macoupin County and the participating jurisdictions are not vulnerable to drought. The primary concern centers on the financial impacts that result from loss of crop yields and livestock.

While buildings do not typically sustain damage from drought events, in rare cases infrastructure and critical facilities may be directly or indirectly impacted. While uncommon, droughts can contribute to roadway damage. Severe soil shrinkage can compromise the foundation of a roadway and lead to cracking and buckling.

Prolonged heat associated with drought can also increase the demand for energy to operate air conditioners, fans, and other devices. This increase in demand places stress on the electrical grid, which increases the likelihood of power outages.

Additionally, droughts have impacted drinking water supplies. Reductions in aquifer water levels can cause water shortages that jeopardize the supply of water needed to provide drinking water and fight fires. While water use restrictions can be enacted in an effort to maintain a sufficient supply of water, they are only temporary and do not address long-term viability issues. Drinking water supplies vulnerable to drought, such as those that rely solely on surface water or shallow wells, need to consider mitigation measures that will provide long-term stability before a severe

drought, or a series of droughts occur. Effective mitigation measures include drilling additional wells, preferably deep wells, securing agreements with alternative water sources and constructing water lines to provide a backup water supply.

In general, the risk or vulnerability to buildings, infrastructure and critical facilities from drought is ***low***, even taking into consideration the potential impact a drought may have on drinking water supplies and the stress that prolonged heat may place on the electrical grid.

Are future buildings, infrastructure, and critical facilities vulnerable to drought?

No. Future buildings, infrastructure, and critical facilities within the County are no more vulnerable to drought than the existing building, infrastructure, and critical facilities. As discussed above, buildings do not typically sustain damage from drought. Infrastructure and critical facilities may, in rare cases, be damaged by drought, but very little can be done to prevent this damage.

What are the potential dollar losses to vulnerable structures from drought?

Unlike other natural hazards there are no standard loss estimation models or methodologies for drought. Since drought typically does not cause structure damage, it is unlikely that future dollar losses will be excessive. The primary concern associated with drought is the financial impacts that result from loss of crop yields and the potential impacts to drinking water supplies. Since a large part of the County is involved in farming activities, it is likely that there will be future dollar losses to drought. In addition, reduced water levels and the water conservation measures that typically accompany a drought will most likely impact consumers as well as businesses and industries that are water-dependent (i.e., car washes, landscapers, etc.).

3.8 EARTHQUAKES

HAZARD IDENTIFICATION

What is the definition of an earthquake?

An earthquake is a sudden shaking of the ground caused when rocks forming the earth's crust slip or move past each other along a fault (a fracture in the rocks). Most earthquakes occur along the boundaries of the earth's tectonic plates. These slow-moving plates are being pulled and dragged in different directions, sliding over, under and past each other. Occasionally, as the plates move past each other, their jagged edges will catch or stick causing a gradual buildup of pressure (energy).

Eventually, the force exerted by the moving plates overcomes the resistance at the edges and the plates snap into a new position. This abrupt shift releases the pent-up energy, producing vibrations or seismic waves that travel outward from the earthquake's point of origin. The location below the earth's surface where the earthquake starts is known as the hypocenter or focus. The point on the earth's surface directly above the focus is the epicenter.

The destruction caused by an earthquake may range from light to catastrophic depending on a number of factors including the magnitude of the earthquake, the distance from the epicenter, the local geologic conditions as well as construction standards and time of day (i.e., rush hour). Earthquake damage may include power outages, general property damage, road, and bridge failure, collapsed buildings and utility damage (ruptured gas lines, broken water mains, etc.).

Most of the damage done by an earthquake is caused by its secondary or indirect effects. These secondary effects result from the seismic waves released by the earthquake and include ground shaking, surface faulting, liquefaction, landslides and, in rare cases, tsunamis.

According to the U.S. Geological Survey, more than 143 million Americans in the contiguous U.S. are exposed to potentially damaging ground shaking from earthquakes. More than 44 million of those Americans, located in 18 states, are exposed to very strong ground shaking from earthquakes. Illinois ranks 10th in terms of the number of individuals exposed to very strong ground shaking. The Federal Emergency Management Agency's Hazus analysis indicates that the annualized earthquake losses to the national building stock is $6.1 billion per year. A majority of the average annual loss is concentrated in California ($3.7 million). The central U.S. (including Illinois) ranks third in annualized earthquake losses at $480 billion, behind the pacific northwest (Washington and Oregon) with annualized earthquake losses at $710 billion.

What is a fault?

A fault is a fracture or zone of fractures in the earth's crust between two blocks of rock. They may range in length from a few millimeters to thousands of kilometers. Many faults form along tectonic plate boundaries. Faults are classified based on the angle of the fault with respect to the surface (known as the dip) and the direction of slip or movement along the fault. There are three main groups of faults: normal, reverse (thrust) and strike-slip (lateral).

Normal faults occur in response to pulling or tension along the two blocks of rock causing the overlying block to move down the dip of the fault plane. Most of the faults in Illinois are normal faults. Reverse or thrust faults occur in response to squeezing or compression of the two blocks of rock causing the overlying block to move up the dip of the fault plane. Strike-slip or lateral faults can occur in response to either pulling/tension or squeezing/compression causing the blocks to move horizontally past each other.

Geologists have found that earthquakes tend to recur along faults, which reflect zones of weakness in the earth's crust. Even if a fault zone has recently experienced an earthquake, there is no guarantee that all the stress has been relieved. Another earthquake could still occur.

What are tectonic plates?

Tectonic plates are large, irregularly-shaped, relatively rigid sections of the earth's crust that float on the top, fluid layer of the earth's mantle. There are about a dozen tectonic plates that make up the surface of the planet. These plates are approximately 50 to 60 miles thick and the largest are millions of square miles in size.

How are earthquakes measured?

The severity of an earthquake is measured in terms of its magnitude and intensity. A brief description of both terms and the scales used to measure each are provided below.

Magnitude

Magnitude refers to the amount of seismic energy released at the hypocenter of an earthquake. The magnitude of an earthquake is determined from measurements of ground vibrations recorded by seismographs. As a result, magnitude is represented as a single, instrumentally determined value. A loose network of seismographs has been installed all over the world to help record and verify earthquake events.

There are several scales that measure the magnitude of an earthquake. The most well-known is the Richter Scale. This logarithmic scale provides a numeric representation of the magnitude of an earthquake through the use of whole numbers and decimal fractions. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in ground vibrations measured. In addition, each whole number increase corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number. It is important to note that the Richter Scale is used only to determine the magnitude of an earthquake, it does not assess the damage that results.

Once an earthquake's magnitude has been confirmed, it can be classified. **Figure EQ-1** categorizes earthquakes by class based on their magnitude (i.e., Richter Scale value). Any earthquake with a magnitude less than 3.0 on the Richter Scale is classified as a micro earthquake while any earthquake with a magnitude of 8.0 or greater on the Richter Scale is considered a "great" earthquake. Earthquakes with a magnitude of 2.0 or less are not commonly felt by individuals. The largest earthquake to occur in the U.S. since 1900 took place off the coast of Alaska in Prince William Sound on March 28, 1964 and registered a 9.2 on the Richter Scale.

Intensity

Intensity refers to the effect an earthquake has on a particular location. The intensity of an earthquake is determined from observations made of the damage inflicted on individuals, structures, and the environment. As a result, intensity does not have a mathematical basis; instead, it is an arbitrary ranking of observed effects. In addition, intensity generally diminishes with distance. There may be multiple intensity recordings for a region depending on a location's distance from the epicenter.

Figure EQ-1
Earthquake Magnitude Classes

Class	Magnitude (Richter Scale)
micro	smaller than 3.0
minor	3.0 – 3.9
light	4.0 – 4.9
moderate	5.0 – 5.9
strong	6.0 – 6.9
major	7.0 – 7.9
great	8.0 or larger

Source: Michigan Technological University, UPSeis

Although numerous intensity scales have been developed over the years, the one currently used in the U.S. is the Modified Mercalli Intensity Scale. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals. The lower numbers of the intensity scale are based on human observations (i.e., felt only by a few people at rest, felt quite noticeably by persons indoors, etc.).

The higher numbers of the scale are based on observed structural damage (i.e., broken windows, general damage to foundations etc.). Structural engineers usually contribute information when assigning intensity values of VIII or greater. **Figure EQ-2** provides a description of the damages associated with each level of intensity as well as comparing Richter Scales values to Modified Mercalli Intensity Scale values.

Generally, the Modified Mercalli Intensity value assigned to a specific site after an earthquake is a more meaningful measure of severity to the general public than magnitude because intensity refers to the effects actually experienced at that location.

When and where do earthquakes occur?

Earthquakes can strike any location at any time. However, history has shown that most earthquakes occur in the same general areas year after year, principally in three large zones around the globe. The world's greatest earthquake belt, the circum-Pacific seismic belt (nicknamed the "Ring of Fire"), is found along the rim of the Pacific Ocean, where about 81 percent of the world's largest earthquakes occur.

The second prominent belt is the Alpide, which extends from Java to Sumatra and through the Himalayan Mountains, the Mediterranean Sea and out into the Atlantic Ocean. It accounts for about 17 percent of the world's largest earthquakes, including those in Iran, Turkey, and Pakistan. The third belt follows the submerged mid-Atlantic Ridge, the longest mountain range in the world, nearly splitting the entire Atlantic Ocean north to south.

While most earthquakes occur along plate boundaries some are known to occur within the interior of a plate. (As the plates continue to move and plate boundaries change over time, weakened boundary regions become part of the interiors of the plates.) Earthquakes can occur along zones

of weakness within a plate in response to stresses that originate at the edges of the plate or from deep within the earth's crust. The New Madrid earthquakes of 1811 and 1812 occurred within the North American plate.

Figure EQ-2
Comparison of Richter Scale and Modified Mercalli Intensity Scale

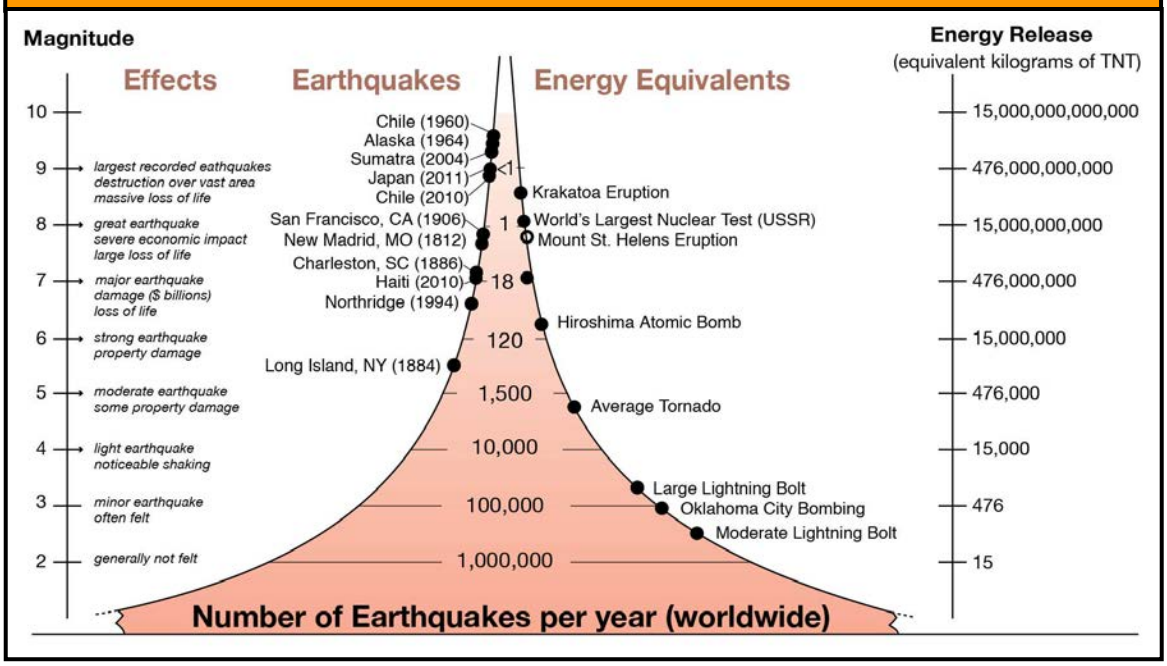
Richter Scale	Modified Mercalli Scale	Observations
1.0 – 1.9	I	Felt by very few people; barely noticeable. No damage.
2.0 – 2.9	II	Felt by a few people, especially on the upper floors of buildings. No damage.
3.0 – 3.9	III	Noticeable indoors, especially on the upper floors of buildings, but may not be recognized as an earthquake. Standing cars may rock slightly; vibrations similar to the passing of a truck. No damage.
4.0	IV	Felt by many indoors and a few outdoors. Dishes, windows, and doors disturbed. Standing cars rocked noticeably. No damage.
4.1 – 4.9	V	Felt by nearly everyone. Small, unstable objects displaced or upset; some dishes and glassware broken. Negligible damage.
5.0 – 5.9	VI	Felt by everyone. Difficult to stand. Some heavy furniture moved. Weak plaster may fall and some masonry, such as chimneys, may be slightly damaged. Slight damage.
6.0	VII	Slight to moderate damage to well-built ordinary structures. Considerable damage to poorly-built structures. Some chimneys may break. Some walls may fall.
6.1 – 6.9	VIII	Considerable damage to ordinary buildings. Severe damage to poorly built buildings. Some walls collapse. Chimneys, monuments, factory stacks, columns fall.
7.0	IX	Severe structural damage in substantial buildings, with partial collapses. Buildings shifted off foundations. Ground cracks noticeable.
7.1 – 7.9	X	Most masonry and frame structures and their foundations destroyed. Some well-built wooden structures destroyed. Train tracks bent. Ground badly cracked. Landslides.
8.0	XI	Few, if any structures remain standing. Bridges destroyed. Wide cracks in ground. Train tracks bent greatly. Wholesale destruction.
> 8.0	XII	Total damage. Lines of sight and level are distorted. Waves seen on the ground. Objects thrown up into the air.

Sources: Michigan Technological University, Department of Geological and Mining Engineering and Sciences, UPSeis.
U.S. Geological Survey.

How often do earthquakes occur?

Earthquakes occur every day. Magnitude 2 and smaller earthquakes occur several hundred times a day worldwide. These earthquakes are known as micro earthquakes and are generally not felt by humans. Major earthquakes, greater than magnitude 7, generally occur at least once a month. **Figure EQ-3** illustrates the approximate number of earthquakes that occur worldwide per year based on magnitude. This figure also identifies manmade and natural events that release approximately the same amount of energy for comparison.

Figure EQ-3
Approximate Number of Earthquakes Recorded Annually



Source: Incorporated Research Institutions for Seismology, Education and Outreach Series, "How Often Do Earthquakes Occur?"

HAZARD PROFILE

The following details the location of known fault zones and geologic structures, identifies past occurrences of earthquakes, details the severity or extent of each event (if known); identifies the locations potentially affected and estimates the likelihood of future occurrences (Local Mitigation Planning Policy Guide Element B1-b through B1-f).

Are there any faults located within the County?

No, there are no fault zones or systems located in Macoupin County. While no known fault zones or systems are located in the County, there is one geologic structure, the Nilwood Anticline. The Nilwood Anticline is only about six miles long, beginning east of Nilwood and trending southeast past Standard City. It is not part of a larger system.

When have earthquakes occurred previously? What is the extent of these previous quakes?

According to the Illinois State Geological Survey (ISGS), the U.S. Geological Survey and Center for Earthquake Research and Information (CERI) at the University of Memphis, one

Earthquake Fast Facts – Occurrences

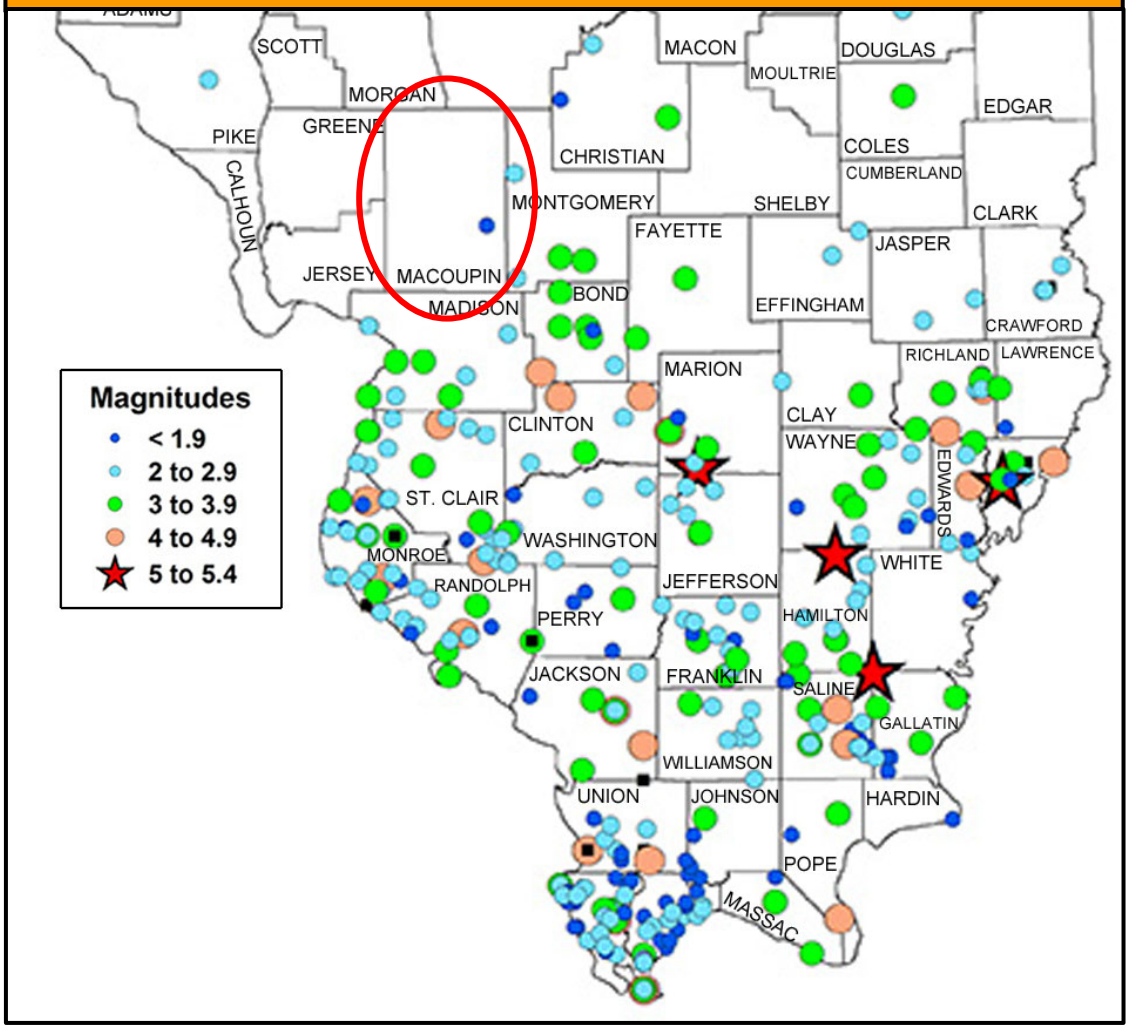
Earthquakes Originating in the County (1795 – 2023): ***1***
Fault Zones Located within the County: ***None***
Geological Structures Located within the County: ***1***
Fault Zones Located in Adjacent Counties: ***None***
Earthquakes Originating in Adjacent Counties (1795 – 2023): ***12***
Fault Zones Located in Adjacent Counties: ***None***
Geological Structures Located in Adjacent Counties: ***7***

earthquake has originated in Macoupin County during the last 200 years. **Figure EQ-4** provides basic details of the event while **Figure EQ-5** illustrates the epicenter of the earthquake in Macoupin County.

Figure EQ-4
Earthquakes Originating in Macoupin County

Date	Magnitude	Intensity	Location
6/28/1987	1.5	n/a	five miles northeast of Gillespie

Figure EQ-5
Earthquakes Originating in Southern Illinois



Source: Illinois State Geological Survey.

Macoupin County residents also felt ground shaking caused by several earthquakes that have originated in southern Illinois. The following provides a brief description of a few of the larger events that have occurred.

- On April 18, 2008, a magnitude 5.2 earthquake was reported in southeastern Illinois near Bellmont in Wabash County. The earthquake was located along the Wabash Valley seismic zone. Minor structural damage was reported in several towns in Illinois and Kentucky. Ground shaking was felt over all or parts of 18 states in the central U.S. and southern Ontario, Canada.

- A magnitude 5.2 earthquake took place on June 10, 1987, in southeastern Illinois near Olney in Richland County. This earthquake was also located along the Wabash Valley seismic zone. Only minor structural damage was reported in several towns in Illinois and Indiana. Ground shaking was felt over all or parts of 17 states in the central and eastern U.S. and southern Ontario, Canada.

- The strongest earthquake in the central U.S. during the 20th century occurred along the Wabash Valley seismic zone in southeastern Illinois near Dale in Hamilton County. This magnitude 5.4 earthquake occurred on November 9, 1968, with an intensity estimated at VII for the area surrounding the epicenter. Moderate structural damage was reported in several towns in south-central Illinois, southwest Indiana, and northwest Kentucky. Ground shaking was felt over all or parts of 23 states in the central and eastern U.S. and southern Ontario, Canada.

Three of the ten largest earthquakes ever recorded within the continental U.S. took place in 1811 and 1812 along the New Madrid seismic zone. This zone lies within the central Mississippi Valley and extends from northeast Arkansas through southeast Missouri, western Tennessee, western Kentucky, and southern Illinois. These magnitude 7.5 and 7.3 major earthquakes were centered near the town of New Madrid, Missouri and caused widespread devastation to the surrounding region and were felt by people in cities as far away as Pittsburgh, Pennsylvania and Norfolk, Virginia.

The quakes locally changed the course of the Mississippi River creating Reelfoot Lake in northwestern Tennessee. These earthquakes were not an isolated incident. The New Madrid seismic zone is one of the most seismically active areas of the U.S. east of the Rockies. Since 1974 more than 4,000 earthquakes have been recorded within this seismic zone, most of which were too small to be felt.

What locations are affected by earthquakes? What is the extent of future potential earthquakes?

Earthquake events generally affect the entire County. Earthquakes, like drought, impact large areas extending across an entire region and affecting multiple counties. Macoupin County's proximity to multiple fault zones, both large and small, makes the entire area likely to be affected by an earthquake if these faults become seismically active.

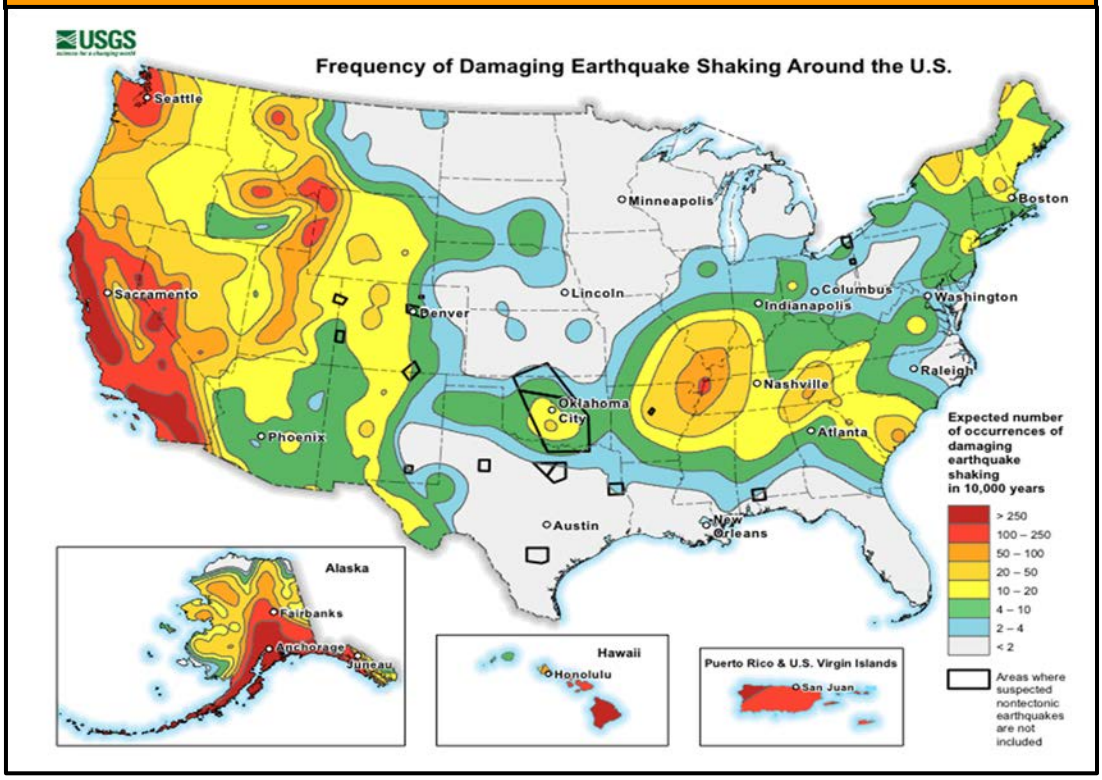
According to the USGS, Macoupin County can expect 4 to 20 occurrences of damaging earthquake shaking over a 10,000-year period. **Figure EQ-6** illustrates the frequency of damaging earthquake shaking around the U.S.

What is the probability of future earthquake events occurring based on historical data?

As with flooding, calculating the probability of future earthquakes changes depending on the magnitude of the event. According to the ISGS, Illinois is expected to experience a magnitude 3.0 earthquake every year, a magnitude 4.0 earthquake every four years and a magnitude

5.0 earthquake every 20 years. The likelihood of an earthquake with a magnitude of 6.3 or greater occurring somewhere in the central U.S. within the next 50 years is between 86% and 97%.

Figure EQ-6
Frequency of Damaging Earthquake Shaking Around the U.S.



Source: U.S. Geological Survey.

While the major earthquakes of 1811 and 1812 do not occur often along the New Madrid fault, they are not isolated events. In recent decades, scientists have collected evidence that earthquakes similar in size and location to those felt in 1811 and 1812 have occurred several times before within the central Mississippi Valley around 1450 A.D., 900 A.D. and 2350 B.C.

The general consensus among scientists is that earthquakes similar to the 1811-1812 earthquakes are expected to recur on average every 500 years. The U.S. Geological Survey and the Center for Earthquake Research and Information (CERI) at the University of Memphis estimates that for a 50-year period the probability of a repeat of the 1811-1812 earthquakes is between 7% and 10% and the probability of an earthquake with a magnitude of 6.0 or larger is between 25% and 40%.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions; specifies the unique and varied risk differences across the planning area and between participating jurisdictions; identifies the impacts on public health and property (if known); and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from earthquakes (Local Mitigation Planning Policy Guide Element B1-f, B2-a, and B2-b).

Are the participating jurisdictions vulnerable to earthquakes?

Yes. All of Macoupin County is vulnerable to earthquakes. Since 2014, no earthquakes have originated in Macoupin County.

The unique geological formations topped with glacial drift soils found in the central U.S. conduct an earthquake's energy farther than in other parts of the Nation. Consequently, earthquakes that originate in the Midwest tend to be felt at greater distances than earthquakes with similar magnitudes that originate on the West Coast.

Earthquake Fast Facts – Risk

Earthquake Risk/Vulnerability:

- Public Health & Safety – Light/Moderate Quake within the County or immediate region: ***Low***
- Public Health & Safety – Strong Quake in the region: ***Low to Medium***
- Buildings/Infrastructure/Critical Facilities – Light/ Moderate Quake within the County or immediate region: ***Low***
- Buildings/Infrastructure/Critical Facilities – Strong Quake in the region: ***Low to Medium***

This vulnerability, found throughout most of Illinois and all of Macoupin County, is compounded by relatively high water tables within the region. When earthquake shaking mixes the groundwater and soil, ground support is further weakened thus adding to the potential structural damages experienced by buildings, roads, bridges, electrical lines, and natural gas pipelines.

The *Projected Earthquake Intensities Map* prepared by the Missouri State Emergency Management Agency predicts that if a magnitude 6.7 earthquake were to take place anywhere along the New Madrid seismic zone, then the highest projected intensity felt in Macoupin County would be a VI on the Modified Mercalli Intensity Scale. If a magnitude 8.6 earthquake were to occur, then the highest projected intensity felt would be an VIII.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by IEMA-OHS classifies Macoupin County's hazard rating for earthquake as "very low". IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.

For earthquakes, FEMA's National Risk Index (NRI) rates the County as a whole as "Very Low". Twelve of the 13 census tracts are rated "Relatively Moderate" and one census tract is rated "Relatively High" for earthquakes. **Figure R-4** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of earthquakes?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, all of the participants, with the exception of Benld, Nilwood, North Mac CUSD #34, and Royal Lakes consider specific assets within their jurisdictions vulnerable to earthquakes. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to earthquakes.

What impacts resulted from the recorded earthquake events?

Property damage figures were either unavailable or none were recorded, and no injuries or fatalities were reported as a result of the earthquake that originated in Macoupin County. While Macoupin

County residents felt the earthquakes that have occurred in other parts of Illinois, no damages were reported as a result of these events. Given the magnitude of the great earthquakes of 1811 and 1812, it is almost certain that individuals in what is now Macoupin County felt those quakes; however, historical records do not indicate the intensity or impacts that these quakes had on the County.

What other impacts can result from earthquakes?

Earthquakes can impact human life, health, and public safety. **Figure EQ-7** details the potential impacts that may be experienced by the County should a magnitude 6.0 or greater earthquake occur in the region.

Figure EQ-7
Potential Earthquake Impacts

Direct	Indirect
Buildings • Temporary displacement of businesses, households, schools, and other critical services where heat, water and power are disrupted • Long-term displacement of businesses, households, schools, and other critical services due to structural damage or fires *Transportation* • Damages to bridges (i.e., cracking of abutments, subsidence of piers/supports, etc.) • Cracks in the pavement of critical roadways • Increased traffic on Interstate, U.S., and State Routes (especially if the quake originates along the New Madrid fault zone) as residents move out of the area to seek shelter and medical care and as emergency response, support services and supplies move south to aid in recovery • Misalignment of rail lines due to landslides (most likely near stream crossings), fissures and/or heaving *Utilities* • Downed power and communication lines • Breaks in drinking water and sanitary sewer lines resulting in the temporary loss of service • Disruptions in the supply of natural gas due to cracking and breaking of pipelines *Health* • Injuries/deaths due to falling debris and fires *Other* • Cracks in the earthen dams of the lakes and reservoirs within the County which could lead to dam failures	*Health* • Use of County health facilities to treat individuals injured closer to the epicenter • Emergency services (ambulance, fire, law enforcement) may be needed to provide aid in areas where damage was greater *Other* • Disruptions in land line telephone service throughout an entire region (i.e., central and southern Illinois) • Depending on the seasonal conditions present, more displacements may be expected as those who may not have enough water and food supplies seek alternate shelter due to temperature extremes that make their current housing uninhabitable

What is the level of vulnerability to public health and safety from earthquakes?

The risk or vulnerability to public health and safety from an earthquake is dependent on the intensity and location of the event. Since there are no known faults in Macoupin County, the

likelihood that an earthquake will originate in the County is very small, decreasing the chances for catastrophic damages. However, if a light earthquake originates within the County or from the structures in the immediate region, the risk or vulnerability to public health and safety is considered ***low***. This risk is elevated to ***low to medium*** for a strong earthquake originating in the immediate region.

Are existing buildings, infrastructure, and critical facilities vulnerable to earthquakes?

Yes. All existing buildings, infrastructure, and critical facilities located in Macoupin County and the participating jurisdictions are vulnerable to damages from earthquakes. However, given the County's size (about 45,000 individuals), its population density, the fact that there are few buildings higher than two stories (with the exception of grain elevators and a few multi-story buildings in the larger municipalities such as Carlinville and Staunton) tempered by the potential for magnitude 5.0 and above earthquakes to occur in the immediate region, the damage is anticipated to be slight with only superficial structure damage such as cracks in weak plaster and masonry.

If a strong earthquake (6.0 – 6.9) were to occur in the region, then unreinforced masonry buildings are most at risk during an earthquake because the walls are prone to collapse outward. Steel and wood buildings have more ability to absorb the energy from an earthquake while wood buildings with proper foundation ties have rarely collapsed in earthquakes. In this scenario building damage in Macoupin County would range from moderate to considerable for well-built ordinary structures and considerable to severe for poorly-built structures. **Figure EQ-8**, located at the end of this section, identifies the number of unreinforced masonry buildings that serve as critical facilities within the participating jurisdictions.

If the epicenter of a magnitude 7.6 earthquake were to originate anywhere along the New Madrid seismic zone, the highest projected Modified Mercalli intensity felt in Macoupin County would be a VII according to the *Projected Earthquake Intensities Map* prepared by the Missouri State Emergency Management Agency.

An earthquake also has the ability to damage infrastructure and critical facilities such as roads and utilities. In the event of a major earthquake, bridges are expected to experience moderate damage such as cracking in the abutments and subsidence of piers and supports. The structural integrity may be compromised to the degree where safe passage is not possible, resulting in adverse travel times as alternate routes are taken. Some rural families may become isolated where alternate paved routes do not exist. In addition, cracks may form in the pavement of key roadways. **Figure R-5** lists the number of each type of critical infrastructure by jurisdiction.

An earthquake may also down overhead power and communication lines causing power outages and disruptions in communications. Cracks or breaks may form in natural gas pipelines and drinking water and sewage lines resulting in temporary loss of service. In addition, an earthquake could cause cracks to form in the earthen dams located within the County, increasing the likelihood of a dam failure.

As with public health and safety, the risk or vulnerability to buildings, infrastructure and critical facilities is dependent on the intensity and location of the event. The risk to buildings,

infrastructure and critical facilities is considered to be ***low*** for a light to moderate earthquake that originates within the County or immediate region. This risk is elevated to ***low to medium*** for a strong earthquake originating along seismic zones in the region (i.e., New Madrid).

Are future buildings, infrastructure, and critical facilities vulnerable to earthquakes?

Yes. All future buildings, infrastructure and critical facilities located in Macoupin County and the participating jurisdictions are vulnerable to damage from earthquakes. Only one of the participating municipalities have building codes in place, and these codes do not contain seismic provisions that address structural vulnerability for earthquakes. As a result, there is the potential for future buildings, infrastructure and critical facilities to face some of the same vulnerabilities as those of existing buildings, infrastructure and critical facilities described previously.

What are the potential dollar losses to vulnerable structures from earthquakes?

Since property damage information was either unavailable or none was recorded for the documented earthquakes that impacted Macoupin County, there is no way to accurately estimate future potential dollar losses to vulnerable structures. However, according to Macoupin County Clerk the total assessed values of just residential properties in the planning area is $851,011,847. Since all of the structures in the planning area are susceptible to earthquake impacts to varying degrees, this total represents the countywide property exposure to earthquake events.

Given Macoupin County's proximity to geologic structures and fault zones, both large and small, and the fact that all structures within the County are vulnerable to damage, it is likely that there will be future dollar losses from any earthquake ranging from strong to great. As a result, participating jurisdictions were asked to consider mitigation projects that could provide wide ranging benefits for reducing the impacts or damages associated with earthquakes.

Figure EQ-8
Number of Unreinforced Masonry Buildings Serving as Critical Facilities by Jurisdiction
(Sheet 1 of 2)

Participating Jurisdiction	Government[1]	Law Enforcement	Fire Stations	Ambulance Service	Schools	Drinking Water	Wastewater Treatment	Medical[2]	Healthcare Facilities[3]
Macoupin County	---	---	---	---	---	---	---	---	---
Benld	---	---	---	---	---	---	---	---	---
Brighton	---	---	---	---	---	---	---	---	---
Bunker Hill	---	---	---	---	---	---	---	---	---
Carlinville	---	---	---	---	---	---	---	---	---
Eagarville	---	---	---	---	---	---	---	---	---
Gillespie	1	---	---	---	1	---	---	2	---
Girard	---	---	---	---	---	---	---	---	---
Mount Clare	---	---	---	---	---	---	---	---	---
Nilwood	---	---	1	---	---	---	---	---	---
Royal Lakes	1	---	---	---	---	---	---	---	---
Staunton	---	---	---	---	---	---	---	---	---
Virden	1	1	---	---	---	---	1	---	---

[1] Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, etc.
[2] Medical includes: public health departments, hospitals, urgent/prompt care, and medical clinics.
[3] Healthcare Facilities include: nursing homes, skilled care facilities, memory care facilities, residential group homes, etc.
--- Indicates jurisdiction does not own/maintain any critical facilities within that category.

Figure EQ-8
Number of Unreinforced Masonry Buildings Serving as Critical Facilities by Jurisdiction
(Sheet 2 of 2)

Participating Jurisdiction	Government[1]	Law Enforcement	Fire Stations	Ambulance Service	Schools	Drinking Water	Wastewater Treatment	Medical[2]	Healthcare Facilities[3]
Brighton Township	---	---	---	---	---	---	---	---	---
Bunker Hill CUSD #8	---	---	---	---	---	---	---	---	---
Carlinville CUSD #1	---	---	---	---	---	---	---	---	---
Gillespie CUSD #7	---	---	---	---	---	---	---	---	---
North Mac CUSD #34	---	---	---	---	4	---	---	---	---
Southwestern CUSD #9	---	---	---	---	---	---	---	---	---
Staunton CUSD #6	---	---	---	---	---	---	---	---	---
Brighton Betsey Ann FPD	---	---	---	---	---	---	---	---	---
Girard FPD	---	---	---	---	---	---	---	---	---
Medora Community FPD	---	---	---	---	---	---	---	---	---
Mount Olive Volunteer FPD	---	---	---	---	---	---	---	---	---
Unit 7 FPD	---	---	---	---	---	---	---	---	---
Carlinville Area Hospital	---	---	---	---	---	---	---	3	---
Community Hospital of Staunton	---	---	---	---	---	---	---	---	---
Henderson Water District	---	---	---	---	---	---	---	---	---
Jersey County Rural Water	---	---	---	---	---	---	---	---	---

[1] Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, etc.
[2] Medical includes: public health departments, hospitals, urgent/prompt care, and medical clinics.
[3] Healthcare Facilities include: nursing homes, skilled care facilities, memory care facilities, residential group homes, etc.
--- Indicates jurisdiction does not own/maintain any critical facilities within that category.

3.9 MINE SUBSIDENCE

HAZARD IDENTIFICATION

What is a mine?

A mine is a pit or excavation made in the earth for the purpose of extracting minerals or ore. Mines were developed in Illinois to extract coal, clay, shale, limestone, dolomite, silica sand, tripoli, peat, ganister, lead, zinc, and fluorite.

What is mining?

Mining is the process of extracting minerals or ore from a mine. There are two common mining methods: surface mining and sub-surface (underground) mining. This section focuses on underground mining practices conducted in Macoupin County.

Mining has long figured prominently into Illinois' history. According to the National Mining Association, Illinois has the second largest recoverable reserves of coal in the country, behind only Montana. Coal deposits can be found under 86 of the 102 counties in Illinois and underground mining operations have been conducted in at least 72 counties. **Figure MS-1** shows the extent of coal deposits (Pennsylvanian rocks) present in Illinois and the mined-out areas from surface and underground coal mining. In 2018, Illinois ranked fourth in the U.S. in coal production according to the National Mining Association.

The first commercial coal mine in Illinois is thought have started in Jackson County about 1810. Since that time, there have been more than 3,800 underground coal mines and 363 underground metal and industrial mineral mines operated in Illinois. Almost all of these mines have been abandoned over the years. According to ISGS, there were nine active underground coal mines in Illinois in 2021. The U.S. Geological Survey identified nine active metal and industrial mineral underground mines in Illinois in their most recent Mineral Industry Survey.

What methods are used in underground mining?

Much of Illinois coal lies too deep for surface mining and requires extraction using underground mining methods. There are three main methods of underground mining that have been used in Illinois over the years: room-and-pillar, high-extraction retreat and longwall. The following provides a brief description of each.

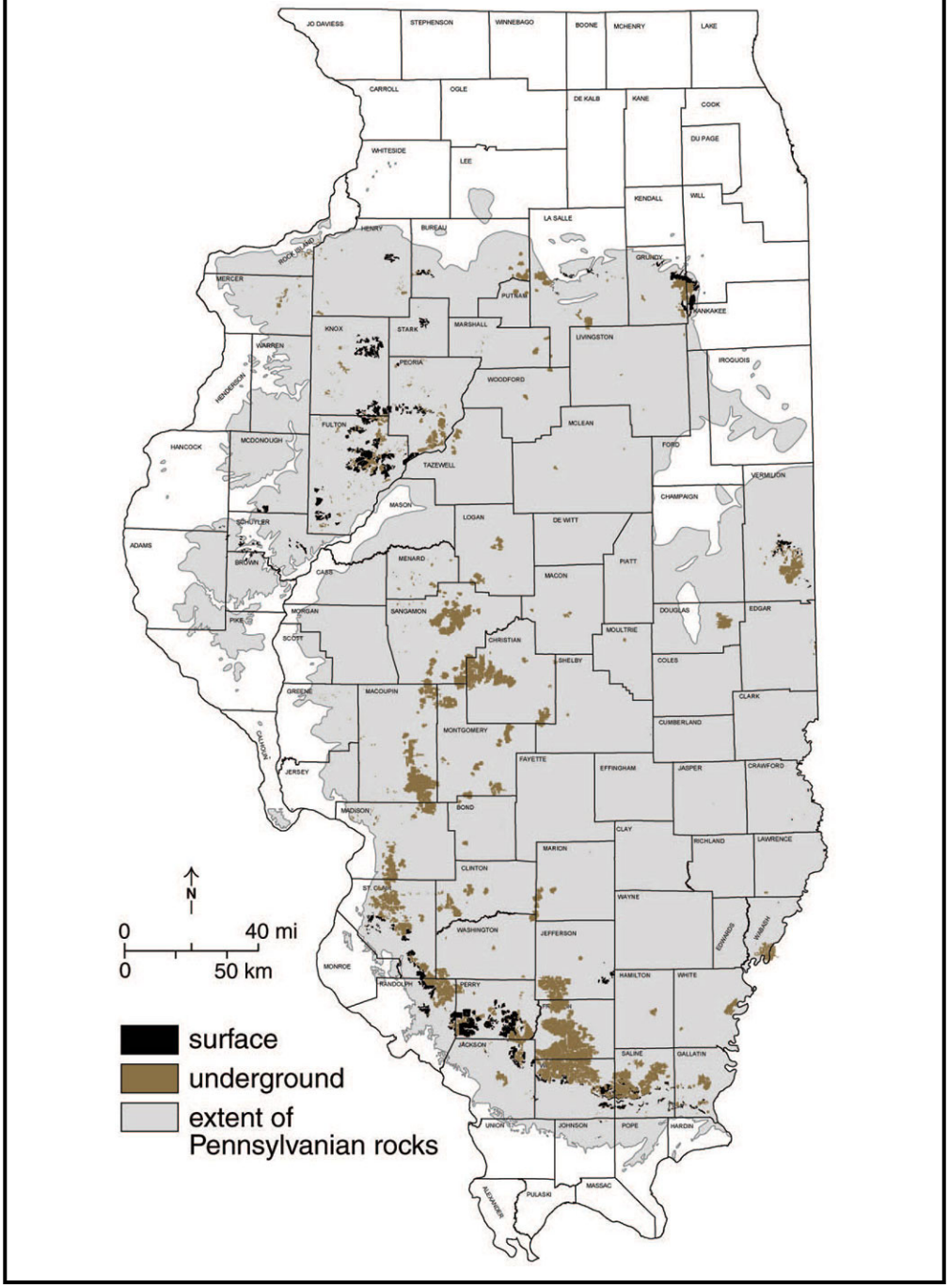
Room-and-Pillar

In the room-and-pillar system, the areas where coal is removed are referred to as "rooms" and the blocks of coal left in place to support the mine's roof and surface are referred to as "pillars". A "panel" refers to a group of rooms isolated from other room groups by surrounding pillars and generally accessed from only one entryway. The room-and-pillar method that was generally used before the early 1900s was characterized by rooms that varied considerably in length, width and sometimes direction, forming irregular mining patterns.

Modern room-and-pillar mines have a regular configuration of production areas (panels) and entryways, and the rooms and entries range from 18 to 24 feet, which is considerably narrower than in older mines. Generally, modern room-and-pillar mining methods recover less than 50% to

60% of the coal in a panel. Most underground mines in Illinois have used a type of room-and-pillar pattern.

Figure MS-1
Coal Mine Deposits & Mined Areas in Illinois



Source: Illinois Department of Natural Resources & Illinois State Geological Survey.

High-Extraction Retreat

High-extraction retreat mining operations first develop a room-and-pillar production area (panel). The miners then systematically begin taking additional coal from the pillars that are left behind. The secondary extraction occurs in a retreating fashion, working from the outer edges of the panel to the main entries. Most of the coal pillars which support the roof are removed shortly after a few rows of rooms and pillars have been formed, leaving only small pillars.

The size and number of pillars left to maintain worker safety varies depending on underground geologic conditions. Roof collapses are controlled by the use of temporary roof supports and planned subsidence of the surface is initiated immediately. Since planned subsidence is part of this operation, this method requires the legal rights to the ground surface. High-extraction retreat methods recover up to 80% to 90% of the coal in a panel. No Illinois mines currently use high-extraction retreat mining, but from the 1940s to 2002, this method was used in the State.

Longwall

Modern longwall mining methods remove coal along a straight working face within defined panels (in this case a solid block of coal), up to 1 to 2 miles long and about 1,000 feet wide. Room-and-pillar methods must be used in conjunction with longwall mining. Like high-extraction retreat, longwall mining begins at the outer edges and works toward the main entries. This fully-mechanized method uses a rotating cutting drum or shearer that works back and forth across the coal face. The coal falls onto a conveyer below the cutting machine and is transported out of the mine.

All of this is performed under a canopy of steel supports that sustains the weight of the roof along the mining surface. As the coal is mined the steel supports advance. The mine roof immediately collapses behind the moving supports, causing 4 to 6 feet of maximum settling of the ground surface over the panel. Since planned subsidence is part of this operation, this method requires the legal rights to the ground surface. Longwall mining methods recover 100% of the coal in a panel.

What is mine subsidence?

Mine subsidence is the sinking or shifting of the ground surface resulting from the collapse of an underground mine. Subsidence is possible in any area where minerals or ore have been undermined. Most of the mine subsidence in Illinois is related to coal mining, which represents the largest volume extracted and area undermined of any solid commodity in the State.

Mine subsidence can be planned, as with modern high-extraction retreat and longwall mining techniques, or it can occur as the result of age and instability. For many years, underground mining was not tightly regulated and not much thought was given to the long-term stability of the mines since most of the land over the mine was sparsely populated. Once mining operations were complete, the mine was abandoned. As cities and towns grew up around the mines, many urban and residential areas were built over or near undermined areas.

ISGS estimates that approximately 333,000 housing units are located in close proximity to underground mines and may potentially be exposed to mine subsidence while approximately 201,000 acres of urban and developed land overlie or are immediately adjacent to underground

mines. Most experts agree that room-and-pillar mines will eventually experience some degree of subsidence, but currently there is no way to know when or exactly where it will occur.

What types of mine subsidence can occur in Illinois?

In Illinois mine subsidence typically takes one of two forms: pit subsidence or sag (trough) subsidence. The following provides a brief description of each.

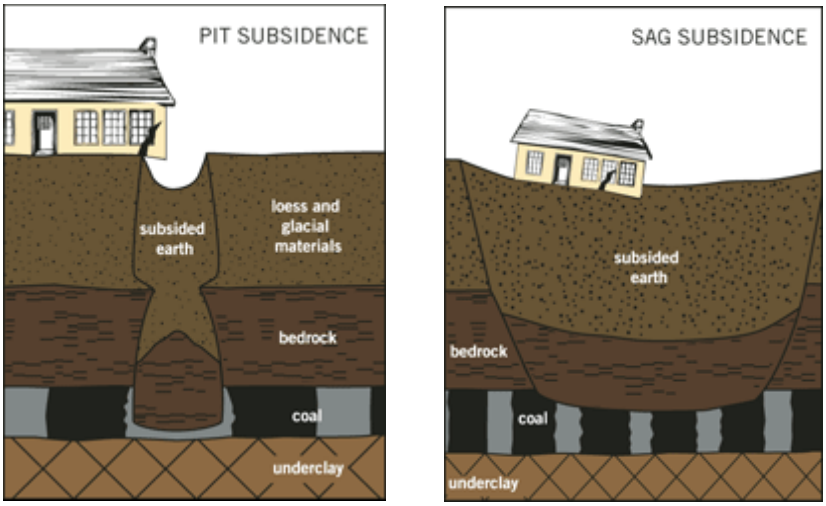
Pit Subsidence

Pit subsidence generally occurs when the roof of a shallow mine (less than 100 feet deep) collapses and forms a bell-shaped hole at the ground's surface, 6 to 8 feet deep and 2 to 40 feet across. **Figure MS-2** provides an illustration of pit subsidence. This type of subsidence forms very quickly causing sudden and swift ground movement. While the probability of a structure being damaged by pit subsidence is generally low since most pits are relatively small, structural damage can occur if pit subsidence develops under the corner of a building, the support posts of a foundation or another critical spot.

Sag (Trough) Subsidence

Sag or trough subsidence generally forms a gentle depression in the ground's surface that can spread over an entire mine panel and affect several acres of land. A major sag can develop suddenly within a few hours or days, or gradually over years. This type of subsidence may originate over places in the mine where pillars have disintegrated and collapsed or where pillars are being pushed into the relatively soft underclay that forms the floor of most mines. **Figure MS-2** illustrates sag subsidence. This is the most common type of mine subsidence and can develop over mines of any depth. Given the relatively large area covered by sag subsidence, buildings, roads, driveways, sidewalks, sewer and water pipes and other utilities may experience damage.

Figure MS-2
Types of Mine Subsidence



Source: Illinois Mine Subsidence Insurance Fund.

What is the Illinois Mine Subsidence Insurance Fund?

Prior to 1979, traditional property owner's insurance did not cover mine subsidence nor was mine subsidence coverage available for purchase in Illinois. Since many mining companies in Illinois ceased operations long before mine subsidence occurred and insurance did not cover such damage, property owner who experienced subsidence damage had no recourse. Several high-profile incidents in the Metro East St. Louis area ultimately led to the passage of the Mine Subsidence Insurance Act in 1979. The Statute required insurers to make mine subsidence insurance available to Illinois homeowners and established the Illinois Mine Subsidence Insurance Fund (IMSIF). Later amendments to the Act gave the Fund the authority, with approval from the Director of Insurance, to set the maximum limits for mine subsidence coverage.

The IMSIF is a taxable enterprise created by Statute to operate as a private solution to a public problem. The purpose of the Fund is to assure financial resources are available to owners of property damaged by mine subsidence. The Fund fills a gap in the insurance market for the benefit of Illinois property owners at risk of experiencing mine subsidence damage.

All insurance companies authorized to write basic property insurance in Illinois are required to enter into a Reinsurance Agreement with the Fund and offer mine subsidence insurance coverage. Mine subsidence insurance covers damage caused by underground mining of any solid mineral resource. In the 34 counties where underground mining has been most prevalent, the Statute requires mine subsidence coverage be automatically included in both residential and commercial property policies. Coverage may be rejected in writing by the insured. **Figure MS-3** identifies the 34 counties where mine subsidence insurance is automatically included in property insurance policies.

In addition to providing reinsurance to insurers, the Fund also is responsible for conducting geotechnical investigations to determine if mine subsidence caused the damage, establishing rates and rating schedules, providing underwriting guidance to insurers, supporting and sponsoring mine subsidence related research and initiatives consistent with the public interest and educating the public about mine subsidence issues.

HAZARD PROFILE

The following details the location of underground mines, identifies past occurrences of mine subsidence, details the severity or extent of each event (if known); identifies the locations potentially affected and estimates the likelihood of future occurrences.

Are there any underground mines located in the County?

Mine Subsidence Fast Facts – Occurrences

Number of Underground Mines Located within the County: ***88***

Number of Mine Subsidence Events Reported ***4***

Probability of Future Mine Subsidence Events: ***High***

Yes. According to the Illinois State Geological Survey (ISGS) and the U.S. Geological Survey (USGS), there are 88 documented underground mines located in the County. A copy of the ISGS Directory of Coal Mines for Macoupin County is included in **Appendix N. Figure MS-4**, located at the end of this section, illustrates the locations of these mines. For detailed quadrangle maps of the undermined areas visit the ISGS ILMINES Viewer.

Figure MS-3
Counties Required to include Mine Subsidence Coverage in Property Insurance

Source: Illinois Mine Subsidence Insurance Fund.

When has mine subsidence occurred previously? What is the extent of these previous occurrences?

No comprehensive, publicly-accessible database detailing mine subsidence occurrences currently exists in Illinois. According to news articles and committee member records, there have been at least four mine subsidence events reported in Macoupin County between 2009 and 2023. Anecdotal information shared by Committee Members suggests that additional mine subsidence events have occurred within the County over the years. The following provides a brief summary of these previous occurrences as well as the extent or severity of each event.

- On March 27, 2009 hairline cracks appeared in the cinderblock walls of the new Benld Elementary School. The school, like most of the City, was built over an underground coal mine. Pillars under the school started to collapse and within 24 hours the effects of the mine subsidence were dramatically visible. Cracks wide enough to fit a hand in split the hallways, walls and gym floor. Pipes burst, the metal roof twisted and floors bowed and buckled. In some classrooms the floors dropped as far as two feet.

  This 7-year-old, $7.5 million state-of-the-art facility was declared too dangerous to use and ultimately condemned. Nearly 700 students had to be moved out of the building and temporarily housed at the Gillespie Middle School and High School for the remainder of the school year. The elementary school students were moved into a modular building in November 2009. A new elementary school was opened in the fall of 2013 just west of the

Middle School/High School campus in Gillespie after experts advised against rebuilding at the Benld site.

- In November, 2014 mine subsidence occurred along Schmidt Street in Wilsonville. According to former Village President, Annetta Veres, four homes suffered damage. The extent and amount of damage sustained was not available.
- During the early morning hours of April 8, 2015 residents on the southwest side of Benld awoke to loud noises and a local police officer noticed a bump in the pavement on West Dorsey Street at South Illinois Street indicating mine subsidence was occurring. A six-square block area was impacted with approximately 15 homes sustaining foundation damage, including large cracks in basement walls, garage floors and patio areas. Some doors wouldn't open. The roads in the area cracked and buckled. A large buckle in West Dorsey Street stood nearly one foot high and stretched the width of the road while small cracks spread throughout West Dorsey Street and South Illinois Street.

  Methane gas leaks from the coal mine bubbled up into the basements of at least three homes and infiltrated the City's sewer lines. Ameren shut off gas and electric to about 70 customers in the areas to prevent a methane explosion. Temporary evacuations were required and an emergency shelter was opened. Subsidence was clearly visible in a large open lot in the area. During the first two days the ground subsided approximately 19 inches in some areas according to state officials. Within a year, the ground had subsided an additional 21 inches, for a total of 40 inches.

The Benld Elementary School sustained irreparable damage as a result of mine subsidence on March 27, 2009.

Photo provided by James Pitchford, former Macoupin County EMA Coordinator

- In January 2016, another mine subsidence incident impacted Benld in an area just west of the subsidence experience in 2015. An additional five homes were damaged and many of the homes impacted in 2015 suffered additional damages.

According to the Illinois Mine Subsidence Insurance Fund (IMSIF), there were 165 confirmed mine subsidence claims submitted to the IMSIF for Macoupin County between 1980 and 2023. However, detailed information about the locations and damages sustained by claim were not made available. **Figure MS-5** provides a breakdown by year of the claims confirmed to have damage caused by mine subsidence.

What locations are affected by mine subsidence?

According to the Illinois State Geological Survey's (ISGS) *Proximity of Underground Mines to Urban and Developed Lands in Illinois* study published in 2009, there are approximately 73,792 acres (13.5% of the land area) and 9,973 housing units (47.6% of the total housing units) in Macoupin County are located in Zone 1, land over or adjacent to mapped mines and an additional

26,606 acres (4.9% of the land area) and 2,607 housing units (12.5% of the total housing units) in the County are located in Zone 2, land surrounding Zone 1 that could be affected if the mine boundaries are inaccurate or uncertain.

Figure MS-5
Illinois Mine Subsidence Insurance Fund Claims by Year – Macoupin County

Year	No. of Claims	Year	No. of Claims	Year	No. of Claims	Year	No. of Claims
1980	6	1991	1	2002	0	2013	3
1981	4	1992	5	2003	1	2014	6
1982	4	1993	6	2004	1	2015	27
1983	2	1994	3	2005	2	2016	7
1984	2	1995	2	2006	1	2017	13
1985	0	1996	1	2007	2	2018	15
1986	0	1997	2	2008	3	2019	11
1987	0	1998	2	2009	8	2020	3
1988	0	1999	1	2010	0	2021	4
1989	3	2000	0	2011	2	2022	1
1990	1	2001	0	2012	0	2023	10

Figure MS-6 identifies the location of the Zone 1 and 2 areas in Macoupin County. Based on this mapping, mine subsidence has the potential to impact Benld, Bunker Hill, Carlinville, Chesterfield, Eagarville, East Gillespie, Gillespie, Girard, Lake Ka-Ho, Medora, Mount Clare, Mount Olive, Nilwood, Sawyerville, Shipman, Standard City, Staunton, Virden, Wilsonville, White City as well as unincorporated Macoupin County.

On April 8, 2015 approximately 15 homes in Benld sustained foundation damage as the result of mine subsidence.

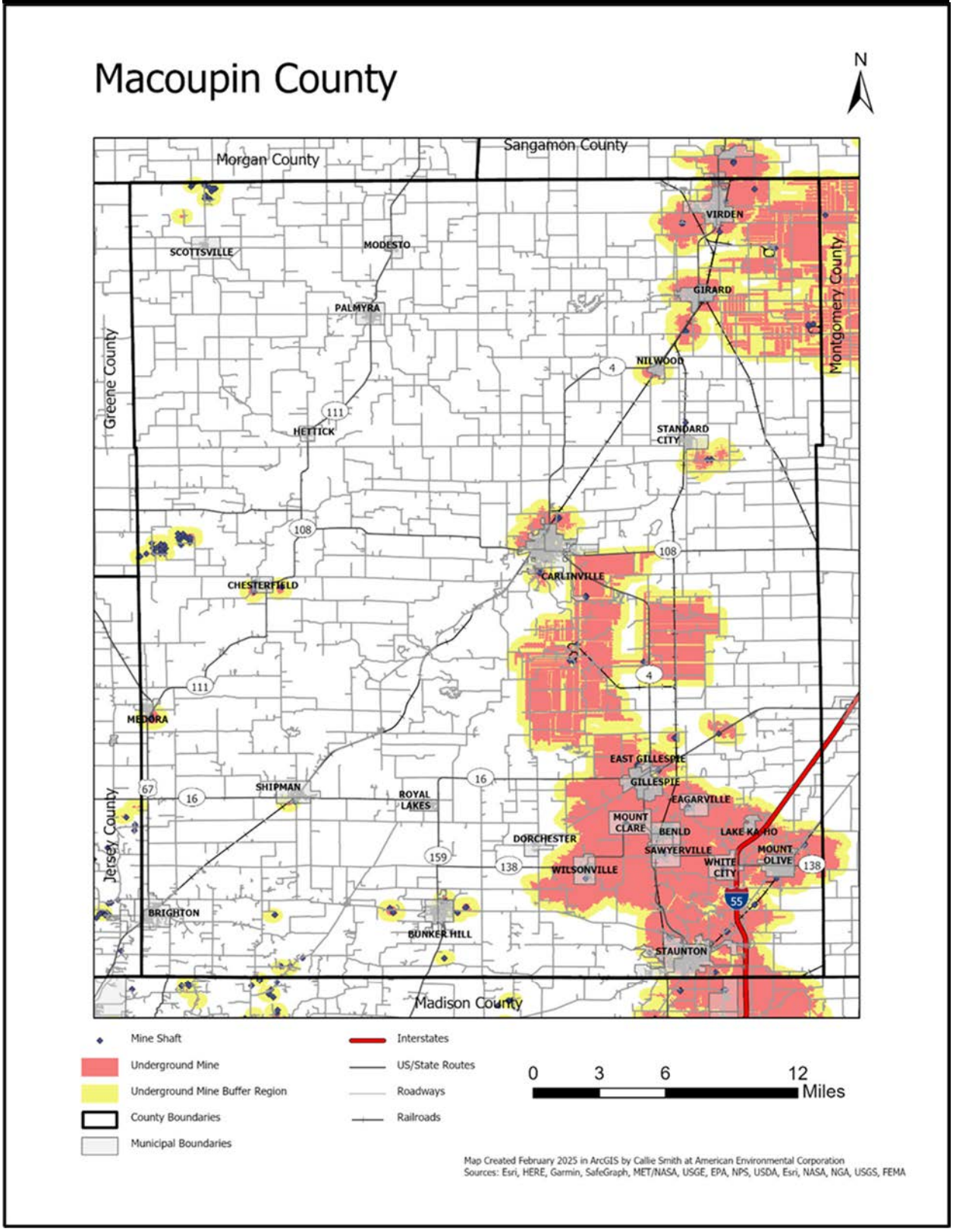
Photo provided by James Pitchford, former Macoupin County EMA Coordinator

What is the probability of future mine subsidence events occurring?

There are many variables that must be considered when calculating the probability of future mine subsidence events including whether subsidence has occurred previously in an area, the size, depth and age of the mine, the magnitude or extent of the failure as well as soil and weather conditions. The extent of future potential mine subsidence events is also a function of where current development is located relative to areas of past and present underground mining. According to the IMSIF, most experts agree that room and pillar mines will eventually experience some degree of collapse, but currently there is no way to know when or exactly where mine subsidence will occur.

Given the unpredictability of mine subsidence events, the variables involved and the lack of data available for Macoupin County, it is difficult to specifically establish the probability of future mine subsidence events without extensive research.

Figure MS-6
Areas Potentially Impacted by Mine Subsidence in Macoupin County



However, given the mining methods used, the age and location of the mines and the number of housing units located over or adjacent to undermined areas in the County, the probability that unincorporated Macoupin County, Benld, Bunker Hill, Carlinville, Eagarville, Gillespie, Girard, Mount Clare, Nilwood, Staunton, and Virden will experience future mine subsidence events is estimated to be ***low*** to ***medium*** and ***unlikely*** for the remaining participating jurisdictions and most of unincorporated Macoupin County. For the purposes of this analysis "unlikely" is defined as having a less than 2% chance of occurring in any given year, "low" is defined as having a less than a 10% chance of occurring in any given year and "medium" is defined as having up to a 50% chance of occurring in any given year.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from mine subsidence.

Are the participating jurisdictions vulnerable to mine subsidence?

Yes. Benld, Brighton Township, Bunker Hill, Bunker Hill CUSD #8, Carlinville, Carlinville Area Hospital, Carlinville CUSD #1, Community Hospital of Staunton, Eagarville, Gillespie, Gillespie CUSD #7, Girard, Girard, FPD, Henderson Water District, Jersey County Rural Water, Medora Community FPD, Mount Clare, Mount Olive Volunteer FPD, Nilwood, North Mac CUSD #34, Staunton, Staunton CUSD #6, Unit 7 FPD, and Virden, as well as the and parts of unincorporated Macoupin County are vulnerable to mine subsidence. None of the other participating jurisdictions or the remainder of the County are considered vulnerable. Since 2014, three confirmed mine subsidence events have occurred in Macoupin County.

According to ISGS, approximately 73,792 acres (13.5% of the land area) of Macoupin County are over or adjacent to mapped mines and vulnerable to mine subsidence while an additional 26,606 acres (4.9% of the land area) could be affected by mine subsidence if the mine boundaries are inaccurate or uncertain.

The *2023 Illinois Natural Hazard Mitigation Plan* prepared by IEMA-OHS classifies Macoupin's County's hazard rating for mine subsidence as "medium". IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high. FEMA's National Risk Index does not currently rate mine subsidence hazard.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of mine subsidence?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, 14 of the 19 participants located over undermined areas consider specific assets within its jurisdiction vulnerable to mine subsidence. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to mine subsidence.

What impacts resulted from the recorded mine subsidence events?

Property damage information was only available for one of the four mine subsidence events experienced between 2009 and 22023. Property damage information was unavailable for the remaining three reported occurrences.

According to news articles, the 2009 mine subsidence event at the Benld Elementary School resulted in the demolition of the 7-year-old, $7.5 million state-of-the-art facility. The new Ben-Gil Elementary School built to replace the Benld Elementary School opened in the fall of 2013 in Gillespie and cost $26 million to construct. **Appendix M** contains select photographs provided by former Macoupin County EMA Coordinator James Pitchford that illustrate the extent of the property damage sustained at the Benld Elementary School in March, 2009.

Mine Subsidence Fast Facts – Impacts/Risk

Mine Subsidence Impacts:

- IMSIF Claims Reimbursed (1980 – 2023): ***$13,243,228***
- Total Property Damage (1 event): ***$7,500,000***
- Total Crop Damage: ***n/a***
- Injuries: ***n/a***
- Fatalities: ***n/a***

Mine Subsidence Risk/Vulnerability:

- Public Health & Safety – Zones 1 & 2: ***Low***
- Public Health & Safety – Areas Outside Zones 1 & 2: ***Low***
- Buildings/Infrastructure/Critical Facilities – Zones 1 & 2: ***Medium***
- Buildings/Infrastructure/Critical Facilities – Areas Outside Zones 1 & 2: ***Low`***

According to the IMSIF, $13,243,228 in claims for confirmed damages were reimbursed in Macoupin County between 1980 and 2023. However, detailed breakdowns by claim and location were unavailable. **Figure MS-7** provides a breakdown by year of the reimbursements paid for mine subsidence damage in Macoupin County.

Figure MS-7
Illinois Mine Subsidence Insurance Fund Claim Reimbursements by Year – Macoupin County

Year	Amount	Year	Amount	Year	Amount	Year	Amount
1980	$0	1991	$0	2002	$17,262	2013	$53,259
1981	$14,484	1992	$283,176	2003	$69,438	2014	$172,571
1982	$48,747	1993	$8,613	2004	$44,246	2015	$121,644
1983	$63,643	1994	$127,916	2005	$135,584	2016	$750,613
1984	$68,012	1995	$184,735	2006	$141,594	2017	$1,188,063
1985	$57,923	1996	$158,965	2007	$1,434	2018	$867,306
1986	$85,650	1997	$181,557	2008	$403,863	2019	$2,188,452
1987	$38,771	1998	$6,642	2009	$605,417	2020	$1,584,074
1988	$0	1999	$75,667	2010	$172,370	2021	$829,652
1989	$0	2000	$111,188	2011	$394,149	2022	$925,238
1990	$0	2001	$1,532	2012	$0	2023	$1,059,778

No injuries or fatalities were reported as a result of any of the recorded mined subsidence events.

What other impacts can result from mine subsidence events?

The initial damage to a property from mine subsidence may appear suddenly or occur gradually over many years. Damage to structures can include:

- ❖ cracked, broken or damaged foundations
- ❖ cracks in the basement walls, ceilings, garage floors, driveways, sidewalks, or roadways
- ❖ jammed or broken doors and windows
- ❖ unlevel or tilted walls or floors
- ❖ doors that swing open or closed
- ❖ chimney, porch, or steps that separate from the rest of the structure
- ❖ in extreme cases, ruptured water, sewer, or gas lines

A structure need not lie directly over a mine to be affected by mine subsidence. It is extremely difficult to accurately gauge how far a property must be from a mine to ensure that it will be unaffected by mine subsidence. Each subsidence is unique and influenced by multiple factors.

What is the level of vulnerability to public health and safety from mine subsidence?

In terms of the risk or vulnerability to public health and safety from a mine subsidence event, there are several factors that must be taken into consideration including the age, size, and depth of the mine; the mining method employed; the extent of the development and infrastructure in the vicinity of the mine; and soil and weather conditions. When all of the factors are taken into consideration, the overall risk to public health and safety posed by a mine subsidence event in Macoupin County is considered to be ***low*** for both Zones 1 and 2 and all other portions of the County.

Are existing buildings, infrastructure, and critical facilities vulnerable to mine subsidence?

Yes. Buildings, infrastructure, and critical facilities located within Zones 1 and 2 are vulnerable to mine subsidence. According to ISGS, approximately 9,958 housing units (47.6% of the total housing units in the County) are located over or adjacent to mapped mines and vulnerable to mine subsidence while an additional 2,607 housing units (12.5% of the total housing units) could be affected by mine subsidence if the mine boundaries are inaccurate or uncertain. **Figure MS-8** identifies the number of critical facilities located within Zones 1 and 2 for the vulnerable jurisdictions for select categories.

In addition to impacting structures, mine subsidence can damage roads, bridges, and utilities. Roadways, culverts, and bridges can be weakened by mine subsidence and even destroyed if the subsidence occurs directly underneath of them. Water, sewer, power, and communication lines, both above and below ground, are also vulnerable to mine subsidence. Depending on the location of the subsidence, water, sewer, and power lines can experience ruptures causing major disruptions to vital services.

As with public health and safety, the risk or vulnerability to buildings, infrastructure and critical facilities is dependent on several factors including the age, size, and depth of the mine; the mining method employed; the extent of the development and infrastructure in the vicinity of the mine; and soil and weather conditions. When these factors are taken into consideration, the overall risk posed by mine subsidence to vulnerability to buildings, infrastructure and critical facilities in Macoupin County is considered to be ***medium*** for Zone 1 and ***low*** for Zone 2 and all other portions of the County.

Are future buildings, infrastructure, and critical facilities vulnerable to mine subsidence?

Yes. Any future buildings, infrastructure and critical facilities located within Zones 1 and 2 are vulnerable to mine subsidence. As a result, future buildings, infrastructure, and critical facilities face the same vulnerabilities as those of existing buildings, infrastructure and critical facilities described previously.

What are the potential dollar losses to vulnerable structures from mine subsidence?

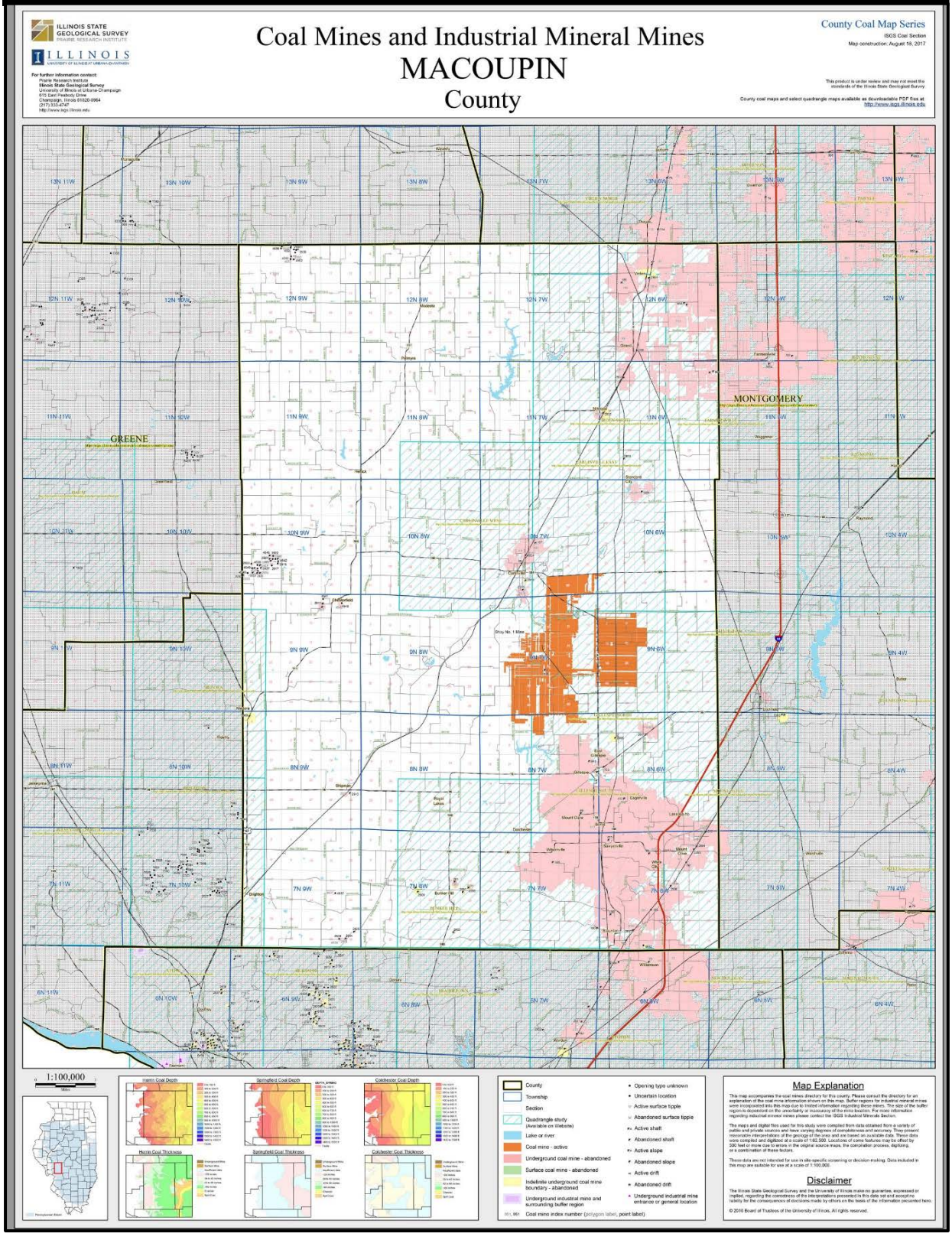
Unlike other hazards, there are no standard loss estimation models or methodologies for mine subsidence. Given the lack of recorded events and unpredictability of mine subsidence, sufficient information was not available to prepare a reasonable estimate of future potential dollar losses to vulnerable structure from mine subsidence. Still, those housing units that reside in Zone 1 have the potential to experience future dollar losses from mine subsidence.

Figure MS-8
Critical Facilities Located in Zones 1 and 2 by Jurisdiction

Participating Jurisdiction	Government[1]	Law Enforcement	Fire Stations	Ambulance Service	Schools	Drinking Water	Wastewater Treatment	Medical[2]	Healthcare Facilities[3]
Macoupin County	1	1	---	---	---	---	---	3	---
Benld	4	1	1	---	---	1	6	---	---
Bunker Hill	---	---	1	1	1	---	3	1	---
Carlinville	3	2	1	1	4	3	1	5	5
Eagarville	---	---	---	---	---	---	---	---	---
Gillespie	5	1	1	1	---	3	3	3	1
Girard	1	1	1	---	3	1	3	1	1
Mount Clare	1	---	---	---	---	1	2	---	---
Nilwood	2	---	1	---	---	1	2	---	---
Staunton	3	1	1	1	4	4	8	1	1
Virden	5	1	1	1	2	1	4	1	1
Brighton Township	---	---	---	---	---	---	---	---	---
Bunker Hill CUSD #8	---	---	---	---	1	---	---	---	---
Carlinville CUSD #1	---	---	---	---	3	---	---	---	---
Gillespie CUSD #7	---	---	---	---	5	---	---	---	---
North Mac CUSD #34	---	---	---	---	4	---	---	---	---
Staunton CUSD #6	---	---	---	---	3	---	---	---	---
Girard FPD	---	---	2	---	---	---	---	---	---
Medora Community FPD	---	---	1	---	---	---	---	---	---
Mount Olive Volunteer FPD	---	---	1	---	---	---	---	---	---
Unit 7 FPD	---	---	2	---	---	---	---	---	---
Carlinville Area Hospital	---	---	---	---	---	---	---	4	---
Comm. Hospital of Staunton	---	---	---	---	---	---	---	2	---
Henderson Water District	---	---	---	---	---	---	---	---	---
Jersey County Rural Water	---	---	---	---	---	---	---	---	---

[1] Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, etc.
[2] Medical includes: public health departments, hospitals, urgent/prompt care and medical clinics.
[3] Healthcare Facilities include: nursing homes, skilled care facilities, memory care facilities, residential group homes, etc.
--- Indicates the jurisdiction does not own/maintain any critical facilities within that category.

Figure MS-4
Underground Mines Located Macoupin County



3.10 DAM FAILURES

HAZARD IDENTIFICATION

What is the definition of a dam?

A dam is an artificial barrier constructed across a stream channel or a man-made basin for the purpose of storing, controlling or diverting water. Dams typically are constructed of earth, rock, concrete or mine tailings. The area directly behind the dam where water is impounded or stored is referred to as a reservoir.

According to the U.S. Army Corps of Engineers' National Inventory of Dams (NID), there are approximately 91,785 dams in the U.S. and Puerto Rico, with 1,639 dams located in Illinois. (The NID is maintained by the U.S. Army Corps of Engineers and is updated approximately every two years.) Of the 1,639 dams in Illinois, approximately 93.5% are constructed of earth.

What is the definition of a dam failure?

A dam failure is the partial or total collapse, breach or other failure of a dam that causes flooding downstream. In the event of a dam failure, the people, property and infrastructure downstream could be subject to devastating damages. The potential severity of a full or partial dam failure is influenced by two factors:

- the capacity of the reservoir and
- the density, type and value of development/infrastructure located downstream.

There are two categories of dam failures, "flood" or "rainy day" failures and "sunny day" failures. A "flood" or "rainy day" failure usually results when excess precipitation and runoff cause overtopping or a buildup of pressure behind a dam which leads to a breach. Even normal storm events can lead to "flood" failures if debris plugs the water outlets. Given the conditions that lead to a "flood" failure (i.e., rainfall over a period of hours or days), there is usually a sufficient amount of time to warn and evacuate residents downstream.

Unlike a "flood" failure, there is generally no warning associated with a "sunny day" failure. A "sunny day" failure is usually the result of improper or poor dam maintenance, internal erosion, vandalism or an earthquake. This unexpected failure can be catastrophic because it may not allow enough time to warn and evacuate residents downstream.

No one knows precisely how many dam failures have occurred in the U.S.; however, it's estimated that hundreds have taken place over the last century. Some of the worst failures have caused catastrophic property and environmental damage and have taken hundreds of lives. The worst dam failure in the last 50 years occurred on February 26, 1972 in Buffalo Creek, West Virginia. A tailings dam owned by the Buffalo Mining Company failed, taking 125 lives, injuring 1,100 individuals, destroying approximately 550 homes and causing property damage in excess of $50 million (approximately $298.6 million in 2017 based on the Bureau of Labor Statistics Consumer Price Index Inflation Calculator.)

Dam failures have been documented in every state, including Illinois. According to the Dam Incident Database compiled by the National Performance of Dams Program, there have been 10 reported dam failures with uncontrolled releases of the reservoir in Illinois since 1950.

What causes a dam failure?

Dam failures can result from one or more of the following:

- ***prolonged periods of rainfall and flooding*** (the cause of most failures);
- ***inadequate spillway capacity*** resulting in excess flow overtopping the dam;
- ***internal erosion*** caused by embankment or foundation leakage;
- ***improper maintenance*** (including failure to remove trees, repair internal seepage problems, maintain gates, valves and other operational components, etc.);
- ***improper design*** (including use of improper construction materials and practices);
- ***negligent operation*** (including failure to remove or open gates or valves during high flow periods);
- ***failure of an upstream dam on the same waterway***;
- ***landslides into reservoirs*** which cause surges that result in overtopping of the dam;
- ***high winds*** which can cause significant wave action and result in substantial erosion; and
- ***earthquakes*** which can cause longitudinal cracks at the tops of embankments that can weaken entire structures.

How are dams classified?

Each dam listed on the National Inventory of Dams is assigned a hazard potential classification rating per the "Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams." The classification system is based on the potential for loss of life and damage to property in the event of a dam failure. There are three classifications: High, Significant and Low. **Figure DF-1** provides a brief description of each hazard potential classification. It is important to note that the hazard potential classification assigned is not an indicator of the adequacy of the dam or its physical integrity and in no way reflects the current condition of the dam.

Figure DF-1
Dam Hazard Classification System

Hazard Potential Classification	Description
High	Those dams where failure or mis-operation result in probable loss of human life, regardless of the magnitude of other losses. The probable loss of human life is defined to signify one or more lives lost.
Significant	Those dams where failure or mis-operation result in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities or can impact other concerns. Significant hazard potential classification dams are often located in predominately rural or agricultural areas but could be located in areas with population and significant infrastructure.
Low	Those dams where failure or mis-operation results in no probable loss of human life and low economic and/or or environmental losses. Losses are principally limited to the dam owner's property.

Sources: Federal Emergency Management Agency
U.S. Army Corps of Engineers

HAZARD PROFILE

According to the USACE National Inventory of Dams, there are 97 classified dams located in Macoupin County. Of those 97 dams, only eight have a hazard potential classification of "High". The remaining 89 dams all have a hazard classification of ""Significant", "Low", or "Undetermined", do not have reservoirs with immense storage capacities and are not located in densely populated areas. Due to the limited impacts on the population, land use and infrastructure associated with a majority of the classified dams, only those dams that have "High" hazard potential classification will be analyzed as part of this Plan update.

The following details the location of "High" hazard classified dams, identifies past occurrences of dam failures, details the severity or extent of future potential failures (if known); identifies the locations potentially affected and estimates the likelihood of future occurrences.

Do any of the participating jurisdictions own "High" hazard dams?

No. None of the participating jurisdictions own a "High" hazard dam.

Are there any other publicly or privately-owned "High" hazard dams within the County?

Yes. While there are no other publicly-owned "High" hazard dams within the County, there are eight privately-owned "High" hazard dams. **Figure DF-2** provides a brief description of each dam.

When have dam failures occurred previously?

According to data from Stanford University's National Performance of Dams Incident Database and discussions with Committee members, there are no known recorded dam failures associated with the "High" hazard dams in Macoupin County.

Dam Failure Fast Facts – Occurrences

Number of "High" Hazard Classified Dams Located in the County: ***8***

Number of "High" Hazard Dams owned by Participating Jurisdictions: ***None***

Number of Dam Failures Reported: ***None***

Probability of Future Dam Failure Events: ***Low***

What is the extent of future potential dam failures?

According to the USACE National Inventory of Dams, an Emergency Action Plan (EAP) defining the extent or magnitude of a potential dam failure (water depth, area of impact) was not required to be developed for three of the eight "High" hazard dams in Macoupin County. None of the EAPs for the five remaining "High" hazard dams were made available to the Macoupin County Emergency Management Agency (EMA). As a result, a data deficiency exists in terms of estimating inundation times for various distances downstream.

What locations are affected by dam failure?

Figure DF-3 shows the location of **"**High" hazard classified dams in Macoupin County. Dam failures have the potential to impact the following municipalities/unincorporated areas:

- agricultural and wooded land along Horse Creek and its tributaries east-southeast of Girard in unincorporated Macoupin County;
- wooded and agricultural land along the Spanish Needle Creek and its tributaries south of Carlinville in unincorporated Macoupin County; and

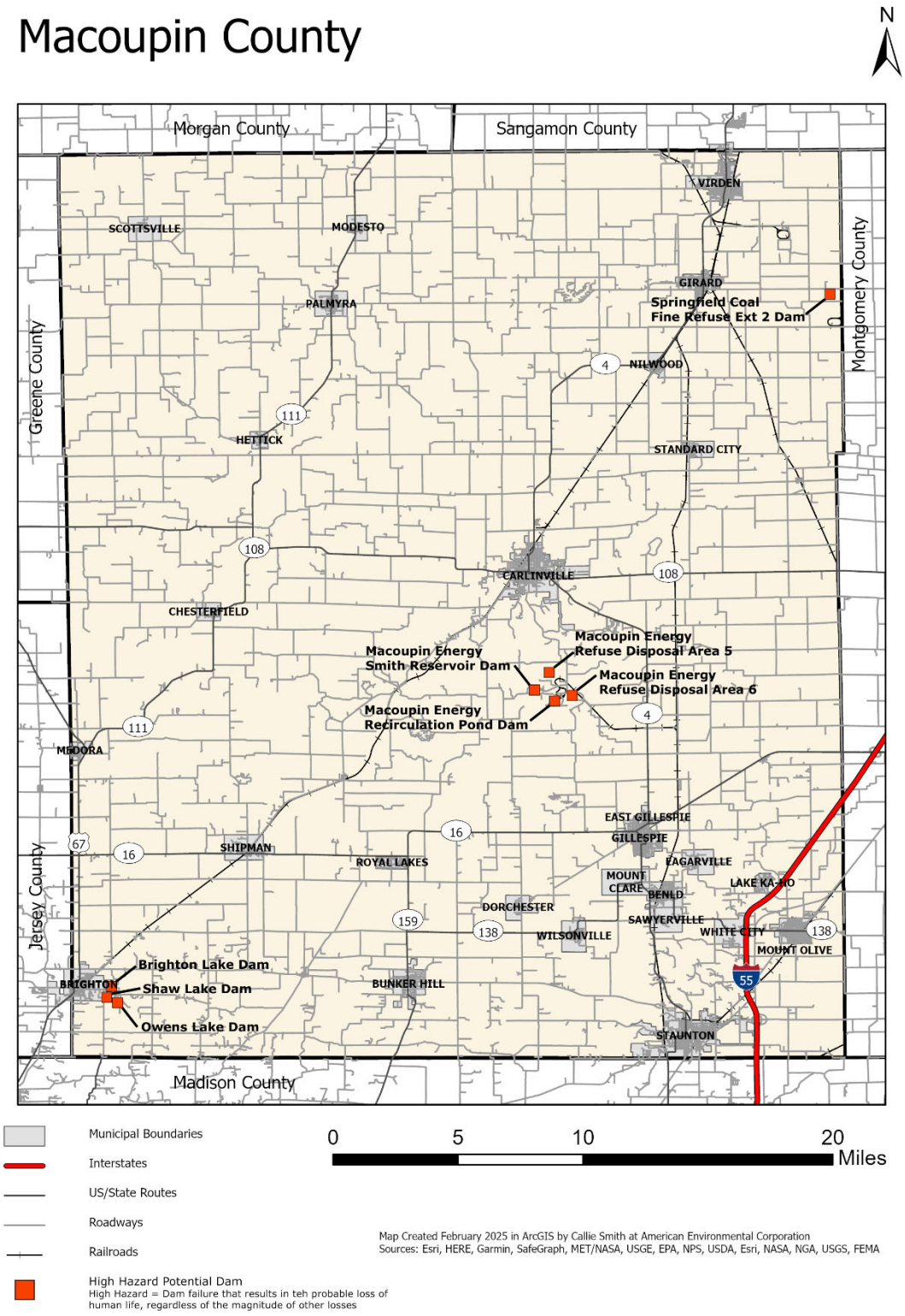
- ❖ wooded land along a tributary of West Fork Wood River in Brighton and east of Brighton in unincorporated Macoupin County.

Figure DF-2
"High" Hazard Dams Located in Macoupin County

Dam Name	Hazard Classification	Associated Waterway	Owner	Type	Primary Purpose	Completion Year	Height (feet)	Length (feet)	Maximum Storage (acre-feet)	Impoundment Surface Area (acres)	Drainage Area (square miles)	Emergency Action Plan
Privately-Owned												
Brighton Lake Dam	High	Tributary of the West Fork Wood River	Ehrman, Tarrant, & Bregenzer	Earth	Flood Risk Reduction	---	25	265	---	---	---	Not Required
Macoupin Energy Recirculation Pond Dam	High	Tributary of Spanish Needle Creek	Macoupin Energy, LLC	Earth	Water Supply	1970	43	325	248	---	---	Yes
Macoupin Energy Refuse Disposal Area 6	High	Tributary of Spanish Needle Creek	Macoupin Energy, LLC	Earth	Tailings	1991	117	13,800	9,050	135.9	0.24	Yes
Macoupin Energy Smith Reservoir Dam	High	Tributary of Spanish Needle Creek	Macoupin Energy, LLC	Earth	Recreation	1969	58	820	1,784	---	---	Yes
Macoupin Energy Refuse Disposal Area 5	High	Spanish Needle Creek	Macoupin Energy, LLC	Earth	Other	1987	95	7,000	9,800	---	---	Yes
Owens Lake Dam	High	Tributary of the West Fork Wood River	Private Citizen	Earth	Recreation	---	33	310	---	---	---	Not Required
Shaw Lake Dam	High	Tributary of the West Fork Wood River	Private Citizen	Earth	Recreation	---	23	270	---	---	---	Not Required
Springfield Coal Refuse Ext 2 Dam	High	Tributary of Horse Creek	Springfield Coal Co., LLC	Earth	Tailings	---	27	6,175	2,490	104.4	0.16	Yes

Sources: U.S. Army Corps of Engineers, National Inventory of Dams Interactive Report.

Figure DF-3
Location of "High" Hazard Classified Dams in Macoupin County



What is the probability of future dam failure events occurring?

Since none of the "High" hazard dams have experienced a dam failure, it is difficult to specifically establish the probability of a future failure. However, based on the capacity of the reservoirs and the scope and type of development and infrastructure located downstream, the probability is estimated to be ***low***. For the purposes of this analysis "low" is defined as having a less than 10% chance of occurring in any given year.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from dam failures.

Are the participating jurisdictions vulnerable to dam failures?

Yes. Brighton, Brighton Township, and unincorporated areas of Macoupin County are vulnerable to the dangers presented by a "High" hazard dam failure. While these areas are vulnerable, most residents would not be impacted by a dam failure. None of the rest of the participating jurisdictions or the remainder of the County are considered vulnerable.

Have any of the participating jurisdictions identified specific assets vulnerable to the impacts of mine subsidence?

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdiction, of the three participants near "High" hazard classified dams only Macoupin County considered specific assets vulnerable to dam failures. **Appendix I** contains copies of the completed surveys that outline problem statements summarizing their vulnerabilities to dam failures.

What impacts resulted from the recorded dam failures?

Since there have been no *recorded* dam failures associated with the classified dams in Macoupin County, there are no recorded impacts to report.

What other impacts can result from dam failures?

Dam Failure Fast Facts – Risk

Dam Failure Risk/Vulnerability:

- Public Health & Safety: "High" Hazard Classification Dam – ***Low to Medium***
- Buildings/Infrastructure/Critical Facilities: "High" Hazard Classification Dam – ***Low to Medium***

The impacts ofa a dam failure are similar to those of a flood. There is the potential for injuries, loss of life, property damage, and crop damage. Depending on the type of dam failure, there may be little, if any warning that an event is about to occur, similar to flash flooding. As a result, one of the primary threats to individuals is from drowning. Motorists who choose to drive over flooded roadways run the risk of having their vehicles swept off the road and downstream. Flooding of roadways is also a major concern for emergency response personnel who would have to find alternative routes around any section of road that becomes flooded due to a dam failure.

In addition to concerns about injuries and death, the water released by a dam failure poses the same biological and chemical risks to public health as floodwaters. The flooding that results from a dam failure has the potential to force untreated sewage to mix with floodwaters. The polluted floodwaters then transport the biological contaminants into buildings and basements and onto roads and public areas. If left untreated, the floodwaters can serve as breeding grounds for bacteria and other disease-causing agents. Even if floodwaters are not contaminated with biological material, basements and buildings that are not properly cleaned can grow mold and mildew, which can pose a health hazard, especially for small children, the elderly, and those with specific allergies.

Flooding from dam failures also can cause chemical contaminants such as gasoline and oil to enter floodwaters if underground storage tanks or pipelines crack and begin leaking during a dam failure event. Depending on the time of year, the water released by a dam failure also may carry away agricultural chemicals that have been applied to farm fields and cause damage to or loss of crops.

What is the level of vulnerability to public health and safety from dam failures?

In terms of the risk or vulnerability to public health and safety from a dam failure, there are several factors that must be taken into consideration including the severity of the event, the capacity of the reservoir and the extent and type of development and infrastructure located downstream. When these factors are taken into consideration, the overall risk to public health and safety posed by a dam failure at the "High" hazard dam studied in Macoupin County is considered to be ***low to medium***.

Are existing buildings, infrastructure, and critical facilities vulnerable to dam failures?

Yes. **Figure DF-4**, located at the end of this section, provides a ***rough estimate*** of the buildings, infrastructure, and critical facilities vulnerable to a dam failure from the "High" hazard dam in Macoupin County.

As discussed previously, EAPs for the "High" hazard dams were not provided to the Macoupin County EMA. As a result, a data deficiency exists in terms of comprehensively identifying existing buildings, infrastructure, and critical facilities vulnerable to dam failures for these dams. While detailed information was not available, the Consultant conducted a visual inspection of the areas surrounding the "High" hazard classified dams in order to provide an estimate of the number of potentially-impacted buildings, infrastructure, and critical facilities that are vulnerable to a dam failure.

Depending on whether there is a full or partial dam failure, all of the vulnerable buildings, infrastructure, and critical facilities may be inundated by water and structural damage may result. Because none of the reservoirs are immense in size, the damage sustained from dam failure flooding may not be to the structure, but to the contents of the buildings or nearby infrastructure and critical facilities.

In addition to impacting structures, a dam failure can damage roads and utilities. Roadways, culverts, and bridges can be weakened by dam failure floodwaters and may collapse under the weight of a vehicle. Power and communication lines, both above and below ground, are also vulnerable to dam failure flooding. Depending on their location and the velocity of the water as it

escapes the dam, power poles may be snapped causing disruptions to power and communication. Water may also get into any buried lines causing damage and disruptions.

As with public health and safety, the risk or vulnerability to buildings, infrastructure, and critical facilities is dependent on several factors including the severity of the event, the capacity of the reservoir, and the extent and type of development and infrastructure located downstream. When these factors are taken into consideration, the overall risk to existing buildings, infrastructure, and critical facilities posed by a dam failure in Macoupin County is considered to be ***low*** to ***medium*** for the "High" hazard dam.

Are future buildings, infrastructure, and critical facilities vulnerable to dam failures?

Yes. Any future buildings, infrastructure, and critical facilities located within the flood path of a "High" hazard dam are vulnerable to damage from a dam failure. As a result, future buildings, infrastructure, and critical facilities face the same vulnerabilities as those of existing buildings, infrastructure, and critical facilities described previously.

What are the potential dollar losses to vulnerable structures from dam failures?

Unlike other hazards, there are no standard loss estimation models or methodologies for dam failures. Given that there have been no recorded dam failures in Macoupin County, sufficient information was not available to prepare a reasonable estimate of future potential dollar losses to vulnerable structure from a dam failure.

Figure DF-4 **Buildings, Infrastructure & Critical Facilities Vulnerable to a Dam Failure from High Hazard Classified Dams**					
Dam Name	**Location**	**Number of Vulnerable Buildings/Infrastructure**			
		Residential	**Commercial**	**Infrastructure**	**Critical Facilities**
Privately-Owned					
Brighton Lake Dam	Brighton	1-3	---	- Brown Rd.	---
Macoupin Energy Recirculation Pond Dam	Approx. 4.75 miles south of Carlinville (Unincorp. Macoupin County)	---	---	- Suhling Rd.	---
Macoupin Energy Refuse Disposal Area 6	Approx. 4.75 miles south of Carlinville (Unincorp. Macoupin County)	1	---	- Wheeler Rd. - Monterey Rd. - Brushy Mound Rd.	---
Macoupin Energy Smith Reservoir Dam	Approx. 4.5 miles south of Carlinville (Unincorp. Macoupin County)		---	---	---
Macoupin Energy Refuse Disposal Area 5	Approx. 4.5 miles south of Carlinville (Unincorp. Macoupin County)	1	---	- Suhling Rd.	---
Owens Lake Dam	Approx. 0.3 miles east of Brighton (Unincorp. Macoupin County)	---	---	---	---
Shaw Lake Dam	Approx. 0.15 miles east of Brighton (Unincorp. Macoupin County)	1-3	---	---	---
Springfield Coal Fine Refuse Ext 2 Dam	Approx. 3.5 miles east-southeast of Girard (Unincorp. Macoupin County)	2-5	---	- Farmersville Rd. - Bristol Rd. - N. 30th Ave. - N. Boston Chapel Rd. - Green Ridge Rd./N. 29th Ave.	- Boston Chapel Christian Church

3.11 MAN-MADE HAZARDS

While the focus of this Plan update is on natural hazards, an ***overview of selected man-made hazards*** has been included. The Planning Committee recognizes that man-made hazards can also pose risks to public health and property. The extent and magnitude of the impacts that result from man-made hazard events can be influenced by natural hazard events. For example, severe winter storms can cause accidents involving trucks transporting hazardous substances. These accidents may lead to the release of these substances, which can result in injury and potential contamination of the natural environment.

Consequently, the Planning Committee decided to summarize the more prominent man-made hazards in Macoupin County. The man-made hazards profiled in this Plan update include:

- Hazardous Substances
  - Generation
  - Transportation
  - Storage/Handling
- Waste Disposal
- Hazardous Material Incidents
- Hazardous Waste Remediation
- Terrorism

While the man-made hazards risk assessment does not have the same depth as the natural hazards risk assessment, it does provide useful information that places the various man-made hazards in perspective.

3.11.1 Hazardous Substances

Hazardous substances broadly include any flammable, explosive, biological, chemical, or physical material that has the potential to harm public health or the environment. For the purposes of this Plan, the term hazardous substance includes hazardous product and hazardous waste. A hazardous waste is defined as the byproduct of a manufacturing process that is either listed or has the characteristics of ignitability, corrosivity, reactivity, or toxicity and cannot be reused. A hazardous product is all other hazardous material.

Hazardous substances can pose a public health threat to individuals at their workplace and where they reside. The type and quantity of the substance, the pathway of exposure (inhalation, ingestion, dermal, etc.), and the frequency of exposure are factors that will determine the risk of adverse health effects experienced by individuals. Impacts can range from minor, short-term health issues to chronic, long-term illnesses.

In addition to impacting public health, hazardous substances can also cause damage to buildings, infrastructure, and the environment. Incidents involving hazardous substances can range from minor (scarring on building floors and walls) to catastrophic (i.e., destruction of entire buildings, structural damage to roadways, etc.) and lead to injuries and fatalities. The number of incidents involving hazardous substances in Illinois and across the U.S. every year underscores the need for trained and equipped emergency responders to minimize damages.

Since 1970, significant changes have occurred in regard to how hazardous substances are transported and disposed. Comprehensive regulations and improved safety and industrial hygiene practices have reduced the frequency of incidents involving hazardous substances. Based on the

small number of facilities in Macoupin County that generate and use hazardous substances, the population size, transportation patterns, and land use, the probability of a release occurring in Macoupin County should remain relatively similar compared to other counties in Illinois. The relatively low number of transportation incidents should not diminish municipal or county commitment to emergency management.

HAZARD PROFILE – HAZARDOUS SUBSTANCES

The following subsections identify the general pathways – generation, transportation, and storage/handling – by which hazardous substances pose a risk to public health and the environment in Macoupin County.

Hazardous Substances Fast Facts - Occurrences

Generation
Number of Facilities that Generate Reportable Quantities of Hazardous Substances (2023): ***None***

Transportation
Number of Roadway Incidents Involving Hazardous Substance Shipments (2014 - 2023): ***12***

Number of Railway Accidents/Incidents Involving Hazardous Substance Shipments (2014 - 2023): ***4***

Number of Pipeline Incidents Involving Hazardous Substances (2014 - 2023): ***1***

Storage/Handling
Number of Facilities that Store/Handle Hazardous Substances (2023): ***28***

Number of Facilities that Store/Handle Extremely Hazardous Substances (2023): ***12***

3.11.1.1 Generation

In 2023, Macoupin County had no facilities that generated reportable quantities of hazardous substances as a result of their operations according to the U.S. Environmental Protection Agency (USEPA) Toxic Release Inventory.

3.11.1.2 Transportation

Roadways

Illinois has the nation's third largest interstate system and third largest inventory of bridges. According to the Illinois Department of Transportation, there were just over 147,000 miles of highways and streets in Illinois in 2023. Most of the truck traffic in Macoupin County is carried on Interstate 55. Other major roadways that carry truck traffic include Illinois Route 4, Illinois Route 16, Illinois Route 108, Illinois Route 111, Illinois Route 138,and Illinois Route 159. While this modern roadway system provides convenience and efficiency for commuters, it also aids inter-state and intra-state commerce which includes the transportation of hazardous substances. A Commodity Flow Study to gauge chemical transport in Macoupin County has not been conducted.

According to records obtained from the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS), there were 12 recorded roadway incidents involving the shipment of hazardous substances in Macoupin County between 2014 through 2023. **Figure MMH-1** provides information on these incidents.

Railways

Illinois' rail system is the country's second largest, with the East St. Louis and Chicago terminals being two of the busiest in the nation. In Macoupin County there are three Class I rail lines operated Burlington Northern Santa Fe (BNSF) Railway, Norfolk Southern, and Union Pacific Railroad. Additionally, Amtrak also operates in Macoupin County. According to the Association of American Railroads, 4,001,700 carloads (132.4 million tons) of freight originated in Illinois in

2022 (the latest year for which data is available). Chemicals accounted for 103,700 carloads (10.1 million tons); 2.7% of the total carloads and 9.9% of the total freight handled.

Figure MMH-1
Roadway Incidents* Involving Shipments of Hazardous Substances
2014 – 2023

Date	Area	Location	Hazardous Product Released	Quantity Released
10/30/2014	Mount Olive[^]	22015 Lake Kaho Road	Diesel fuel	25 gallons
4/12/2017	Virden	County Line Road, East of Illinois Route 4	Motor oil	1 gallon
5/9/2017	Virden	alley off of Dye Street between Stoddard and Lincoln	Hydraulic fluid	10 gallons
8/2/2018	Carlinville[^]	15518 Shipman Road	Diesel fuel	50 gallons
11/7/2020	Carlinville	130 Chiles Street	Mineral oil	200 gallons
11/13/2021	Shipman[^]	Bachman Road & Shipman Road	Anhydrous ammonia	100 gallons
3/9/2022	Modesto[^]	8561 Modesto-Scottville Rd	Diesel fuel & hydraulic oil	Unknown
3/29/2022	Sawyerville[^]	Illinois Route 138 east of Sawyerville	Urea nitrogen fertilizer	5,000 pounds
11/10/2022	Carlinville[^]	3 miles west of Carlinville	Anhydrous ammonia	1,000 gallons
9/20/2023	Litchfield	South of South of Illinois Route 16 & east of the railroad tracks	Diesel fuel	60 gallons
9/23/2023	Mount Olive[^]	800 Block of Old Route 66 N & St. John Road	Diesel fuel & Potash fertilizer	Unknown & 30,000 pounds
11/13/2023	Carlinville[^]	Intersection of Ellen Road & County Road #4	Herbicide mixture (glyphosate & 2,4-D)	Unknown

* For the purposes of this report a roadway incident is generally defined as an accident/incident that occurs while in the process of transporting a hazardous substance(s) on a highway, roadway, access drive, field entrance, rest area or parking lot. Vehicles that experience a release while refueling are not considered roadway incidents but are instead considered fixed facility incidents.

[^] Accident verified in the vicinity of this area.

The Illinois Commerce Commission (ICC) is required to maintain records on railway accidents/incidents that involve hazardous substances. Their records are divided into three categories. These three categories are described in **Figure MMH-2**.

Figure MMH-2
ICC Hazardous Substances Railroad Accident/Incidents Classification Categories

Category	Description
A	railroad derailments resulting in the release of the hazards substance(s) being transported
B	railroad derailments where hazards substance(s) were being transported but no release occurred
C	releases of hazardous substance(s)s from railroad equipment occurred; however, no railroad derailment was involved

Since 2014, there has been one rail accident involving hazardous substances in Macoupin County according to the ICC. In comparison, ICC records indicate that since 2014 the annual number of

railway accidents in Illinois involving hazardous substances has ranged between 45 and 122. **Figure MMH-3**, located at the end of this section, provides a breakdown by category of the ICC-recorded railway accidents/incidents involving hazardous substances. Included is a comparison of the number of accidents/incidents in Macoupin County to those in Cook and the Collar Counties as well as the rest of Illinois.

According IEMA's hazardous materials incident records for 2014 through 2023, there were an additional three rail accidents/incidents involving the release of hazardous substances. **Figure MMH-4** provides information on these incidents by rail line. No derailments were associated with any of these accidents/incidents.

Figure MMH-4
IEMA Recorded Railway Accidents/Incidents Involving Hazardous Substances
2014 - 2023

Date	Area	Location	Hazardous Substance Released	Quantity Released
Norfolk Southern				
5/13/2014	Litchfield[^]	MP D423.6	Powdered clay	Unknown
7/20/2017	Mount Olive[^]	MP D445	Limestone	10 gallons
6/3/2019	Mount Olive[^]	0.25 miles East of Wolf Road	Potash	50 pounds

[^] Accident/incident verified in the vicinity of this area.
Source: Illinois Emergency Management Agency, Hazardous Materials Incident Reports.

The top 20 hazardous substances moved by rail through Illinois include: sodium hydroxide, petroleum gases (liquefied), sulfuric acid, anhydrous ammonia, chlorine, sulfur, vinyl chloride, propane, fuel oil, denatured alcohol, methanol, gasoline, phosphoric acid, hydrochloric acid, styrene monomer, carbon dioxide (refrigerated liquid), ammonium nitrate, sodium chlorate, and diesel fuel.

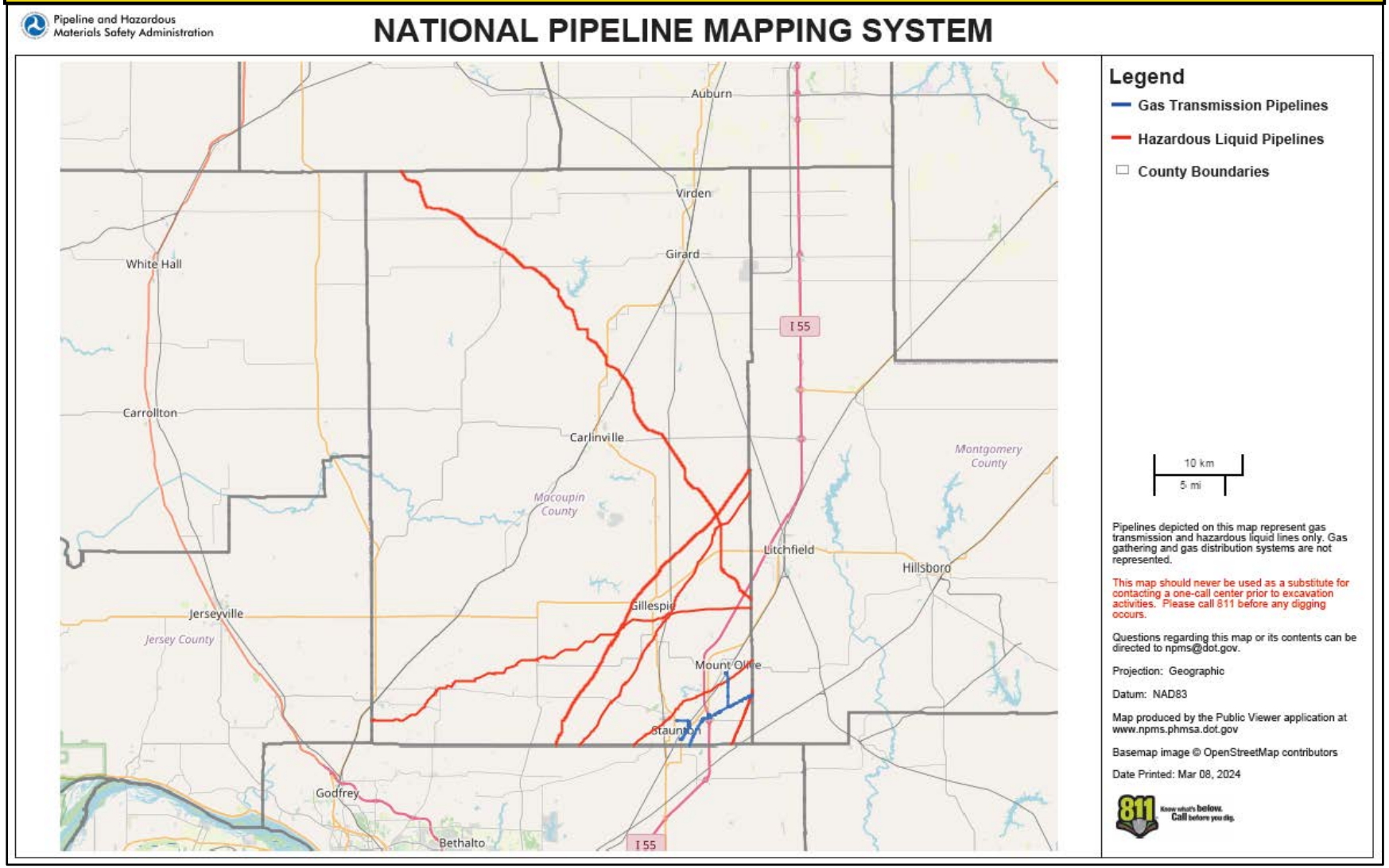
Pipelines

Energy gases (natural gas and liquefied petroleum gas), petroleum liquids (crude oil and gasoline), and liquid and gas products used in industrial processes are carried in above-ground and buried pipelines across Illinois. In Macoupin County, there are six major pipelines that carry crude oil, gasoline, anhydrous ammonia, or hazardous liquids, two operated by Buckeye Partners, L.P, one operated by Explorer Pipeline Company, one operated by Marathon Pipeline LLC, NuStar Pipeline Operating Partnership, LP, and one operated by DAPL-ETCO Operations Management LLC. There also are two intrastate natural gas pipeline systems operated by Ameren crossing the County. **Figure MMH-5** shows the pipelines in Macoupin County.

There has been on natural gas pipeline releases in Macoupin County during the 10-year period from 2014 through 2023. On May 11, 2016, a half-inch residential service line in Carlinville was cut by a third party contractor resulting in an explosion that injured two people and caused an estimated $284,378 in damages

There have been several high-profile incidents across the U.S., including one in Illinois, that have raised public concerns about our aging pipeline infrastructure. The following provides a brief description of each incident.

Figure MMH-5
Macoupin County Pipeline Location Map



- On July 26, 2010, a 30-inch liquid product pipeline rupture near Marshall, Michigan and released at least 840,000 gallons of oil into a creek that led to the Kalamazoo River, a tributary of Lake Michigan.
- On September 9, 2010, another pipeline release received national attention. A 34-inch liquid product pipeline in the Chicago suburb of Romeoville, Illinois released more than 360,000 gallons of crude oil that flowed through sewers and into a retention pond narrowly avoiding the Des Plaines River. This release triggered numerous odor complaints from residents in the adjacent municipalities of Lemont and Bolingbrook. The property damage/cleanup costs were estimated at $46.6 million.
- Also, on September 9, 2010, a 30-inch-high pressure natural gas pipeline ruptured in the San Francisco suburb of San Bruno, California that resulted in an explosion that killed eight people, injured 51, destroyed over 30 homes and damaged an entire neighborhood. The property damage was estimated at around $55 million.
- On March 12, 2014, a gas main rupture in Manhattan, New York resulted in an explosion that killed eight people and leveled two multi-use, five story buildings.
- On May 19, 2015, a 24-inch liquid product pipeline ruptured near Refugio State Beach in Santa Barbara County, California and released approximately 100,000 gallons of crude oil. The release occurred along a rustic stretch of coastline that forms the northern boundary of the Santa Barbara Channel, home to a rich array of sea life. Oil ran down a ravine and entered the Pacific Ocean, blackening area beaches, creating a 9-mile oil slick and impacting birds, marine mammals, fish, and coastal and subtidal habitats.

Continual monitoring and maintenance of these pipelines is necessary to prevent malfunctions from corrosion, aging, or other factors that could lead to a release. In addition to normal wear and tear experienced by pipelines, the possibility of sabotage and seismic activity triggering a release must be considered when contemplating emergency response scenarios.

3.11.1.3 Storage/Handling

Beyond knowing where hazardous substances are generated and the methods and routes used to transport them, it is important to identify where hazardous substances are handled and stored. This information will help government officials and emergency management professionals make informed choices on how to better protect human health, property and the environment and what resources are needed should an incident take place.

Records obtained from IEMA-OHS's Tier II database were used to gather information on the facilities that generate, use and store chemicals in excess of reportable threshold quantities within Macoupin County. The Tier II information was then compared with USEPA's Toxic Release Inventory (TRI) and information from Illinois Environmental Protection Agency (IEPA) databases. This review identified 28 facilities within Macoupin County in 2023 that store and handle hazardous substances

Of these 28 facilities, 12 reported the presence of Extremely Hazardous Substances (EHSs) at their facilities. An EHS is any USEPA-identified chemical that could cause serious, irreversible health effects from an accidental release. There are approximately 400 chemicals identified as EHSs.

Stationary sources that possess one or more of these substances at or above threshold reporting quantities are required to notify IEMA.

3.11.2 Waste Disposal

Waste disposal has caused surface water and ground water contamination in Illinois and across the U.S. Beginning in the late 1970s substantial regulatory changes strengthened the design, operating and monitoring requirements for landfills where the majority of waste is disposed. These regulatory changes have helped reduce the public health threat posed by landfills.

HAZARD PROFILE – WASTE DISPOSAL

The following subsections identify the general pathways – solid, medical, and hazardous – by which waste disposal poses a risk to public health and the environment in Macoupin County.

Waste Disposal Fast Facts - Occurrences

Solid Waste
Number of Solid Waste Landfills Operating in Macoupin County (2022): ***None***

Number of Landfills Serving Macoupin and adjacent counties (2022): ***2***

Potentially-Infectious Medical Waste (PIMW)
Number of Facilities within the County Permitted to Handle PIMW: ***None***

Hazardous Waste
Number of Commercial Off-Site Hazardous Waste Treatment or Disposal Facilities located in the County: ***None***

3.11.2.1 Solid Waste

While recycling activities have reduced the amount of solid waste (waste generated in households), the majority continues to be disposed of in landfills. As of 2022, there were 36 landfills operating in Illinois.

According IEPA's Annual Landfill Capacity Report issued in June 2023, there are no commercial landfills that operate in Macoupin County. There are two landfills in adjacent counties, the Litchfield-Hillsboro Landfill in Montgomery County and the Sangamon Valley Landfill in Sangamon County.

3.11.2.2 Potentially- Infectious Medical Waste

Potentially-Infectious Medical Waste (PIMW) is generated in connection with medical research; biological testing; and the diagnosis, treatment or immunization of human beings or animals. PIMW is typically generated at hospitals, nursing homes, medical or veterinary clinics, dental offices, clinical or pharmaceutical laboratories, and research facilities. According to IEPA's list of permitted PIMW Facilities, there are no facilities permitted to accept medical waste for disposal in Macoupin County.

3.11.2.3 Hazardous Waste

A hazardous waste is defined as the byproduct of a manufacturing process that is either listed or has the characteristics of ignitability, corrosivity, reactivity, or toxicity and cannot be reused. According to IEPA's Storage, Treatment, Recycling, Incinerating, Transfer Stations, and Processing list, there are currently no off-site hazardous waste treatment or disposal facilities located in Macoupin County.

3.11.3 Hazardous Material Incidents

A hazardous material or hazmat incident refers to any accident involving the release of hazardous substances, which broadly include any flammable, explosive, biological, chemical, or physical material that has the potential to harm public health or the environment. These incidents can take place where the substances are used, generated, or stored or while they are being transported. In addition, hazmat incidents also include the release of hazardous substances, such as fuel, used to operate vehicles. These releases can be the result of an accident or a leak.

HAZARD PROFILE – HAZARDOUS MATERIALS INCIDENTS

From 2014 to 2023, there were 41 hazmat incidents recorded in Macoupin County. Of these incidents, 15 (37%) involved transportation incidents while 26 (63%) occurred at fixed facilities. Eight of the 15 transportation incidents (67%) involved petroleum-based products.

Hazmat Incident Fast Facts - Occurrences

Number of Hazardous Material Incidents in Macoupin County (2014 - 2023): ***41***

Number of Transportation-Related Incidents: ***15***

Number of Fixed Facility-Related Incidents: ***26***

Average Number of Hazardous Material Incidents Experienced Annually: ***4***

Based on the recorded incidents, Macoupin County experienced an average of 4 hazmat incidents annually from 2014 through 2023. The types of existing industries; the major transportation corridors through the County, which include interstate and Illinois highways, rail, and pipeline; and chemical use within and adjacent to the County suggest that hazmat incidents are likely to continue to take place at the rate reflected in the 10-year study period. Constant vigilance, proper training and equipment, and prompt response are needed to minimize the potential impacts of each incident.

3.11.4 Waste Remediation

The improper disposal or containment of special and hazardous waste through the years has led to soil, groundwater, and surface water contamination of sites across the U.S. In order to safeguard human health and the environment, these contaminants must be removed or neutralized so they cannot cause harm. This process is known as waste remediation.

HAZARD PROFILE – WASTE REMEDIATION

In Illinois, waste remediation is handled through several programs including the federal Superfund program, the State Response Action Program, the state Site Remediation Program, and the Leaking Underground Storage Tanks Program. The following provides a brief description of each.

Superfund (CERLCA) Program/ National Priorities List

Superfund is a USEPA-led program to clean up sites within the U.S. contaminated by hazardous waste that has been dumped, left out in the open, or otherwise improperly managed and which pose a risk to human health and/or the environment. Sites of national priority among the known or threatened releases of hazardous substances, pollutants or contaminants throughout the U.S. and its territories are identified on the National Priorities List (NPL). Those sites that pose the largest threat to public health and the environment are typically found on the NPL.

According to the NPL database, there are 46 Superfund sites in Illinois. There are no Superfund sites in Macoupin County.

Waste Remediation Fast Facts - Occurrences

Superfund
Number of Superfund Sites in the County: ***n/a***

Illinois Site Response Action Program
Number of SRAP Sites in the County: ***6***

Illinois Site Remediation Program
Number of SRP Sites in the County: ***10***

Number of SRP Sites with NFR/4(y) Letters: ***6***

Illinois Leaking Underground Storage Tanks Program
Number of LUST Sites in County: ***151***

Number of LUST Sites with NFR/Non-LUST/4(y) Letters: ***118***

State Response Action Program (SRAP)

The main objective of the State Response Action Program (SRAP) is to clean up hazardous substances at sites that present an imminent and substantial threat to human health and the environment, but which may not be addressed by other federal or state cleanup programs. The sites handled by the SRAP include abandoned landfills, old manufacturing plants, former waste oil recycling operations, contaminated agrichemical facilities, and other areas where surface water, groundwater, soil, and air may be contaminated with hazardous substances. Since the mid-1980s, cleanup activities have been conducted at more than 500 sites in Illinois through this Program. Once the threat to human health and the environment has been mitigated, some sites are transferred to other state cleanup programs to complete remediation activities.

There are six SRAP sites in Macoupin County, and three (50%) have completed the Program.

Illinois Site Remediation Program (SRP)

The Site Remediation Program (SRP) is a voluntary cleanup program that provides applicants the opportunity to receive technical assistance in determining what course of action is needed to remediate sites where hazardous substances, pesticides, or petroleum may be present. The goal of the SRP is to receive a no further remediation determination from IEPA. Most site remediation in Illinois is handled through this Program. Since the mid-1980s, remediation activities have been conducted and monitored at approximately 5,800 sites in Illinois. Properties that satisfy respective IEPA laws and regulations can receive a No Further Remediation (NFR) a Section 4(y) letter. They must demonstrate, through proper investigation and, when warranted, remedial action, that environmental conditions at their remediation site do not present a significant risk to human health or the environment. This letter describes what remediation activities have been taken and whether any portion of the property, based on future property use, might need additional remediation.

There are 10 SRP sites in Macoupin County. Six of the ten SRP sites (60%) have received NFR or Section 4(y) letters. The remaining sites do not pose an immediate threat to public health or the environment.

Leaking Underground Storage Tank Program (LUST)

The Leaking Underground Storage Tanks Program (LUST) oversees remedial activities associated with petroleum product releases from underground storage tanks (UST). This program began in the late 1980s as a result of the threats posed by vapors in homes and businesses, contaminated groundwater, and contaminated soil. In Illinois, more than 14,500 acres of soil contaminated by

leaking underground tanks have been remediated between 1988 and 2010 (the most recent year for which data was available).

In Macoupin County, there are 151 sites involving the remediation of petroleum product releases from underground storage tanks. Of the 151 LUST sites, 118 (78%) have received NFR letters, other clearance letters, or remediation is virtually complete.

3.11.5 Terrorism

Terrorism has different definitions across the globe. For the purpose of this Plan, terrorism will be defined as any event that includes violent acts that threaten, or harm lives, health or property conducted by domestic or foreign individuals or groups aimed at civilians, the federal government or symbolic locations intended to cause widespread fear.

HAZARD PROFILE – TERRORISM

The attack on the World Trade Center and the Pentagon on September 11, 2001 by foreign terrorists galvanized national action against terrorism and resulted in the creation of the U.S. Department of Homeland Security. While the number of terrorist activities garnering national attention in the U.S. has been relatively small, approximately 201,183 terrorist events have occurred worldwide between 1970 and 2019, according to the National Consortium for the Study of Terrorism and Responses to Terrorism (the Consortium). During this same time span, the Consortium documented 3,004 terrorist events within the U.S.

Terrorism Fast Facts – Occurrences*

Number of Recorded Terrorism Events Worldwide (1970 – 2019): ***201,183***

Number of Recorded Terrorism Events in the U.S. (1970 – 2019): ***3,004***

Number of Recorded Terrorism Events in Illinois (1970 – 2019): ***117***

* Based on data from the National Consortium for the Study of Terrorism and Responses to Terrorism (START) Global Terrorism Database.

Acts of terrorism have resulted in fatalities and injuries as a result of kidnappings, hijackings, bombings, and the use of chemical and biological weapons. The Global Terrorism Database has documented 3,633 American fatalities in the U.S. between 1995 and 2019 from terrorist attacks. The attacks on September 11, 2001 account for 3,001of the 3,633 fatalities. A search of the Global Terrorism Database identified 117 incidents of terrorism in Illinois between 1970 and 2019. These incidents resulted in six fatalities and 38 injuries.

The Federal Bureau of Investigation's (FBI) provides supporting documentation on domestic terrorist attacks in a series of reports on terrorism. These reports provide a chronological summary of terrorist incidents in the U.S. with detailed information on attacks between 1980 and 2005. During this time period, 192 incidents were documented within the U.S. Six of these incidents occurred in Illinois; five in the Chicago area and one downstate.

Not included in either the Consortium or FBI data sets are the Vermilion County bombings of 1997 and 1998. On December 30, 1997 a pipe bomb placed by a domestic terrorist outside Oakwood United Methodist Church detonated killing a church volunteer and causing damage to the church property. On May 24, 1998, a second pipe bomb placed by the same individual detonated during

worship at the Danville First Assembly of God Church, injuring 34 persons, most of them youth of the church. As the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) closed in on the perpetrator, he blew up himself, his dog, and his Danville garage laboratory.

Other more recent events in Illinois occurred on September 24, 2009 when a single individual from Macon County sought to carry out his anger at the federal government by detonating a van filled with explosive outside of the Federal Courthouse in Springfield. . This attempt was thwarted by the FBI.

On May 16, 2018 at around 8:00 a.m., 19-year-old boy, armed with a 9-mm semi-automatic rifle, fired several shots near the Dixon High School Gymnasium where approximately 180 students were practicing for graduation. The school's resource officer confronted the shooter, who fled from the school on foot. The shooter fired several shots at the resource officer, who returned fire, wounding the shooter in the shoulder. The gunman suffered non-life threatening injuries. No students or staff were injured in the incident. Faculty and staff barricaded doors and took cover as the incident unfolded.

More recently an active shooter incident occurred at the Highland Park Independence Day parade on July 4, 2022. A 22-year-old man, armed with a semi-automatic rifle, gained access to the roof of a building along the parade route and opened fire on spectators and those in the parade killing seven individuals and wounding an additional 48 individuals. The shooter evaded immediate capture and fled the scene but was apprehended later the same day. He confessed to the shooting and was sentenced to seven consecutive life sentences on April 24, 2025.

It is impossible to predict with any reasonable degree of accuracy how many terrorism events might be expected to occur in Macoupin County or elsewhere in Illinois. Although targets for terrorist activity are more likely centered in larger urban areas, recruitment, training, and other support activities, such as the ones described above, have occurred in rural areas.

The economic resources available to some terrorist groups coupled with the combination of global tensions, economic uncertainty and frustration towards government appear to have recently raised the frequency of attempts. Enhanced efforts by law enforcement officials and civilian vigilance for unusual activity or behavior will be needed to repel terrorists whether they are domestic or foreign in origin.

Figure MMH-3
ICC Recorded Railway Accidents/Incidents Involving Hazardous Substances
2013 – 2022

Year	Category	Accident/Incident Location			
		Illinois	Macoupin County	Cook & Collar Counties	All Other Counties
2014	A	2	0	2	0
	B	36	0	22	14
	C	84	0	40	44
2015	A	4	0	3	1
	B	27	1	15	12
	C	69	0	36	33
2016	A	4	0	1	3
	B	14	0	6	8
	C	65	0	32	33
2017	A	2	0	1	1
	B	14	0	9	5
	C	69	0	34	35
2018	A	1	0	0	1
	B	8	0	4	4
	C	55	0	24	31
2019	A	6	0	4	2
	B	6	0	4	2
	C	33	0	12	21
2020	A	4	0	2	2
	B	7	0	5	2
	C	46	0	30	16
2021	A	4	0	2	2
	B	31	0	16	15
	C	29	0	13	16
2022	A	5	0	1	4
	B	29	0	18	11
	C	52	0	29	23
2023	A	2	0	2	0
	B	30	0	20	10
	C	31	0	17	14

Source: Illinois Commerce Commission

4.0 JURISDICTION CAPABILITIES & INTEGRATION OF ORIGINAL MITIGATION PLAN

Each participating jurisdiction has a unique set of capabilities and resources available to reduce long-term vulnerabilities to the identified hazards and increase their resilience. As part of the plan update process, each participating jurisdiction's existing capabilities and resources (technical information, plans, reports, and studies) are identified, their ability to expand on and improve these capabilities is analyzed, and their incorporation of the original hazard mitigation plan into external planning mechanisms such as such as comprehensive plans and land use ordinances is discussed.

4.1 IDENTIFICATION OF EXISTING CAPABILITIES

[Local Mitigation Planning Policy Guide Elements C1-a & D3-b]

In order to identify existing capabilities and resources, a Capability Assessment was conducted. The Capability Assessment helps determine the ability of the participating jurisdictions to implement the Mitigation Strategy and to identify potential opportunities for establishing or enhancing specific mitigation policies, program, or projects. It is important to try and establish which goals and actions are feasible based on an understanding of the organizational capacity of those entities tasked with their implementation. This assessment is designed to provide a general overview of the key capabilities in place for each participating jurisdiction along with their potential effect of loss reduction.

The existing capabilities of each participant were cataloged using capability assessment worksheets based on jurisdiction type that were distributed to each of the participating jurisdictions at the first Committee meeting on April 18, 2024. The worksheets requested information on four primary types of capabilities: planning and regulatory; administrative and technical; financial; and education and outreach. The following provides a brief description of each capability type.

Planning & Regulatory Capabilities: Planning and regulatory capabilities are based on the implementation of existing plans, policies, codes, ordinances, resolutions, local laws, and programs that prevent or reduce the impacts of hazards and guide and manage growth and development.

Administrative & Technical Capabilities: Administrative and technical capabilities are based on the available staff and personnel resources as well as their related skills and tools that can be used to develop and implement mitigation actions, policies, and programs.

Financial Capabilities: Financial capabilities include those resources a jurisdiction has access to or is eligible to use to implement mitigation actions, polices, and programs.

Education & Outreach Capabilities: Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Figures JC-1 through **JC-15** summarize the results of the Capability Assessment by participating jurisdiction type (i.e., county/municipalities, townships, schools, fire protection districts, etc.) A

capability level of "Limited", "Moderate" or "High" was assigned by capability type to each participating jurisdiction based on the number of available capabilities and resources as well as the jurisdiction's size/area served. **Figure JC-16** summarizes the individual capability levels by capability type and provides an overall capability ranking for each participant.

This assessment provides a consolidated inventory of existing plans, ordinances, programs, and resources in place. Whenever applicable, these existing capabilities were reviewed and incorporated into the Plan.

Highlights from the Capability Assessment include:

- Only Gillespie has building codes in place; however these codes are only residential and are over 20 years old.
- Macoupin County and Staunton both have continuity of operations plans, while only Staunton has a comprehensive plan in place.
- Benld, Brighton, Carlinville, Gillespie and Staunton all have zoning ordinances in place.
- Only Staunton has a stormwater management plan in place.

Figure JC-17, located at the end of this section, provides information on comprehensive/land use plans, building codes, and zoning ordinances for the County and participating municipalities such as effective date, next scheduled update (if known), and International Code Council I-Code version.

Effective January 1, 2025, Public Act 103-0510 requires that certain building code standards be adopted or followed in Illinois. For municipalities and counties that have adopted building codes, the Act requires that those codes meet certain requirements, including the International Building Code including Appendix G, International Existing Building Code, and Residential Building Code published in the current year or preceding nine calendar years. The Act does not require municipalities or counties that do not currently have building codes to adopt them, but it does require minimum construction standards for those communities. It is still too early to tell the impact the Act will have on the capabilities of those participating jurisdictions that do not have building codes in place.

4.2 ABILITY TO EXPAND & IMPROVE EXISTING CAPABILITIES

[Local Mitigation Planning Policy Guide Element C1-b]

Macoupin County, Carlinville, Staunton, Bunker Hill CUSD #8, Carlinville CUSD #1, Southwestern CUSD #9, Staunton CUSD #6, Medora Community FPD, Mount Olive Volunteer FPD, Unit 7 FPD, Carlinville Area Hospital, and Community Hospital of Staunton are fortunate to have the resources and abilities to potentially expand on and improve the existing policies and programs identified. Benld, Brighton, Bunker Hill, Eagarville, Gillespie, Girard, Mount Clare, Nilwood, Royal Lakes, Virden, Brighton Township, Gillespie CUSD #7, North Mac CUSD #34, Henderson Water District, and Jersey County Rural Water have more limited resources and abilities to expand on and improve the existing policies and programs identified. The lack of legal authority and policies/programs currently in place may hamper these participants' abilities to expand and strengthen existing policies and programs. Their fiscal and staffing situations are also limited.

Overcoming these limitations will require time and a range of actions including, but not limited to, improved general awareness of natural hazards and the potential benefits that may come from the development of new standards in terms of hazard loss prevention and the identification of resources available to expand and improve existing policies and programs should the opportunity arise.

4.3 REVIEW & INCORPORATION OF EXISTING PLANS

[Local Mitigation Planning Policy Guide Element A4-a]

The existing plans, studies, reports, technical information, and maps that were reviewed and incorporated into the Plan update, where appropriate, can be found in Section 9.0 References and are cited in each appropriate section.

4.4 INTEGRATION OF ORIGINAL MITIGATION PLAN INTO PLANNING MECHANISMS

[Local Mitigation Planning Policy Guide Element E2-c]

Demonstrating progress in local mitigation efforts can also be identified through the integration of the original plan into external planning mechanisms such as comprehensive plans, emergency operations plans, and land use ordinances. As part of the Plan update, available planning documents were reviewed and each previous participant was asked if any components of the 2019 Plan (i.e., mitigation projects/activities, vulnerability analyses, hazard data, etc.) were integrated into new or updated planning mechanisms within their jurisdiction. Based on the responses received the Land Use and Development Changes questionnaire, none of the previous participants implicitly/explicitly incorporated the 2019 Plan into their planning mechanisms. It should be noted that aside from Staunton's update to its zoning ordinance, none of the previous participants have undertaken extensive updates to any of their external planning mechanisms.

Figure JC-1
County / Municipalities – Planning & Regulatory Capabilities

Capability Type	County/Municipality/Special-Purpose Unit of Local Government												
	Macoupin County	Benld	Brighton	Bunker Hill	Carlinville	Eagarville	Gillespie	Girard	Mount Clare	Nilwood	Royal Lakes	Staunton	Virden
Plans, Policies, Codes & Ordinances													
Comprehensive/Master Land Use Plan												X	
Continuity of Operations Plan	X											X	
Stormwater Management Plan												X	
Transportation Plan													
Economic Development Plan			X									X	
Emergency Operations Plan	X		X	X	X							X	
Disaster Recovery Plan	X												
Threat & Hazard Identification Risk Assessment (THIRA) - County Only	X												
Infrastructure Maps - Municipalities Only		X	X		X	X	X		X	X		X	X
Building Codes							X						
Floodplain Ordinance	X		X	X	X		X					X	X
Stormwater Ordinance												X	X
Zoning Ordinance		X	X		X		X					X	
Subdivision Ordinance	X	X	X	X	X			X		X		X	X
Historic Preservation Ordinance													
Private Sewage Disposal System Ordinance - County Only	X												
Manufactured/Mobile Home Tie Down Ordinance		X		X	X			X	X	X			X
Steep Slope Ordinance													
Mined Areas/Developed Over Mined Areas Ordinance													
National Incident Management System (NIMS) Adoption	X			X	X								
National Flood Insurance Program (NFIP) Participation	X			X	X		X					X	X
Community Rating System (CRS) Participation													
Level of Capability	**L/M**	**L**	**L**	**L**	**L/M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**

An "X" indicates that the item is currently in place and being implemented.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-2
County / Municipalities – Administrative & Technical Capabilities

Capability Type	County/Municipality/Special-Purpose Unit of Local Government												
	Macoupin County	Benld	Brighton	Bunker Hill	Carlinville	Eagarville	Gillespie	Girard	Mount Clare	Nilwood	Royal Lakes	Staunton	Virden
Adminstrative & Technical													
Zoning Board		X	X		X		X					X	
Public Utility Board			X									X	X
Planning Commission			X		X								
Mutual Aid Agreements	X	X		X			X	X	X	X			X
Administrator/Manager		X	X										X
Building Inspector/Officer		X					X						
Community/Economic Development Planner					X								
Emergency Manager	X			X	X							X	X
Engineer/Construction Project Manager	X			X	X							X	X
GIS Coordinator	X											X	
Grant Administrator/Writer			X	X	X							X	
Fire Chief - Municipalities Only													
Floodplain Administrator													
Police Chief - Municipalities Only		X	X	X	X		X	X				X	X
Public Works/Streets Director - Municipalities Only		X	X	X	X		X	X		X	X	X	X
Water Superintendent - Municipalities Only		X	X	X	X	X	X	X		X	X	X	X
Zoning Officer/Administrator		X	X		X							X	
Solid Waste Director - County Only													
Level of Capability	**L**	**M**	**M**	**L/M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**M**

An "X" indicates the presence of staff with specified knowledge or skills.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-3
County / Municipalities – Financial / Education & Outreach Capabilities

Capability Type	County/Municipality/Special-Purpose Unit of Local Government												
	Macoupin County	Benld	Brighton	Bunker Hill	Carlinville	Eagarville	Gillespie	Girard	Mount Clare	Nilwood	Royal Lakes	Staunton	Virden
Financial													
Roadway/Bridge Improvement Plan - County Only													
Capital Improvements Program													
Tax Levies for Special Purposes	X		X		X	X					X	X	
Motor Fuel Tax	X	X	X		X	X	X		X	X	X	X	X
General Obligation Bonds and/or Special Tax Bonds	X		X			X						X	X
Utility Fees (Stormwater, Sewer, Water, Gas, or Electric Service)		X	X		X	X	X		X	X	X	X	X
Impact Fees - New Development						X							
Federal Funding Programs (Non-FEMA)	X					X						X	
Level of Capability	**L/M**	**L**	**M**	**L**	**L**	**M**	**L**	**L**	**L**	**L**	**L**	**M**	**L**
Education & Outreach													
StormReady Certification	X												
Natural Disaster/Safety-Related School Programs													
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use)	X	X											
Seasonal Outreach	X	X				X							
Local Citizen Groups/Non-Profit Organizations (Emergency Preparedness, Access & Functional Needs	X	X	X									X	
Public-Private Partnership Initiatives Addressing Disaster-Related Issues												X	
Level of Capability	**M**	**M**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**	**L**

An "X" indicates a given resource is locally available for mitigation purposes.
Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-4
Townships – Planning & Regulatory / Administrative & Technical Capabilities

Capability Type	Township: Brighton Township
Plans, Policies, Codes & Ordinances	
Comprehensive/Master Land Use Plan	
Stormwater Management Plan	
Open Space/Recreational Area Plan	
Building Codes	
Stormwater Ordinance	
Zoning Ordinance	
Subdivision Ordinance	
Private Sewage Disposal System Ordinance	
Manufactured/Mobile Home Tie Down Ordinance	
Steep Slope Ordinance	
Mined Areas/Developed Over Mined Areas Ordinance	
Road Weight Restriction Ordinance	
Nuisance Weed, Grass & Tree Ordinance	
National Incident Management System (NIMS) Adoption	
Level of Capability	**L**
Adminstrative & Technical	
Zoning Board	
Public Utility Board	
Planning Commission	
Mutual Aid Agreements	
Assessor	X
Clerk	X
Collector	
Highway/Road District Commissioner	X
Supervisor	X
Level of Capability	**L/M**

An "X" indicates that the item is currently in place and being implemented or the presence of staff with specified knowledge or skills

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-5
Townships – Financial / Education & Outreach Capabilities

Capability Type	Township
	Brighton Township
Financial	
Capital Improvements Program	
Roadway/Bridge Improvement Plan	
Tax Levies for Special Purposes	
Motor Fuel Tax	X
General Obligation Bonds and/or Special Tax Bonds	
Utility Fees (Stormwater, Sewer, Water, Gas or Electric Service)	
Impact Fees - New Development	
Federal Funding Programs (Non-FEMA)	
Level of Capability	**L**
Education & Outreach	
StormReady Certification	
Natural Disaster/Safety-Related School Programs	
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use)	
Seasonal Outreach	
Local Citizen Groups/Non-Profit Organizations (Emergency Preparedness, Access & Functional Needs	
Public-Private Partnership Initiatives Addressing Disaster-Related Issues	
Level of Capability	**L**

An "X" indicates a given resource is locally available for mitigation purposes.
Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-6
Schools – Planning & Regulatory /
Administrative & Technical Capabilities

Capability Type	School District					
	Bunker Hill CUSD #8	Carlinville CUSD #1	Gillespie CUSD #7	North Mac CUSD #34	Southwestern CUSD #9	Staunton CUSD #6
Plans & Policies						
Comprehensive/Master Facilities Plan		X			X	X
Continuity of Operations Plan		X			X	
Strategic Plan	X	X	X		X	X
Emergency/Crisis Response Plan	X	X	X	X	X	X
National Incident Management System (NIMS) Adoption	X	X		X	X	
Level of Capability	**M**	**H**	**L**	**L**	**H**	**M**
Adminstrative & Technical						
Board of Education	X	X	X	X	X	X
Mutual Aid Agreements	X	X				X
Superintendent	X	X	X	X	X	X
Principal(s)	X	X	X	X	X	X
Chief Financial Officer/Finance Director	X	X			X	X
Food Services Supervisor	X	X	X	X	X	X
Grant Writer		X		X		
Health Care Supervisor					X	X
IT Director/Specialist		X	X	X	X	X
Maintenance Manager	X	X	X	X	X	X
Communications Director						
Operations Manager		X				
Safety & Security Director					X	
Transportation Director	X	X	X	X	X	X
Level of Capability	**M**	**H**	**M**	**M**	**M**	**M**

An "X" indicates that the item is currently in place and being implemented or the presence of staff with specified knowledge or skills.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-7
Schools – Financial / Education & Outreach Capabilities

Capability Type	School District					
	Bunker Hill CUSD #8	Carlinville CUSD #1	Gillespie CUSD #7	North Mac CUSD #34	Southwestern CUSD #9	Staunton CUSD #6
Financial						
Capital Improvements Program	X	X				
Tax Levies for Special Purposes	X	X	X	X		X
General Obligation Bonds and/or Special Tax Bonds		X	X	X	X	X
Federal Funding Programs (Non-FEMA)		X	X	X	X	X
Level of Capability	**M**	**H**	**M**	**M**	**M**	**M**
Education & Outreach						
StormReady Certification						
Natural Disaster/Safety-Related School Programs	X	X		X	X	
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use)	X	X			X	
Seasonal Outreach						
Public-Private Partnership Initiatives Addressing Disaster-Related Issues	X					X
Level of Capability	**M**	**L**	**L**	**L**	**L**	**L**

An "X" indicates a given resource is locally available for mitigation purposes.
Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-8
Fire Protection Districts – Planning & Regulatory Capabilities

Capability Type	Fire District				
	Brighton Betsey Ann FPD	Girard FPD	Medora Community FPD	Mount Olive Volunteer FPD	Unit 7 FPD
Plans, Policies, Codes, Ordinances, Resolutions, & Technical Documents					
Standard Operating Procedures/Guidelines for Structural Fire Fighting (NFPA 1700)	X	X	X	X	
Standard Operating Procedures for Operations at Technical Search & Rescue Incidents (NFPA 1670)			X	X	
Pre-Incident Planning (NFPA 1620)		X	X	X	X
Fire Prevention Codes					
Burn Ordinance				X	
National Incident Management System (NIMS) Adoption	X	X	X	X	X
Incident Command System (ICS) Adoption	X	X	X	X	X
Building Inspections			X		
Tier II Reports			X	X	
County Emergency Operations Plan	X		X		
Safety Data Sheets	X	X	X	X	
Pipeline Maps		X	X	X	X
Hazardous Materials Facilities Maps			X	X	X
Water Supply Systems Maps	X	X	X	X	X
Impassable Roads & Bridges Maps	X	X	X	X	X
Evacuation Zones Maps		X	X		
Community & Special Residential Areas Maps (i.e., manufactured home parks, subdivisions, recreational communities)			X	X	
Level of Capability	**M**	**M**	**H**	**H**	**L/M**

An "X" indicates that the item is currently in place and being implemented.
Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-9
Fire Protection Districts –
Administrative & Technical Capabilities

Capability Type	Fire District				
	Brighton Betsey Ann FPD	Girard FPD	Medora Community FPD	Mount Olive Volunteer FPD	Unit 7 FPD
Adminstrative & Technical					
Board of Trustees	X	X	X	X	X
Board of Fire Commissioners			X		
Mutual Aid Box Alarm System (MABAS)	X	X	X	X	X
Mutual Aid Agreements	X	X		X	
Hazardous Materials Response Team	X			X	
Water Rescue/Dive Team	X	X		X	X
Technical Rescue Team				X	X
Fire Chief	X	X	X	X	X
Deputy Fire Chief	X	X	X	X	X
Administrative Assistant				X	X
Financial/Business Manager				X	X
Inspector					
Public Education Director/Officer				X	X
Telecom Director					
Training Coordinator	X	X	X	X	X
Level of Capability	**M**	**M**	**L/M**	**H**	**M/H**

An "X" indicates the presence of staff with specified knowledge or skills.
Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-10
Fire Protection Districts –
Financial / Education & Outreach Capabilities

Capability Type	Fire District				
	Brighton Betsey Ann FPD	Girard FPD	Medora Community FPD	Mount Olive Volunteer FPD	Unit 7 FPD
Financial					
Capital Improvements Program				X	X
Tax Levies for Special Purposes	X		X	X	X
General Obligation Bonds and/or Special Tax				X	
Federal Funding Programs (Non-FEMA)			X		
Level of Capability	**L**	**L**	**M**	**M**	**M**
Education & Outreach					
Natural Disaster/Safety-Related School Programs			X	X	
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness,			X	X	X
Seasonal Outreach			X	X	
Public-Private Partnership Initiatives Addressing Disaster-Related Issues			X		
Level of Capability	**L**	**L**	**H**	**M**	**L**

An "X" indicates a given resource is locally available for mitigation purposes.
Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-11
Healthcare Facilities – Planning & Regulatory Capabilities

Capability Type	Healthcare	
	Carlinville Area Hospital	Community Hospital of Staunton
Plans, Policies, Codes, Ordinances & Resolutions		
Continuity of Operations Plan	X	X
Strategic Plan	X	X
Facilities Plan	X	
Emergency Preparedness Plan	X	X
Medical Disaster Preparedness & Response Plan	X	X
Community Health Needs Assessment (CHNA)	X	X
Severe Weather Plan	X	X
National Incident Management System (NIMS) Adoption	X	X
Level of Capability	**H**	**H**

An "X" indicates that the item is currently in place and being implemented.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-12
Healthcare Facilities – Administrative & Technical Capabilities

Capability Type	Healthcare	
	Carlinville Area Hospital	Community Hospital of Staunton
Administrative & Technical		
Board of Directors	X	X
Patient Advisory Board	X	
Mutual Aid Agreements	X	X
Chief Executive Officer	X	X
Chief Medical Officer	X	X
Chief Financial Officer	X	X
Chief Development Officer	X	
Chief Nursing Officer	X	X
Communications Director	X	
EMS Director		X
ER Director	X	X
Grant Writer	X	
IT Director/GIS Specialist	X	X
Maintenance Manager	X	X
Rehab & Long-Term Care Director		
Safety Officer	X	X
Level of Capability	**H**	**M/H**

An "X" indicates the presence of staff with specified knowledge or skills.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-13
Healthcare Facilities –
Financial / Education & Outreach Capabilities

Capability Type	Healthcare	
	Carlinville Area Hospital	Community Hospital of Staunton
Financial		
Capital Improvements Program	X	
Tax Levies for Special Purposes		
General Obligation Bonds and/or Special Tax Bonds		
Federal Funding Programs (Non-FEMA)		X
Level of Capability	**L**	**L**
Education & Outreach		
StormReady Certification		
Natural Disaster/Safety-Related School Programs	X	X
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use)	X	X
Seasonal Outreach		X
Local Citizen Groups/Non-Profit Organizations (Emergency Preparedness, Access & Functional Needs Populations)		X
Public-Private Partnership Initiatives Addressing Disaster-Related Issues		X
Level of Capability	**L**	**H**

An "X" indicates a given resource is locally available for mitigation purposes.
Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-14
Water Districts/Commissions – Planning & Regulatory / Administrative & Technical Capabilities

Capability Type	Water District	
	Henderson Water District	Jersey County Rural Water
Plans, Policies, Codes & Ordinances		
Strategic Plan		
Water Facilities Master Plan		
Emergency Management/Operations Plan		X
Business Continuity Plan / Continuity of Operations Plan		
Service Connection Ordinance	X	X
Cross-Connection Ordinance	X	X
Water Rate Ordinance	X	X
Level of Capability	**L**	**L/M**
Administrative & Technical		
Board of Trustees/Commissioners	X	X
Advisory Committee/Board		
Mutual Aid Agreements	X	X
Executive Director / General Manager	X	X
Finance Manager	X	X
Engineer/Construction Manager	X	X
Operations Supervisor	X	
Water Operator	X	X
Level of Capability	**H**	**H**

An "X" indicates that the item is currently in place and being implemented or the presence of staff with specified knowledge or skills.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-15
Water Districts/Commissions – Financial / Education & Outreach Capabilities

Capability Type	Water District	
	Henderson Water District	Jersey County Rural Water
Financial		
Capital Improvements Program	X	X
Tax Levies for special purposes	X	X
General Obligation Bonds and/or Special Tax Bonds		
Utility Fees for drinking water service		X
Impact fees for new development		
Federal Funding Programs (Non-FEMA)		X
Level of Capability	**L**	**M**
Education & Outreach		
Natural Disaster or Safety related school programs		
Ongoing public education or information programs (e.g., fire safety, household preparedness, responsible water use, environmental education, etc.)	X	
Seasonal Outreach		
Public-private partnership initiatives addressing disaster-related issues		
Level of Capability	**L**	**L**

An "X" indicates a given resource is locally available for mitigation purposes.
Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure JC-16
Capability Rankings by Participating Jurisdiction
(Sheet 1 of 2)

Capability Type	County/Municipality													Township
	Macoupin County	Benld	Brighton	Bunker Hill	Carlinville	Eagarville	Gillespie	Girard	Mount Clare	Nilwood	Royal Lakes	Staunton	Virden	Brighton Township
Planning & Regulatory	L/M	L	L	L	L/M	L	L	L	L	L	L	M	L	L
Administrative & Technical	L	M	M	L/M	M	L	L	L	L	L	L	M	M	L/M
Financial	L/M	L	M	L	L	M	L	L	L	L	L	M	L	L
Education & Outreach	M	M	L	L	L	L	L	L	L	L	L	L	L	L
Overall Capability	**L/M**	**L/M**	**L/M**	**L**	**L/M**	**L**	**L**	**L**	**L**	**L**	**L**	**M**	**L**	**L**

Level of Capacity: "L" = Limited; "M" = Moderate; "H" High

Figure JC-16
Capability Rankings by Participating Jurisdiction
(Sheet 2 of 2)

Capability Type	School District						Fire District					Healthcare		Water District	
	Bunker Hill CUSD #8	Carlinville CUSD #1	Gillespie CUSD #7	North Mac CUSD #34	Southwestern CUSD #9	Staunton CUSD #6	Brighton Betsey Ann FPD	Girard FPD	Medora Community FPD	Mount Olive Volunteer FPD	Unit 7 FPD	Carlinville Area Hospital	Community Hospital of Staunton	Henderson Water District	Jersey County Rural Water
Planning & Regulatory	M	H	L	L	H	M	M	M	H	H	L/M	H	H	L	L/M
Administrative & Technical	M	H	M	M	M	M	M	M	L/M	H	M/H	H	M/H	H	H
Financial	M	H	M	M	M	M	L	L	M	M	M	L	L	L	M
Education & Outreach	M	L	L	L	L	L	L	L	H	M	L	L	H	L	L/M
Overall Capability	**M**	**H**	**L/M**	**L/M**	**M/H**	**M**	**M/L**	**M/L**	**M/H**	**H/M**	**M**	**H/M**	**H/M**	**L**	**L/M**

Level of Capacity: "L" = Limited; "M" = Moderate; "H" High

Figure JC-17
Select Planning & Regulatory Capabilities Information by County/Municipality

Participating Jurisdiction	Comprehensive/Land Use Plan		Building Codes			Zoning Ordinance	
	Effective Date	Scheduled Update (if known)	Effective Date	ICC I-Code Version	Scheduled Update (if known)	Effective Date	Scheduled Update (if known)
Macoupin County	---	---	---	---	---	---	---
Benld	---	---	---	---	---	n/a	---
Brighton	---	---	---	---	---	2014	---
Bunker Hill	---	---	---	---	---	---	---
Carlinville	---	---	---	---	---	2011	---
Gillespie	---	---	2002	2000 – IRC	---	n/a	---
Girard	---	---	---	---	---	---	---
Royal Lakes	---	---	---	---	---	---	---
Staunton	---	---	---	---	---	2021	---
Virden	2005	---	---	---	---	---	---

5.0 CHANGES IN CONDITIONS

In order to effectively reduce the long-term risk associated with the identified hazards, it is important to reflect on how the current conditions within the County and participating jurisdictions have changed since the previous Plan was completed. This section summarizes the changes in development and priorities experienced within the County, identifies progress in local mitigation efforts, and characterizes how these changes and progress, or lack thereof, have altered the vulnerability of the participants, be it increasing, decreasing, or having no measurable impact.

5.1 CHANGES IN LAND USE AND DEVELOPMENT

[Local Mitigation Planning Policy Guide Element E1-a]

In order to identify changes in land use and development, an assessment of current development patterns and pressures was conducted. For the purposes of this document, changes in development can mean recent development (construction completed or under consideration since the original Plan was approved); potential development (development planned), or conditions that may affect the risks and vulnerabilities of each jurisdiction, including changes in population. As part of this assessment, the participants of the previous Plan were asked to complete a "Changes in Land Use and Development" survey. The information gathered from these surveys was used to inform the following discussion.

As discussed in Section 1.2, approximately 95% of the County's land cover in 2023 was vegetation, including developed open spaces, cultivated crop land, pasture/hay, grassland, and deciduous/evergreen/mixed forest. Between 2019 and 2023 approximately 0.93% of the land cover in the County changed with only 0.88 square miles of development and 0.13 square miles of impervious surfaces gained during that 4-year period. The majority of the land use in Macoupin County is agricultural. Approximately 83% of the land within the County is used for farming practices. This is up from 2017 when approximately 76% of the land area within the County was used for farming.

Population growth is one of the major factors that triggers changes in land use. However, Macoupin County has seen a decrease in its population between 2010 and 2020 by 5.9% from 47,765 to 44,967. This is counter to the larger trend. U.S. Census Bureau records indicates that between 1900 and 2010, the population of Macoupin County increased by 13% from 42,256 to 47,765. Between 2010 and 2020, all of the participating municipalities with the exception of Mount Clare experienced population decreases: Benld by 5.9%, Brighton by 1.5%, Bunker Hill by 8.1%, Carlinville by 3.5%, Eagarville by 10.2%, Gillespie by 4.5%, Girard by 15.1%, Nilwood by 12.2%, Royal Lakes by 15.2% Staunton by 1.7%, and Virden by 5.7%. Mount Clare experience a population increase of 11.9% between 2010 and 2020.

A decline in population generally indicates a decrease in revenue, which in turn implies that there is less available capital to invest in critical services and make progress in local mitigation efforts. As a result, the overall vulnerability of a majority the participants is likely to increase due to the lack of funds available to implement mitigation actions.

Development is another major factor that triggers changes in land use. Based on responses to the "Changes in Land Use and Development" survey, **Figure C-1**, summarizes the changes in

development experienced by previous participants since the 2020 Plan was adopted. No substantial changes in development have occurred in hazard prone areas in Benld, Brighton, Bunker Hill, Carlinville, Gillespie, Girard, and Royal Lakes that would increase or decrease the vulnerability of these municipalities since 2019. Macoupin County, Staunton, and Virden reported experiencing development since the 2019 Plan was written.

Figure C-1
Changes in Development Identified by Previous Participants Since 2019 Plan

Jurisdiction	Changes Identified	Type, Size, and Location
Macoupin County	Yes	Lotus Wind by Apex Energy, 52 wind turbines – between Scottville and Girard
Benld	No	
Brighton	No	
Bunker Hill	No	
Carlinville	No	
Gillespie	No	
Girard	No	
Royal Lakes	No	
Staunton	Yes	Mach 1 gas station – Staunton Rd. & I-55
Virden	Yes	- Carlinville Area Hospital & Clinics – Virden – 1611 N. Springfield St. - Former Rimini Drive Housing Redevelopment – N. Henderson St. - Maynerich Financial (new building) – Montgomery Rd. & IL Rte. 4

Based on the information provided by Macoupin County, Lotus Wind does not have any identifiable impact on the County's vulnerability, including to flooding or mine subsidence. The Mach 1 gas station in Staunton has an increased vulnerability due to its development over an undermined area while all of the new development in Virden has an increased vulnerability due to their development over undermined areas.

Based on responses to the "Changes in Land Use and Development" survey, **Figure C-2** summarizes planned development anticipated to occur in the next five years. Benld, Girard, Royal Lakes, Staunton, and Virden did not identify any substantial planned development within the next five years while Macoupin County, Brighton, Carlinville, and Gillespie all indicated that various types of development would occur within their jurisdictions within the next five years.

No other large-scale development initiatives are underway in the County. Substantial changes in land use (from forested and agricultural land to residential, commercial, and industrial), aside from those mentioned above, are not anticipated within the County in the immediate future and no sizeable increases in commercial or industrial developments are expected within the next five years.

5.2 STATUS OF EXISTING MITIGATION ACTIONS

[Local Mitigation Planning Policy Guide Element E2-b]

The Plan update process included a review and evaluation of the ***existing hazard mitigation actions***. Each jurisdiction who chose to participate in the Plan update was provided a copy of their original list of existing mitigation actions at the second meeting held on June 27, 2024. They were

asked to identify those actions that were either in progress or that had been completed since the previous Plan was prepared in 2019.

Figure C-2
Development Planned/Under Consideration

Jurisdiction	Changes Identified	Type, Size, and Location
Macoupin County	Yes	- small subdivisions - additional wind & solar farms
Benld	No	
Brighton	Yes	2 – six unit condos (over 55 residences) – N. Market St.
Bunker Hill	No	
Carlinville	Yes	business park, 30 acres – IL Rte. 4 north of the City
Gillespie	Yes	solar farm
Girard	No	
Royal Lakes	No	
Staunton	No	
Virden	No	

Figure C-3 provides an overview of the status of the existing mitigation actions for the previous participants while **Figures C-4** through **C-13**, located at the end of this section, detail the individual results of the analysis by jurisdiction.

Brighton Township, Brighton Betsey Ann FPD, Brighton Township, Bunker Hill CUSD #8, Carlinville Area Hospital, Carlinville CUSD #1, Community Hospital of Staunton, Eagarville, Gillespie CUSD #7, Girard FPD, Henderson Water District, Jersey County Rural Water, Medora Community FPD, Mount Clare, Mount Olive Volunteer FPD, Nilwood, North Mac CUSD #34, Southwestern CUSD #9, Staunton CUSD #6, Unit 7 FPD did not participate in the previous Plan update and therefore are not included in the summary. While Mount Olive and Wilsonville, participated in the previous Plan, they chose not to participate in the Plan update process and are not included in the summary.

5.3 CHANGES IN PRIORITIES

[Local Mitigation Planning Policy Guide Element E2-a]

When discussing changes in priorities, it is imperative to understand that for Macoupin County and the communities that reside within it, the highest priority is maintaining critical services (i.e., drinking water, sewer, law enforcement, fire, roads/streets, etc.) to their residents while remaining financially solvent. The municipalities in the County have populations that range from 93 individuals up to 5,710 individuals according to the 2020 Decennial Census. In all but a few instances, these communities have minimal staff and limited financial resources with which to achieve this priority. While mitigation efforts are important and can reduce the long-term risks to people and property, providing basic services essential to human health and safety is and always will remain the highest priority.

Since priorities specifically related to mitigation efforts can change over time, each jurisdiction was given the opportunity to eliminate any action on their existing mitigation action lists that they

did not deem currently relevant, viable, and/or practical for implementation. Macoupin County, Benld, Brighton, Bunker Hill, Gillespie, Girard, Staunton, and Virden eliminated actions from their lists due to changes in perceived need, financial constraints, and political circumstances. There were no other identified changes in priorities related to the mitigation efforts for any of the previous participants since the previous Plan was approved.

Figure C-3
Summary – Status of Existing Mitigation Actions by Previous Participant

Jurisdiction	Total No. of Actions Identified	Status of Mitigation Actions			Barriers to Completion Identified (staffing, lack of funding, political will, etc.)	No. of Actions Eliminated	No. of Actions Retained
		No Progress	In Progress*	Completed *			
Macoupin County	24	17	3	4	funding; perceived need	2	18
Benld	9	4	5	---	perceived need; facility closure	4	5
Brighton	8	4	2	2	funding; perceived need	1	5
Bunker Hill	12	4	4	4	---	3	5
Carlinville	11	6	4	1	feasibility; perceived need	2	8
Gillespie	17	11	3	3	funding	1	13
Girard	6	4	2	---	funding	1	5
Royal Lakes	4	4	---	---	funding	---	4
Staunton	10	3	4	3	funding; perceived need	2	5
Virden	13	6	4	3	funding; staffing; feasibility; perceived need	1	9

* Actions identified as "In Progress" or "Completed" are not included in the "No. of Mitigation Actions Eliminated" column since these were projects successfully implemented and not eliminated due to changes in perceived need, financial constraints, or political circumstances.

Figure C-4
Macoupin County – Status of Existing Mitigation Actions
(Sheet 1 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
County Board							
Conduct a county-wide flood study.	✓					✓	
Trim trees to minimize the amount/duration of power outages.	✓					✓	
Enforce codes requiring mobile homes to have tie-downs.	✓					✓	
Assess the drainage system throughout the County.	✓					✓	
Upgrade the drainage system throughout the County.	✓					✓	
Purchase and install electrical transfer switches at all critical facilities for use with emergency backup generators to provide uninterrupted power and maintain operations during power outages.	✓					✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County's vulnerability since the 2019 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Macoupin County has one administrative activity in progress that has the potential to decrease the vulnerability of flood prone areas. It is still too early to tell the degree of reduction that will be experienced from the implementation of this action. The County also has three infrastructure improvement projects and three administrative activities in progress or completed that have the potential to decrease vulnerability to Safety & Security, Health & Medical, Communications, and Transportation Community Lifelines. However these activity will not significantly change the vulnerability of hazard prone areas within the County.

Figure C-4
Macoupin County – Status of Existing Mitigation Actions
(Sheet 2 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
County Clerk							
Create digital data sets (maps) of undermined areas within the County for incorporation into the County's GIS system. This information will assist the public and local government officials in considering where to construct new buildings and identify structures vulnerable to subsidence.	✓					✓	
Review the Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to reflect the FIRMs and present both for adoption.	✓				FIRMs have not yet been developed for the County. The County is currently in the data development phase.	✓	
Make the most recent Flood Insurance Rate Maps available at the County Clerk's Office to assist the public in considering where to construct new buildings and make county officials aware of these maps and issues related to construction in a floodplain.	✓				FIRMs have not yet been developed for the County. The County is currently in the data development phase.	✓	
Make information materials available to the public about the National Flood Insurance Program's voluntary Community Rating System.	✓				FIRMs have not yet been developed for the County. The County is currently in the data development phase.		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County's vulnerability since the 2019 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Macoupin County has one administrative activity in progress that has the potential to decrease the vulnerability of flood prone areas. It is still too early to tell the degree of reduction that will be experienced from the implementation of this action. The County also has three infrastructure improvement projects and three administrative activities in progress or completed that have the potential to decrease vulnerability to Safety & Security, Health & Medical, Communications, and Transportation Community Lifelines. However these activity will not significantly change the vulnerability of hazard prone areas within the County.

Figure C-4
Macoupin County – Status of Existing Mitigation Actions
(Sheet 3 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
County Clerk Continued…							
Develop or adopt guidelines or ordinances which require higher building and safety standards for new public and governmental buildings.	✓					✓	
Develop ordinance to bury new power lines in subdivisions.	✓					✓	
Emergency Management Agency							
Conduct a Commodity Flow Study.	✓					✓	
Establish shelters/warming and cooling centers in mobile home parks and recreational areas in the unincorporated portions of the County.	✓					✓	
Conduct a study to determine areas in the County that need new sirens.		✓				✓	
Purchase and install new warning siren systems within the County.	✓				Barrier to completion – funding	✓	
Develop and distribute educational materials (including first aid kits, weather radios and pamphlets) to the general public that identify the measures that can be taken to protect their lives and property from natural hazard events.	✓				Barrier to completion – funding	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County's vulnerability since the 2019 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Macoupin County has one administrative activity in progress that has the potential to decrease the vulnerability of flood prone areas. It is still too early to tell the degree of reduction that will be experienced from the implementation of this action. The County also has three infrastructure improvement projects and three administrative activities in progress or completed that have the potential to decrease vulnerability to Safety & Security, Health & Medical, Communications, and Transportation Community Lifelines. However these activity will not significantly change the vulnerability of hazard prone areas within the County.

Figure C-4
Macoupin County – Status of Existing Mitigation Actions
(Sheet 4 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
ETSB							
Improve emergency radio coverage throughout the County.			✓	2022	Deployed simulcast radio system in 2022		✓
Institute Reverse 911 or similar mass notification system.	✓				No longer a priority		✓
Highway Department							
Conduct a study to evaluate bridge infrastructure strength.			✓		All bridges are rated periodically by IDOT or an engineering consultant as part of the County's bridge inspection program		✓
Public Health Department							
Purchase and install an automatic emergency backup generator at the Maple Street Clinic to provide uninterrupted power and maintain operations during a power outage. The Clinic is used as a designated warming/cooling center and a medical, behavioral and dispensing site in the event of a bioterrorism incident.			✓	2019			✓
Design and construct an Emergency Operations Center at the Health Department (retrofit an existing area or construct a new multi-function room) to use during natural hazard and other emergency events.			✓	2021-2022	EOC established on the northwest corner of Maple Street Clinic.		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County's vulnerability since the 2019 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Macoupin County has one administrative activity in progress that has the potential to decrease the vulnerability of flood prone areas. It is still too early to tell the degree of reduction that will be experienced from the implementation of this action. The County also has three infrastructure improvement projects and three administrative activities in progress or completed that have the potential to decrease vulnerability to Safety & Security, Health & Medical, Communications, and Transportation Community Lifelines. However these activity will not significantly change the vulnerability of hazard prone areas within the County.

Figure C-4
Macoupin County – Status of Existing Mitigation Actions
(Sheet 5 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Public Health Department Continued…							
Develop a database that identifies access and functional needs populations within the County.		✓			Continuing to work with other County agencies to identify access and functional needs populations throughout the County. Continuing to work with Ameren Illinois for assistance regarding this priority population.	✓	
Supervisor of Assessments							
Develop Digital Flood Insurance Rate Maps (DFIRMs) for the entire County, including all incorporated municipalities. Create digital data sets of these maps for incorporation into the County's GIS system. FIRMs have not yet been developed for the County. Only three of the municipalities have FIRMs, but these maps have not been updated since the 1980s.*		✓			The County is currently in the data development phase.	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County's vulnerability since the 2019 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Macoupin County has one administrative activity in progress that has the potential to decrease the vulnerability of flood prone areas. It is still too early to tell the degree of reduction that will be experienced from the implementation of this action. The County also has three infrastructure improvement projects and three administrative activities in progress or completed that have the potential to decrease vulnerability to Safety & Security, Health & Medical, Communications, and Transportation Community Lifelines. However these activity will not significantly change the vulnerability of hazard prone areas within the County.

Figure C-5
Benld – Status of Existing Mitigation Actions
(Sheet 1 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Purchase and install an automatic emergency backup generator at City Hall to provide uninterrupted power and maintain operations during a power outage.	✓					✓	
Purchase portable emergency backup generators for use at lift stations to maintain operations during power outages.		✓				✓	
Purchase and install an automatic emergency backup generator at the Police Station to provide uninterrupted power and maintain operations during a power outage.	✓				Police services now contracted.		✓
Designate the Benld Senior Citizens Center as a warming/cooling center for City residents.	✓				Center is closed.		✓
Retrofit the Benld Senior Citizens Center (equipped with HVAC, upgraded bathrooms and insulated) to serve as a heating and cooling center for City residents.	✓				Center is closed.		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Benld has four infrastructure improvement projects in progress that has the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions.

Figure C-5
Benld – Status of Existing Mitigation Actions
(Sheet 2 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Purchase and install an automatic emergency backup generator at the Benld Senior Citizens Center to provide uninterrupted power and maintain operations during a power outage.	✓				Center is closed.		✓
Clean out and replace/upsize roadway culverts and reshape/regrade waterways/drainage ditches within the City to increase carrying capacity, alleviate drainage issues and prevent roadway overtopping and subsequent washouts/pavement failures.		✓			Ongoing project	✓	
Repair/reline sewer line sections/mains to reduce stormwater infiltration and prevent sewage backups.		✓			Some sections of relining completed in 2023.	✓	
Remove debris, vegetative overgrowth, snags and drifts from streams and creeks within the City to maintain/increase carrying capacity, better manage stormwater runoff and reduce/prevent drainage problems.		✓			Ongoing project	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Benld has four infrastructure improvement projects in progress that has the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions.

Figure C-6
Brighton – Status of Existing Mitigation Actions
(Sheet 1 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Replace and expand the City's storm sewer system along West Central Street to increase capacity and better manage stormwater runoff.			✓				✓
Conduct sewer line reconnaissance study to identify locations where storm water infiltrates the lines.		✓			Ongoing project	✓	
Repair/reline sewer line sections where storm water infiltration is occurring to prevent sewage backups.		✓			Ongoing project	✓	
Purchase and install new outdoor warning siren system.	✓				Barrier to completion – funding	✓	
Install new storm water drainage system (ditches, culverts, etc.) in the Georgene Acres Subdivision to alleviate drainage/flooding problems.			✓				✓
Review the Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to reflect the FIRMs and present both for adoption.	✓				FIRMs have not yet been developed for the Macoupin County portion of Brighton. The maps are currently in the data development phase.	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village's vulnerability since the 2019 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Brighton has four infrastructure improvement projects in progress or completed that have the potential to decrease the vulnerability of flood prone areas in the Village. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions.

Figure C-6
Brighton – Status of Existing Mitigation Actions
(Sheet 2 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings and make city officials aware of these maps and issues related to construction in a floodplain.	✓				FIRMs have not yet been developed for the Macoupin County portion of Brighton. The maps are currently in the data development phase.	✓	
Make information materials available to the public about the National Flood Insurance Program's voluntary Community Rating System.	✓				The mapped portion of Brighton in Jersey County does not have any SFHAs. FIRMs have not yet been developed for the Macoupin County portion of Brighton. The maps are currently in the data development phase.		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village's vulnerability since the 2019 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Brighton has four infrastructure improvement projects in progress or completed that have the potential to decrease the vulnerability of flood prone areas in the Village. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions.

Figure C-7
Bunker Hill – Status of Existing Mitigation Actions
(Sheet 1 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Clean debris/obstructions out of culverts to maximize carrying capacity, reduce/prevent drainage problems and prevent roadway overtopping and washouts/pavement failures prevent roadway overtopping and washouts/pavement failures.			✓	2021			✓
Replace/upsize roadway culverts as need to increase carrying capacity, alleviate drainage problems and prevent roadway overtopping and washouts/pavement failures.			✓	2021			✓
Reshape/regrade existing waterways/ drainage ditches where needed to maintain/increase carrying capacity, alleviate drainage problems, prevent roadway overtopping and washouts/pavement failures.		✓			Ongoing project	✓	
Upgrade/retrofit drinking water system (lines, water mains, fire hydrants, pumping system, etc.) to ensure a constant supply of water for residents and aid in fire suppression during natural hazard events.	✓					✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Bunker Hill has six infrastructure improvement projects in progress or completed that have the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City also has two additional infrastructure improvement projects in progress that have the potential to decrease the vulnerability to Safety & Security, Transportation, and Communications Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure C-7
Bunker Hill – Status of Existing Mitigation Actions
(Sheet 2 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Conduct sewer line reconnaissance study to identify locations where stormwater infiltrates the lines.		✓			Ongoing project	✓	
Repair/reline sewer line sections/mains to reduce stormwater infiltration and prevent sewage backups.		✓			Ongoing project	✓	
Remove debris, vegetative overgrowth, snags and drifts from streams and creeks within the City to maintain/increase carrying capacity, better manage stormwater runoff and reduce/prevent drainage problems.			✓	2021	Completed by public works in 2021 – Ongoing project	✓	
Conduct drainage/hydraulic study to determine the cause(s) and identify the appropriate remedy(s) to alleviate recurring drainage/flooding problems along Washington St.			✓	2021			✓
Purchase portable emergency backup generators for use at lift stations to maintain operations during power outages.	✓				Will consider renting if one is needed		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Bunker Hill has six infrastructure improvement projects in progress or completed that have the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City also has two additional infrastructure improvement projects in progress that have the potential to decrease the vulnerability to Safety & Security, Transportation, and Communications Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure C-7
Bunker Hill – Status of Existing Mitigation Actions
(Sheet 3 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Purchase and install new outdoor warning siren system.	✓						✓
Develop/purchase an automated telephone warning system (reverse 911) to notify residents/responders of emergency information.		✓					✓
Install a lift station at Foot Street and New Lake Road to increase capacity, better manage stormwater runoff, and alleviate drainage problems and backups.	✓						✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an actions due to changes in perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Bunker Hill has six infrastructure improvement projects in progress or completed that have the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City also has two additional infrastructure improvement projects in progress that have the potential to decrease the vulnerability to Safety & Security, Transportation, and Communications Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure C-8
Carlinville – Status of Existing Mitigation Actions
(Sheet 1 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Develop and implement an outreach program that works with local businesses to identify the risks to their employees and properties from natural hazard events, the actions they can take to reduce or eliminate those risks and the steps they can take to maintain operations after a natural hazard event.		✓			Ongoing	✓	
Develop/distribute public information materials that inform residents about the risks to life and property associated with natural hazards and the proactive actions that they can take to reduce or eliminate their risk.		✓			Ongoing issue	✓	
Clean debris/obstructions out of culverts to maximize carrying capacity and reduce/prevent drainage problems.		✓				✓	
Develop/purchase an automated telephone warning system (reverse 911) to notify residents/responders of emergency information.			✓	2021			✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in feasibility and perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Carlinville has one infrastructure improvement project and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City has one additional infrastructure improvement project and two administrative activities in progress or completed, one of which has the potential to decrease the vulnerability to Communications Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure C-8
Carlinville – Status of Existing Mitigation Actions
(Sheet 2 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Create volunteer networks to: 1) check on/assist access and functional needs residents during natural hazard events; 2) assess building conditions following a natural hazard event; 3) conduct sandbagging operations to reduce flood damages.	✓					✓	
Review the revised Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to reflect the revised FIRMs and present both for adoption.	✓				Updated FIRMs have not yet been developed for the City. The maps are currently in the data development phase.	✓	
Make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings and make city officials aware of these maps and issues related to construction in a floodplain.		✓			Updated FIRMs have not yet been developed for the City. The maps are currently in the data development phase.	✓	
Make information materials available to the public about the National Flood Insurance Program's voluntary Community Rating System.	✓						✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in feasibility and perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Carlinville has one infrastructure improvement project and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City has one additional infrastructure improvement project and two administrative activities in progress or completed, one of which has the potential to decrease the vulnerability to Communications Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure C-8
Carlinville – Status of Existing Mitigation Actions
(Sheet 3 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Conduct a sewer upgrade to separate stormwater and sanitary lines.	✓					✓	
Establish shelters/warming/cooling centers for City residents.	✓					✓	
Re-route rail line around Carlinville.	✓				Barrier to completion – feasibility, new high speed rail established & Amtrak runs on this line		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of actions due to changes in feasibility and perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Carlinville has one infrastructure improvement project and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City has one additional infrastructure improvement project and two administrative activities in progress or completed, one of which has the potential to decrease the vulnerability to Communications Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure C-9
Gillespie – Status of Existing Mitigation Actions
(Sheet 1 of 4)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Purchase and install electrical hookups at the Gillespie Municipal Building/Civic Center (a designated emergency shelter and warming/cooling center) for use with portable emergency backup generator to provide uninterrupted power and maintain operations during a power outage.			✓	2022			✓
Evaluate the vulnerability of the City's wastewater treatment facility (including lagoons and outflow structure) to earthquakes.	✓					✓	
Seismically harden the identified vulnerable components of the City's wastewater treatment facility.	✓					✓	
Purchase and install new outdoor warning siren system.	✓				Barrier to completion - funding	✓	
Separate the combined sewer system on the City's west side to maximize the carrying capacity of the sewer system, accommodate stormwater flow and reduce the potential for sewer backups and drainage problems.	✓					✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village's vulnerability since the 2019 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Gillespie has two infrastructure improvement projects and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the Village. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The Village also has two additional infrastructure improvement projects and one administrative activity completed that have the potential to decrease the vulnerability to Food, Hydration, Shelter Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the Village.

Figure C-9
Gillespie – Status of Existing Mitigation Actions
(Sheet 2 of 4)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Construct retention pond adjacent to the wastewater treatment facility to manage excess storm water runoff that overwhelms the facility's capacity during heavy rain events due to infiltration of the sewer system and the partially combined sewer system on the City's west side.	✓					✓	
Install additional stormwater relief drains and catch basins along the existing system to alleviate recurring drainage/flooding problems.	✓				Barrier to completion - funding	✓	
Remove debris, vegetative overgrowth, snags and drifts from streams and creeks within the City to maintain/increase carrying capacity, better manage stormwater runoff and reduce/prevent drainage problems.		✓			In progress	✓	
Clean out and replace/upsize roadway culverts and reshape/regrade waterways/drainage ditches within the City to increase carrying capacity, alleviate drainage issues and prevent roadway overtopping and subsequent washouts/pavement failures.		✓			In progress	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village's vulnerability since the 2019 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Gillespie has two infrastructure improvement projects and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the Village. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The Village also has two additional infrastructure improvement projects and one administrative activity completed that have the potential to decrease the vulnerability to Food, Hydration, Shelter Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the Village.

Figure C-9
Gillespie – Status of Existing Mitigation Actions
(Sheet 3 of 4)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Purchase and install an automatic emergency backup generator at the Gillespie Municipal Building/Civic Center (a designated emergency shelter and warming/cooling center) to provide uninterrupted power and maintain operations during a power outage.			✓	2022			✓
Purchase and install an automatic emergency backup generator at lift stations to provide uninterrupted power and maintain operations during a power outage.	✓					✓	
"Harden" the New Gillespie Lake Dam to make it resistant to natural hazard events. Potential hardening activities include: replacing the spillway panels, reinforcing the dam, sealing below the spillway to prevent water infiltration and leaks that have the potential to lead to a dam/spillway failure.	✓					✓	
Review the revised Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to reflect the revised FIRMs and present both for adoption.	✓				Updated FIRMs have not yet been developed for the Village. The maps are currently in the data development phase.	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village's vulnerability since the 2019 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Gillespie has two infrastructure improvement projects and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the Village. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The Village also has two additional infrastructure improvement projects and one administrative activity completed that have the potential to decrease the vulnerability to Food, Hydration, Shelter Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the Village.

Figure C-9
Gillespie – Status of Existing Mitigation Actions
(Sheet 4 of 4)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings and make city officials aware of these maps and issues related to construction in a floodplain.		✓			Updated FIRMs have not yet been developed for the Village. The maps are currently in the data development phase.	✓	
Make information materials available to the public about the National Flood Insurance Program's voluntary Community Rating System.	✓						✓
Distribute weather radios to critical facilities.	✓					✓	
Establish shelters/warming/cooling centers for Village residents.			✓	2022			✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village's vulnerability since the 2019 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Gillespie has two infrastructure improvement projects and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the Village. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The Village also has two additional infrastructure improvement projects and one administrative activity completed that have the potential to decrease the vulnerability to Food, Hydration, Shelter Community Lifelines. However these actions will not significantly change the vulnerability of hazard prone areas within the Village.

Figure C-10
Girard – Status of Existing Mitigation Actions
(Sheet 1 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Purchase and install an automatic emergency backup generator at the Girard Community Center (a designated emergency shelter) to provide uninterrupted power and maintain operations during a power outage.		✓			Generator install and operational, but needs upgraded components to make it more reliable to provide adequate continuous power	✓	
Purchase and install an automatic emergency backup generator at the Girard Fire House to provide uninterrupted power and maintain operations during a power outage.	✓				The Girard FPD is currently building a new building		✓
Upgrade/retrofit storm sewer system to better manage stormwater runoff in an effort to alleviate flooding/drainage problems.		✓			Some small projects are in progress to improve drainage issues, however, there are more areas that require additional study and planning for drainage improvements	✓	
Upgrade/retrofit drinking water system (lines, water mains, fire hydrants, pumping system, etc.) to ensure a constant supply of water for residents and aid in fire suppression during natural hazard events.	✓				Many of the City's water mains need to be upgraded or placed to provide a more reliable and constant water supply. Additional study and planning needs to be done, but there are limited funds available for this.	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Girard has one infrastructure improvement project in progress that has the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City has an additional infrastructure improvement project in progress that has the potential to decrease the vulnerability to Food, Hydration, Shelter Community Lifelines. However this action will not significantly change the vulnerability of hazard prone areas within the City.

Figure C-10
Girard – Status of Existing Mitigation Actions
(Sheet 2 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Evaluate the need and cost of implementing an automated telephone warning system (reverse 911) to notify residents/responders of emergency information.	✓					✓	
Establish shelters/warming/cooling centers for City residents.	✓				Needs additional study an funding will be needed	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Girard has one infrastructure improvement project in progress that has the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City has an additional infrastructure improvement project in progress that has the potential to decrease the vulnerability to Food, Hydration, Shelter Community Lifelines. However this action will not significantly change the vulnerability of hazard prone areas within the City.

Figure C-11
Royal Lakes – Status of Existing Mitigation Actions

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Design and construct a community safe room (tornado shelter) equipped with emergency backup generator and HVAC units that can also serve as an emergency shelter/warming and cooling center for Village residents.	✓				Barrier to Completion - funding	✓	
Install new storm water drainage system (ditches, culverts, etc.) in select areas of the Village to alleviate drainage/flooding problems.	✓				Barrier to Completion - funding	✓	
Distribute weather radios to critical facilities.	✓				Barrier to Completion - funding	✓	
Establish shelters/warming/cooling centers for Village residents.	✓					✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village's vulnerability since the 2019 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Royal Lakes did not begin or complete any of the identified mitigation actions due in large part to financial constraints experienced by a village of this size (approx. 170 individuals). As a result, there has been no change in the vulnerability of hazard prone areas within the Village.

Figure C-12
Staunton – Status of Existing Mitigation Actions
(Sheet 1 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Design and construct a stormwater retention basin on the southeast edge of the City to store stormwater runoff and reduce the likelihood of flooding.			✓				✓
Conduct sewer line reconnaissance study to identify locations where storm water infiltrates the lines.		✓				✓	
Repair/reline sewer line sections where storm water infiltration is occurring to prevent sewage backups.		✓				✓	
Install upsized stormwater drain on Lafayette St. between Caldwell St. and Union St. down to Pennsylvania St. to better manage stormwater runoff and alleviate recurring drainage/flooding problems.		✓			We just completed replacing the Gensing Creek box culvert. As funds become available through the City's stormwater collection fee, more stormwater projects will be completed.	✓	
Purchase and install automatic emergency backup generator at lift stations to provide uninterrupted power and maintain operations during a power outage.			✓	2024			✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Staunton has six infrastructure improvement projects and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions.

Figure C-12
Staunton – Status of Existing Mitigation Actions
(Sheet 2 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Install riprap along Ginseng Creek through the City to stabilize the banks, reduce erosion, maintain carrying capacity and prevent future potential flooding problems on adjacent properties.			✓	2024	The creek flowing through the entire downtown area is now in a 7' x 7', 1100' box culvert		✓
Review the revised Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to reflect the revised FIRMs and present both for adoption.	✓				Updated FIRMs have not yet been developed for the Village. The maps are currently in the data development phase.	✓	
Make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings and make city officials aware of these maps and issues related to construction in a floodplain.		✓			Updated FIRMs have not yet been developed for the Village. The maps are currently in the data development phase.	✓	
Make information materials available to the public about the National Flood Insurance Program's voluntary Community Rating System.	✓						✓
Distribute weather radios to critical facilities.	✓				With weather apps available the need is less.		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2019 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Staunton has six infrastructure improvement projects and one administrative activity in progress that have the potential to decrease the vulnerability of flood prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions.

Figure C-13
Virden – Status of Existing Mitigation Actions
(Sheet 1 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Prepare an emergency operations plan for the City with functional and hazard-specific annexes addressing: 1) health and medical services and emergency mortuary services for mass casualty incidents; 2) mass care for temporary shelter and essential life support needs for residents displaced by a disaster; and 3) hazardous materials incident response.	✓					✓	
Retrofit a public building to include a community safe room (tornado shelter) and/or design and construct a new community safe room for use by City residents. The community safe room would be equipped with automatic emergency backup generator and heating/air conditioning units that can also serve as an emergency shelter and warming/cooling center.	✓				Barrier to completion - funding	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2020 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Virden has two infrastructure improvement projects in progress that have the potential to decrease the vulnerability of flood prone areas in the City and one infrastructure improvement project completed that has the potential to decrease the vulnerability of hazard prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City also has one additional infrastructure improvement project and three administrative activities in progress or completed, with the infrastructure improvement project and two of the administrative activities having the potential to decrease the vulnerability to Communications and Food, Hydration, Shelter Community Lifelines. However none of these actions will significantly change the vulnerability of hazard prone areas within the City.

Figure C-13
Virden – Status of Existing Mitigation Actions
(Sheet 2 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Designate warming & cooling centers within the City		✓			The City has a building that would qualify but we have not been able to determine how to staff it when needed. A local church had volunteered their community hall, but ran into problems with insurance, funding, & staffing	✓	
Designate emergency shelters within the City.		✓			The Knights of Columbus hall was designated long ago as an emergency shelter. At the time it was equipped to the City's portable emergency generator to the building for power. This needs to be inspected by a qualified electrician and put through a trial run to verify for this use.	✓	
Once completed, review the County's GIS mapping of undermined areas to identify vulnerable areas in the City.			✓		Based on a review of mapping of undermined areas, much of the City is undermined. Our emergency responders are aware of this and considered the whole City vulnerable.		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2020 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Virden has two infrastructure improvement projects in progress that have the potential to decrease the vulnerability of flood prone areas in the City and one infrastructure improvement project completed that has the potential to decrease the vulnerability of hazard prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City also has one additional infrastructure improvement project and three administrative activities in progress or completed, with the infrastructure improvement project and two of the administrative activities having the potential to decrease the vulnerability to Communications and Food, Hydration, Shelter Community Lifelines. However none of these actions will significantly change the vulnerability of hazard prone areas within the City.

Figure C-13
Virden – Status of Existing Mitigation Actions
(Sheet 3 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Develop ordinance to bury new power lines in subdivisions.			✓	2019	This is part of our subdivision code. All subdivision utilities must be in the ground		✓
Conduct a comprehensive drainage/hydraulic study to determine the cause(s) and identify the appropriate remedy(s) to alleviate recurring drainage problems within the City. The study should contain an inventory of the storm sewer system and mapping showing inlets, pipe sizes, length, type condition, etc.).		✓			A comprehensive drainage study has not been completed for the whole City, mainly due to lack of funding. However, the City has hired engineers to study a northwest section of the city that has been known to have drainage problems. The City has applied for and awarded a $530,000 grant through DCEO to install a "Northwest Bypass Drainage Pipeline". This is scheduled to be completed by late 2026. Once completed, this should alleviate much of the drainage problem in that area, which includes the North Mac schools Virden campus.	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2020 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Virden has two infrastructure improvement projects in progress that have the potential to decrease the vulnerability of flood prone areas in the City and one infrastructure improvement project completed that has the potential to decrease the vulnerability of hazard prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City also has one additional infrastructure improvement project and three administrative activities in progress or completed, with the infrastructure improvement project and two of the administrative activities having the potential to decrease the vulnerability to Communications and Food, Hydration, Shelter Community Lifelines. However none of these actions will significantly change the vulnerability of hazard prone areas within the City.

Figure C-13
Virden – Status of Existing Mitigation Actions
(Sheet 4 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Select, design and construct the appropriate drainage remedy(s) to alleviate recurring drainage problems within the City.		✓			See comment above.	✓	
Review the Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to reflect the FIRMs and present both for adoption.	✓				FIRMs have not yet been developed for the Village. The maps are currently in the data development phase.	✓	
Make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings and make city officials aware of these maps and issues related to construction in a floodplain.	✓				FIRMs have not yet been developed for the Village. The maps are currently in the data development phase.	✓	
Make information materials available to the public about the National Flood Insurance Program's voluntary Community Rating System.	✓				FIRMs have not yet been developed for the Village. The maps are currently in the data development phase.		✓

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2020 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Virden has two infrastructure improvement projects in progress that have the potential to decrease the vulnerability of flood prone areas in the City and one infrastructure improvement project completed that has the potential to decrease the vulnerability of hazard prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City also has one additional infrastructure improvement project and three administrative activities in progress or completed, with the infrastructure improvement project and two of the administrative activities having the potential to decrease the vulnerability to Communications and Food, Hydration, Shelter Community Lifelines. However none of these actions will significantly change the vulnerability of hazard prone areas within the City.

Figure C-13
Virden – Status of Existing Mitigation Actions
(Sheet 5 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Comments: - Barriers to Completion - Summary/Details of Completed Action (i.e., location, scope, etc.) - Reason Action is No Longer Relevant	Status of No Progress/ In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Purchase and install new warning sirens within the City.			✓	2020			✓
Distribute weather radios to critical facilities within the City.	✓				The Police Department and FPD are up to date on these, but the City needs to coordinate them with the Public Works Department	✓	

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City's vulnerability since the 2020 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved aside from the elimination of an action due to perceived need.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Virden has two infrastructure improvement projects in progress that have the potential to decrease the vulnerability of flood prone areas in the City and one infrastructure improvement project completed that has the potential to decrease the vulnerability of hazard prone areas in the City. It is still too early to tell the degree of reduction that will be experienced from the implementation of these actions. The City also has one additional infrastructure improvement project and three administrative activities in progress or completed, with the infrastructure improvement project and two of the administrative activities having the potential to decrease the vulnerability to Communications and Food, Hydration, Shelter Community Lifelines. However none of these actions will significantly change the vulnerability of hazard prone areas within the City.

6.0 MITIGATION STRATEGY

[Local Mitigation Planning Policy Guide Element C]

The mitigation strategy identifies how participating jurisdictions are going to reduce or eliminate the potential loss of life and property damage that results from the natural hazards identified in the Risk Assessment section of this Plan. The strategy includes:

- Reviewing, re-evaluating, and updating the mitigation goals (Local Mitigation Planning Policy Guide Element C3-a). Mitigation goals describe the objective(s) or desired outcome(s) that the participants would like to accomplish in terms of hazard and loss prevention. These goals are intended to reduce or eliminate long-term vulnerabilities to natural hazards.
- Evaluating the status of the existing mitigation actions and identifying a comprehensive range of jurisdiction-specific mitigation actions including those related to continued compliance with the National Flood Insurance Program (NFIP) (Local Mitigation Planning Policy Guide Elements C4-a, C4-b, E2-a, & E2-b). Mitigation actions are projects, plans, activities, or programs that achieve at least one of the mitigation goals identified.
- Analyzing the existing and new mitigation actions identified for each jurisdiction. This analysis ensures each action will reduce or eliminate future losses associated with the hazards identified in the Risk Assessment section.
- Reviewing, re-evaluating, and updating the mitigation actions prioritization methodology (Local Mitigation Planning Policy Guide Element C5-a). The prioritization methodology outlines the approach used to prioritize the implementation of each identified mitigation action.
- Identifying the entity(s) responsible for implementation and administration (Local Mitigation Planning Policy Guide Element C5-b). For each mitigation action, the entity(s) responsible for implementing and administering that action is identified as well as the timeframes for completing the actions and potential funding sources.
- Conducting a preliminary cost/benefit analysis of each mitigation action (Local Mitigation Planning Policy Guide Element C5-a). The qualitative cost/benefit analysis provides participants with a general idea of which actions are likely to provide the greatest benefit based on the financial cost and staffing efforts needed.

As part of the Plan update, the mitigation strategy was reviewed and revised. A detailed discussion of each aspect of the mitigation strategy and any updates made is provided below.

6.1 MITIGATION GOALS REVIEW

[Local Mitigation Planning Policy Guide Element C3-a]

As part of the Plan update process, the mitigation goals from the previous Plan were reviewed and re-evaluated. The previous list of mitigation goals was updated and distributed to the Committee members at the first meeting on April 18, 2024. Members were asked to review the list before the second meeting and consider whether any changes needed to be made or if additional goals should be included. At the Committee's June 27, 2024 meeting the group discussed the updated list of goals and approved them with no changes. **Figure MIT-1** lists the approved mitigation goals.

Figure MIT-1 Mitigation Goals	
Goal 1	Educate people about the natural and man-made hazards they face and the ways they can protect themselves, their homes, and their businesses from those hazards.
Goal 2	Protect the lives, health, and safety of the people and animals living in the County from the dangers of natural and man-made hazards.
Goal 3	Protect existing infrastructure and design new infrastructure (roads, bridges, utilities, water supplies, sanitary sewer systems, etc.) to be resilient to the impacts of natural and man-made hazards.
Goal 4	Incorporate natural and man-made hazard mitigation into existing as well as new community plans and regulations.
Goal 5	Place a priority on protecting public services (i.e., critical facilities & infrastructure such as utilities and roads), schools, and community lifelines (i.e., safety & security; food, hydration, shelter; health & medical; water systems; energy; communication; transportation; and hazardous materials.)
Goal 6	Preserve and protect the rivers/streams and floodplains in our County.
Goal 7	Ensure future development does not increase the vulnerability of hazard-prone areas within the County or create unintended exposures to natural and man-made hazards.
Goal 8	Protect historic, cultural, and natural resources from the effects of natural and man-made hazards.

6.2 NEW MITIGATION ACTION IDENTIFICATION

Following the review and evaluation of the existing mitigation actions, the Committee members were asked to consult with their respective jurisdictions to identify ***new, jurisdiction-specific mitigation actions***.

Representatives of Macoupin County, Brighton, Bunker Hill, Carlinville, Gillespie, Staunton, and Virden were also asked to identify mitigation actions that would ensure their continued compliance with the National Flood Insurance Program. The compiled lists of new mitigation actions were then reviewed to assure the appropriateness and suitability of each action. Those actions that were not deemed appropriate and/or suitable were either reworded or eliminated.

6.3 MITIGATION ACTION ANALYSIS

Next, those existing mitigation actions retained, and the new mitigation actions identified were assigned to one of four broad mitigation activity categories that allowed Committee members to compare and consolidate similar actions. **Figure MIT-2** identifies each mitigation activity category and provides a brief description.

Each mitigation action was then analyzed to determine:

- the hazard or hazards being mitigated;
- the general size of the population affected (i.e., small, medium, or large), the participant's status as an Economically Disadvantaged Rural Community (EDRC), as well as the participant's Social Vulnerability Index (SVI) ranking;
- the goal or goals fulfilled;

- whether the action would reduce the effects on new or existing buildings and infrastructure; and
- whether the action would ensure continued compliance with the National Flood Insurance Program.

Figure MIT-2
Types of Mitigation Activities

Category	Description
Local Plans & Regulations (LP&R)	Local Plans & Regulations include actions that influence the way land and buildings are being developed and built. Examples include stormwater management plans, floodplain regulations, capital improvement projects, participation in the NFIP Community Rating System, comprehensive plans, and local ordinances (i.e., building codes, etc.)
Structure & Infrastructure Projects (S&IP)	Structure & Infrastructure Projects include actions that protect infrastructure and structures from a hazard or remove them from a hazard area. Examples include acquisition and elevation of structures in flood prone areas, burying utility lines to critical facilities, construction of community safe rooms, install "hardening" materials (i.e., impact resistant window film, hail resistant shingles/doors, etc.) and detention/retention structures.
Natural System Protection (NSP)	Natural System Protection includes actions that minimize damage and losses and also preserve or restore natural systems. Examples include sediment and erosion control, stream restoration and watershed management.
Education & Awareness Programs (E&A)	Education & Awareness Programs include actions to inform and educate citizens, elected officials and property owners about hazards and the potential ways to mitigate them. Examples include outreach/school programs, brochures, and handout materials, becoming a StormReady community, evacuation planning and drills, and volunteer activities (i.e., culvert cleanout days, initiatives to check in on the elderly/disabled during hazard events such as storms and extreme heat events, etc.)

Each mitigation action was also evaluated to determine whether it would mitigate risk to one or more of FEMA's eight Community Lifelines. Community Lifelines are the most fundamental services in the community that enable all other aspects of society to function. These Lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security. The Community Lifelines include Safety & Security; Food, Hydration, Shelter; Health & Medical; Water Systems; Energy (Power & Fuel); Communications; Transportation; and Hazardous Materials. **Figure MIT-3** provides a brief description of each Community Lifeline.

6.4 MITIGATION ACTION PRIORITIZATION METHODOLOGY & COST/BENEFIT ANALYSIS REVIEW

[Local Mitigation Planning Policy Guide Element C5-a]

The methodology applied to prioritize mitigation actions in the previous Plan was reviewed by the Committee as part of the Plan update process. This methodology was based on two key factors: 1) the frequency of the hazard and 2) the degree of mitigation attained. It was presented to the Planning Committee members at the third meeting held on November 14, 2024. The group reviewed and discussed the methodology and chose to approve it with no changes.

Figure MIT-3 Community Lifelines	
Category	**Components/Subcomponents**
Safety & Security	- Law Enforcement/Security (police stations, law enforcement, site security, correctional facilities) - Fire Service (fire stations, firefighting resources) - Search & Rescue (local search & rescue) - Government Service (emergency operation centers, essential government functions, government offices, schools, public records, historic/cultural resources) - Community Safety (flood control, other hazards, protective actions)
Food, Hydration, Shelter	- Food [commercial food distribution, commercial food supply chain, food distribution programs (e.g., food banks)] - Hydration [temporary hydration missions (e.g., bottled water distribution, commercial water supply chain]; - Shelter [housing (e.g., homes, shelters), commercial facilities (e.g., hotels)]; - Agriculture (animals & agriculture)
Health & Medical	- Medical Care (hospitals, dialysis, pharmacies, long-term care facilities, VA health system, veterinary services, home care) - Patient Movement (emergency medical services) - Fatality Management (mortuary and post-mortuary services) - Public Health (health surveillance, human services, behavioral health, vector control, labs) - Medical Supply Chain [blood/blood products, manufacturing (e.g., pharmaceutical, device, medical gases), distribution, critical clinical research, sterilization, raw materials]
Water Systems	- Potable Water Infrastructure (intake, treatment, storage, distribution) - Wastewater Management (collection, storage, treatment, discharge)
Energy	- Power Grid (generation systems, transmission systems, distribution systems) - Fuel [refineries/fuel processing, fuel storage, pipelines, fuel distribution (e.g., gas stations, fuel points), off-shore oil platforms]
Communications	- Infrastructure [wireless, cable systems and wireline, broadcast (e.g., TV and radio), satellite, data centers/internet] - Alerts, Warnings, & Messages [local alert/warning ability, access to IPAWS (WEA, EAS NWR), NAWAS terminals] - 911 & Dispatch (public safety answering points, dispatch) - Responder Communications (Land Mobile Radio networks) - Finance (banking services, electronic payment processing)
Transportation	- Highway/Roadway/Motor Vehicle (roads, bridges) - Mass Transit (bus, rail, ferry) - Railway (freight, passenger) - Aviation [commercial (e.g., cargo/passenger), general, military] - Maritime (waterways, ports and port facilities)
Hazardous Materials	- Facilities [oil/hazmat facilities (e.g., chemical, nuclear), oil/hazmat/toxic incidents from facilities] - Hazmat, Pollutants, Contaminants (oil/hazmat/toxic incidents from non-fixed facilities, radiological or nuclear incidents)

Figure MIT-4 identifies and describes the four-tiered prioritization methodology re-evaluated and approved by the Committee. This methodology provides a means of objectively determining which projects and activities have a greater likelihood of reducing the long-term vulnerabilities associated with the most frequently-occurring natural hazards.

Figure MIT-4
Mitigation Action Prioritization Methodology

		Hazard	
		Most Frequent Hazard **(M)** (i.e., severe storms, excessive heat, floods, severe winter storms, extreme cold)	Less Frequent Hazard **(L)** (i.e., tornadoes, drought, mine subsidence, earthquakes, dam failures)
Mitigation Action	Mitigation Action with the Potential to Virtually Eliminate or Significantly Reduce Impacts **(H)**	**HM** mitigation action will virtually eliminate damages and/or significantly reduce the probability of fatalities and injuries from the most frequent hazards	**HL** mitigation action will virtually eliminate damages and/or significantly reduce the probability of fatalities and injuries from less frequent hazards
	Mitigation Action with the Potential to Reduce Impacts **(L)**	**LM** mitigation action has the potential to reduce damages, fatalities and/or injuries from the most frequent hazards	**LL** mitigation action has the potential to reduce damages, fatalities and/or injuries from less frequent hazards

While prioritizing the actions is useful and provides participants with additional information, it is important to keep in mind that implementing any of the mitigation actions is desirable regardless of which prioritization category an action falls under.

While this methodology does not take cost into consideration, it is a factor that may affect the order in which projects are implemented. As a result, a preliminary qualitative cost/benefit analysis was conducted to demonstrate each action's monetary and non-monetary benefits and provide additional information that can be considered in each participant's decision-making process. The costs and benefits were analyzed in terms of the general overall cost to complete an action as well as the staffing effort needed and the action's likelihood of virtually eliminating or significantly reducing the risk associated with a specific hazard. The general descriptors of high, medium, and low were used. These terms are not meant to translate into a specific dollar amount, but rather to provide a relative comparison between the actions identified by each jurisdiction.

This analysis is only meant to give the participants a starting point to compare which actions are likely to provide the greatest benefit. It was repeatedly communicated to the Planning Committee members that when a grant application is submitted to IEMA-OHS/FEMA for a specific action, a detailed cost/benefit analysis will be required to receive funding.

6.5 MITIGATION ACTION IMPLEMENTATION & ADMINISTRATION

[Local Mitigation Planning Policy Guide Element C5-b]

Finally, each participating jurisdiction was asked to identify how the mitigation actions will be implemented and administered. This included:

- identifying the party or parties responsible for oversight and administration;
- determining what funding source(s) are available or will be pursued; and
- describing the time frame for completion.

Oversight & Administration

It is important to keep in mind that some of the participating jurisdictions have limited capabilities related to organization and staffing for oversight and administration of the identified mitigation actions. Seven of the twelve participating municipalities are small in size, with populations of less than 1,800 individuals. In most cases these jurisdictions have minimal staff. Their organizational structure is such that most have very few offices and/or departments, generally limited to public works and water/sewer. Those in charge of the offices/departments often lack the technical expertise needed to individually oversee and administer the identified mitigation actions. As a result, most of the participating jurisdictions identified their governing body (i.e., village board, city council, or board of trustees) as the entity responsible for oversight and administration simply because it is the only practical option given their organizational constraints. Other participants felt that oversight and administration fell under the purview of the entity's governing body (board/council) and not individual departments.

Funding Sources

Since there is no regional planning or economic development entities that specifically serve Macoupin County and none of the participating jurisdictions are associated with entities that provide grant writing services and/or do not have staff with grant writing capabilities, assistance was needed in identifying possible funding sources for the identified mitigation actions. The consultant provided written information to the participants about FEMA and non-FEMA funding opportunities that have been used previously to finance mitigation actions. In addition, funding information was discussed with participants during Committee meetings and in one-on-one contacts so that an appropriate funding source could be identified for each mitigation action.

A handout was prepared and distributed that provided specific information on the non-FEMA grant sources available including the grant name, the government agency responsible for administering the grant, contact person and application period, if available, among other key points. Specific grants from the following agencies were identified: U.S. Department of Agricultural – Rural Development (USDA – RD), U.S. Department of Transportation's Federal Highway Administration (FHWA), Illinois Department of Agriculture (IDOA), Illinois Department of Commerce and Economic Opportunity (DCEO), Illinois Environmental Protection Agency (IEPA), Illinois Department of Natural Resources (IDNR), and Illinois Department of Transportation (IDOT).

The local funding source identified for each action may include cash contributions and/or in-kind local resources such as personnel, equipment, and supplies. If a non-local funding source is identified for an action, it is the most likely source to be pursued; however, if funding is unavailable

through the most likely or other suggested sources, then implementation of medium and large-scale projects and activities is unlikely due to the budgetary constraints experienced by most, if not all, of the participants due to their size, projected population growth, and limited revenue streams.

It is important to remember that the population for the entire County is approximately 45,000 individuals, with approximately 14,500 living in unincorporated Macoupin County. Seven of the twelve participating municipalities are small in size, with populations of less than 1,800 individuals. Carlinville, the largest municipality in the County, has just over 5,700 individuals. Some of the jurisdictions struggle to maintain and provide the most critical of services to their residents. Additional funding is necessary if implementation is to be achieved.

Time Frame for Completion

The time frame for completion identified for each action is the timespan in which participants would like to see the action successfully completed. In most cases, the time frame identified is dependent on obtaining the necessary funding. As a result, a time range has been identified for many of the mitigation actions to allow for unpredictability in securing funds.

6.6 RESULTS OF MITIGATION STRATEGY

[Local Mitigation Planning Policy Guide Element C3-a, C4-a, C4-b, C5-a, & C5-b]

Figure MIT-5 provides an overview of the mitigation strategy while **Figures MIT-6** through **MIT-34**, located at the end of this section, detail the individual results of the mitigation strategy by jurisdiction. The mitigation actions are arranged alphabetically by participating jurisdiction following the County.

Figure MIT-5
Summary – Mitigation Strategy by Participating Jurisdiction

Jurisdiction	No. of Existing Actions Retained (previous participants only)	No. of New Actions Identified	No. of New Actions Considered & Discarded	Total No. of Actions Retained
Macoupin County	18	6	---	24
Benld	5	6	---	11
Brighton	5	5	---	10
Brighton Betsey Ann FPD	---	3	---	3
Brighton Township	---	4	---	4
Bunker Hill	5	9	3	11
Bunker Hill CUSD #8	---	7	1	6
Carlinville	8	3	---	11
Carlinville Area Hospital	---	2	---	2
Carlinville Area CUSD #1	---	13	---	13
Community Hospital of Staunton	---	2	---	2
Eagarville	---	5	---	5
Gillespie	13	4	---	17
Gillespie CUSD #7	---	10	---	10
Girard	5	15	4	16
Girard FPD	---	7	---	7
Henderson Water District	---	4	1	3
Jersey County Rural Water	---	7	2	5
Medora Community FPD	---	2	---	2
Mount Clare	---	5	---	5
Mount Olive Volunteer FPD	---	5	2	3
Nilwood	---	5	1	---
North Mac CUSD #34	---	4	---	4
Royal Lakes	4	7	--	11
Southwestern CUSD #9	---	5	---	5
Staunton	5	3	---	8
Staunton CUSD #6	---	9	---	9
Unit 7 FPD	---	6	---	6
Virden	9	3	---	12

Figure MIT-6
Macoupin County Hazard Mitigation Actions
(Sheet 1 of 8)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
County Board													
Conduct a county-wide flood study to determine the types and quantities of hazardous substances and chemicals being transported within and through the County to assess potential impacts and mitigate risk to Community Lifelines.	MMH	S&S	LP&R E&A	Large	---	---	1, 2, 3 4, 5	LL	Low/Medium	County Board Chair County Board / EMA Coordinator	3-6 years	County General Fund / FEMA HMA	Existing (2019)
Trim trees to minimize the number and duration of service disruptions, improve community resilience, and mitigate risk to Community Lifelines.	SS, SWS, T	C E T	S&IP	Medium	Yes	Yes	3, 5	LM/LL	Low/Medium	County Board Chair / County Board	1-5 years	County Local Resources	Existing (2019)
Enforce codes requiring mobile homes to have tie-downs.	SS, T	---	LP&R	Small	Yes	Yes	2, 7	HM/HL	Low/High	County Board Chair / County Board	1-5 years	County Local Resources	Existing (2019)
Assess the drainage system throughout the County in an effort to better manage stormwater runoff, alleviate recurring drainage problems, increase storage and drainage capacity, and ensure system resilience and functionality.	F, SS	T	LP&R	Medium	---	---	3, 5	LM	Low/Medium	County Board Chair / County Board	2-4 years	County Local Resources	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the County's size (approx. 14,500 individuals in unincorporated areas), projected population growth, and financial constraints. The County works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DF	Dam Failure	MMH	Man-Made Hazard
DR	Drought	MS	Mine Subsidence
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-6
Macoupin County Hazard Mitigation Actions
(Sheet 2 of 8)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
County Board Continued…													
Upgrade the drainage system at various locations within the County to better manage stormwater runoff, alleviate recurring drainage problems, increase storage and drainage capacity, and ensure system resilience and functionality.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Medium/High	County Board Chair / County Board	5-10 years	County General Fund/ FHWA PROTECT / FEMA HMA	Existing (2019)
Purchase and install electrical transfer switches at county-owned critical facilities for use with emergency backup generators to establish resilient and reliable power supplies, maintain continuity of government/operations, and mitigate risk to Community Lifelines.	EC, EH, EQ, F, MMH, SS, SWS, T	C S&S T	S&IP	Medium	---	Yes	3, 5	HM/HL	Medium/High	County Board Chair / County Board	3-5 years	County General Fund / FEMA HMA	Existing (2019)
County Clerk													
Create digital data sets (maps) of undermined areas within the County for incorporation into the County's GIS system. This information will assist the public and local government officials in considering where to construct new buildings and identify structures vulnerable to subsidence.	MS	C FHS H&M S&S T	LP&R E&A	Medium	---	---	3, 4, 5	LL	Low/High	County Clerk	1-3 years	County Local Resources	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the County's size (approx. 14,500 individuals in unincorporated areas), projected population growth, and financial constraints. The County works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DF	Dam Failure	MMH	Man-Made Hazard
DR	Drought	MS	Mine Subsidence
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-6
Macoupin County Hazard Mitigation Actions
(Sheet 3 of 8)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
County Clerk Continued…													
Adopt guidelines or ordinances that require higher building and safety standards for new public and governmental buildings.	EC, EQ, F MS, SS, SWS, T	S&S	LP&R	Small	Yes	Yes	3, 4, 5	HM/HL	Low/Medium	County Clerk / County Board Chair County Board	3-5 years	County Local Resources / FEMA HMA	Existing (2019)
Develop ordinance to bury new power lines to unincorporated subdivisions to establish a resilient and reliable power supply, limit service disruptions and mitigate risk to Community Lifelines	SS, SWS, T	E T	LP&R	Medium	Yes	Yes	3, 4, 5	HM/HL	Low/Medium	County Clerk / County Board Chair County Board	2-4 years	County Local Resources / FEMA HMA	Existing (2019)
Emergency Management Agency													
Design and construct a community safe room at the Macoupin County Fairgrounds (built to high wind standards and equipped with an emergency backup generator and HVAC system) that can also serve as a warming/cooling center for patrons and areas residents to establish a Community Lifeline.	SS, T	---	S&IP	Small	Yes	---	2	HM/HL	High/High	EMA Coordinator / Macoupin County Fair Board	1-2 years	County General Fund / FEMA HMA / USDA -RD Critical Facilities Programs	New

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Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
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Figure MIT-6
Macoupin County Hazard Mitigation Actions
(Sheet 4 of 8)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Emergency Management Agency Continued…													
Designate Cross Church – Carlinville as a warming/cooling center to increase sheltering capabilities and capacities.	EC, EH	FHS	LP&R	Small	---	---	2	LM	Low/High	EMA Coordinator / City Council	1-3 years	County Local Resources / City Local Resources	New
Secure a Memorandum of Agreement with Cross Church - Carlinville, a designated warming/cooling center, to install an emergency standby generator to establish a resilient and reliable power supply, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH	FHS	LP&R	Small	---	---	2, 4, 5	LM	Low/Medium	EMA Coordinator / City Council	3-5 years	County Local Resources / City Local Resources	New
Purchase and install an emergency standby generator at Cross Church - Carlinville, a designated warming/cooling center, to establish a resilient and reliable power supply, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH	FHS	S&IP	Small	---	Yes	3, 5	HM	Medium/High	EMA Coordinator / City Council	5 years	County/City General Funds / FEMA HMA / USDA -RD Critical Facilities Programs	New

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Type of Mitigation Activity:

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Community Lifelines to be Mitigated:

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FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-6
Macoupin County Hazard Mitigation Actions
(Sheet 5 of 8)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Emergency Management Agency Continued…													
Partner with "high" hazard classified dam owners to develop Emergency Action Plans (EAPs) that identify the extent (water depth, speed of onset, warning times, etc.) and location (inundation areas) of potential dam failures to address data deficiencies.	DF	S&S	LP&R	Small	---	---	1, 2	LL	Low/Medium	EMA Coordinator	1-5 years	County Local Resources / Classified Dam Owners	New
Conduct a Commodity Flow Study to determine the types and quantities of hazard substances and chemicals being transported within and through the County to access potential impacts on Community Lifelines and mitigate risk to Hazard Materials Community Lifelines.	MMH	HM S&S	LP&R	Large	---	---	1, 2, 4, 5, 8	LL	Low/Medium	EMA Coordinator	3-5 years	County Local Resources / USDOT HMEP	Existing (2019)
Establish warming/cooling centers and emergency shelters in manufactured home parks and recreational areas in the unincorporated portions of the County to increase sheltering capabilities and capacity.	DF, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	LP&R	Small	---	---	2	LM/LL	Low/High	EMA Coordinator	1-5 years	County Local Resources	Existing (2019)
Evaluate storm warning siren system needs within County.	SS, T	C	LP&R E&A	Medium	---	---	2	LM/LL	Low/Medium	EMA Coordinator	2-4 years	County Local Resources	Existing (2019)

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Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
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FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-6
Macoupin County Hazard Mitigation Actions
(Sheet 6 of 8)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Emergency Management Agency Continued…													
Purchase and install storm warning siren systems in unincorporated communities and subdivisions without alert coverage within County to establish Communications Community Lifelines essential to human health and safety.	SS, T	C	S&IP E&A	Medium	---	---	2	LM/LL	Medium/High	EMA Coordinator	5 years	County General Fund / FEMA HMA / USDA – RD Community Facilities Programs	Existing (2019)
Distribute public information materials to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the County and the measures they can take to reduce their risk.	DF, DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	EMA Coordinator	1-5 years	County Local Resources	Existing (2019)
Public Health Department													
Maintain a database of access and functional needs populations within the County in order to alert these individuals of hazard events.	DF, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	LP&R E&A	Small	---	---	2	LM/LL	Low/Medium	Public Health Department Administrator	1-5 years	County Local Resources	Existing (2019)

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FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-6
Macoupin County Hazard Mitigation Actions
(Sheet 7 of 8)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Supervisor of Assessments													
Coordinate with the Illinois State Water Survey on the creation of Digital Flood Insurance Rate Maps (DFIRMs) for the entire County, including all incorporated municipalities. Create digital data sets of these maps for incorporation into the County's GIS system once the DFIRMs become effective. FIRMs have not yet been developed for the County. Only three of the municipalities have FIRMs, but these maps have not been updated since the 1980s.*	F	S&S	LP&R	Medium	---	---	2, 4, 6, 7	LM	Low/Medium	County Board / Supervisor of Assessments	3-5 years	County Local Resources	Existing (2019)
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small	Yes	Yes	2, 4, 6, 7	HM	Low/High	County Board / Supervisor of Assessments	1-5 years	County Local Resources	Existing (2019)

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* Mitigation action to ensure continued compliance with NFIP.

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Type of Mitigation Activity:

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Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
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FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-6
Macoupin County Hazard Mitigation Actions
(Sheet 8 of 8)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Supervisor of Assessments Continued…													
Continue to make the most recent Flood Insurance Rate Maps available at the Supervisor of Assessments Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small	Yes	---	1, 2, 6, 7	LM	Low/Medium	Supervisor of Assessments	1-5 years	County Local Resources	Existing (2019)
Continue to make County officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small	Yes	---	1	LM	Low/Medium	Supervisor of Assessments	1-5 years	County Local Resources	New / Existing (2019)

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Figure MIT-7
Benld Hazard Mitigation Actions
(Sheet 1 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upgrade the City's stormwater drainage system (ditches, culverts, etc.) to increase storage and drainage capacity, better manage stormwater runoff, alleviate recurring drainage problems, and ensure system resilience and functionality.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	Aldermen / Public Works Director	2 years	City General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP / DCEO CDBG	New
Purchase and install a new storm warning siren system with system control software to ensure continued operation of a community lifeline essential to human health and safety.	SS, T	C	S&IP	Large	---	---	2	HM/HL	Medium/High	Aldermen	2 years	City General Fund / FEMA HMA / USDA – RD Community Facilities Programs	New

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Community Lifelines to be Mitigated:

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Figure MIT-7
Benld Hazard Mitigation Actions
(Sheet 2 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upgrade backup storm warning siren to ensure continued operation of a community lifeline essential to human health and safety.	SS, T	C	S&IP	Large	---	---	2	HM/HL	Medium/High	Aldermen / Fire Chief	2 years	City General Fund / FEMA HMA / USDA – RD Community Facilities Programs	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the City and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Mayor / City Council	1-5 years	City Local Resources	New
Purchase and install an automatic emergency backup generator at City Hall to establish a resilient and reliable power supply, maintain continuity of government/operations, and mitigate risk to Community Lifelines.	EC, EH, EQ, F, MMH, SS, SWS, T	C S&S	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	Mayor / City Council	2-5 years	City General Fund / FEMA HMA / USDA – RD Community Facilities Programs	Existing (2019)

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(Sheet 3 of 4)

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					New	Existing							
Purchase portable emergency backup generators for the City's lift stations to establish resilient and reliable power supplies in order to maintain continuity of operations and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	WS	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	Mayor / City Council	2-5 years	City General Fund / FEMA HMA / USDA – RD Community Facilities Programs	Existing (2019)
Upsize select roadway culverts to increase carrying capacity, better manage stormwater runoff, alleviate recurring drainage/flooding problems, prevent roadway overtopping and subsequent washouts/pavement failures, and ensure system resilience and functionality.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	Mayor City Council / Public Works Director	1-5 years	Village General Fund / FEMA HMA	Existing (2019)
Clean debris/obstructions out of roadway culverts and drainage structures within the City to maximize carrying capacity, reduce/prevent drainage problems, and mitigate risk to Community Lifelines.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Low/Medium	Mayor City Council / Public Works Director	1-5 years	City Local Resources	New / Existing (2019)

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Figure MIT-7
Benld Hazard Mitigation Actions
(Sheet 4 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Improve drainage characteristics (grade/contour, etc.) of waterways/drainage ditches within the City to alleviate drainage/flooding problems that occur during/after heavy rain events, better manage stormwater runoff, and mitigate risk to a Community Lifeline.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Low/Medium	Mayor City Council / Public Works Director	1-5 years	City General Fund / IEPA SRF - WPCLP	New / Existing (2019)
Line sewer line sections/mains to eliminate stormwater inflow and infiltration and reduce the amount of stormwater entering the wastewater treatment plant to increase system resilience, prevent sewage backups, and mitigate risk to a Community Lifeline.	F, SS	WS	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	Mayor City Council / Public Works Director	2-5 years	City General Fund / IEPA SRF – WPCLP / DCEO CDBG	Existing (2019)
Remove debris, vegetative overgrowth, snags and drifts from streams and creeks within the City to maintain/increase carrying capacity, better manage stormwater runoff, and reduce/prevent drainage problems.	F, SS	S&S T	S&IP	Small	Yes	Yes	3, 5	LM	Low/Medium	Mayor City Council / Public Works Director	1-5 years	City Local Resources	Existing (2019)

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LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-8
Brighton Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upgrade water mains at select locations in the Village to increase system resilience to breaks, ensure a constant supply of water for residents, aid in fire suppression during hazard events, and mitigate risk to a Community Lifeline.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	WS	S&IP	Large	Yes	Yes	2, 3, 5	HM/HL	High/High	President Board of Trustees / Public Works Superintendent	3-4 years	Village General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – PWSLP / DCEO CDBG	New
Develop an emergency response/action plan detailing how the Village will respond to natural and man-made hazard events at solar installations, both residential and commercial, to mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	E	LP&R	Medium	---	---	2, 3, 5	LM/LL	Low/Medium	President / Board of Trustees	2-3 years	Village Local Resources	New
Evaluate the need to modify current zoning ordinances or enact new zoning ordinances to mitigate the risks associated with solar installations.	MMH	S&S	LP&R	Medium	---	---	2, 3, 5	LM/LL	Low/Medium	President / Board of Trustees	2-3 years	Village Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (approx. 2,200 individuals). The Village works hard to provide critical services to its residents, but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

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Hazard(s) to be Mitigated:

DF	Dam Failure	F	Flood
DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
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Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-8
Brighton Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Village and the proactive approaches they can take to reduce their risk.	DF, DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	President / Board of Trustees	1-5 years	Village Local Resources	New
Conduct sewer line reconnaissance study to identify locations where storm water infiltrates the lines to increase system resilience.	F, SS	WS	LP&R	Medium	---	---	3, 5	LM	Medium/Medium	President Board of Trustees / Public Works Superintendent	1-5 years	Village General Fund	Existing (2019)
Line sewer line sections to eliminate stormwater inflow and infiltration and reduce the amount of stormwater entering the wastewater treatment system to increase system resilience, prevent sewage backups, and mitigate risk to a Community Lifeline.	F, SS	WS	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	President Board of Trustees / Public Works Superintendent	1-5 years	Village General Fund / IEPA SRF – WPCLP / DCEO CDBG	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (approx. 2,200 individuals). The Village works hard to provide critical services to its residents, but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

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Hazard(s) to be Mitigated:

DF	Dam Failure	F	Flood
DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-8
Brighton Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a new storm warning siren system to establish a Communications Community Lifeline essential human health and safety.	SS, T	---	S&IP E&A	Large	---	---	2	HM/HL	Medium/High	President / Board of Trustees	1-3 years	Village General Fund / FEMA HMA / USDA – RD Community Facilities Programs	Existing (2019)
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small	Yes	Yes	2, 4, 6, 7	HM	Low/Medium	President Village Board / Village Clerk	1-5 years	Village Local Resources	Existing (2019)
Continue to make the most recent Flood Insurance Rate Maps available at the Village Clerk's Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small	Yes	---	1, 2, 6, 7	LM	Low/Medium	President Village Board / Village Clerk	1-3 years	Village Local Resources	Existing (2019)
Make Village officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small	Yes	---	1	LM	Low/Medium	President Village Board / Village Clerk	1-3 years	Village Local Resources	New / Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (approx. 2,200 individuals). The Village works hard to provide critical services to its residents, but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
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HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DF	Dam Failure	F	Flood
DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-9
Brighton Betsey Ann Fire Protection District Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase digital P25-compliant interoperable land mobile and portable radio systems to allow District staff to exchange critical communications/provide mutual aid across multiple districts and partner agencies to maintain continuity of operations and ensure system resilience and functionality of a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	C	S&IP	Large	---	---	2, 3, 5	LM/LL	High/High	Fire Chief / Board of Trustees	3 years	FPD General Fund / FEMA HMA	New
Identify dry hydrants within the District that can be used as filling stations to supply an uninterrupted flow of water to aid in fire suppression as necessary during hazard events.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Medium	---	---	2, 5	LM/LL	Low/Medium	Fire Chief / Board of Trustees	5 years	FPD Local Resources	New
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Fire Chief / Board of Trustees	1-5 years	FPD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 7,000 individuals in a service area of 67 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-10
Brighton Township Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby backup emergency generator at the Township Building to establish a resilient and reliable power supply, maintain continuity of government/ operations, and mitigate risk to Community Lifelines.	ED, EH, EQ, F, MMH, SS, SWS, T	C S&S T	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	Supervisor / Township Board	2-5 years	Township General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	New
Purchase and install outdoor storm warning siren systems in unincorporated areas of the Township to establish Community Lifelines essential to human health and safety.	SS, T	---	S&IP E&A	Medium	---	---	2	HM/HL	Medium/High	Supervisor / Township Board	2-5 years	Township General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	New
Install solar-powered warning signs with flashing lights to alert individuals of areas that experience repeated roadway flooding.	F, SS	---	E&A	Small	---	---	1, 2	LM	Low/Medium	Supervisor / Township Board	2-5 years	Township General Fund	New
Distribute public information materials to Township residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Township and the proactive approaches they can take to reduce their risk.	DF, DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Supervisor / Township Board	2-5 years	Township Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small, rural township of this size (approx3,900 individuals). The Township works hard to maintain critical services to residents but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

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HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DF	Dam Failure	F	Flood
DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-11
Bunker Hill Hazard Mitigation Actions
(Sheet 1 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a backup power source (solar array system) at the RESI for the aerator, filtration, and water pump to establish resilient and reliable power supply, maintain continuity of operations, and mitigate risk to a community lifeline in the event of a prolonged power outage.	EC, EH, EQ, F, MMH, SS, SWS, T	WS	S&IP	Large	---	Yes	2, 3, 5	HM/HL	Medium/High	Mayor City Council / Public Works	1 year	City General Fund / USDA – RD Water & Waste Disposal Program / FEMA BRIC	New
Purchase and install a backup power source (solar array system) at the Foote St. water pump system location to establish resilient and reliable power supply, maintain continuity of operations, and mitigate risk to a community lifeline in the event of a prolonged power outage.	EC, EH, EQ, F, MMH, SS, SWS, T	WS	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Mayor City Council / Public Works	1 year	City General Fund / USDA – RD Water & Waste Disposal Program / DOE EECBG Program	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 1,600 individuals). The City works hard to provide critical services to its residents, but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

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Community Lifelines to be Mitigated:

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FHS	Food, Hydration, Shelter	T	Transportation
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Figure MIT-11
Bunker Hill Hazard Mitigation Actions
(Sheet 2 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the City and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Mayor / City Council	1-5 years	City Local Resources	New
Improve drainage characteristics (grade/contour, etc.) of waterways/drainage ditches within the City to increase carrying capacity, alleviate drainage problems that occur during/after heavy rain events, prevent roadway overtopping, better manage stormwater runoff, and mitigate risk to a Community Lifeline.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Low/Medium	Public Works	1-5 years	City General Fund / IEPA SRF - WPCLP	Existing (2019)
Remove debris, vegetative overgrowth, snags and drifts from streams and creeks within the City to maintain/increase carrying capacity, better manage stormwater runoff, and reduce/prevent drainage problems.	F, SS	S&S T	S&IP	Small	Yes	Yes	3, 5	LM	Low/Medium	Mayor City Council / Public Works	1-5 years	City Local Resources	Existing (2019)

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Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
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Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-11
Bunker Hill Hazard Mitigation Actions
(Sheet 3 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upgrade drinking water system (i.e., lines, mains, fire hydrants, pumping system, etc.) to incorporate distribution redundancies to increase system resilience, ensure a constant supply of water for residents, aid in fire suppression during hazard events, and safeguard the functionality of a Community Lifeline.	EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Large	Yes	Yes	3, 5	HM/HL	High/High	Public Works	5 years	City General Fund / IEPA SRF – PWSLP / USDA – RD Water & Waste Disposal Program / DCEO CDBG	Existing (2019)
Conduct sewer line reconnaissance study to identify locations where storm water infiltrates the lines to increase system resilience.	F, SS	WS	LP&R	Medium	---	---	3, 5	LM	Medium/Medium	Public Works	1-5 years	City General Fund	Existing (2019)
Line sewer line sections to eliminate stormwater inflow and infiltration and reduce the amount of stormwater entering the wastewater treatment system to increase system resilience, prevent sewage backups, and mitigate risk to a Community Lifeline.	F, SS	WS	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	Public Works	1-5 years	City General Fund / IEPA SRF – WPCLP / DCEO CDBG	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 1,600 individuals). The City works hard to provide critical services to its residents, but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
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Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-11
Bunker Hill Hazard Mitigation Actions
(Sheet 4 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small	Yes	Yes	2, 4, 6, 7	HM	Low/Medium	Mayor City Council / City Clerk / Administrator	1-5 years	City Local Resources	New
Continue to make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small	Yes	---	1, 2, 6, 7	LM	Low/Medium	Mayor City Council / Administrator	1-5 years	City Local Resources	New
Make City officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small	Yes	---	1	LM	Low/Medium	Mayor City Council / Administrator	1-5 years	City Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 1,600 individuals). The City works hard to provide critical services to its residents, but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Priority

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-12
Bunker Hill Community Unit School District #8 Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install an energy storage bank for use with the solar array at Wolf Ridge Elementary School to establish a resilient and reliable power supply in order to maintain continuity of operations and mitigate risk to a Community Lifeline. The school is a designated emergency shelter.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	FHS S&S	S&IP	Large	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / School Board	1-5 years	CUSD General Fund / DOE EECBG Program	New
Purchase and install an energy storage bank for use with the solar array at Bunker Hill High School to establish a resilient and reliable power supply in order to maintain continuity of operations and mitigate risk to a Community Lifeline. The school is a designated emergency shelter.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	FHS S&S	S&IP	Large	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / School Board	1-5 years	CUSD General Fund / DOE EECBG Program	New
Purchase and install a standby emergency backup generator at Wolf Ridge Elementary School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline. The school is a designated emergency shelter.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	FHS S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / School Board	1-5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural school district of this size (serving approx. 600 students in a 69 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
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LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-12
Bunker Hill Community Unit School District #8 Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby emergency backup generator at Bunker Hill High School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline. The school is a designated emergency shelter.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	FHS S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / School Board	1-5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Construct stormwater detention/retention basin to better manage stormwater runoff, increase storage capacity, alleviate drainage/flooding problems, and mitigate risk to a Community Lifeline.	F, SS	S&S	S&IP	Large	---	Yes	3, 5	HM	High/High	Superintendent / School Board	1-5 years	CUSD General Fund / FEMA HMA / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP	New

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EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-12
Bunker Hill Community Unit School District #8 Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Educate students and staff about the natural hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Superintendent / School Board	1-5 years	CUSD Local Resources	New

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Community Lifelines to be Mitigated:

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E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-13
Carlinville Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upgrade storm warning siren system, including installing additional sirens in underserved areas, to maximize the system's effectiveness and ensure continued operations of a Community Lifeline essential to human health and safety.	SS, T	C	S&IP E&A	Large	---	---	2	HM/HL	Medium/High	Mayor / City Council	2 years	City General Fund / FEMA HMA / USDA – RD Community Facilities Programs	New
Separate the combined sewer system to better manage stormwater runoff, reduce flow rates to wastewater treatment plant, increase system resilience, prevent damage to the collection systems and plant during flood events, and mitigate risk to a Community Lifeline.	F, SS	WS	S&IP	Large	Yes	Yes	3, 5	HM	High/High	Mayor City Council / Public Works	5 years	City General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP / DCEO CDBG	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 5,700 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

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Community Lifelines to be Mitigated:

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E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-13
Carlinville Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the City and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Mayor / City Council	1-5 years	City Local Resources	Existing (2019)
Develop and implement an outreach program that works with local businesses to identify the risks to their infrastructure and employees from natural and man-made hazard events, the actions they can take to reduce those risks, and the steps they can take to maintain operations after a hazard event.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Medium	---	---	1, 2	LM/LL	Low/Medium	Mayor / City Council	1-3 years	City Local Resources	Existing (2019)
Clean debris/obstructions out of roadway culverts and drainage structures within the City to maximize carrying capacity, reduce/prevent drainage problems, and mitigate risk to Community Lifelines.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Low/Medium	Mayor City Council / Public Works	1-5 years	City Local Resources	Existing (2019)
Create volunteer networks to: 1) check on/assist access and functional needs residents during hazard events; 2) assess building conditions following a hazard event; 3) conduct sandbagging operations to reduce flood damages	EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	LP&R E&A	Small	---	---	2	LM/LL	Low/High	Mayor / City Council	2-4 years	City Local Resources	Existing (2019)

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-13
Carlinville Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Establish warming/cooling centers for City residents' use.	EC, EH	---	LP&R	Medium	---	---	2	LM	Low/High	Mayor / City Council	3 years	City Local Resources	New / Existing (2019)
Establish emergency shelters for City residents' use.	EQ, F, MMH, MS, SS, SWS, T	---	LP&R	Large	---	---	2	LM	Low/High	Mayor / City Council	3 years	City Local Resources	New / Existing (2019)
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small	Yes	Yes	2, 4, 6, 7	HM	Low/Medium	Mayor City Council / City Clerk / Zoning Administrator	1-5 years	City Local Resources	Existing (2019)
Continue to make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small	Yes	---	1, 2, 6, 7	LM	Low/Medium	Zoning Administrator / City Clerk	1-3 years	City Local Resources	New / Existing (2019)
Make City officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small	Yes	---	1	LM	Low/Medium	Zoning Administrator	1-5 years	City Local Resources	New / Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 5,700 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-14
Carlinville Area Hospital Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Design and construct external community safe rooms at the Hospital and clinics (built to high wind standards and equipped with emergency backup generators) for use by staff and patients to establish a Community Lifeline essential to human health and safety.	SS, T	---	S&IP	Small	Yes	---	2	HM/HL	High/High	Safety Committee / Administrator Board of Directors	2-5 years	Hospital General Fund / FEMA HMA	New
Educate staff and patients about the natural and man-made hazards that have the potential to impact the County and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Safety Committee	1-5 years	Hospital Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, rural hospitals. Additional funding is necessary if implementation is to be achieved within the time frames specified.

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-15
Carlinville Community Unit School District #1 Hazard Mitigation Actions
(Sheet 1 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install standby emergency backup generators at District school buildings to establish resilient and reliable power supplies in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifelines.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Large	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / School Board / Operations & Maintenance	1-3 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Design and construct community safe rooms (retrofit existing structures or construct new structures), built to high wind standards and equipped with emergency backup generators, for use by students, staff, and visitors to establish Community Lifelines essential to human health and safety.	SS, T	---	S&IP	Large	Yes	---	2	HM/HL	High/High	Superintendent / School Board / Operations & Maintenance	2-5 years	CUSD General Fund / FEMA HMA / USDA -RD Critical Facilities Programs	New
Install outdoor notification systems at District outdoor recreational fields to provide staff, students, and patrons advance warning of dangerous weather conditions and establish Community Lifelines.	SS, T	---	S&IP E&A	Medium	---	---	2	HM/HL	Medium/High	Superintendent / School Board / Operations & Maintenance	1-5 years	CUSD General Fund	New

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Figure MIT-15
Carlinville Community Unit School District #1 Hazard Mitigation Actions
(Sheet 2 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Designate District gymnasiums as warming and cooling centers for use by students, staff, and area residents.	EC, EH	---	LP&R	Medium	---	---	2	LM	Low/high	Superintendent / School Board	1-2 years	CUSD Local Resources	New
Purchase portable heaters and air conditioning units to use in District gymnasiums, designated warming and cooling centers, to ensure sustained functionality during power outages and mitigate risk to Community Lifelines.	EC, EH	FHS	S&IP	Medium	---	Yes	2	HM	Medium/High	Superintendent / School Board	2-5 years	CUSD General Funds / USDA -RD Critical Facilities Programs	New
Grout under undermined District buildings to prevent subsidence, improve infrastructure resilience, and ensure continued functionality of a Community Lifeline.	MS	S&S	S&IP	Medium	---	Yes	3, 5	HL	High/High	Superintendent / School Board / Operations & Maintenance	2-5 years	CUSD General Fund	New
Install hardening materials (i.e., shatter-proof/impact resistant glass, etc.) at District buildings to increase building resilience to natural hazards, maintain continuity of operations, protect staff and students, and mitigate risk to Community Lifelines.	EQ, SS, T	S&S	S&IP	Large	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / School Board / Operations & Maintenance	2-5 years	CUSD General Fund / FEMA HMA / USDA – RD Critical Facilities Program	New

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Figure MIT-15
Carlinville Community Unit School District #1 Hazard Mitigation Actions
(Sheet 3 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Bury power lines to District buildings to establish resilient and reliable power supplies, improve infrastructure resilience, limit service disruptions, and mitigate risk to Community Lifelines.	MMH, SS, SWS, T	E S&S	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	Superintendent / School Board / Operations & Maintenance	2-5 years	CUSD General Fund / FEMA HMA	New
Purchase and install a solar array system and energy storage bank at the District buildings to improve infrastructure resilience and limit service disruptions, establish reliable power supplies in order to maintain continuity of operations, and mitigate risk to a Community Lifeline during a prolonged power outage	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	Superintendent / School Board / Operations & Maintenance	1-3 years	CUSD General Fund / DOE EECBG Program	New
Purchase and install grounding systems at District buildings to protect critical infrastructure (i.e., computers, communication systems, electrical systems, HVAC, etc.), to improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Large	---	Yes	3, 5	HM	Medium/High	Superintendent / School Board / Operations & Maintenance	1-3 years	CUSD General Fund / USDA – RD Critical Facilities Program	New

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Figure MIT-15
Carlinville Community Unit School District #1 Hazard Mitigation Actions
(Sheet 4 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Improve drainage characteristics (grades/contour areas, permeable pavement, etc.) around District buildings to prevent surface intrusion into the buildings during/after heavy rain events, better manage stormwater runoff, and mitigate risk to a Community Lifeline.	F, SS	S&S	S&IP	Large	---	Yes	3, 5	HM	Medium/High	Superintendent / School Board / Operations & Maintenance	1-3 years	CUSD General Fund / IEPA SRF – WPCLP	New
Assess vulnerability of District buildings to mine subsidence, including ground studies, mapping, and other geological resources to identify areas that are susceptible to subsidence.	MS	S&S	LP&R	Large	---	---	3, 5	LL	Low/Medium	Superintendent / School Board / Operations & Maintenance	1-3 years	CUSD Local Resources	New
Educate students and staff about the natural hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Superintendent / School Board	1-5 years	CUSD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural school district of this size (serving approx. 1,300 students in a 263 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-16
Community Hospital of Staunton Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a lightning suppression/grounding system at the Hospital to protect critical systems, improve infrastructure resilience, and ensure continuity of operations of a Community Lifeline.	SS	H&M	S&IP	Large	---	Yes	3, 5	HM	Medium/High	Plant Operations Director	3-5 years	Hospital General Fund / USDA – RD Critical Facilities Program	New
Educate staff and patients about the natural and man-made hazards that have the potential to impact the County and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Safety Committee	1-5 years	Hospital Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, rural hospitals. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

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HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-17
Eagarville Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install an automatic emergency backup generators at the North and South sewer lift stations within the Village to establish resilient and reliable power supplies, maintain continuity of operations, and mitigate risk to Community Lifelines.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	President / Village Board	5 years	Village General Fund / FEMA HMA / USDA – RD Community Facilities Programs	New
Upsize roadway culvert on E. Eagarville Rd. at Columbia Quarry Lake to increase carrying capacity, alleviate roadway overtopping and subsequent washouts/pavement failures, better manage stormwater runoff, and ensure system resilience and functionality.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	President / Village Board	2-5 years	Village General Fund / FEMA HMA	New
Remove debris and vegetative overgrowth from drainage ditches and culverts to maintain/increase carrying capacity, better manage stormwater runoff, and reduce/prevent drainage problems within the Village.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Low/Medium	President / Village Board	1 year	Village Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (approx. 100 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

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LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-17
Eagarville Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Create a volunteer network to check on & assist individuals with access and functional needs during hazard events.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	LP&R E&A	Small	---	---	2	LM/LL	Low/High	President / Board of Trustees	1 year	Village Local Resources	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Village and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	President / Board of Trustees	1-5 years	Village Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (approx. 100 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-18
Gillespie Hazard Mitigation Actions
(Sheet 1 of 6)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the City and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Aldermen / City Council	1-5 years	City Local Resources	New
Purchase and install a new storm warning siren system to establish a Communications Community Lifeline essential human health and safety.	SS, T	---	S&IP E&A	Large	---	---	2	HM/HL	Medium/High	Aldermen City Council / EMA Coordinator	1-3 years	City General Fund / FEMA HMA / USDA – RD Community Facilities Programs	Existing (2019)
Evaluate the vulnerability of the City's wastewater treatment facility (including lagoons and outflow structure) to earthquakes.	EQ	WS	LP&R	Large	---	---	3, 5	LL	Low/Medium	Aldermen / City Council	3-5 years	City General Fund	Existing (2019)
Seismically harden the identified vulnerable components of the City's wastewater treatment facility to meet earthquake design guidelines to increase infrastructure resilience.	EQ	WS	S&IP	Large	Yes	Yes	3, 5	HL	High/High	Aldermen / City Council	5 years	City General Fund / FEMA HMA / DCEO CDBG	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 3,200 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

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Hazard(s) to be Mitigated:

DF	Dam Failure	MMH	Man-Made Hazard
DR	Drought	MS	Mine Subsidence
EC	Extreme Cold	SS	Severe Storm
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EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-18
Gillespie Hazard Mitigation Actions
(Sheet 2 of 6)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Separate the combined sewer system on the City's west side to better manage stormwater runoff, reduce flow rates to wastewater treatment plant, increase system resilience, prevent damage to the collection systems and plant during flood events, and mitigate risk to a Community Lifeline.	F, SS	WS	S&IP	Large	Yes	Yes	3, 5	HM	High/High	Aldermen City Council / Sewer Department	5 years	City General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP / DCEO CDBG	Existing (2019)
Construct a retention pond adjacent to the wastewater treatment facility to manage excess stormwater runoff that overwhelms the facility's capacity during heavy rain events.	F, SS	WS	S&IP	Large	Yes	Yes	3, 5	HM	High/High	Aldermen City Council / Sewer Department	5 years	City General Fund / FEMA HMA / IEPA SRF – WPCLP / USDA – RD Water & Waste Disposal Program	Existing (2019)

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DR	Drought	MS	Mine Subsidence
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Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
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E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-18
Gillespie Hazard Mitigation Actions
(Sheet 3 of 6)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Install additional stormwater relief drains and catch basins along the existing system to better manage stormwater runoff, alleviate recurring drainage problems experienced during heavy rain events, and ensure system resilience and functionality.	F, SS	T WS	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	Aldermen / City Council	3-5 years	City General Fund / FEMA HMA / IEPA SRF – WPCLP / USDA – RD Water & Waste Disposal Program	Existing (2019)
Remove debris, vegetative overgrowth, snags and drifts from streams and creeks within the City to maintain/increase carrying capacity, better manage stormwater runoff, and reduce/prevent drainage problems.	F, SS	S&S T	S&IP	Small	Yes	Yes	3, 5	LM	Low/Medium	Mayor / City Council	1-5 years	City Local Resources	Existing (2019)

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Hazard(s) to be Mitigated:

DF	Dam Failure	MMH	Man-Made Hazard
DR	Drought	MS	Mine Subsidence
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-18
Gillespie Hazard Mitigation Actions
(Sheet 4 of 6)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upsize select roadway culverts to increase carrying capacity, better manage stormwater runoff, alleviate recurring drainage/flooding problems, prevent roadway overtopping and subsequent washouts/pavement failures, and ensure system resilience and functionality.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	Mayor / City Council	1-5 years	City General Fund / FEMA HMA	Existing (2019)
Clean debris/obstructions out of roadway culverts and drainage structures within the City to maximize carrying capacity, reduce/prevent drainage problems, and mitigate risk to Community Lifelines.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Low/Medium	Mayor / City Council	1-5 years	City Local Resources	New / Existing (2019)
Improve drainage characteristics (grade/contour, etc.) of waterways/drainage ditches within the City to alleviate drainage/flooding problems that occur during/after heavy rain events, better manage stormwater runoff, and mitigate risk to a Community Lifeline.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Low/Medium	Mayor / City Council	1-5 years	City General Fund / IEPA SRF - WPCLP	New / Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 3,200 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

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Hazard(s) to be Mitigated:

DF	Dam Failure	MMH	Man-Made Hazard
DR	Drought	MS	Mine Subsidence
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-18
Gillespie Hazard Mitigation Actions
(Sheet 5 of 6)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install emergency backup generators at lift stations to establish resilient and reliable power supplies, maintain continuity of government/operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	WS	S&IP	Large	---	Yes	3, 5	HM/LM	Medium/High	Mayor / City Council	3-5 years	Village General Fund / FEMA HMA / USDA – RD Community Facilities Programs	Existing (2019)
"Harden" the New Gillespie Lake Dam to increase its resilience to natural hazard events. Potential hardening activities include: replacing the spillway panels, reinforcing the dam, sealing below the spillway to prevent water infiltration and leaks that have the potential to lead to a dam/spillway failure.	DF	S&S	S&IP	Small	Yes	Yes	2, 3, 5	HL	High/Medium	Mayor / City Council	5 years	City General Fund / FEMA HMA / DCEO CDBG	Existing (2019)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Medium	---	---	2	LM/LL	Low/High	Mayor / City Council	1-5 years	City General Fund	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 3,200 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

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Hazard(s) to be Mitigated:

DF	Dam Failure	MMH	Man-Made Hazard
DR	Drought	MS	Mine Subsidence
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-18
Gillespie Hazard Mitigation Actions
(Sheet 6 of 6)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small	Yes	Yes	2, 4, 6, 7	HM	Low/Medium	Mayor City Council / City Clerk	1-5 years	City Local Resources	Existing (2019)
Continue to make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small	Yes	---	1, 2, 6, 7	LM	Low/Medium	Mayor City Council / City Clerk	1-3 years	City Local Resources	Existing (2019)
Make City officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small	Yes	---	1	LM	Low/Medium	Mayor City Council / City Clerk	1-3 years	City Local Resources	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 3,200 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

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Hazard(s) to be Mitigated:

DF	Dam Failure	MMH	Man-Made Hazard
DR	Drought	MS	Mine Subsidence
EC	Extreme Cold	SS	Severe Storm
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EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-19
Gillespie Community Unit School District #7 Hazard Mitigation Actions
(Sheet 1 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby emergency backup generator at BenGil Elementary School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / Board of Education	5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Purchase and install a standby emergency backup generator at Gillespie Middle/High School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / Board of Education	5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Purchase and install a grounding system at BenGil Elementary School to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Medium	---	Yes	3, 5	HM	Medium/High	Superintendent / Board of Education	5 years	CUSD General Fund / USDA – RD Critical Facilities Program	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural school district of this size (serving approx. 1,200 students in a 93 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-19
Gillespie Community Unit School District #7 Hazard Mitigation Actions
(Sheet 2 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a grounding system at Gillespie Middle/High School to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Medium	---	Yes	3, 5	HM	Medium/High	Superintendent / Board of Education	5 years	CUSD General Fund / USDA – RD Critical Facilities Program	New
Improve drainage characteristics (grades/contours, permeable pavement, etc.) around the Gillespie Middle/High School to better manage stormwater runoff, alleviate drainage/flooding problems that occur during/after heavy rain events, and mitigate risk to a Community Lifeline.	F, SS	S&S	S&IP	Medium	---	Yes	3, 5	HM	Medium/High	Superintendent / Board of Education	5 years	CUSD General Fund / IEPA SRF – WPCLP	New
Assess vulnerability of school buildings to mine subsidence, including using GIS to map areas that are susceptible to subsidence.	MS	S&S	LP&R	Large	---	---	3, 5	LL	Low/Medium	Maintenance Director / Board of Education	5 years	CUSD Local Resources	New
Grout under the Gillespie Middle/High School to prevent subsidence, improve infrastructure resilience, and ensure continued functionality of a Community Lifeline.	MS	S&S	S&IP	Medium	---	Yes	3, 5	HL	High/High	Maintenance Director / Board of Education	5 years	CUSD General Fund	New

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Figure MIT-19
Gillespie Community Unit School District #7 Hazard Mitigation Actions
(Sheet 3 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Construct stormwater detention/retention basin to better manage stormwater runoff, increase storage capacity, alleviate drainage/flooding problems, and mitigate risk to a Community Lifeline.	F, SS	S&S	S&IP	Medium	---	Yes	3, 5	HM	High/High	Maintenance Director / Board of Education	2-5 years	CUSD General Fund / FEMA BRIC HMA / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP	New
Perform periodic, district-wide, multi-jurisdiction training on the District's Reunification Plan for police, fire, EMA, and District staff. This Plan outlines how students will be reunified with their parent/guardian in the event of a school crisis or emergency. Training will include familiarizing personnel with the resources the District can provide as a single source for communication data.	EQ, F, MMH, MS, SS, T	S&S	LP&R E&A	Large	---	---	2	LM/LL	Low/Medium	Superintendent / Board of Education	5 years	CUSD Local Resources	New

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Figure MIT-19
Gillespie Community Unit School District #7 Hazard Mitigation Actions
(Sheet 4 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Educate students and staff about the natural hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Superintendent / Board of Education	1-5 years	CUSD Local Resources	New

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HM	Hazardous Material	WS	Water Systems

Figure MIT-20
Girard Hazard Mitigation Actions
(Sheet 1 of 7)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install automatic emergency backup generators at stormwater pump stations within the City to establish resilient and reliable power supplies, maintain continuity of operations, and mitigate risk to Community Lifelines.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Medium	---	Yes	3, 5	HM/HL	Medium/High	Mayor City Council / Public Works	2-5 years	City General Fund / FEMA HMA / USDA – RD Community Facilities Programs	New
Install additional stormwater pump stations within the City to increase pump capacity, improve system resilience, alleviate flooding problems, and ensure continued functionality of a Community Lifeline.	F, SS	WS	S&IP	Medium	---	Yes	3, 5	HM	Medium/High	Mayor City Council / Public Works	2-5 years	City General Fund / FEMA HMA / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP / DCEO CDBG	New

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Figure MIT-20
Girard Hazard Mitigation Actions
(Sheet 2 of 7)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upgrade water mains at select locations in the City to increase system resilience to breaks, ensure a constant supply of water for residents, aid in fire suppression during hazard events, and mitigate risk to a Community Lifeline.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Large	Yes	Yes	2, 3, 5	HM/HL	High/High	Mayor City Council / Public Works	2-5 years	City General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – PWSLP / DCEO CDBG	New
Upgrade stormwater pumps to increase pump capacity, improve system resilience, and ensure continued functionality of a Community Lifeline.	F, SS	WS	S&IP	Medium	---	Yes	3, 5	HM	Medium/High	Mayor City Council / Public Works	2-5 years	City General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP / DCEO CDBG	New

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Figure MIT-20
Girard Hazard Mitigation Actions
(Sheet 3 of 7)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upgrade sanitary sewer pumps to increase pump capacity, improve system resilience, and ensure continued functionality of a Community Lifeline.	F, SS	WS	S&IP	Medium	---	Yes	3, 5	HM	Medium/High	Mayor City Council / Public Works	2-5 years	City General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP / DCEO CDBG	New
Upgrade the City's wastewater treatment facility to address stormwater inflow and infiltration and reduce the amount of stormwater entering the wastewater treatment plant to increase system resilience, prevent sewage backups, and mitigate risk to a Community Lifeline.	F, SS	WS	S&IP	Large	Yes	Yes	3, 5	HM	High/High	Mayor City Council / Public Works	2-5 years	City General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP / DCEO CDBG	New

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Figure MIT-20
Girard Hazard Mitigation Actions
(Sheet 4 of 7)

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					New	Existing							
Purchase portable pumps for use in removal of excess stormwater from critical facilities/ infrastructure during heavy rain/flood events to maintain continuity of government/ operations and ensure continued functionality of Community Lifelines.	F, SS	S&S T	S&IP	Medium	---	Yes	3, 5	LM	Low/Medium	Mayor / City Council	1 year	City General Fund	New
Purchase programmable portable electronic message boards to alert the public of hazardous conditions associated with hazard events.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	C	E&A	Large	---	---	2	LM/LL	Medium/Medium	Mayor / City Council	1 year	City General Fund	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the City and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Mayor / City Council	1-5 years	City Local Resources	New

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Figure MIT-20
Girard Hazard Mitigation Actions
(Sheet 5 of 7)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Secure a Memorandum of Agreement with the Girard Community Center, a designated emergency shelter, to install an emergency standby generator to establish a resilient and reliable power supply, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	FHS	LP&R	Medium	---	---	2, 4, 5	LM	Low/Medium	Mayor / City Council	1-3 years	City Local Resources	New
Purchase and install emergency standby generator at the Girard Community Center, a designated emergency shelter, to establish a resilient and reliable power supply, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	FHS	S&IP	Medium	---	Yes	2, 3, 5	HM	Medium/High	Mayor / City Council	2-5 years	City General Funds / USDA -RD Critical Facilities Programs	Existing (2019)

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Girard Hazard Mitigation Actions
(Sheet 6 of 7)

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					New	Existing							
Upgrade the City's storm sewer system to better manage stormwater runoff and alleviate flooding/drainage problems.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	HM	High/High	Mayor City Council / Public Works	2-5 years	City General Fund / IEPA SRF – WPCLP / USDA – RD Water & Waste Disposal Program / DCEO CDBG	Existing (2019)
Upgrade drinking water system (i.e., lines, mains, fire hydrants, pumping system, etc.) to incorporate distribution redundancies to increase system resilience, ensure a constant supply of water for residents, aid in fire suppression during hazard events, and safeguard the functionality of a Community Lifeline.	EC, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Large	Yes	Yes	3, 5	HM/HL	High/High	Mayor City Council / Public Works	2-5 years	City General Fund / IEPA SRF – PWSLP / USDA – RD Water & Waste Disposal Program / DCEO CDBG	Existing (2019)

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Girard Hazard Mitigation Actions
(Sheet 7 of 7)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Evaluate the cost/benefits of implementing an automated mass notification system (i.e., reverse 911 or similar system) to notify residents/responders of hazard event conditions and information and establish a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	LP&R	Large	---	---	2	LM/LL	Low/Medium	Mayor / City Council	1-5 years	City Local Resource	Existing (2019)
Designate warming/cooling centers for City residents' use.	EC, EH	---	LP&R	Medium	---	---	2	LM	Low/High	Mayor / City Council	1-3 years	City Local Resource	New / Existing (2019)
Designate emergency shelters for City residents' use.	EQ, F, MMH, MS, SS, SWS, T	---	LP&R	Large	---	---	2	LM	Low/High	Mayor / City Council	1-3 years	City Local Resource	New / Existing (2019)

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LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-21
Girard Fire Protection District Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby emergency generator at the Sunset Lake Fire Substation to establish a resilient and reliable power supply, ensure sustained functionality during extended power outages, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Fire Chief / District Board	5 years	FPD General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	New
Purchase and install a standby emergency generator at the Nilwood Fire Substation to establish a resilient and reliable power supply, ensure sustained functionality during extended power outages, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Fire Chief / District Board	5 years	FPD General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	New
Identify alternate locations for District trucks, equipment, gear, etc. in the event a natural or man-made hazard incident impacts the fire station to ensure continued functionality of a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	LP&R	Large	---	---	4, 5	LM/LL	Low/Medium	Fire Chief / District Board	2 years	FPD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 4,000 individuals in a service area of 110 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-21
Girard Fire Protection District Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Evaluate the need for additional outdoor warning sirens within the District to the maximize system's effectiveness and establish community lifelines in areas without coverage essential to human health and safety.	SS, T	C	S&IP E&A	Medium	---	---	2	LM/LL	Low/medium	Fire Chief / District Board	5 years	FPD Local Resources	New
Identify water wells and ponds within the District that can be used as alternate filling stations to supply an uninterrupted flow of water to aid in fire suppression as necessary during natural hazard events.	DR, EC, EH, EQ, MMH, SS, SWS, T	S&S	LP&R E&A	Medium	---	---	4, 5	LM/LL	Low/Medium	Fire Chief / District Board	5 years	FPD Local Resources	New
Collaborate with Sunset Lake Association to install dry hydrants at Sunset Lake that can be used as filling stations to ensure a constant supply of water to aid in fire suppression as necessary during natural hazard events in rural areas.	DR, EC, EH, EQ, MMH, SS, SWS, T	S&S	S&IP	Medium	Yes	Yes	2, 3, 5	LM/LL	Medium/High	Fire Chief / District Board	5 years	FPD Local Resources	New
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MS, MMH, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Fire Chief / District Board	1-5 years	FPD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 4,000 individuals in a service area of 110 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-22
Henderson Water District Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby emergency backup generator at the Allen Rd. pump station to establish a resilient and reliable power supply in order to maintain continuity of operations for the both the pumps and communications equipment and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	WS	S&IP	Medium	---	Yes	3, 5	HM/HL	Medium/High	Chairman / District Board	1 year	HWD General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	New
Purchase and install a standby emergency backup generator at the Coops Mound Tower to establish a resilient and reliable power supply in order to maintain continuity of operations and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	WS	S&IP	Medium	---	Yes	3, 5	HM/HL	Medium/High	Chairman / District Board	1 year	HWD General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	New
Evaluate the vulnerability of the District's infrastructure to mine subsidence.	MS	WS	LP&R	Large	---	---	3, 5	LL	Low/Medium	Chairman / District Board	1-5 years	HWD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, rural water districts. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-23
Jersey County Rural Water Hazard Mitigation Actions
(Sheet 1 of _)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Construct a secondary connection/feed to the Village of Medora at North Apple Trees Road and Kemper Road to serve as a backup water source in the event the primary feed experiences a disruption or failure, ensuring system redundancy and continued functionality of a Community Lifeline.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Small	Yes	Yes	3, 5	HM/HL	Medium/High	Manager / Board of Directors	2-3 years	JCRW General Fund / IEPA SRF – PWSLP / DCEO CDBG	New
Construct a secondary connection/feed to the Village of Shipman west of Swisher Road to serve as a backup water source in the event the primary feed experiences a disruption or failure, ensuring system redundancy and continued functionality of a Community Lifeline.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Small	Yes	Yes	3, 5	HM/HL	Medium/High	Manager / Board of Directors	1-2 years	JCRW General Fund / IEPA SRF – PWSLP / DCEO CDBG	New
Construct a drinking water interconnection with Central Macoupin County Rural Water District east of Shipman at IL Rte. 16 to improve system resilience and establish a separate, auxiliary water source in the event either supplier experiences a disruption or failure caused by a hazard event.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Small	Yes	Yes	3, 5	HM/HL	Medium/High	Manager / Board of Directors	5 years	JCRW General Fund / IEPA SRF – PWSLP / DCEO CDBG	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, rural water districts. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-23
Jersey County Rural Water Hazard Mitigation Actions
(Sheet 2 of _)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Construct an emergency connection with Bunker Hill or Central Macoupin County Rural Water District to the Village of Royal Lakes to improve system resilience and reliability and ensure continued operation of a Community Lifeline.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Small	Yes	Yes	3, 5	HM/HL	Medium/High	Manager / Board of Directors	5 years	JCRW General Fund / IEPA SRF – PWSLP / DCEO CDBG	New
Construct a direct drinking water connection to the Jersey Community Hospital to provide additional capacity from a different connection area in the event the primary feed experiences a disruption or failure, ensuring system redundancy and continued functionality of a Community Lifeline.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Small	Yes	Yes	3, 5	HM/HL	Medium/High	Manager / Board of Directors / Hospital Administrator	5 years	JCRW General Fund / IEPA SRF – PWSLP / DCEO CDBG	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, rural water districts. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-24
Medora Community Fire Protection District Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby emergency generator at Fire Station to establish a resilient and reliable power supply, ensure sustained functionality during extended power outages, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Large	---	Yes	2, 3, 5	HM/HL	Medium/High	Fire Chief	2 years	FPD General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	New
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Fire Chief	1-5 years	FPD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 2,500 individuals in a service area of 100 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-25
Mount Clare Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a storm warning siren system to establish a Communications Community Lifeline essential human health and safety.	SS, T	---	S&IP E&A	Large	---	---	2	HM/HL	Medium/High	President / Board of Trustees	2-5 years	Village General Fund / FEMA HMA / USDA – RD Community Facilities Programs	New
Designate warming/cooling centers for Village residents' use.	EC, EH	---	LP&R	Medium	---	---	2	LM	Low/High	President / Board of Trustees	2-5 years	Village Local Resource	New
Designate emergency shelters for Village residents' use.	EQ, F, MMH, MS, SS, SWS, T	---	LP&R	Large	---	---	2	LM	Low/High	President / Board of Trustees	2-5 years	Village Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (approx. 300 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-25
Mount Clare Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install emergency standby generators at village-owned critical facilities and infrastructure systems to establish resilient and reliable power supplies, maintain continuity of government/operations, and mitigate risk to Community Lifelines in the event of a prolonged power outage.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	C S&S T WS	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	President / Board of Trustees	2-5 years	Village General Fund / FEMA HMA / USDA – RD Community Facilities Programs	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Village and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	President / Board of Trustees	1-5 years	Village Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (approx. 300 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-26
Mount Olive Volunteer Fire Protection District Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Secure Memorandums of Agreement with designated emergency shelters to open and staff the shelters.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	LP&R	Large	---	---	2	LM/LL	Low/Medium	Fire Chief / Board of Trustees	5 years	FPD Local Resources	New
Retrofit the emergency services building to include a community safe room (built to high wind standards and equipped with an emergency backup generator) for use by staff and City residents to establish a Community Lifeline essential to human health and safety.	SS, T	---	S&IP	Small	---	Yes	2	HM/HL	High/High	Fire Chief / Board of Trustees	5 years	FPD General Funds / FEMA HMA / USDA – RD Critical Facilities Programs	New
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Fire Chief / Board of Trustees	1-5 years	FPD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 3,500 individuals in a service area of 65 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-27
Nilwood Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Upsize select roadway culverts to increase carrying capacity, better manage stormwater runoff, alleviate recurring drainage/flooding problems, prevent roadway overtopping and subsequent washouts/pavement failures, and ensure system resilience and functionality.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	President / Village Board	2-5 years	Village / FEMA BRIC HMGP	New
Clean debris/obstructions out of roadway culverts and drainage structures within the Village to maximize carrying capacity, reduce/prevent drainage problems, and mitigate risk to Community Lifelines.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	LM	Low/Medium	President / Village Board	2-5 years	Village	New
Construct a new water main loop for outlying areas to improve system resilience by creating redundancy to minimize service disruptions resulting from pipe and water main breaks, safeguard the functionality of a Community Lifeline, and ensure an adequate water supply and pressure for firefighting and emergency response.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Medium	Yes	Yes	3, 5	HM/HL	High/High	President / Board of Trustees	5 years	Village / IEPA SRF – PWSLP / USDA – RD Water & Waste Disposal Program / DCEO CDBG	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a town of this size (approx. 200 individuals). The Town struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-27
Nilwood Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Village and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	President / Board of Trustees	1-5 years	Village	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a town of this size (approx. 200 individuals). The Town struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-28
North Mac Community Unit School District #34 Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby emergency backup generator at North Mac Grade School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / Board of Education	2-5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Purchase and install a standby emergency backup generator at North Mac Intermediate School and Middle School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent / Board of Education	2-5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural school district of this size (serving approx. 1,200 students in a 200 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-28
North Mac Community Unit School District #34 Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Coordinate with the City of Girard regarding upgrades to the storm sewer system at the southeast corner of North Mac Intermediate-Middle School (intersection of N. 3rd St. & IL Rte. 4) to better manage stormwater runoff, increase system resilience, alleviate drainage/flooding problems, and mitigate risk to Community Lifelines.	F, SS	S&S T WS	LP&R E&A	Medium	---	---	3, 5	LM	Low/Medium	Superintendent / Board of Education	2-5 years	CUSD Local Resources	New
Educate students and staff about the natural hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Superintendent / Board of Education	1-5 years	CUSD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural school district of this size (serving approx. 1,200 students in a 200 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
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LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-29
Royal Lakes Hazard Mitigation Actions
(Sheet 1 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install automatic emergency backup generators at lift stations within the Village to establish resilient and reliable power supplies, maintain continuity of operations, and mitigate risk to Community Lifelines.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	WS	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	President / Village Board	1-3 years	Village General Fund / FEMA HMA / USDA – RD Community Facilities Programs	New
Secure a Memorandum of Agreement with designated warming/cooling center(s) and emergency shelter(s) to install an emergency standby generators to establish resilient and reliable power supplies, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	FHS	LP&R	Medium	---	---	2, 4, 5	LM	Low/Medium	President / Village Board	1-3 years	Village Local Resources	New
Purchase and install emergency standby generators at designated warming/cooling center(s) and emergency shelter(s) to establish resilient and reliable power supplies, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	FHS	S&IP	Medium	---	Yes	2, 3, 5	HM	Medium/High	President / Village Board	2-5 years	Village General Funds / FEMA HMA / USDA -RD Critical Facilities Programs	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (less than 200 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

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LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-29
Royal Lakes Hazard Mitigation Actions
(Sheet 2 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Conduct a hydrologic and hydraulic (H&H) study of Macoupin Creek to determine the cause(s) and identify design solution(s) to alleviate recurring drainage/flooding problems within the Village.	F, SS	---	LP&R	Medium	---	---	3, 5	LM	Medium/Medium	President / Board of Trustees	1-5 years	Village General Fund / FEMA HMA / Legislative Award	New
Select, design, and construct the identified design solution(s) to alleviate recurring drainage/flooding problems within the Village.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	HM	High/High	President / Board of Trustees	5-10 years	Village General Fund / FEMA HMA / Legislative Award	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Village and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	President / Board of Trustees	1-5 years	Village Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (less than 200 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-29
Royal Lakes Hazard Mitigation Actions
(Sheet 3 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Design and construct a community safe room (built to high wind standards and equipped with emergency standby generator and HVAC system) that can also serve as a warming/ cooling center and emergency shelter for use by Village residents.	EC, EH, EQ, F, MMH, SS, SWS, T	---	S&IP	Large	Yes	---	2	HM/HL	High/High	President / Village Board	5 years	Village General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	Existing (2019)
Install stormwater drainage system (ditches, culverts, etc.) in select areas of the Village to increase storage and drainage capacity, better manage stormwater runoff, alleviate recurring drainage/flooding problems, and ensure system resilience and functionality.	F, SS	T	S&IP	Medium	Yes	Yes	3, 5	HM	High/High	President / Village Board	2 years	Village General Fund / USDA – RD Water & Waste Disposal Program / IEPA SRF – WPCLP / DCEO CDBG	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (less than 200 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-29
Royal Lakes Hazard Mitigation Actions
(Sheet 4 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Ensure all critical facilities/infrastructure are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Medium	---	---	2	LM/LL	Low/High	President / Village Board	2-4 years	Village General Fund	Existing (2019)
Designate warming/cooling centers for Village residents' use.	EC, EH	---	LP&R	Medium	---	---	2	LM	Low/High	President / Board of Trustees	1-3 years	Village Local Resource	New / Existing (2019)
Designate emergency shelters for Village residents' use.	EQ, F, MMH, MS, SS, SWS, T	---	LP&R	Large	---	---	2	LM	Low/High	President / Board of Trustees	1-3 years	Village Local Resources	New / Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a village of this size (less than 200 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

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HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-30
Southwestern Community Unit School District #9 Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby emergency backup generator at Southwestern Middle/High School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent Board of Education / Maintenance Department	1 year	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Purchase and install a standby emergency backup generator at Brighton North Primary School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent Board of Education / Maintenance Department	3-5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural school district of this size (serving approx. 1,200 students in a 173 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-30
Southwestern Community Unit School District #9 Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install a standby emergency backup generator at Shipman Elementary School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent Board of Education / Maintenance Department	3-5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Purchase and install a standby emergency backup generator at Medora Intermediate School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent Board of Education / Maintenance Department	3-5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Educate students and staff about the natural hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Superintendent / Board of Education	1-5 years	CUSD Local Resources	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural school district of this size (serving approx. 1,200 students in a 173 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storm
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-31
Staunton Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install an emergency backup generator at the VFW Hall, a designated warming center, to establish a resilient and reliable power supply that will ensure sustained functionality during extended power outages and mitigate risk to a Community Lifeline.	EC	FHS	S&IP	Small	---	Yes	2, 3, 5	HM	Medium/High	Mayor City Council / Staunton Area Emergency Management Council	1-3 years	County/City General Funds / FEMA HMA / USDA -RD Critical Facilities Programs	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the City and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Mayor / City Council	1-5 years	City Local Resources	New
Conduct sewer line reconnaissance study to identify locations where storm water infiltrates the lines to increase system resilience.	F, SS	WS	LP&R	Medium	---	---	3, 5	LM	Medium/Medium	Mayor / City Council	1-5 years	City General Fund	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 5,100 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-31
Staunton Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Line sewer line sections to eliminate stormwater inflow and infiltration and reduce the amount of stormwater entering the wastewater treatment system to increase system resilience, prevent sewage backups, and mitigate risk to a Community Lifeline.	F, SS	WS	S&IP	Medium	Yes	Yes	3, 5	HM	Medium/High	Mayor / City Council	1-5 years	City General Fund / IEPA SRF – WPCLP / DCEO CDBG	Existing (2019)
Upsize stormwater drain on Lafayette St. between Caldwell St. and Union St. down to Pennsylvania St. to better manage stormwater runoff, alleviate recurring drainage/flooding problems, and ensure system resilience and functionality.	F, SS	T WS	S&IP	Small	Yes	Yes	3, 5	HM	High/High	Mayor / City Council	5 years	City General Fund / IEPA SRF – WPCLP / DCEO CDBG / FEMA HMA	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 5,100 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
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LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-31
Staunton Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small	Yes	Yes	2, 4, 6, 7	HM	Low/Medium	Mayor City Council / City Clerk / Zoning Administrator	1-5 years	City Local Resources	Existing (2019)
Continue to make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small	Yes	---	1, 2, 6, 7	LM	Low/Medium	Zoning Administrator / City Clerk	1-3 years	City Local Resources	Existing (2019)
Make City officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small	Yes	---	1	LM	Low/Medium	Zoning Administrator	1-3 years	City Local Resources	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 5,100 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

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EC	Extreme Cold	MS	Mine Subsidence
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Type of Mitigation Activity:

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Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-32
Staunton Community Unit School District #6 Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Purchase and install standby emergency backup generators at the school complex to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Large	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent Board of Education / Director of Building & Grounds/ Maintenance	5 years	CUSD General Fund / FEMA HMA USDA – RD Critical Facilities Program	New
Purchase and install a grounding system at the school complex to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Large	---	Yes	3, 5	HM	Medium/High	Superintendent Board of Education / Director of Building & Grounds/ Maintenance / Director of Technology	2-5 years	CUSD General Fund / USDA – RD Critical Facilities Program	New

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FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-32
Staunton Community Unit School District #6 Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Install hardening materials (i.e., shatter-proof/impact resistant glass, etc.) at school buildings to increase building resilience to natural hazards, maintain continuity of operations, protect staff and students, and mitigate risk to Community Lifelines.	EQ, SS, T	S&S	S&IP	Large	---	Yes	2, 3, 5	HM/HL	Medium/High	Superintendent Board of Education / Director of Building & Grounds/ Maintenance	2-5 years	CUSD General Fund / FEMA HMA / USDA – RD Critical Facilities Program	New
Bury power lines to the school complex to establish a resilient and reliable power supply, improve infrastructure resilience, limit service disruptions, and mitigate risk to Community Lifelines.	MMH, SS, SWS, T	E S&S	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	Superintendent Board of Education / Director of Building & Grounds/ Maintenance	2-5 years	CUSD General Fund / FEMA HMA	New
Design and construct community safe rooms (retrofit existing areas within the school complex and/or construct new structures) built to high wind standards and equipped with emergency backup generators for use by students and staff to establish Community Lifelines essential to human health and safety.	SS, T	---	S&IP	Large	Yes	Yes	2	HM/HL	High/High	Superintendent Board of Education / Director of Building & Grounds/ Maintenance	2-5 years	CUSD General Fund / FEMA HMA / USDA -RD Critical Facilities Programs	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural school district of this size (serving approx. 1,200 students in a 76 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

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Figure MIT-32
Staunton Community Unit School District #6 Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Improve drainage characteristics (grades/contour areas, permeable pavement, etc.) around the school complex to prevent surface intrusion into the building during/after heavy rain events, better manage stormwater runoff, and mitigate risk to a Community Lifeline.	F, SS	S&S	S&IP	Large	---	Yes	3, 5	HM	Medium/High	Superintendent Board of Education / Director of Building & Grounds/ Maintenance	2-5 years	CUSD General Fund / IEPA SRF – WPCLP	New
Purchase and install a solar array system and energy storage bank at the school complex to improve infrastructure resilience and limit service disruptions, establish a reliable power supply in order to maintain continuity of operations, and mitigate risk to a Community Lifeline during a prolonged power outage	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Large	---	Yes	3, 5	HM/HL	Medium/High	Superintendent Board of Education / Director of Building & Grounds/ Maintenance	2-5 years	CUSD General Fund / DOE EECBG Program	New
Perform periodic, district-wide, multi-jurisdiction training on the District's Reunification Plan for police, fire, EMA, and District staff. This Plan outlines how students will be reunified with their parent/guardian in the event of a school crisis or emergency.	EQ, F, MMH, MS, SS, T	S&S	LP&R E&A	Large	---	---	2	LM/LL	Low/Medium	Superintendent / Board of Education	2-5 years	CUSD Local Resources	New
Educate students and staff about the natural and man-made hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Superintendent / Board of Education	2-5 years	CUSD Local Resources	New

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Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-33
Unit 7 Fire Protection District Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Identify dry hydrants and water wells within the District that can be used as filling stations to supply an uninterrupted flow of water to aid in fire suppression as necessary during hazard events.	DR, EC, EH, EQ, MMH, SS, SWS, T	S&S	LP&R E&A	Medium	---	---	2, 5	LM/LL	Low/Medium	Fire Chief / Board of Trustees	2-3 years	FPD Local Resources	New
Design and construct a community safe room, built to high wind standards and equipped with an emergency backup generator, at the Benld Fire Station for use by staff and District residents to establish a Community Lifeline essential to human health and safety.	SS, T	---	S&IP	Small	---	Yes	2	HM/HL	High/High	Fire Chief / Board of Trustees	3-5 years	FPD General Funds / FEMA HMA / USDA – RD Critical Facilities Programs	New
Design and construct a community safe room, built to high wind standards and equipped with an emergency backup generator, at the Gillespie Fire Station for use by staff and District residents to establish a Community Lifeline essential to human health and safety.	SS, T	---	S&IP	Small	---	Yes	2	HM/HL	High/High	Fire Chief / Board of Trustees	3-5 years	FPD General Funds / FEMA HMA / USDA – RD Critical Facilities Programs	New

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 9,000 individuals in a service area of 96 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

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Hazard(s) to be Mitigated:

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Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

Figure MIT-33
Unit 7 Fire Protection District Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Design and construct a community safe room, built to high wind standards and equipped with an emergency backup generator, at the Dorchester Fire Station for use by staff and District residents to establish a Community Lifeline essential to human health and safety.	SS, T	---	S&IP	Small	---	Yes	2	HM/HL	High/High	Fire Chief / Board of Trustees	3-5 years	FPD General Funds / FEMA HMA / USDA – RD Critical Facilities Programs	New
Purchase and install a standby emergency generator at the Dorchester Fire Station to establish a resilient and reliable power supply, ensure sustained functionality during extended power outages, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	S&IP	Medium	---	Yes	2, 3, 5	HM/HL	Medium/High	Fire Chief / District Board	3-5 years	FPD General Fund / FEMA HMA / USDA – RD Critical Facilities Programs	New
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Fire Chief / Board of Trustees	1-5 years	FPD Local Resources	New

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E&A	Education & Awareness	NSP	Natural Systems Protection
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Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
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Figure MIT-34
Virden Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the City and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, MS, SS, SWS, T	---	E&A	Large	---	---	1, 2	LM/LL	Low/Medium	Mayor / City Council	1-5 years	City Local Resources	New
Construct Northwest Bypass Drainage Pipeline in the northwest quadrant of the City to alleviate recurring flood problems, better manage stormwater runoff, and ensure resilience of and mitigate risk to a Community Lifeline.	F, SS	T	S&IP	Small	---	Yes	3, 5	HM	High/High	Mayor / City Council	1-2 years	City General Fund / DCEO CDBG / IEPA SRF – WPCLP	New
Prepare an emergency operations plan for the City with functional and hazard-specific annexes addressing: 1) health and medical services and emergency mortuary services for mass casualty incidents; 2) mass care for temporary shelter and essential life support needs for residents displaced by a disaster; and 3) hazardous materials incident response.	EC, EH, EQ, F, MMH, MS, SS, SWS, T	S&S	LP&R E&A	Large	---	---	2, 4, 5	LM/LL	Low/Medium	Mayor / City Council	1-3 years	City Local Resources	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 3,200 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

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Community Lifelines to be Mitigated:

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E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
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Figure MIT-34
Virden Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Retrofit an existing public building and/or construct a new structure to serve as a community safe room (built to high wind and seismic standards and equipped with emergency backup generators and HVAC units) that can also serve as warming/cooling center and emergency shelter for City residents.	EC, EH, F, MMH, SS, SWS, T	---	S&IP	Small	Yes	Yes	2	HM/HL	High/High	Mayor / City Council	5 years	City General Fund / FEMA HMA / USDA -RD Critical Facilities Programs	Existing (2019)
Conduct a comprehensive drainage/hydraulic study to determine the cause(s) and identify the appropriate remedy(s) to alleviate recurring drainage problems within the City. The study should contain an inventory of the storm sewer system and mapping showing inlets, pipe sizes, length, type condition, etc.	F, SS	T WS	LP&R	Medium	---	---	3, 5	LM	Medium/Medium	Mayor / City Council	2-4 years	City General Fund	Existing (2019)
Construct the design solution(s) identified in the comprehensive drainage/hydraulic study to alleviate recurring drainage problems within the City.	F, SS	T WS	S&IP	Medium	Yes	Yes	3, 5	HM	High/High	Mayor / City Council	2-4 years	City / FEMA BRIC HMGP FMA	Existing (2019)
Designate warming/cooling centers for use by City residents.	EC, EH	---	LP&R	Medium	---	---	2	LM	Low/High	Mayor / City Council	1-3 years	City Local Resources	Existing (2019)

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Virden Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size)	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s)†	Status
					New	Existing							
Designate emergency shelters for use by City residents.	EC, EH	---	LP&R	Medium	---	---	2	LM	Low/High	Mayor / City Council	1-3 years	City Local Resources	Existing (2019)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Medium	---	---	2	LM/LL	Low/High	Mayor / City Council	2-4 years	City General Fund	Existing (2019)
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small	Yes	Yes	2, 4, 6, 7	HM	Low/Medium	Mayor City Council / City Clerk / Director of Operations	1-5 years	City Local Resources	Existing (2019)
Continue to make the most recent Flood Insurance Rate Maps available at the City Clerk's Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small	Yes	---	1, 2, 6, 7	LM	Low/Medium	Director of Operations / City Clerk	1-5 years	City Local Resources	Existing (2019)
Make City officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small	Yes	---	1	LM	Low/Medium	Director of Operations	1-5 years	City Local Resources	Existing (2019)

† Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the financial constraints experienced by a city of this size (approx. 3,200 individuals). The City works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Priority

HM	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the most frequent hazards
LM	Mitigation action with the potential to reduce impacts from the most frequent hazards
HL	Mitigation action with the potential to virtually eliminate or significantly reduce impacts from the less frequent hazards
LL	Mitigation action with the potential to reduce impacts from the less frequent hazards

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	MS	Mine Subsidence
EH	Excessive Heat	SS	Severe Storm
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FHS	Food, Hydration, Shelter	T	Transportation
HM	Hazardous Material	WS	Water Systems

7.0 PLAN MAINTENANCE

[Local Mitigation Planning Policy Guide Element D]

This section focuses on the Federal Emergency Management Agency (FEMA) requirements for maintaining and updating the Plan once it has been approved by FEMA and adopted by the participating jurisdictions. These requirements include:

- Establishing the method and schedule for monitoring, evaluating and updating the Plan (Local Mitigation Planning Policy Guide Elements D2-a, D2-b, & D2-c).
- Describing how participants will integrate the requirements of the Plan into other planning mechanisms (Local Mitigation Planning Policy Guide Elements D3-a, D3-b, & D3-c).
- Detailing how continued public participation will be obtained during the plan maintenance process (Local Mitigation Planning Policy Guide Elements D1-a).

These requirements ensure that the Plan remains an effective and relevant document. The following provides a detailed discussion of each requirement.

7.1 MONITORING, EVALUATING & UPDATING THE PLAN

[Local Mitigation Planning Policy Guide Element D2-a, D2-b, & D2-c]

Outlined below is a method and schedule for monitoring, evaluating, and updating the Plan. This method allows the participating jurisdictions to make necessary changes and updates to the Plan and track the implementation and results of the mitigation actions that have been undertaken.

7.1.1 Monitoring and Evaluating the Plan

The Plan update will be monitored and evaluated by a Plan Maintenance Subcommittee on an annual basis. The Subcommittee will be composed of the participating jurisdictions who sought Plan approval and other key members of the Committee. The Macoupin County Emergency Management Agency (EMA) will chair the Plan Maintenance Subcommittee.

The Macoupin County EMA will assume lead responsibility for monitoring and tracking the implementation status of the mitigation actions identified in the Plan update. It will be the responsibility of each Plan participant to provide the Macoupin County EMA with an annual progress report on the status of their existing mitigation actions and identify whether any actions need to be modified. New mitigation actions may be added to the Plan during the annual monitoring and evaluation period or at any time during the plan maintenance cycle by contacting the Macoupin County EMA and providing the appropriate information.

Monitoring & Evaluating

- A Plan Maintenance Subcommittee will be formed to monitor and evaluate the Plan update.
- The ***Plan update will be monitored and evaluated*** on an ***annual basis***.
- Each Plan participant will be responsible for providing an annual progress report on the status of their mitigation actions.
- Plan participants can add ***new mitigation actions*** to the Plan ***during the annual monitoring phase or by contacting*** the Macoupin County EMA.

The Macoupin County EMA together with the Plan Maintenance Subcommittee will also evaluate the Plan update on an annual basis to determine the effectiveness of the Plan at achieving its stated

purpose and goals. In order to evaluate the effectiveness of the Plan update, the Subcommittee will review the mitigation actions that have been successfully implemented and determine whether the action achieved the identified goal(s) and had the intended result (i.e., losses were avoided, or the vulnerability of hazard-prone areas were reduced).

The Subcommittee will also ask each Plan participant to identify any significant changes in development or priorities that have occurred within the previous 12 months; whether any plans, policies, regulations, or reports have been adopted or updated; and if any hazard-related damages to the jurisdiction's assets have been sustained (i.e., people, critical facilities, infrastructure, and systems, and/or natural, historic, and cultural resources).

In order to streamline the plan maintenance process, the Macoupin County EMA will provide each Plan participant with a Plan Maintenance Checklist along with the necessary forms to complete and return. **Appendix O** contains a copy of the Checklist and associated forms.

The Macoupin County EMA will then prepare a progress report detailing the results of the annual Plan monitoring and evaluation period and provide copies to the Subcommittee. The annual progress report will include:

- information on any hazard-related damages sustained by assets within the planning area during the previous year.
- implementation status of the mitigation actions identified in the Mitigation Strategy.
- identification of any new mitigation actions proposed by the Plan participants.
- information on changes in development, priorities, and planning and regulatory capabilities for the Plan participants.
- identification of how information will be disseminated to stakeholders and constituents on the Plan and its progress in effort to seek continued public participation.

If any existing mitigation actions are modified or new mitigation actions are identified for the Plan participants, then Section 6.6 of the Mitigation Strategy will be updated, and the Plan update resubmitted to the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) and FEMA for reference.

On an as needed basis the Macoupin County EMA, in consultation with the Subcommittee, will evaluate requests from non-participating jurisdictions to "join" the Plan before the five-year update. Consideration will be given if certain conditions are met as outlined in Appendix D of *FEMA's Local Mitigation Planning Policy Guide.*

7.1.2 Updating the Plan

The Plan must be updated within five years of the Plan approval date indicated on the signed FEMA final approval letter (this date can be found in Section 7, Plan Adoption). This ensures that all the participating jurisdictions remain eligible to receive federal grant funds to implement those mitigation actions identified in this Plan.

The Macoupin County EMA, with assistance from the Plan Maintenance Subcommittee, will be responsible for updating the Plan. The update will incorporate all of the information gathered during the monitoring and evaluation phase and will also include:

- a review of the Mitigation Strategy, including potential updates to the mitigation goals and prioritization methodology;
- an evaluation of whether additional natural hazards need to be addressed or included in the Plan;
- a review of new hazard data that may affect the Risk Assessment Section;
- identification of any changes in priorities within each participating jurisdiction; and
- identification of any changes in development that have occurred in hazard prone areas that would increase or decrease the participating jurisdictions' vulnerability.

Updating the Plan

- The Macoupin County EMA, with assistance from the Plan Maintenance Subcommittee, will be responsible for updating the Plan.
- The Plan ***must be updated within 5 years*** of the ***date of the final approval letter*** provided by FEMA.
- Once the Plan update has received FEMA/IEMA-OHS approval, each participating jurisdiction ***must adopt the Plan to remain eligible to receive federal***

A Planning Committee will be reformed to update the Plan and a public involvement strategy similar to the one employed for this Plan update will be implemented to ensure that the public and stakeholders have ample opportunities to become engaged and provide input during the development of the Plan update. In addition, any jurisdictions that did not take part in the Plan update may do so at this time. It will be the responsibility of these jurisdictions to provide all of the information needed to be integrated into the Plan update.

A public forum will be held to present the Plan update to the public for review and comment. The comments received at the public forum will be reviewed and incorporated into the Plan update. The Plan update will then be submitted to IEMA-OHS and FEMA for review and approval. ***Once the Plan update has received state and federal approval, FEMA requires that each of the participating jurisdictions adopt the Plan to remain eligible to receive federal funds to implement identified mitigation actions.***

7.2 INTEGRATING PLAN COMPONENTS INTO OTHER PLANNING MECHANISMS

[Local Mitigation Planning Policy Guide Element D3-a, D3-b, & D3-c]

As part of the planning process, the Committee identified each participating jurisdiction's existing capabilities (i.e., existing authorities, policies, programs, technical information, etc.) and resources available to support or accomplish mitigation and reduce long-term vulnerability. **Figures JC-1** through **JC-15** and **JC-17** identify the local planning mechanisms by jurisdiction available where hazard mitigation information/actions may be integrated. ***It will be the responsibility of each participating jurisdiction to integrate, where applicable, the mitigation strategy and other information contained in the Plan update into the planning mechanisms identified for their jurisdiction.***

Adoption of this Plan update will trigger each participating jurisdiction to review and, where appropriate, integrate the Plan into other available planning mechanisms. The Plan Maintenance Subcommittee's annual review will help maintain awareness of the Plan among the participating jurisdictions and encourage active integration of the Plan into their day-to-day operations and planning mechanisms. Any time a mitigation action is slated for implementation by a participating jurisdiction, it will be integrated into their budget/capital improvement plan.

None of the participating jurisdictions identified the need to adopt, review, and/or strengthen current policies or programs in the near future. Several of the participating jurisdictions, including Benld, Brighton, Bunker Hill, Eagarville, Gillespie, Girard, Mount Clare, Nilwood, Royal Lakes, Virden, Brighton Township, Gillespie CUSD #7, North Mac CUSD #34, Henderson Water District, and Jersey County Rural Water, have limited capabilities to integrate the mitigation strategy and other information contained in the Plan update into existing planning mechanisms. The smaller participants do not have the financial resources or trained personnel to develop planning mechanisms such as comprehensive plans or building and zoning ordinances.

7.3 CONTINUED PUBLIC INVOLVEMENT

[Local Mitigation Planning Policy Guide Element D1-a]

The County and participating jurisdictions understand the importance of continued public participation and will seek public input on the Plan update throughout the plan maintenance cycle. Any meetings held by the Plan Maintenance Subcommittee will be noticed and open to the public. Stakeholders and the public will be encouraged to participate and provide feedback. Following distribution of the annual progress report, each participating jurisdiction will be encouraged to discuss the findings at their monthly board/council meetings to help maintain awareness of the Plan and encourage integration of the Plan in day-to-day operations.

Participating jurisdictions will also be encouraged to make the annual progress report available via social media and on their websites, as available, and at their offices. As the lead organization responsible for maintaining the Plan update, the Macoupin County will also periodically post mitigation-related topics to social media including where to access the approved Plan, information on the hazards that have the potential to impact the County, interesting facts about each hazard, and no or low-cost actions that residents can take to reduce their risk from natural hazards.

A copy of the approved Plan will be maintained and available for review at the Macoupin County EMA Office and on the County's website. Individuals will be encouraged to provide feedback and submit comments for the next Plan update to the Macoupin County EMA Coordinator. The comments received will be compiled and included in the annual progress report and considered for incorporation into the next Plan update. Separate Committee meetings and a public forum will be held prior to the next Plan update submittal to ensure that the public and stakeholders have ample opportunity to become engaged, provide input during the development of the Plan update, and comment on the proposed revision to the Plan update.

8.0 PLAN ADOPTION

[Local Mitigation Planning Policy Guide Element F2-a]

The final step in the planning process is the adoption of the approved Plan update by each participating jurisdiction. Each jurisdiction must formally adopt the Plan to become or remain eligible for federal grant funds to implement mitigation actions identified in this Plan.

8.1 PLAN ADOPTION PROCESS

Before the Plan update could be adopted by the participating jurisdictions, it was made available for public review and comment through a public forum and comment period. Comments received were incorporated into the Plan update and the Plan was then submitted to the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) and the Federal Emergency Management Agency (FEMA) for their review and approval.

Upon receipt of the Approval Pending Adoption (APA) letter from FEMA, the Plan update was presented to the County and participating jurisdictions for adoption. ***Each participating jurisdiction was required to formally adopt*** the Plan to become or remain eligible to receive federal grant funds to implement the mitigation actions identified in this Plan. Any jurisdiction that chose not to adopt the Plan update did not affect the eligibility of those who did.

Figure PA-1 identifies the participating jurisdictions and the date each formally adopted the Plan update. Signed copies of the adoption resolutions are located in **Appendix P**. FEMA signed the final approval letter on (Date), which began the five-year approval period and set the expiration date of (Date) for the Plan.

Figure PA-1
Plan Adoption Dates

Participating Jurisdiction	Plan Adoption Date

9.0 REFERENCES

Provided below is a listing, by section, of the resources utilized to create this document.

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4.0 JURISDICTION CAPABILITIES

1. Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee. Capability Assessment Worksheet. Form.
2. Macopuin County Multi-Jurisdictional All Hazards Mitigation Planning Committee. Land Use and Development Survey. Form.

5.0 CHANGES IN CONDITIONS

1. United States Census Bureau. Explore Census Data. <https://data.census.gov/>.
2. United States Census Bureau. Illinois: Population of Counties by Decennial Census: 1900 to 1990. 1995.
3. United States Census Bureau. American Community Survey. Data Profiles. <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/>.
4. Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee. Land Use and Development Survey. Form.

6.0 MITIGATION STRATEGY

1. Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee. Existing Mitigation Project/Activity Status. Form.
2. Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee. Hazard Mitigation Projects. Form.

APPENDIX A

Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

April 18, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Callie Smith	AEC	Environmental Analyst
2.	Ross Addan	Mac County Board	Board Member
3.	[illegible]	Mac Co EMA	Coordinator
4.	Andrea Campbell	American Environmental	EMS Manager
5.	Quinn Reiher	Macoupin Co Sheriff	Chief Deputy
6.	Georgia Allen	Patterson House Inc	Residential Director
7.	Kelsey Carr	Patterson House Inc	Staff Supervisor
8.	Ron Maedge	STAUNTON TOWNSHIP	ROAD COMMISSIONER
9.	[illegible]	Girard Township	Road Commissioner
10.	BRIAN SOLOMON	MONTESTO	WATER OPERATOR
11.	Dawn Wyatt	MCHA	CEO
12.	Keith Hughes	Staunton CUSD#6	School Nurse
13.	Jeff Jorden	Brighton (Village)	PS Committee
14.	Leann Barr	Macoupin Co. Board	member
15.	DON DUGAN	CV ROAD COMM.	
16.	Mike Featherstone	Shaws Pt. Twp.	

Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

April 18, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Jim Klaus	Nilwood Township	Road Commissioner
2.	Dustin Fletcher	Benld City / Benld Fire	Alderman / Fire Capt
3.	Josh Dixon	Village of Eagarville	Village Trustee
4.	Kyle Haack	North Mac CUSD #34	Superintendent
5.	Robert E Fritz Jr	City of Gillespie	Alderman
6.	Kenneth A Osmac Sr	Mt Olive Township	Commishner
7.	Nicki Palmer	Admin Patterson Housing	Admin.
8.	Todd Mitchell	city of Girard IL	Mayor
9.	Darrel Ruckman	Village of Mt. Clare	mayor
10.	R. Shane Owsley	Gillespie CUSD #7	Superintendent
11.	Todd Duncan	Bunker Hill CUSD 8	Superintendent
12.	George Holesko	City of Gillespie	EMA Coordinator/Director
13.	Brett Allen	Staunton School District	Superintendent
14.	Matt Kasten	Village of Brighton IL	Mayor
15.	Kristi Dunnagan	Brighton Township	Clerk
16.	Dan Sanson	Macoupin County Housing Auth.	Director of Technical Services

Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

April 18, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Paul W Butcher	North Palmyra Twp	Highway Comm.
2.	David Wells	Staunton Fire Prot. Dist.	Asst Chief
3.	Larry Schmidt	Macoupin Co. Board Chairman	Board Chair
4.	Durell Graham	Carlinville Police Dept	chief
5.	Joe Kaburick	Carlinville EMA	Asst. Coordinator
6.	Craig Bridges	Girard Fire Prot. Dist.	Asst. Chief
7.	Tyler Link	Carlinville Area Hospital	Emergency Preparedness Coordinator
8.	Joe Kaburick	Carlinville Fire Protection Dist.	President
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Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

April 18, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Toni Watts	Henderson Water Dist.	Operator
2.	Brian Page	CUSD #7	Director of Maintenance
3.	Patricia Huddleston	Village of Royal Lakes	Mayor.
4.	Brad Ambuel	City of Carlinville	EMA Director
5.	John Caudle	Village of Nilwood	TRUSTEE
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Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

June 27, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Callie Smith	AEC	Environmental Analyst
2.	Georgia Allen	Patterson House Inc	Residential Director
3.	Kelsey Carr	Patterson House Inc	Staff Supervisor
4.	Robert E Fritz Jr	City of Gillespie	Alderman.
5.	Jeff Thompson	FEMA	State Hazard mitigation officer
6.	WALTER RHODES	IEMA	Disaster Service Planner
7.	Brandi Kelly	Mt Olive CUSD #5	Superintendent
8.	Donnie A. Dowell	Mt. Olive Fire Prot. Dist	Fire Chief
9.	Nicki Palmer	Patterson House, Inc.	Admin.
10.	Cary Kukowski	STANDARD City	TRUSTEE
11.	Eric Brandmeyer	Community Hospital Staunton	Director, Em Prep
12.	John Gudgel	Wilwood Village	Trustee
13.	Josh Dixon	EAGARVILLE	TRUSTEE
14.	Josh Dixon for Dustin Fletcher	BENLD	
15.	Brett Allen	Staunton School District	Superintendent
16.	Brian Page	Gillespie CUSD7	

Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

June 27, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	SUSAN LEWIS	MACOUPIN EMA	COORDINATOR
2.	PAUL BUTCHER	NORTH PALMYRA TOWNSHIP	HIGHWAY COMMIS,
3.	Kim Schardan	Gillespie Health and Rehab	Administrator
4.	Craig Bridges	Girard Fire Prot. Dist	Asst Chief
5.	Shipley, William	IEMA	Hazard Mitigation
6.	Jeff Jorden	Brighton FD/Village	Asst. Chief
7.	Jerry Rondi	Village of Mt. Clare	President
8.	CRAIG REED	VILLAGE OF STAUNTON CITY	MAYOR
9.	CARLOS ARZUAGAS	City of Bunker Hill	ALDERMAN/ESDA
10.	DAVID MANNING	CITY OF STAUNTON	ALDERMAN
11.	Phillip Harms	Shaws Point	Trustee
12.	John Bresnan	Macoupin Co. Supr. of Asmts	Supervisor of Assessments
13.	Brent Brutenstine	VIRDEN Fire	chief
14.	Charles Rodgers	Virden Fire	Captain
15.	Rena Boston	Carlinville Township	
16.	Don Duncan	Carlinville Township	

Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

June 27, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Heather Kraus	Bunker Hill	city clerk
2.	Joe Kaburick	Carlinville	Fire/District Emergency Mgt.
3.	Derrek Tiburzi	Macoupin County	county ERC
4.	Tyler Link	Carlinville Hospital + Unit 7 Fire	Emergency Preparedness Coordinator Captain
5.	Todd Dugan	Bunker Hill CUSD #8	Superintendent
6.	Bishop	Macoupin County EMA	Deputy Coordinator
7.	Andrea Campbell	American Environmental	EMS Manager
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Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

June 27, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Parkeoka Huddleston		Mayor.
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Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

November 14, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Andrea Campbell	AEC, LLC	EMS Manager
2.	Jane Peterson	Western Mt Township	Supervisor
3.	Derrek Tiburzi	MCPHD	Director of Environmental Health, Transportation, and Emergency Response
4.	Greg Miller	Village of Mt Clare	Trustee
5.	[illegible] 217-257 4914 cell	City of Girard	Mayor
6.	Austin Dorris	Chesterfeild township	Road commisioner
7.	John Bresnan	Macoupin County	Supr. of Asmts
8.	Brian Page	CUSD7	Maint. Director
9.	[illegible]	Henderson Rural Water	Operator
10.	[illegible]	Bunker Hill CUSD#8	Superintendent
11.	Brett Allen	Staunton CUSD #6	Superintendent
12.	Alisa Hughes	Staunton CUSD #6	Nurse
13.	Jeff Jorden	Brighton FD	Asst Chief FD
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Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

November 14, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	John Seets Email me	Brighton Township	Road commissioner
2.	Callie Smith	AEC	Environmental Analyst
3.	Susan Lewis	Macoupin EMA	Coordinator
4.	Robert Fritz Jr	City of Gillespie	Alderman
5.	Aaron Bishop	Macoupin EMA	
6.	Scott Peterson	Hendrason Water Dist	Vice chair
7.	Larry Spour	Community Hospital of Staunton	President
8.	Tyler Link	Carlinville Area Hospital + Clinics	Emergency Preparedness Coordinator
9.	Klayton Buhs	Village of Mt. Clare	Trustee
10.	Shane Owsley	Gillespie CUSD #7	Superintendent
11.	Josh Dixon	Village of Eagarville	Trustee
12.	[illegible]	Nilwood Township	Road Commissioner
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Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

February 20, 2025

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Andrea Campbell	AEC, LLC	EMS Manager
2.	Aaron Bishop	Macoupin County ~~EMA~~ ETSB	Admin ~~Deputy Coordinator~~
3.	SUSAN LEWIS	Macoupin County EMA	Coordinator
4.	Derrek Tiburzi	MCPHD	ERC/EH/Transit
5.	Jeff Jorden	Brighton Bet Bey Ann Fire	Asst. Chief
6.	Greg Miller	Village of MT CLARE	Trustee
7.	Larry Spour	Community Hospital of Staunton	President
8.	Kyle Haeck	North Mac CUSD #34	Superintendent
9.	George Murphy	City of Virden - Mayor	Mayor
10.	R Shane Austin	Gillespie CUSD #7	Superintendent
11.	Tim Walter	Henderson Water Dist.	Operator
12.	Tori Barnes	Carlinville Rehab	Manager
13.	Todd Dugan	Bunker Hill CUSD #8	Superintendent
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Attendance Sheet

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting

February 20, 2025

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Callie Smith	AEC	Enviromental Analyst
2.	Jason Williamson	Village of Mt. Clare	Trustee
3.	Josh Dixon	Village of Eagarville	Trustee
4.	Dustin Flytcher	City of Benld	Alderman
5.	Hunter Bland	city of brighton	worker
6.	Brian Page	Gillespie CUSD7	Director of Maintenance
7.	Parkeoka Huddleston	Royal Lakes	mayor
8.	Becky Schuchman	Carlinville CUSD#1	Superintendent
9.	Gary Weber	Royal Lake	TRUSTEE
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APPENDIX B

Meeting Minutes

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee

April 18, 2024
6 p.m.
Carlinville Moose Lodge
801 West Pine Street, Carlinville, IL

Committee Members

Benld, City of
Benld Fire & Rescue
Brighton, Village of
Brighton Township
Brighton-Betsy Ann FPD
Bunker Hill CUSD #8
Carlinville, City of
Carlinville Area Hospital
Carlinville Volunteer Fire Department
Carlinville Township
Eagerville, Village of
Gillespie, City of
Gillespie CUSD #7
Girard, City of
Girard FPD
Girard Township
Henderson Water District
Macoupin County
County Board
Macoupin County (cont.)
EMA
Housing Authority
Sheriff
Modesto, Village of
Mt. Clare, Village of
Mt. Olive Township
Nilwood, Town of
Nilwood Township
North Mac CUSD #34
North Palmyra Township
Patterson House Inc.
Royal Lakes, Village of
Shaws Point Township
Staunton CUSD #6
Staunton FPD
Staunton Township
American Environmental Corp.

Welcome and Introductions

Susan Lewis, Coordinator of the Macoupin County Emergency Management Agency, welcomed attendees intermittently while expertly managing the response to a nearby tornado. She indicated that the purpose of this Committee is to update the Macoupin County All Hazards Mitigation Plan. She introduced Andrea Campbell and Callie Smith of American Environmental Corporation (AEC).

Handout materials were distributed to each member. A link to a citizen questionnaire was provided to potential members via email as well. The questionnaire will help gauge residents and committee member understanding of the natural hazards that impact the County and also identifies communication preferences.

Andrea began the meeting by providing background information on the planning grant and the planning process. Macoupin County EMA applied for and received a planning grant from FEMA to update the County's hazard mitigation plan. This grant is administered through the Illinois Emergency Management Agency Office of Homeland

Security (IEMA-OHS) and pays for 90% of the planning cost. The remaining 10% will be met through in-kind services. The goal of the grant is to obtain a FEMA-approved hazard mitigation plan. The process generally takes about 16 to 18 months from start to finish.

What is Mitigation?

Andrea explained that for the purpose of this process, mitigation is any sustained action that reduces the long-term risk to people and property from natural and man-made hazards and their impacts. Sustained actions can include projects and activities such as building a community safe room or establishing warming and cooling centers. Mitigation is one of the phases of emergency management and is an important component in creating hazard-resistant communities.

What is an All Hazards Mitigation Plan?

Andrea then explained that an All Hazards Mitigation Plan details the natural and man-made hazard events that have previously impacted the County and identifies activities and projects that reduce the risk to people and property from these hazards before an event occurs. A hazard mitigation plan is different from the County's Emergency Operations Plan (EOP) because it identifies actions that can be taken before a disaster strikes whereas the EOP identifies how the County will respond during and immediately after an event occurs.

The natural and man-made hazards that will be included in the Plan are severe summer storms (including thunderstorms with damaging winds, hail, lightning, and heavy rain events); severe winter storms (including ice and snowstorms); floods (both flash flood and riverine floods); tornadoes; excessive heat; extreme cold; drought; earthquakes; mine subsidence; dam failures; transportation, generation, and storage of hazardous substances; hazardous materials incidents; waste disposal; and remediation activities.

Why Update an All Hazards Mitigation Plan?

Since the early 1990s damages caused by weather extremes have risen substantially. In 2023 the U.S. experienced $93.1 billion in severe storm damages from 28 severe weather and natural hazard events. 2023 shattered the record set in 2020 for billion dollar events, with a new record of 28. In addition, the losses experienced in 2023 were the among the top 10 years with highest total losses recorded since records started being kept in 1980. The top two years are 2017 (Harvey, Irma, Maria, and California Wildfires) and 2005 (Katrina, Rita, & Wilma). In the last decade, the U.S. has experienced the top three years with the highest total number of billion-dollar events (2023, 2021, 2020) and two of the top three years with the highest total losses ever recorded (2022 & 2017). Consequently, the Federal Emergency Management Agency (FEMA) continues to encourage counties throughout the U.S. to prepare and develop hazard mitigation plans because what they've found is that for every dollar spent on mitigation, $6 dollars can be reaped in savings.

Updating this plan provides several major benefits:

1. Access to federal mitigation assistance funds. Specific projects and activities will be developed and updated through the planning process to help each participating jurisdiction reduce damages. By including these actions in this Plan, the participating jurisdictions will either remain or become eligible to receive state and federal funds to implement the actions.

2. Increased awareness of the impacts associated with natural hazards. Verifiable information about the natural hazards that occur in Macoupin County will be gathered to help local officials make decisions about how to better protect citizens and property from storm damages.

The Planning Process

The goal of the Committee meetings is to update the Plan to meet state and federal requirements so that it can be approved by the IEMA-OHS and FEMA. The Planning Committee is an integral part of the planning process and ensures that the Plan is tailored to the needs of the County and participating jurisdictions.

A five meeting process has been developed to achieve this goal. Specific activities for the Committee meetings include:

1st Committee meeting	Orientation to the Planning Process Information Needed to Participate
2nd Committee meeting	Discuss the Risk Assessment Approve Mission Statement & Goals Participants Return Required Forms Begin discussing Mitigation Projects and Activities
3rd Committee meeting	Discuss and approve Mitigation Strategy Committee returns draft list of Mitigation Projects and Activities
4th Committee meeting	Finish discussing Mitigation Projects and Activities Committee discusses approval/adoption and maintenance of the Plan
5th Committee meeting (Public Forum)	Present the Plan for public review Committee helps answer questions from the public

Jurisdictions who wish to be part of the Plan must meet certain participation requirements that include:

- Participating in the planning meetings and public forum;
- Completing required forms;
- Coordinating with their constituents and the public; and
- Adopting the Plan once it's completed.

Information Needed from the Committee

As part of the Plan's update, Andrea indicated that there is information that will be needed from each participating jurisdiction. The information provided will be used to meet FEMA plan requirements. She then talked about each of the forms that must be completed at the beginning of the planning process. These Include:

Critical Facilities. Completed lists of Critical Facilities will be used to identify facilities vulnerable to natural hazards and will be provided to IEMA-OHS and FEMA as a separate supplement. Copies of the Plan made available to the public will not include these lists for security reasons.

Capability Assessment: Each jurisdiction has a unique set of capabilities and resources available to accomplish hazard mitigation and reduce long-term vulnerabilities to hazard events. As part of the update of the Plan, the existing capabilities of each jurisdiction need to be identified and described.

Shelter Surveys. Identifies locations designated as severe weather shelters within each jurisdiction including warming centers, cooling centers and community safe rooms.

Drinking Water Supply Worksheet: Information on the drinking water supplies that serve the participating communities needs to be identified to assist in assessing drought vulnerability.

Changes in Land Use and Development Worksheet: Information on the changes in development that have occurred in the previous Plan participants needs to be identified. This could be recent development, potential development, or changes in local policies, codes, etc.

Roadway Overtopping Survey: Information on areas prone to flooding needs to be identified to assist in assessing flood and heavy rain vulnerability, especially in rural areas.

Andrea and Callie passed out the forms and fielded questions. Andrea asked participants to complete the forms and return them by the next meeting if possible and to let her know if they had any questions.

Severe Weather Events

Andrea told the Committee that, while AEC will review multiple data sources, including NOAA, NWS, and state and federal databases, these sources don't always include every event nor do they always include damage information, especially dollar amounts. In many cases, individuals at the local level are our best resource for this kind of information.

She then asked Committee members to share their memories of hazard events that have occurred in the County including any damages to critical infrastructure and facilities.

Hazard events related include:

- Mine Subsidence in Benld (June 2023)
- Lightning strike on Mt. Clare Lift Station (April 2023)
- Additionally, two lightning strikes on towers in Carlinville
- Heavy Rain event dropping 6" in Royal Lakes (2023)

Andrea asked participants to identify any hazard events that have impacted their jurisdiction by completing the form titled, "Hazard Event Questionnaire". The information provided will help supplement the information included in the risk assessment.

She also asked Committee members to please provide any storm damage photos they would be willing to share for inclusion in the Plan.

Community Participation

Andrea stressed the importance of attending each committee meeting and indicated that member participation helps the County meet its 10% match for this grant in addition to

assuring that member jurisdictions are eligible for IEMA-OHS/FEMA funds. She indicated that tag-teaming and designating substitute representatives is permissible when other obligations arise. She also pointed out that a designated substitute representative does not have be an official or employee of the jurisdiction.

Callie requested that each jurisdiction consider sharing meeting information with their boards, councils, etc. at regularly scheduled meetings and consider posting the press release or adding a calendar item to their web pages. She also asked jurisdictions who are on Facebook to consider posting about the Plan on their pages as well.

Callie reminded the committee that the link to a Citizen Questionnaire was provided to potential members via email prior to the meeting. The questionnaire will help gauge residents and committee member understanding of the natural hazards that impact the County and also identifies communication preferences. She indicated that another opportunity to include the public in the process is to post the link to the Citizen Questionnaire on their web pages or Facebook pages. The more individuals who complete the survey, the better our understanding will be of the public's perception of the hazards that impact the County.

She also asked the participants to consider posting or making available at their offices the "Frequently Asked Questions" document in their meeting packet. It provides a quick summary of what the Plan is and why it's important to participate.

Mission Statement & Goals

Copies of the previous mission statement and mitigation goals were distributed in the meeting packet. Committee Members were asked to review these prior to the next meeting. The mitigation goals describe the objectives or end results the Committee would like to accomplish in terms of hazard and loss reduction/prevention. Every project included in the Plan should be aimed at one or more of the goals identified by this Committee. Specific goals related to each jurisdiction can be added to this list as well.

What Happens Next?

The risk assessment will be the main topic of the next committee meeting. The second meeting of the Committee was scheduled for:

Thursday, June 27, 2024
Carlinville Moose Lodge
801 West Pine Street
Carlinville, IL
6 P.M.

Andrea asked Committee members to please review the "Tasks to be Completed" handout before the next meeting and indicated that AECs contact information could be found on the last page of the meeting handout if any questions come up. With no further questions the meeting was adjourned.

Meeting Minutes

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee

June 27, 2024
6 p.m.
Carlinville Moose Lodge
801 West Pine Street, Carlinville, IL

Committee Members

Benld, City of
Brighton-Betsy Ann FPD
Bunker Hill, City of
Bunker Hill CUSD #8
Carlinville, City of
Carlinville Area Hospital
Carlinville Township
Carlinville Volunteer Fire Department
Community Hospital of Staunton
Eagerville, Village of
Gillespie, City of
Gillespie CUSD #7
Gillespie Health & Rehab
Girard FPD
IEMA-OHS
Macoupin County
EMA

Macoupin County continued
ETSB
Public Health
Supervisor of Assessments
Mt. Clare, Village of
Mt. Olive CUSD #5
Nilwood, Town of
North Palmyra Township
Patterson House Inc.
Royal Lakes, Village of
Shaws Point Township
Standard City, Village of
Staunton, City of
Staunton CUSD #6
Unit 7 FPD
Virden FPD
American Environmental Corp.

Welcome and Introductions

Andrea Campbell and Callie Smith of American Environmental Corporation (AEC) opened the meeting. Handout materials were distributed to each member. Andrea provided a brief recap to reorient Committee Members as to what has been accomplished to date. Before beginning the risk assessment presentation, Andrea asked the participating jurisdictions to submit their completed “Critical Facilities”, “Capability Assessments”, “Drinking Water Worksheets”, “Shelter Surveys”, and any other completed forms if they hadn’t done so already.

Risk Assessment

Andrea shared that there have been nine emergency and major federal disaster declarations in Macoupin County since 1982, with one major disaster declaration and t wo emergency declarations occurring since the last Plan update. Additionally, the County has been included in 8 state disaster proclamations since 2010. A total of 931 verified natural hazard events have been documented over the last 20 to 70 years in Macoupin County, with 137 events identified since 2018. A minimum of $25.9 million in damages have resulted from just 46 documented of these natural hazard events. In addition, $75.4

million in insured crop damages were recorded for just 4 events. A minimum of seven fatalities and 18 injuries were recorded for 12 of the documented natural hazard events; this total does not include IDOT roadway crash data figures, which increase the number of injuries and fatalities.

The damage amounts are actually much higher based on several facts:

1.) damage descriptions for many of the floods, tornadoes and severe storm events did not include dollar amounts;
2.) damages to roads from heat and freeze/thaws conditions were not included; and
3.) crop damage figures were unavailable for a majority of the events.

The frequency, magnitude, and property damages for each category of natural hazard for the County were then described.

Severe Storms

A total of 331 severe storm events have occurred in the County. Three emergency & major federal disaster declarations included severe storms, as well as one state disaster proclamation for the County. Approximately $6.6 million in damages has resulted from 27 events, which is about 26% of all property damage recorded in the County. At least 9 injuries and 3 fatalities can be attributed to two severe storms, one hail event, and three lightning strikes. IDOT's roadway crash data indicates that from 2018 to 2022 about 14.3% of all vehicular crashes in the County occurred due to wet pavement conditions, resulting in 105 injuries and five fatalities.

The highest recorded wind speed in the County, not associated with a tornado, is 91 knots (105 mph) recorded at Mt. Olive on May 20, 2013. The highest recorded wind speed since the 2019 Plan was completed was 65 knots (75 mph), measured on June 12, 2022 near Standard City. The largest hail recorded in the County is 3 inches (tea-cup-sized) on April 9, 2015, recorded at Gillespie. The largest hail recorded since the 2019 Plan was completed was 1.75 inches (golf ball- sized) on December 1, 2018, at Lake Ka-Ho and again on June 21, 2020 near Gillespie.

Excessive Heat

Additional resources were reviewed to fill historic data gaps, which led to the identification of 134 recorded excessive heat events reported in the County since 1995. There have been 29 verified excessive heat events since 2018. No injuries, fatalities, or damages have been recorded for these events.

The hottest temperature recorded in the County was 114°F at the Virden COOP Station on July 14, 1954. Since 2019, the hottest temperature recorded in the Region was 100°F at the Hillsboro COOP Station on July 6, 2022, and again on August 24, 2023.

Severe Winter Storms

There have been at least 138 verified events involving severe winter storms (snow and/or ice) since 1950, 6 of these have occurred since 2018. One major federal disaster declaration included a severe winter storm (2006), and there have been four state disaster proclamations that included severe winter storms.

A verified total of $1.2 million in damages and emergency protective measures resulted from two of the severe winter/ice storm events. No injuries or fatalities were reported as the result of any of the events. IDOT's roadway crash data indicates that from 2018 to 2022 about 6.5% of all vehicular crashes in the County occurred due to ice and snow-covered roadways, resulting in one fatality and 44 injuries.

At least 11 severe winter storms have occurred in every decade since 1950. In this decade, 3 severe winter storms have already taken place.

The record maximum 24-hour snowfall in the County is 14.0 inches, which occurred at the Medora COOP Station on November 5 and 6, 1951. Since the 2019 Plan was completed, the maximum 24-hour snowfall in the County was 10.5 inches at the Girard COOP station on January 12, 2019.

Floods

With the review of additional resources, 17 verified general flood events have occurred in the County since 2003 and 47 flash flood events have occurred in the County since 1999. Five flash flood events and 4 riverine flood events have occurred since 2018. Four of the nine major federal disaster declarations for the County are related to flooding. At least $20,000 in damages resulted from just 2 flash flood events (2008 & 2022), as well as $5,000 in crop damage recorded in 2008. No injuries or fatalities were reported as the result of flood events.

Extreme Cold

Additional resources were reviewed to fill historic data gaps, which led to the identification of 50 recorded extreme cold events reported in the County since 1995. There have been 8 verified extreme cold events since 2018. Two state disaster proclamation included extreme cold (2014 & 2019). While no damages were recorded for any of the events, one fatality was reported as the result of an event in December, 2000.

The coldest temperature recorded in the County was -23°F at the Carlinville COOP Station on February 13, 1905. Since 2018, the coldest temperature recorded in the Region was -10°F at the Hillsboro COOP Station on January 1, 2018, and again on January 30, 2019.

Tornadoes

Since 1950, 43 tornadoes have been verified in the County, with 5 occurring since 2018. At least $4.5 million in property damages has resulted from twelve of these tornadoes, which is approximately 20% of all the property damage recorded in the County. Nine injuries and three fatalities have been recorded as a result of five separate tornado events.

The highest recorded F-Scale rating for a tornado in the County was an EF3, which occurred on April 19, 2011. The longest and widest tornado was an F2 from May 12, 1978 that traveled 27.9 miles long within in the County and was 700 yards (0.28 miles) wide. The tornado covered two counties and its total length was 34.1 miles.

Drought

Five major droughts have occurred during the last four decades – 1983, 1988, 2005, 2011, and 2012. No new droughts have occurred in the County since the 2019 Plan was completed. There has been at least one drought per decade, except for the 1990s when no substantial droughts were recorded. The County was designated a Primary National Disaster Area for two of these events (2005 and 2012). Three of these droughts caused approximately $75.4 million in *insured crop damage,* which is virtually all of the crop damage recorded for the County.

Since comprehensive crop damage figures aren't available for some of the major events, corn and soybean yield reductions associated with drought years were reviewed to determine severity. Following each declared drought, crop yield reductions were generally experienced, some substantial. Corn and soybean yield reductions were most severe for the 1983 drought when there was a 56.9% reduction in corn yields and a 43.4% reduction in soybean yields.

Earthquakes

In the previous 200 years, only one earthquake has originated in the County; a 1.5 magnitude earthquake that occurred approximately 5 miles northeast of Gillespie on June 28, 1987. 12 earthquakes have originated in adjacent counties over the last 200 years, with the most intense being a 4.1 magnitude quake that was recorded on September 11, 1953 just south of Hartford in Madison County. No damages, injuries, or fatalities have been reported in Macoupin County for any of these earthquakes. There are no known fault zones or systems within the County, but there is one geologic structures present: the Nilwood Anticline. It is not part of a larger structure, and is only about 6 miles long, beginning east of Nilwood and trending southeast past Standard City.

Mine Subsidence

There are 88 documented underground coal mines located in the County according to the Illinois State Geological Survey's Directory of Coal Mines. According to the Illinois Mine Subsidence Insurance Fund, between 1980 and 2023 there have been 165 confirmed mine subsidence claims, with $13.2 million having been reimbursed to insurance companies for mine subsidence in the County.

According to the Illinois State Geological Survey, there are 100,398 acres (18.4% of the land area) and 12,580 housing units (60.1% of the total housing units) in Macoupin County are located over or adjacent to mapped mines and land that could be affected if the mine boundaries are inaccurate or uncertain.

Dams

There are 97 classified dams in the County according to the US Army Corps of Engineers' National Inventory of Dams. Nineteen dams are publicly-owned, with 15 owned by municipalities. The remaining 78 dams are privately-owned There are eight "High" hazard dams, twelve dams with a hazard classification of "Significant", seventy-five classified as "Low", and two dams with an "Undetermined" classification. There have not been any known classified dam failures recorded in the County according to the National Performance of Dams inventory.

Man-Made Hazards Risk Assessment

Andrea informed the Committee that while the focus of this planning effort is directed at natural hazards, FEMA allows a small portion of the planning process to be devoted to an overview of selected man-made hazards.

Although this overview does not have the same depth as the assessment of natural hazards, it provides useful information to place various man-made hazards in perspective. The man-made hazard risk assessment focused on the following categories of:

- generation, storage/handling, and transportation of hazardous substances;
- waste disposal;
- hazardous materials (hazmat) incidents; and
- waste remediation.

Hazardous substances broadly include flammable, explosive, biological, chemical, or physical material that has the potential to harm public health or the environment. For the purposes of these Plans, the term includes both hazardous product and hazardous waste.

Generation, Storage/Handling, & Transportation

In 2022, there were no facilities in the County that generated reportable quantities of hazardous substances according to the USEPA. Based on records obtained from IEMA-OHS's Tier II database, there were 31 stationary facilities within the County that stored and/or handled hazardous substances. Fourteen of these facilities stored and/or handled chemicals identified as "Extremely Hazardous Substances".

Waste Disposal

There are no active commercial solid (household) waste landfills operating in the County. There are no facilities within the County permitted to handle Potentially Infectious Medical Waste and no commercial off-site hazardous waste treatment or disposal facilities.

Hazardous Materials (Hazmat) Incidents

A hazardous materials (hazmat) incident refers to any accident involving the release of hazardous substances. Incidents can take place at fixed facilities or as they are being transported. Between 2014 and 2023 there were 41 hazmat incidents reported to IEMA-OHS in the County. While 26 incidents occurred at fixed facilities, 15 (around 37%) occurred during transport. Twelve were roadway incidents, and the remaining three were rail incidents.

Waste Remediation

Waste remediation in Illinois is primarily conducted through three programs: the federal Superfund Program (for sites posing the largest threat to public health and the environment), the Illinois Site Remediation Program (SRP), and the Illinois Leaking Underground Storage Tank (LUST) Program.

Superfund: There are no active Superfund sites in the County.

Illinois SRP: There are 10 SRP sites located in the County. Six of the sites have received "No Further Remediation" (NFR) or Section 4(y) letters.

Illinois LUST: There are 151 LUST sites located in the County. Approximately 78% (118 of 151) of these sites have received NFR, Non-Lust Determination or Section 4(y) letters or remediation is virtually complete.

Risk Priority Index Exercise

Following the risk assessment, Andrea led the Committee through a Risk Priority Index (RPI) exercise. Callie distributed the forms to committee members while Andrea explained that the RPI is a quantitative means of providing guidance for ranking the hazards that have the potential to impact the County. This ranking can assist participants in determining which hazards present the highest risks and therefore which ones to focus on when formulating mitigation projects and activities. Each hazard is scored on three categories: frequency, impacts on life and health and impacts on property and infrastructure based on a scoring system provided. Andrea walked the committee through the scoring system using excessive heat as an example and then provided time for the Committee to fill out the PRI form during the meeting. The results will be compiled, and the findings will be presented at the next meeting.

Mission Statement & Goals

Andrea asked Committee members to review the draft mission statement and updated mitigation goals provided in the meeting materials. Both of these are required elements of the Plan. As part of the Plan update process, both items need to be reviewed and re-evaluated. After reviewing the draft mission statement, the Committee approved it without revision.

Next Andrea discussed the mitigation goals, which are intended to reduce long-term vulnerabilities to natural hazards. Each project included in the updated Plan should be aimed at one or more of the goals developed by the committee. The goals were reviewed, and no revisions were made to the wording. The finalized mission statement and goals will be added to the Plan update.

Mitigation Actions

Andrea explained that mitigation actions include activities and projects that reduce the long-term risk to people and property from the natural hazards discussed in the risk assessment.

To help the jurisdictions think about and assemble their lists, Andrea provided several examples and referred participants to a two-page list of potential mitigation projects included in the handout material along with mitigation project lists from other jurisdictions. These examples can be used to help Committee members when they prepare their lists. Finally, Andrea provided excerpts from a FEMA publication on mitigation ideas as another resource.

Status of Existing Projects

Callie distributed **"Status of Existing Mitigation Actions"** forms to each of the previously participating jurisdictions detailing the mitigation projects and activities included in the 2019 Plan. Andrea explained that as part of the update process the status of these projects needs to be determined. She described how the form should be completed so that this information can be included in the Plan update.

New Projects

Callie distributed the form titled **"Hazard Mitigation Projects"** and Andrea indicated this form should be used to submit new projects and activities for the Plan. She told the

Committee that individual mitigation project lists will be developed for each participating jurisdiction and that this is a list of projects each jurisdiction would like to see accomplished if funding becomes available. FEMA is trying to stimulate the implementation of mitigation projects and activities to reduce the extraordinary amount of money being expended on hazard event damages.

The projects and activities included in the Plan should be mitigation-related, not emergency preparedness, response, recovery, or maintenance. Mitigation projects can include studies, regulatory activities, structural and infrastructure projects, and information/education activities. She provided advice for completing the mitigation project list including providing a detailed description of the project, the jurisdiction responsible for the project, and the time frame to complete the project.

Committee members were encouraged to contact Andrea or Callie if questions arise before they return to the next Committee meeting.

What Happens Next?

Committee members were reminded to return all completed forms to AEC by the next meeting, which is scheduled for:

Thursday, September 26
Carlinville Moose Lodge
801 West Pine Street
Carlinville, IL
6 P.M.

With no other questions or comments, Andrea adjourned the meeting.

Meeting Minutes

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee

November 14, 2024
6 p.m.
Carlinville Moose Lodge
801 West Pine Street, Carlinville, IL

Committee Members

Brighton-Betsy Ann FPD
Brighton Township
Bunker Hill CUSD #8
Carlinville Area Hospital
Chesterfield Township
Community Hospital of Staunton
Eagerville, Village of
Gillespie, City of
Gillespie CUSD #7
Girard, City of
Henderson Water District
Macoupin County
- EMA
- ETSB
- Public Health
- Supervisor of Assessments

Mt. Clare, Village of
Nilwood Township
Staunton CUSD #6
Unit 7 FPD
Western Mound Township
AEC, LLC

Andrea Campbell and Callie Smith of AEC, LLC (formerly American Environmental Corporation), who are assisting the County in updating the Plan, welcomed attendees. Handout materials were distributed to each member in attendance. Andrea provided a brief recap to reorient Committee Members as to what has been accomplished at previous meetings. Before beginning the vulnerability analysis presentation, Andrea asked the participating jurisdictions to submit their completed "Critical Facilities", "Capability Assessments", and "Shelter Surveys" if they haven't done so already.

Vulnerability Analysis

Andrea began the vulnerability analysis discussion by noting that the focus of this meeting is the vulnerability posed by tornadoes. The analysis estimates future potential damages in terms of dollar loss to residences, including contents, for each participating jurisdiction based on FEMA acceptable formulas. The potential damages were calculated on the magnitude most likely to be encountered, not on a worst-case event.

Tornadoes

Since 1950, 43 tornadoes have been verified in Macoupin County. While occurring less frequently than severe storms and severe winter storms, tornadoes have caused more than $4.5 million in property damages, 9 injuries, and 3 fatalities. Using information from the 43 verified tornadoes, damages were calculated based on an "average" tornado. The average tornado in Macoupin County impacts approximately 0.15 square miles, roughly the size of the populated area of Modesto. This is a 0.03 square mile decrease since the

last Plan update was completed. Housing densities were updated from U.S. Census Bureau information for each of the participating jurisdictions. This information, along with a set of assumptions were used to estimate the number of vulnerable residential structures.

Potential dollar losses were then calculated for these vulnerable residential structures using the updated tax assessment values and an additional assumption about the degree of damage sustained by the structures and their contents.

Potential dollar losses caused by an average-sized tornado to residences and their contents would be expected to exceed at least $4.1 million in any of the participating municipalities. Losses ranged from $4.1 million in Eagerville to $19.6 million in Carlinville. Potential dollar losses by township would be expected to range from $23,304 in Western Mound Township to $2.6 million in Staunton Township. Andrea noted that the damage figure for the most populated townships would only be reached if the tornado's path included a portion of a major municipality.

Risk Priority Index Exercise Results

Callie then presented the results of the Risk Priority Index Exercise that was conducted at the June 27, 2024 meeting. She provided the Committee with a brief recap on what the Risk Priority Index is and how it can help participants determine which hazards present the highest risk and therefore which ones to focus on when formulating mitigation projects and activities.

Based on the Committee's responses, hazardous materials transportation scored the highest, followed by excessive heat, thunderstorms with damaging winds, and hazmat incidents at fixed facilities. The hazards that scored the lowest were terrorism and dam failures.

Community Lifelines

Next, Callie took a few minutes to discuss the concept of community lifelines. FEMA has identified eight community lifelines that are the most fundamental services in the community that enable all aspects of society to function. The eight community lifelines include: safety & security; food, hydration, shelter; health & medical; water systems; energy (power & fuel); communications; transportation; and hazardous materials.

While the concept of community lifelines was developed to support emergency response and planning, FEMA has begun applying it to all phases of emergency management. Efforts to protect community lifelines and prevent and mitigate potential impacts to them is one of the focuses of the BRIC grant program. A handout with a brief description of the community lifelines was included in the meeting packet. A column has been added to the mitigation action tables that will identify which community lifelines are being mitigated to create a clear connection to the concept.

Asset Vulnerability Survey

As part of the Plan update, Andrea indicated that vulnerable community assets need to be identified for the participating jurisdictions. FEMA requires that the Plan include a

summary, such as a list of key issues or problem statements, which describes the effects the hazards have on each participating jurisdiction and their assets. Assets include people, structures (including critical facilities, infrastructure, and community lifelines), systems (networks and capabilities such as electrical and communications grids), and natural, historic, and cultural resources. She asked Committee members to complete a 10-page survey distributed to help identify each community's vulnerable assets and the hazards to which they are vulnerable. The information will be used in the vulnerability analysis.

Mitigation Actions Prioritization Methodology

Andrea shared that the Mitigation Actions Prioritization Methodology outlines the approach used to classify each mitigation action identified by the participating jurisdictions and is a FEMA-required element of the Plan. As part of the update process, the methodology used in the 2019 Plan update needs to be reviewed and evaluated to determine if revisions are needed. She explained that the methodology is based on two key factors:

1) Frequency of hazard – severe storms occur more frequently than earthquakes.
2) Degree of mitigation – some projects will significantly reduce damages while other projects only have the potential to reduce damages.

This methodology helps objectively identify which projects and activities have a greater likelihood to significantly reduce the long-term vulnerabilities associated with the most frequently-occurring hazards. After reviewing the updated methodology, the Committee determined that no changes needed to be made.

Andrea acknowledged that while this methodology does not take cost or politics into consideration, these factors may affect the order in which projects are implemented. She also noted that it is important to keep in mind that implementing all of the mitigation projects is desirable regardless of which prioritization category they fall under.

Mitigation Projects

Andrea then described how the methodology, the existing and new lists of mitigation projects, finalized goals and other information will be organized and presented for Committee review. She reiterated that the information needed from the jurisdictions on their project forms include the project description, the entity responsible for the project, and the time frame. Completed existing and new mitigation project forms were collected.

Andrea chose a frequently requested mitigation project, a community safe room (tornado shelter), as an example to show how a typical project is prioritized and entered into the Plan on a Mitigation Action Table. She indicated additional information has been added to the table since the previous Plan and described how each column in the Mitigation Action Table would be completed for this example project.

Andrea explained that the information in the Mitigation Action Tables would be prepared by AEC, but that the Tables cannot be completed until all of the participants submit their draft lists of projects. Committee Members will have the opportunity at the next meeting

to review all of the mitigation projects submitted so that they can make adjustments to their lists if they choose.

It was noted that each jurisdiction will have their own list of jurisdiction-specific mitigation projects and they do not need to get approval from the County or any of the other participants for any of their projects. Participants were also reminded that this is a list of projects and activities they would like to see accomplished if funding becomes available. For a jurisdiction to be eligible for a project, it must be on its list.

Andrea also reminded the Committee that this is a mitigation plan, and that there are some projects that IEMA/FEMA do not consider mitigation. Projects associated with emergency preparedness, disaster response & recovery, and maintenance will not be included in the Plan. Andrea noted that as the committee members put their lists together, if they are unsure about whether a project would be considered mitigation, go ahead, and include it on their list. AEC will review the lists and help make the appropriate determinations.

What Happens Next?

Andrea asked that mitigation project forms and all other previously-distributed forms be returned to AEC by January 10. The Committee agreed to schedule the next meeting on:

February 20, 2024
6 p.m.
Carlinville Moose Lodge
801 West Pine Street, Carlinville, IL

With no additional questions or comments, Andrea adjourned the meeting.

Meeting Minutes

Macoupin County Multi-Jurisdictional
All Hazards Mitigation Planning Committee

February 20, 2025
6 p.m.
Carlinville Moose Lodge
801 West Pine Street, Carlinville, IL

Committee Members

Benld Fire & Rescue
Benld, City of
Brighton-Betsy Ann FPD
Brighton, Village of
Bunker Hill CUSD #8
Carlinville CUSD #1
Carlinville Rehab
Community Hospital of Staunton
Eagerville, Village of
Gillespie CUSD #7
Henderson Water District
Macoupin County
- EMA
- ETSB
- Public Health

Mt. Clare, Village of
North Mac CUSD #34
Royal Lakes, Village of
Virden, City of
AEC, LLC

Welcome and Introductions

Susan Lewis, Coordinator of the Macoupin County Emergency Management Agency, and Andrea Campbell of American Environmental Corporation (AEC) welcomed attendees. Callie Smith, also of AEC, opened the meeting.

Handout materials were distributed to each member in attendance. Callie provided a brief recap to reorient Committee members as to what has been accomplished at previous meetings and what will be covered at this meeting.

Mitigation Project Submittal & Action Tables

Callie thanked the Committee Members for assembling their lists of mitigation projects and activities. She explained that the information in the draft Mitigation Action Tables handout was prepared by AEC using the lists of mitigation projects and activities provided by the participating jurisdictions. A draft of the Mitigation Strategy section that details the review and re-evaluation of the mitigation goals and prioritization methodology as well as how the mitigation projects were analyzed in the tables was also provided in the meeting handouts for review by the Committee.

Committee members were asked to review the Mitigation Action Tables containing the descriptions of the mitigation projects and activities. Andrea and Callie moved throughout the room to answer any questions. Callie advised Committee Members who wished to add additional projects to provide them to herself, Ken, or Andrea as soon as possible, and no later than March 31.

Participants were reminded that this is a list of projects and activities they would like to see accomplished if the money becomes available. Also, for a jurisdiction to be eligible for a project, it must be on its list.

Since this is a mitigation plan, some projects were removed or were not able to be included if they were not considered mitigation. Projects associated with emergency preparedness/response, recovery, and deferred maintenance will not be included in the Plan.

Public Forum and Adoption

Callie laid out the timeline for the remainder of the Plan update process and explained in more detail how the final meeting and adoption process would proceed. The final Committee meeting will be conducted as an open-house style public forum to present the draft Plan for review and comment. A paper copy of the draft Plan will be available for review at the meeting and posted online on the County's website. There will be a two-week public comment period following the public forum.

Unless otherwise specified, Committee members will receive an electronic copy of the draft plan to make available for public comment.

Once the comment period is over, any comments received will be incorporated into the Plan and submitted to IEMA-OHS/FEMA. Following IEMA-OHS and FEMA review, any edits requested will be made and then FEMA will issue an Approval Pending Adoption letter. At this point an email will be sent to all the participating jurisdictions, along with a copy of a model adoption resolution, asking them to formally adopt the Plan by resolution. A copy of the executed resolution should then be provided to AEC. Once all the adoption resolutions are received, AEC will submit them to IEMA-OHS and FEMA. FEMA will then issue the Final Approval letter starting the clock for the five-year update.

Plan Maintenance and Update

Callie described the commitments detailed in a draft of the Plan Maintenance and Update section provided in the meeting handouts for review by the Committee. The Plan will be monitored and evaluated on an annual basis by a Plan Maintenance Subcommittee, which will be made up of the participating jurisdictions and key members of the Planning Committee. The Macoupin County EMA will send out a Plan Maintenance Checklist to each of the participating jurisdictions who will be responsible for providing information to the Subcommittee. This information will include: the status of their mitigation actions; any hazard-related damages to critical facilities and infrastructure; the adoption of any new plans, policies, or regulations; and any significant changes in development. The Subcommittee will also evaluate the Plan to determine its effectiveness at achieving its stated purpose and goals. Participants can also add new mitigation actions during the annual monitoring phase by contacting the County EMA Coordinator.

The EMA office will then prepare an annual progress report detailing the results of the annual monitoring and evaluation period and provide copies to the Subcommittee. Any modifications or additions to the mitigation project list will require an update of the Mitigation Strategy and a resubmittal of the Plan to IEMA-OHS and FEMA for reference.

At least once every five years, the Plan must be reviewed, revised, and resubmitted to IEMA-OHS/FEMA for the participating jurisdictions to remain eligible for mitigation project funds. At the five-year update, any jurisdiction that is not already part of this Plan and who wants to become part of the updated Plan may do so. New jurisdictions must supply the same information that all the current jurisdictions supplied.

What Happens Next?

Public Forum

The final Committee meeting will be conducted as an open-house style public forum where the draft Plan will be presented for review and comment. While the meeting will become open to the public until 8 p.m., Committee members are only expected to attend from 6:00 p.m. to 6:30 p.m. for the beginning of the Public Forum.

The public forum will be held:

Thursday, May 22, 2025
6 p.m. - 8 p.m.
Carlinville Moose Lodge
801 West Pine Street
Carlinville, IL

Public Comment

With no further comments, the meeting was adjourned. Several jurisdictions stayed afterwards to ask questions regarding mitigation projects and fill out needed forms.

APPENDIX C

Macoupin County Citizen Questionnaire

You can help protect lives and property from natural hazard events in the County by taking a few moments to complete this questionnaire.

Asterisk (*) designates required questions for form completion.

* 1. **Please indicate where you live in the County (please check only one).**

- ☐ Benld
- ☐ Brighton
- ☐ Bunker Hill
- ☐ Carlinville
- ☐ Chesterfield
- ☐ Dorchester
- ☐ Eagarville
- ☐ East Gillespie
- ☐ Gillespie
- ☐ Girard
- ☐ Hettick
- ☐ Lake Ka-ho
- ☐ Medora
- ☐ Modesto
- ☐ Mount Claire
- ☐ Mount Olive
- ☐ Nilwood
- ☐ Palmyra
- ☐ Royal Lakes
- ☐ Sawyerville
- ☐ Scottville
- ☐ Shipman
- ☐ Standard City
- ☐ Staunton
- ☐ Virden
- ☐ White City
- ☐ Wilsonville
- ☐ Unincorporated County
- ☐ Other (please specify)

* 2. **Please place a checkmark next to each of the natural hazards listed below that you have experienced in the County (please check all that apply).**

- ☐ Severe Summer Storms (thunderstorms, hail, lightning strikes)
- ☐ Floods
- ☐ Severe Winter Storms (snow, sleet, ice)
- ☐ Excessive Heat
- ☐ Extreme Cold
- ☐ Tornadoes
- ☐ Drought
- ☐ Earthquakes
- ☐ Mine/Land Subsidence
- ☐ Landslides
- ☐ Dam Failures
- ☐ Other (please specify)

3. **Which of the natural hazards above have you encountered most frequently?**

4. **Rank the natural hazards listed below in order from 1 to 11 based on which hazard you feel poses the greatest threat. (1 = greatest threat and 11 = least threat)**
Each number should only be used once.

- Severe Summer Storms
- Floods
- Severe Winter Storms
- Excessive Heat
- Extreme Cold
- Tornadoes
- Drought
- Earthquakes
- Mine/Land Subsidence
- Landslides
- Dam Failures

* 5. **What types of mitigation projects or activities are most needed in the County?**
Please check the five you feel are most important

- [ ] Public information fact sheets and brochures describing actions residents can take to protect themselves and their property against natural hazard impacts.
- [ ] Floodplain Ordinances
- [ ] Building Codes and Enforcement
- [ ] Sirens or other Alert Systems
- [ ] Flood or Drainage Protection (i.e., culvert and drainage ditch maintenance, retention pond construction, dam or levee construction/maintenance and/or hydraulic studies to determine cause of drainage problems.)
- [ ] Maintain power during storms by burying power lines, trimming trees and/or purchasing a back-up generator
- [ ] Other (please specify)
- [ ] Tornado Safe Shelters
- [ ] Maintain roadway passage during snow storms and heavy rains
- [ ] Provide sufficient water supply during drought
- [ ] Identify residents with special needs in order to provide assistance during a natural hazard event
- [ ] Retrofit critical infrastructure (public water supplies, schools, sewage treatment facilities, bridges, hospitals and other important services) to reduce potential damages

* 6. **What are the most effective ways *for you* to receive information about how to make your household and property safer from natural hazards (Please check all that apply.)**

- [ ] Newspaper
- [ ] Mailings
- [ ] Television
- [ ] Extension Service
- [ ] Radio
- [ ] Public Workshops/Meetings
- [ ] Internet
- [ ] Fire Department/Law Enforcement
- [ ] Social Media (Facebook, Twitter, etc.)
- [ ] Public Health Department
- [ ] Schools
- [ ] Municipal/County Offices
- [ ] Other (please specify)

Thank you for your time in assisting with the development of the County's Hazard Mitigation Plan.
Macoupin County Multi-Jurisdictional All Hazards Mitigation Advisory Committee

Done

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See how easy it is to create surveys and forms.

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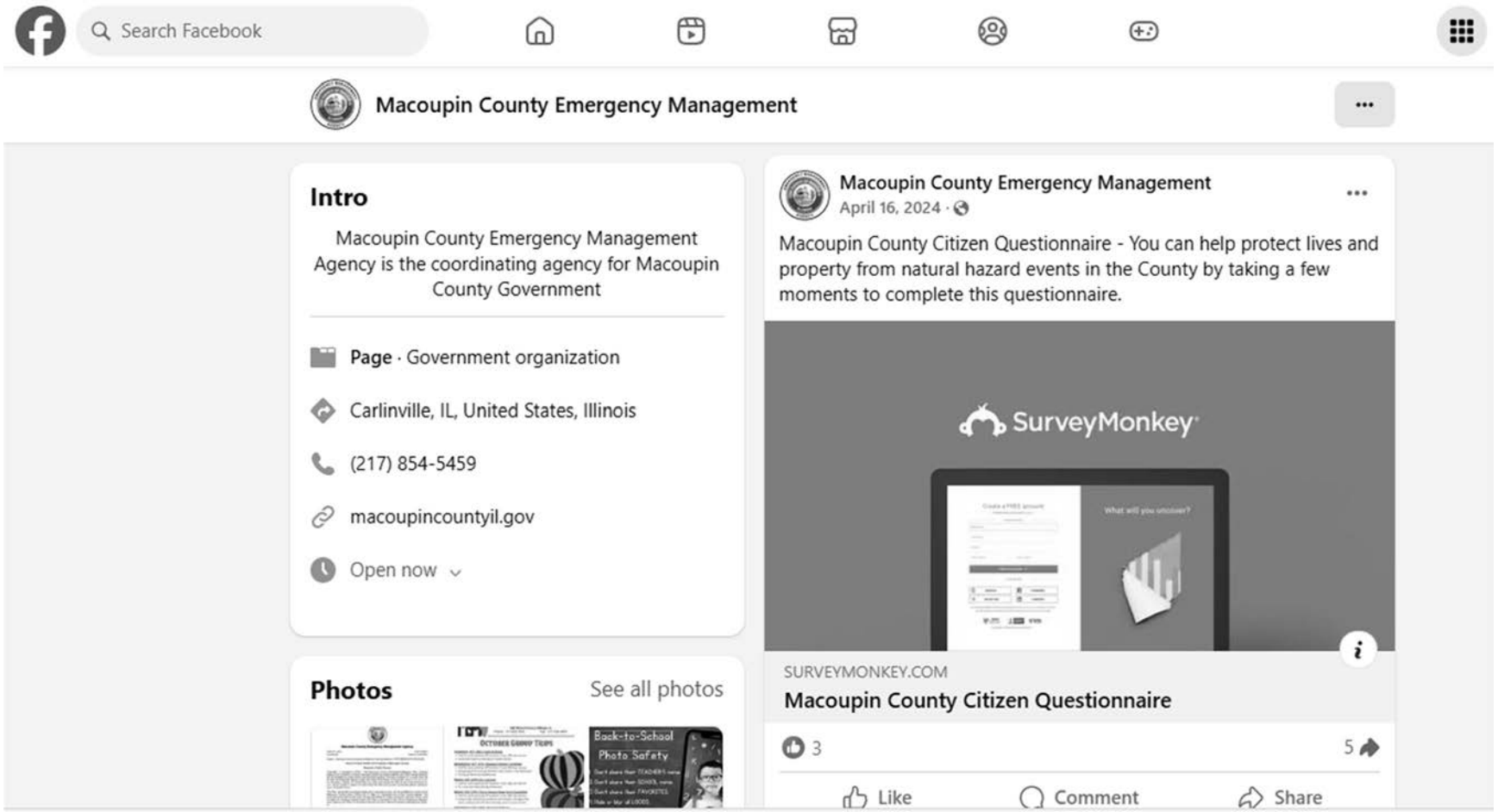
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Intro
Macoupin County Emergency Management Agency is the coordinating agency for Macoupin County Government
Page · Government organization
Carlinville, IL, United States, Illinois
(217) 854-5459
macoupincountyil.gov
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April 16, 2024 ·
Macoupin County Citizen Questionnaire - You can help protect lives and property from natural hazard events in the County by taking a few moments to complete this questionnaire.
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Appendix C

APPENDIX D

Frequently Asked Questions

Macoupin County Multi-Jurisdictional All Hazard Mitigation Plan Update

1) What is the Macoupin County All Hazard Mitigation Plan?

The Macoupin County Multi-Jurisdictional All Hazard Mitigation Plan evaluates damage to life and property from natural and man-made hazards that have impacted the County and identifies projects and activities to reduce these damages. The Plan is considered to be multi-jurisdictional because it includes municipalities and other jurisdictions (townships, fire protection districts, schools, etc.) who want to participate.

2) What is hazard mitigation?

Hazard mitigation is any action taken to ***reduce*** the long-term risk to people and property from natural and man-made hazards ***before*** an event occurs.

3) Why is this Plan being updated?

The Plan update fulfills federal planning requirements of the Stafford Act as amended by the Disaster Mitigation Act. While meeting federal requirements, this Plan update also provides these benefits:

- Funding for mitigation projects and activities ***before*** disasters occur.
- Funding for projects and activities ***following*** declared disasters.
- Increased awareness about natural hazards and closer cooperation among the various organizations and political jurisdictions involved in emergency planning and response.

4) Who is updating this Plan?

The Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee is updating the Plan with assistance from technical experts in emergency planning, environmental matters, and infrastructure. Stakeholders from education, business and industry, emergency services, municipal, township, and county government, healthcare, nonprofit/community-based organizations, social services, and law enforcement will be invited to serve on the Committee.

5) How can I participate?

You are invited to attend public meetings of the Macoupin County All Hazards Mitigation Planning Committee. In addition, you are encouraged to provide photographs, other documentation, and anecdotal information about damages you experienced from natural and man-made hazards in Macoupin County. Surveys will be available at participating jurisdictions and through Macoupin County to help gather specific information from residents. All of this information will be used to update the Plan. The draft Plan update will be presented at a public forum for further public input.

More information can be obtained by contacting:

Susan Lewis, Coordinator
Macoupin County Emergency Management Agency
(217) 854-3135 Ext. 3055
susan.lewis@macoupincountyil.gov

APPENDIX E

Macoupin County Emergency Management Agency

Susan M. Lewis
Coordinator

Aaron Bishop
Deputy Coordinator

April 3, 2024

Subject: Macoupin County Hazardous Mitigation Planning Meeting

County Prepares for Natural and Man-Made Disasters

Carlinville, IL (April 3, 2024) — Macoupin County will update its plan to reduce damage caused by severe weather such as tornadoes, snow and ice storms, thunderstorms, and floods, among other events. The plan is called a Hazard Mitigation Plan, and the process to update it will be funded through a grant from the Federal Emergency Management Agency (FEMA).

Macoupin County Emergency Management Coordinator, Susan Lewis, describes the Plan as a combination of the natural and man-made hazard events that have impacted the County and identifies activities and projects to reduce the risk to residents, property and infrastructure. By having an updated Hazard Mitigation Plan, the County and participating jurisdictions will remain or become eligible for federal funds to construct these projects. This mitigation plan is different from our County's Emergency Response Plan because it focuses on ways to reduce and prevent damage before it occurs.

The Macoupin County Hazard Mitigation Planning Committee will hold its first meeting on Thursday, April 18, 2024, at 6 P.M. The meeting will be held at the Carlinville Moose Lodge, 801 West Pine Street, in Carlinville. The meeting is open to the public.

From within the County, the Planning Committee includes townships, municipalities, schools, fire protection districts, emergency services, and hospital representatives, as well as technical partners and other stakeholders. Meetings of this committee will be conducted over the next year as working sessions, so that any interested residents can attend and ask questions. The purpose of these working sessions is to gather and discuss information that will be used to update the Plan.

215 S. East St. Carlinville, IL 62626 * susan.lewis@macoupincountyil.gov * 217-854-3135 Ext. 7

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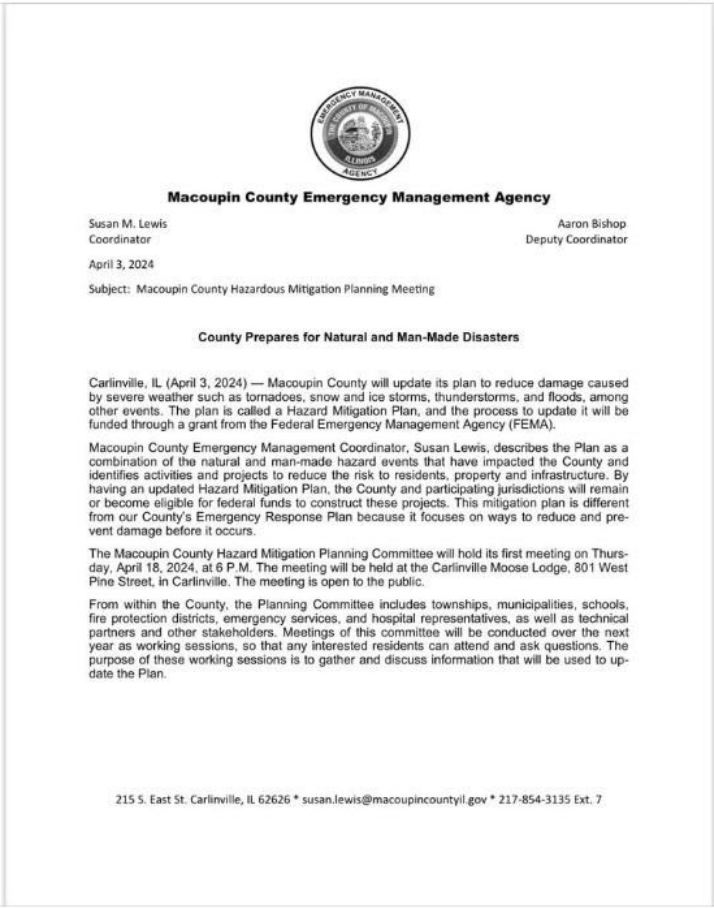
Information regarding the upcoming Hazard Mitigation Planning Committee Meeting.



Macoupin County Emergency Management Agency

Susan M. Lewis
Coordinator

Aaron Bishop
Deputy Coordinator

April 3, 2024

Subject: Macoupin County Hazardous Mitigation Planning Meeting

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Appendix E

Macoupin County Emergency Management Agency

Susan M. Lewis
Coordinator

Aaron Bishop
Deputy Coordinator

June 13, 2024

Subject: Macoupin County Hazardous Mitigation Planning Meeting—FOR IMMEDIATE RELEASE

Reducing Damages Caused by Severe Weather in Macoupin County

Carlinville, IL (June 13, 2024) — The frequency of and damages caused by severe storms and other natural and man-made hazards in Macoupin County will be discussed when the Macoupin County Hazard Mitigation Planning Committee meets at the Carlinville Moose Lodge, 801 West Pine Street, in Carlinville, at 6 p.m. on Thursday, June 27.

This Committee, comprised of County, township, and municipal representatives as well as technical partners and stakeholders, will meet over the next several months to update the Macoupin County All Hazards Mitigation Plan. All Committee Meetings are open to the public.

“The goal of this Committee Meeting is to identify how often severe weather events occur within the County and what kinds of damages have resulted. Based on this information, we will compile lists of activities and projects to reduce damages caused by these events,” said Susan Lewis, Macoupin County Emergency Management Agency Coordinator.

The focus of this effort is on natural hazards — severe thunderstorms with damaging winds or hail, tornadoes, snow and ice storms, floods, drought, extreme cold, and excessive heat.

Interested persons can provide input at these Planning Committee meetings or submit their comments and questions to their municipal or county representatives.

Participants to date include the County, Benld, Brighton, Carlinville, Eagarville, Gillespie, Girard, Modesto, Mount Claire, Nilwood, and Royal Lakes, as well as Benld Fire & Rescue, Brighton Township, Brighton-Betsy Ann Fire Protection District (FPD), Bunker Hill CUSD #8, Carlinville Area Hospital, Carlinville Township, Carlinville Volunteer Fire Department, Gillespie CUSD #7, Girard FPD, Girard Township, Henderson Water District, Mount Olive Township, Nilwood Township, North Mac CUSD #34, North Palmyra Township, Patterson House Inc., Shaws Point Township, Staunton CUSD #6, Staunton FPD, and Staunton Township. Jurisdictions who have yet to participate in a committee meeting are encouraged to attend.

“This Plan will be our best resource for determining how to mitigate damages before storms and other natural and man-made hazards occur. After the Plan is updated, comprehensive information will be available in one document to help guide those who are making decisions about how to better protect Macoupin County residents,” added Lewis.

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Susan M. Lewis
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Appendix E

Macoupin County Emergency Management Agency

Susan M. Lewis
Coordinator

Aaron Bishop
Deputy Coordinator

Subject: Macoupin County Hazardous Mitigation Planning Meeting—FOR IMMEDIATE RELEASE

Rescheduled County Hazard Mitigation Planning Meeting is November 14

Carlinville, IL (October 30, 2024) — The rescheduled meeting of the Macoupin County Hazard Mitigation Planning Committee will be held at the Carlinville Moose Lodge, 801 West Pine Street, in Carlinville, at 6 p.m. on Thursday, November 14. This Committee began work in April 2024 to update the County's All Hazards Mitigation Plan. All municipalities, townships, fire protection districts, and school districts within the County are encouraged to participate in the Committee meetings. These meetings also are open to the public.

"Severe weather frequently damages buildings, crops, roads, and other critical infrastructure in this area," said Macoupin County Emergency Management Agency Coordinator, Susan Lewis. "Since 1982, the County has been a part of nine emergency and major federal disaster declarations. In addition, there have been at least seven fatalities, 18 injuries, and more than $25 million in property damages caused by hazard events in the County. The goal of this planning process is to identify preventative steps that can be taken before a natural hazard event occurs to protect public health and reduce the dollar damages. "The Plan also ensures each participating jurisdiction is eligible to receive federal grant money for mitigation projects. Building community safe rooms, acquiring flood prone properties, resolving drainage issues, retrofitting critical infrastructure to better withstand hazard events, installing back-up power supplies, and developing public information materials are a few of the mitigation projects commonly proposed in Illinois.

Jurisdictions currently participating in the Plan include: Benld (City of), Benld Fire & Rescue, Brighton (Village of), Brighton Township, Brighton-Betsy Ann Fire Protection District, Bunker Hill (City of), Bunker Hill CUSD #8, Carlinville (City of), Carlinville Area Hospital, Carlinville Township, Carlinville Volunteer Fire Department, Community Hospital of Staunton, Eagerville (Village of), Gillespie (City of), Gillespie CUSD #7, Gillespie Health & Rehab, Girard (City of), Girard Fire Protection District, Girard Township, Henderson Water District, Macoupin County Board, Macoupin County ETSB, Macoupin County Housing Authority, Macoupin County Public Health Department, Macoupin County Sheriff's Office, Macoupin County Supervisor of Assessments, Modesto (Village of), Mount Clare (Village of), Mount Olive CUSD #5, Mount Olive Township, Mount Olive Volunteer Fire Protection District, Nilwood (Town of), Nilwood Township, North Mac CUSD # 34, North Palmyra Township, Patterson House Inc., Royal Lakes (Village of), Shaws Point Township, Standard City (Village of), Staunton (City of), Staunton CUSD #6, Staunton Fire Protection District, Staunton Township, Unit 7 Fire Protection District, and Virden Fire Protection District.

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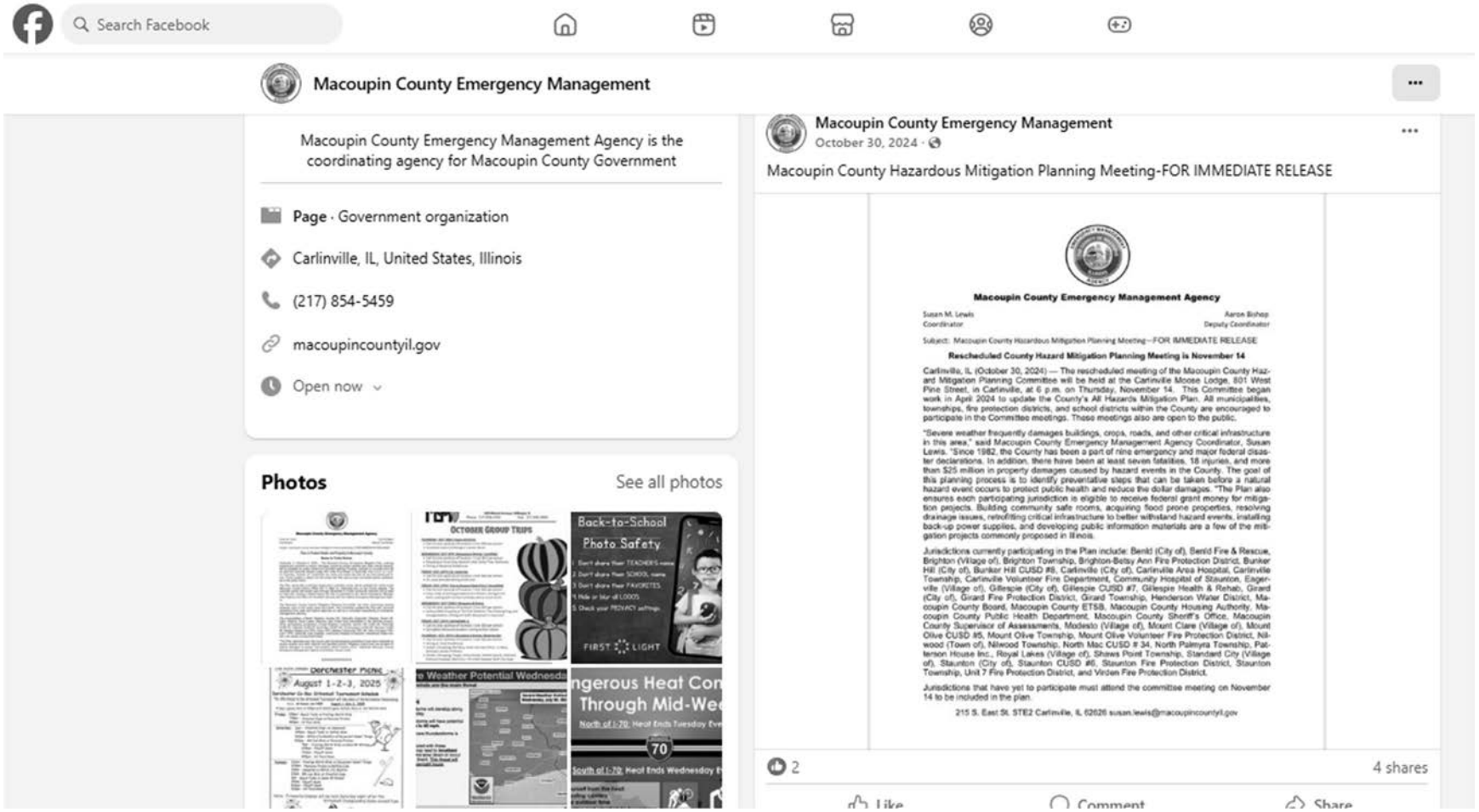
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Macoupin County Hazardous Mitigation Planning Meeting-FOR IMMEDIATE RELEASE
Macoupin County Emergency Management Agency
Susan M. Lewis
Coordinator
Aaron Bishop
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Appendix E

Macoupin County Emergency Management Agency

Susan M. Lewis
Coordinator

Aaron Bishop
Deputy Coordinator

Subject: Macoupin County Hazardous Mitigation Planning Meeting—FOR IMMEDIATE RELEASE

Protecting Public Health and Property in Macoupin County

Carlinville, IL (February 3, 2025) -- Projects and activities to prevent injuries and fatalities while maintaining vital services for Macoupin County residents will be the main topic of discussion at the Macoupin County Hazard Mitigation Planning Committee meeting to be held at the Carlinville Moose Lodge, 801 West Pine Street, in Carlinville, at 6 p.m. on Thursday, February 20.

The Committee began work in April 2024 to update the County's All Hazards Mitigation Plan. This Plan details the past severe weather events that have impacted the County and identifies mitigation projects and activities that can be taken before a severe weather event occurs to protect residents and critical services and infrastructure.

"Obtaining FEMA's approval of our updated Plan will make all of the participants eligible to receive federal grant money for mitigation projects and activities," explained Macoupin County Emergency Management Agency Coordinator, Susan Lewis.

Projects identified by Committee members at this meeting will become part of the Macoupin County All Hazards Mitigation Plan. While the committee has provided input on portions of the Plan, the entire Plan will be presented for public review and comment before it is submitted to the state and federal government for approval.

"A public forum will be conducted this fall for interested persons to review the Plan update and ask questions of Committee Members. A two-week public comment period will be held following the public forum to accommodate interested persons who are unable to attend. We want to make sure that anybody who is interested has an opportunity to review and comment on the draft Plan update," added Lewis.

Interested persons can submit questions and comments to the Committee members or directly to the Macoupin County EMA Office.

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Upcoming Macoupin County Hazardous Mitigation Committee Planning Meeting, Thursday, Febrary 20th.

Macoupin County Emergency Management Agency

Susan M. Lewis
Coordinator

Aaron Bishop
Deputy Coordinator

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Macoupin County Emergency Management Agency

Susan M. Lewis
Coordinator

Scott Rodgers
Deputy Coordinator

Subject: Macoupin County Hazardous Mitigation Planning Meeting—FOR IMMEDIATE RELEASE

Plan to Protect Health and Property in Macoupin County

Ready for Public Review

Carlinville, IL (October 8, 2025) -- The Macoupin County All-Hazards Mitigation Plan, outlining projects and activities to reduce damages caused by severe weather and other natural hazards, will be available for public review and comment starting Thursday, October 23. A public form will be held the Carlinville Moose Lodge, 801 West Pine Street, in Carlinville, from 5 p.m. to 7 p.m. on Thursday, October 23. Individuals can come and review the Plan at any time during the forum. Those unable to attend can still review the Plan and provide comments without participating in the public forum.

The Plan, along with a summary sheet and a comment survey, will be available for review at the Macoupin County Clerk's Office (201 E. Main St. Carlinville) and on the County website. The comment period will remain open through November 6. Public comments received will be used to make any revisions needed before the Plan is submitted to the Illinois Emergency Management Agency and Office of Homeland Security and the Federal Emergency Management Agency.

The Macoupin County Hazard Mitigation Planning Committee has been conducting working meetings open to the public since April 2024. The Committee updated the Plan with technical assistance from state and federal agencies as well as a consultant specializing in emergency management planning.

The municipalities of Benld, Brighton, Bunker Hill, Carlinville, Eagarville, Gillespie, Girard, Mt. Clare, Nilwood, Royal Lakes, Staunton, and Virden have participated in the planning process. Other participating jurisdictions include Brighton Township, Bunker Hill CUSD #8, Carlinville CUSD #1, Gillespie CUSD #7, North Mac CUSD #34, Southwestern CUSD #9, Staunton CUSD #6, Brighton Betsey Ann FPD, Girard FPD, Medora Community FPD, Mt. Olive Volunteer FPD, Unit 7 FPD, Carlinville Area Hospital, Community Hospital of Staunton, Henderson Water District, and Jersey County Rural Water.

"This Plan describes how the County and the participating jurisdictions have been impacted by severe weather and other hazards and identifies specific mitigation actions that can be taken to reduce damages to people and property before events occur," explained Macoupin County Emergency Management Agency Coordinator, Susan Lewis.

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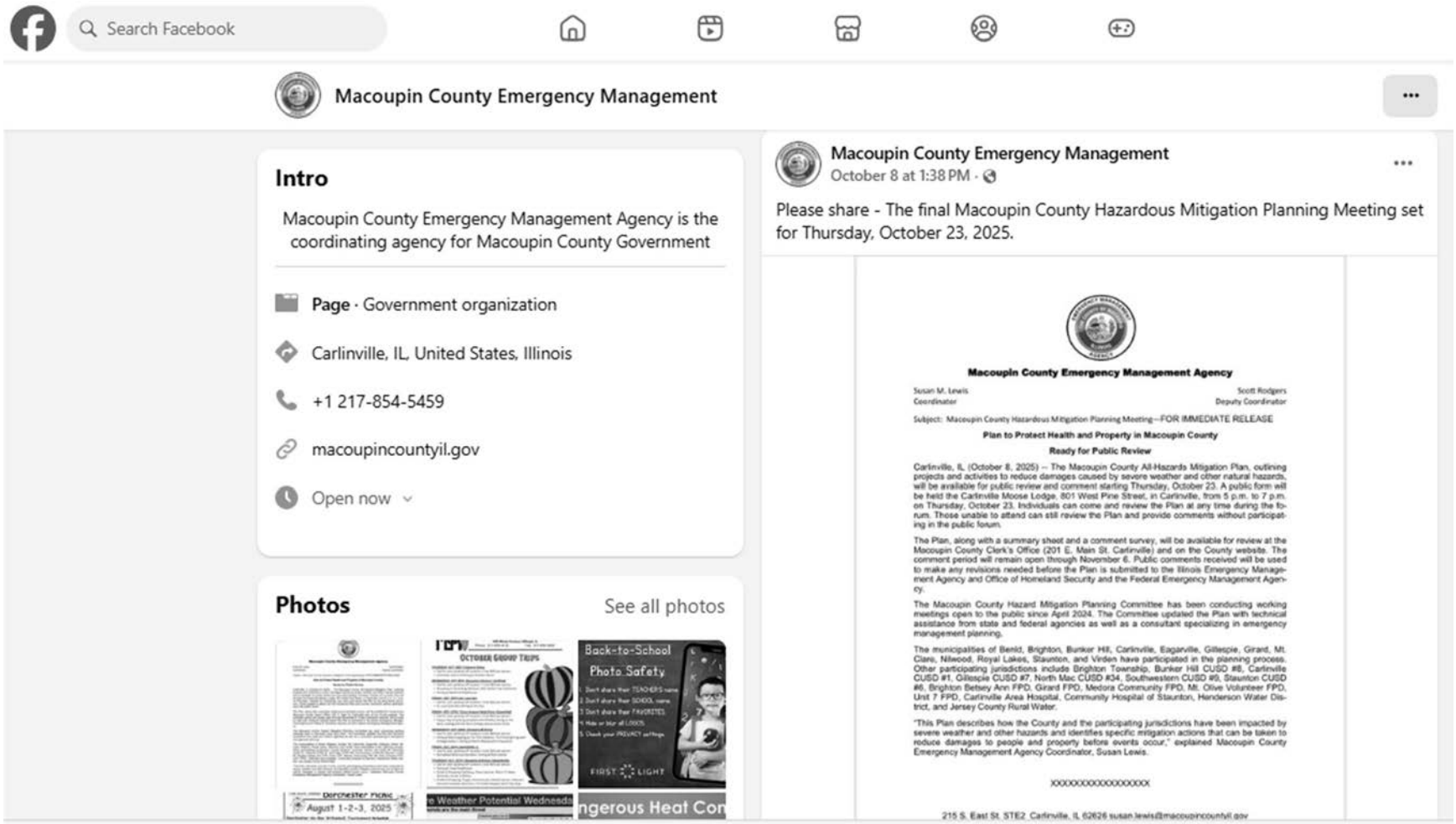
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Please share - The final Macoupin County Hazardous Mitigation Planning Meeting set for Thursday, October 23, 2025.
Macoupin County Emergency Management Agency
Susan M. Lewis
Coordinator
Scott Rodgers
Deputy Coordinator
Subject: Macoupin County Hazardous Mitigation Planning Meeting—FOR IMMEDIATE RELEASE
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xxxxxxxxxxxxxxxx
215 S. East St. STE2 Carlinville, IL 62626 susan.lewis@macoupincountyil.gov

Appendix E

APPENDIX F

MACOUPIN COUNTY MULTI-JURISDICTIONAL ALL HAZARDS MITIGATION PLAN PUBLIC FORUM SUMMARY HANDOUT

OCTOBER 23, 2025
5:00 P.M. – 7:00 P.M.

Each year natural hazards (i.e., severe thunderstorms, tornadoes, severe winter storms, flooding, etc.) cause damage to property and threaten the lives and health of Macoupin County residents. Since 1982, Macoupin County has been included in nine emergency and major federal disaster declarations and experienced at least $27.6 million in recorded property damages and $75.4 million in recorded crop damages.

In the last 10 years alone (2014 – 2023), there have been 47 excessive heat events, 38 thunderstorms with damaging winds, 23 severe storms with hail one inch in diameter or greater, 21 extreme cold events, 16 flash flood events, 11 severe winter storms, 8 riverine flood events, 7 tornadoes, 3 verified mine subsidence events, and 2 lightning strikes with verified damages recorded in the County. While natural and man-made hazards cannot be avoided, their impacts can be reduced through effective hazard mitigation planning and implementation.

What is hazard mitigation planning?

Hazard mitigation planning is the process of determining how to reduce or eliminate property damage and loss of life from natural and man-made hazards. This process helps the County and participating jurisdictions reduce their risk by identifying vulnerabilities and developing mitigation actions to lessen and sometimes even eliminate the effects of a hazard. The results of this process are documented in an all hazards mitigation plan.

Why prepare an updated all hazards mitigation plan?

By preparing and adopting an updated all hazards mitigation plan, participating jurisdictions become or remain eligible to apply for and receive federal hazard mitigation funds to implement mitigation actions identified in the plan. These funds, made available through the Disaster Mitigation Act of 2000, can help provide local government entities with the opportunity to complete mitigation projects that would not otherwise be financially possible.

Who participated in the update of the County's All Hazards Mitigation Plan?

Recognizing the benefits that could be gained from preparing an updated all hazards mitigation plan, Macoupin County invited all the local government entities within the County to participate. The following jurisdictions chose to participate in the Plan update with the County:

- Benld, City of
- Brighton, Village of
- Brighton Betsey Ann FPD
- Brighton Township
- Bunker Hill, City of
- Bunker Hill CUSD #8
- Carlinville, City of
- Carlinville CUSD #1
- Carlinville Area Hospital
- Community Hospital of Staunton
- Eagarville, Village of
- Gillespie, Village of
- Gillespie CUSD #7
- Girard, City of
- Girard FPD
- Henderson Water District
- Jersey County Rural Water
- Medora Community FPD
- Mt. Clare, Village of
- Mt. Olive Volunteer FPD
- Nilwood, Town of
- North Mac CUSD #24
- Royal Lakes, Village of
- Southwestern CUSD #9
- Staunton, City of
- Staunton CUSD #6
- Unit 7 FPD
- Virden, City of

MACOUPIN COUNTY MULTI-JURISDICTIONAL ALL HAZARDS MITIGATION PLAN

How was the Plan update developed?

The Macoupin County Multi-Jurisdictional All Hazards Mitigation Plan update was developed through the Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee. The Committee included representatives from each participating jurisdiction, as well as input from agriculture, business and industry, economic development, education, emergency services, healthcare, social services, and utilities. The Planning Committee met five times between April 2024 and October 2025.

Which hazards are included in the Plan update?

After reviewing the risk assessment, the Planning Committee chose to include the following hazards in the Plan:

Natural Hazards

- severe storms (thunderstorms, hail, lightning & heavy rain)
- excessive heat
- floods (riverine & flash)
- severe winter storms (snow & ice)
- extreme cold
- tornadoes
- drought
- earthquakes
- mine subsidence
- dam failures

Man-Made Hazards

- hazardous substances (generation, transportation, and storage/handling)
- waste disposal
- hazardous material incidents
- waste remediation
- terrorism

What is included in the Plan update?

The Plan update is divided into sections that cover the planning process; risk assessment; jurisdiction capabilities; changes in conditions, including land use and development; mitigation strategy, including the jurisdiction-specific mitigation action lists; plan maintenance; and adoption. The majority of the Plan update is devoted to the risk assessment and mitigation strategy.

The risk assessment identifies the natural and man-made hazards that pose a threat to the County and includes a profile of each hazard, which describes the location and severity of past occurrences, reported damages to public health and property, and the likelihood of future occurrences. It also provides a vulnerability analysis that estimates the potential impacts each natural hazard would have on the health and safety of the residents of Macoupin County, as well as the buildings, critical facilities, and infrastructure in the County.

The key component of the mitigation strategy is a list of the projects and activities developed by each participating jurisdiction to reduce the potential loss of life and property damage that results from the natural hazards identified in the risk assessment. These projects and activities are intended to be implemented *before* a hazard event occurs.

What happens next?

Any comments received at today's public forum and during the public comment period will be reviewed and, where applicable, incorporated into the draft Plan update before it is submitted to the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) and the Federal Emergency Management Agency (FEMA) for review. Once IEMA-OHS and FEMA have reviewed and approved the Plan, it will be presented to the County and each participating jurisdiction for formal adoption. After adopting the Plan update, each participating jurisdiction will be eligible to apply for federal mitigation funds and can begin implementing the mitigation actions identified in the Plan.

APPENDIX G

MACOUPIN COUNTY MULTI-JURISDICTIONAL ALL HAZARDS MITIGATION PLAN

COMMENT SHEET

PLAN COMMENT PERIOD
OCTOBER 23, 2025 THRU NOVEMBER 6, 2025

The County's Multi-Jurisdictional All Hazards Mitigation Plan evaluates damage to life and property from the natural and man-made hazards that occur in the County. This Plan also identifies projects and activities for the County and each participating jurisdiction that will help reduce these damages. This comment sheet should be used to provide feedback on the draft Plan update.

What comments, concerns, or questions do you have regarding the draft Plan update?
(Use additional sheets if necessary.)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Please Print Your Name, Address, and Phone Number Below:

Name: _____ Phone: _____

Address: _____

_____ Zip Code: _____

Comments will be accepted through November 6, 2025

Place
Stamp
Here

Susan Lewis, Coordinator
Macoupin County EMA
215 S. East St., Ste 2
Carlinville, IL 62626

Macoupin County Multi-Jurisdictional All Hazards Mitigation Plan Comment Survey

The Macoupin County Multi-Jurisdictional All Hazards Mitigation Plan evaluates damage to life and property from the natural and man-made hazards that occur in the County. This Plan also identifies projects and activities for the County and each participating jurisdiction to help reduce these damages. This comment sheet should be used to provide feedback on the draft Plan update.

An asterisk (*) denotes a question that is required for form completion.

* 1. What comments, concerns, or questions do you have regarding the draft Plan update?

* 2. Name:

3. Address:

4. City/Village/Town:

5. State/Province:

6. Zip Code:

* 7. Email Address:

8. Phone Number:

Comments will be accepted through November 6, 2025.

Done

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Appendix G

APPENDIX H

Macoupin County Emergency Management Agency

Susan M. Lewis
Coordinator

Scott Rodgers
Deputy Coordinator

Subject: Macoupin County Hazardous Mitigation Planning Meeting

Date: October 9, 2025

Good morning.

Macoupin County is updating its countywide All Hazards Mitigation Plan. Since we share common boundaries, you are invited to review our draft Plan and provide comments during the public comment period, which runs from October 23 through November 6, 2025. Starting October 23, the Plan, along with a summary sheet and a comment survey, can be viewed on the Macoupin County webpage.

A public forum is scheduled for **Thursday, October 23, 2025, from 5p.m. to 7 p.m. at the Carlinville Moose Lodge, 801 Pine St.**

If you have any questions, please contact me at susan.lewis@macoupincountyil.gov or my cell, 217-851-0811.

AEC, LLC, an emergency management and environmental consulting firm experienced in preparing these plans, is leading our planning process. If you have specific questions about the Plan, please contact Andrea Bostwick-Campbell, a consultant team member, at 217-585-9517 or abostwick@aecspfld.com

Susan M. Lewis
Macoupin County Emergency Management Agency/LEPC - Coordinator
Macoupin County E.T.S.B. – Associate Administrator
215 S. East St. STE 2
Carlinville, IL 62626
217/854-3135 Ext. 7
susan.lewis@macoupincountyil.gov

Bostwick, Andrea

From: Susan Lewis <susan.lewis@macoupincountyil.gov>
Sent: Thursday, October 9, 2025 11:04 AM
To: Cale Hoesman; Keith Norman; Frederick G. Patterson; Dan Hough; Phil McCarty ; Maria Ray
Cc: Bostwick, Andrea
Subject: Macoupin HMPC
Attachments: HMPG Adj County Info.pdf

Good morning.

Please see the attached information reference our HMPC meeting.

Thank you,

Susan

Susan M. Lewis
Macoupin County Emergency Management Agency/LEPC - Coordinator
Macoupin County E.T.S.B. – Associate Administrator
215 S. East St. STE 2
Carlinville, IL 62626
217/854-3135 Ext. 7
susan.lewis@macoupincountyil.gov

APPENDIX I

Assets Vulnerability Survey

Jurisdiction: Macoupin County

Prepared By: _____

Title: _____ Date: _____

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☐ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☐ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☐ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☑ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☐ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☐ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☑ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Recent excessive rainfall caused flooding washing out roadways & culverts making roads impassable.

mine subsidence causing damage to roadways

Assets Vulnerability Survey

Jurisdiction: Macoupin CO
Prepared By: Aaron Bisnop
Title: Administrator Date: 11-14-24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- [X] Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- [X] Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- [X] Some tower sites do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- [ ] Streets within the community flood during heavy rain events adversely impacting travel.
- [ ] The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- [X] Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- [ ] Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- [X] Tower Sites has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- [X] Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- [X] Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- [ ] Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [ ] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [x] Some tower sites do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [ ] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [ ] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [ ] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [x] Unincorporated parts of the County are not covered by storm warning sirens.
- [ ] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [ ] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [ ] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- [X] During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- [ ] Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- [X] Some towersites do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- [X] Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [X] Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- [ ] The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- [ ] Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- [X] Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- [ ] Severe winter storms create challenges for critical worker travel.
- [ ] Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☒ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☒ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☒ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

  _____
- ☐ Other (please specify): _____

  _____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☒ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Macoupin County Public Health Department/Macoupin County Public Transit
Prepared By: Derrek Tiburzi
Title: Director of Environmental Health, Transportation, and Emergency Response Date: 11/14/2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☒ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☒ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☒ Glenwood Assisted Living Facility - Staunton, Southbawn Shelter Care - Bunker Hill do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☒ Streets within the community flood during heavy rain events adversely impacting travel.
- ☒ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☒ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☒ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☒ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☒ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☒ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☒ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☒ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☒ Glenwood Supportive Living Facility-Staunton, South Lawn Shelter Care -Bunker Hill do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☒ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☒ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☒ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☒ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☒ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☒ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☒ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☒ Glenwood Supportive Living Facility -Staunton South Lawn Shelter Care -Bunker Hill do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☒ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☒ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☒ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☒ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☒ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☒ Severe winter storms create challenges for critical worker travel.
- ☒ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children. - During normal business hours, we can meet this. We would have to adjust when after hours
- ☒ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☒ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☒ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☒ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- [x] The community does not have any designated warming centers to protect residents, especially the elderly and young children. Same event as "Extreme Heat"
- [x] The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- [x] Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- [ ] Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- [ ] Other (please specify): _____

_____

Drought

- [x] The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- [x] The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☒ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☒ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☒ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☒ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☒ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☒ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☒ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☒ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Downed power lines from natural disasters cause power outages at LTC Facilities. Effected communications.

Assets Vulnerability Survey

Jurisdiction: Macoupin County
Prepared By: _____
Title: Supr. of Asmts Date: 11-14-2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☒ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☒ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☒ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☒ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☒ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☒ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☒ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☒ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☒ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☒ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☒ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☒ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☒ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☒ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☒ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☒ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☒ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☒ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☒ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☒ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☒ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☒ Severe winter storms create challenges for critical worker travel.
- ☒ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☒ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☒ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☒ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☒ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☒ Flooding can close roads and impact the District's ability to transport students safely.
- ☒ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☒ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☒ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☒ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☒ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☒ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☒ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☒ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☒ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☒ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- [X] Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- [X] Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- [ ] Other (please specify): Mine subsidence can potentially damage roadways, impacting travel
- [ ] Other (please specify): _____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☒ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Tornadoes, mine subsidence have damaged homes and other structures

Assets Vulnerability Survey

Jurisdiction: City of Benld

Prepared By: Dustin Fletcher

Title: Alderman Date: 8/15/25

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☐ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☐ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☑ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☐ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☐ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☑ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☐ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☐ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☐ Severe winter storms create challenges for critical worker travel.
- ☐ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☐ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

mine subsidence damaged sewer,water and drainage

Assets Vulnerability Survey

Jurisdiction: Village of Brighton
Prepared By: Matthew P. Kasten
Title: Mayor Date: 8/14/25

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- [x] Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- [x] Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- [x] Streets within the community flood during heavy rain events adversely impacting travel.
- [x] Center street & Belvedere subdivision The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- [x] Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- [ ] Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- [ ] _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- [x] Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- [x] Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- [ ] Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [ ] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [x] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado. More so in the County versus the Village
- [x] Unincorporated parts of the County are not covered by storm warning sirens.
- [ ] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [ ] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [x] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- [x] During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- [x] Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- [x] Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- [x] The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- [x] Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- [x] Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- [x] Severe winter storms create challenges for critical worker travel.
- [x] Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☒ Other (please specify): Access to portable A/C units for the elderly and low income would be nice if made more readily available,

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☒ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☒ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☒ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times. Mainly some county Roads
- ☐ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☒ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☒ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☒ Other (please specify): Water is supplied from IL American water Co, we have not had any drought related issues in the past.

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☐ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's abilty to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☒ Other (please specify): there is a 25-40% chance of a 6.0 or greater earthquake in the Brighton area due to being in the area (150 mile fault zone) to the New madrid Seismic zone and Wabash Valley Seismic zone.

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): N/A

☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☒ Other (please specify): low Risk but Brighton is susceptible to mine subsidence due to underground mining. There were several small scale local mines operating in the Brighton Quadrangle as early as 1868.

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☒ Yes ☐ No

If yes, describe the type(s) of damage sustained.

2024 (spring) Straight line winds took out several power poles North of Brighton which caused an extended period of time without power to the village of Brighton.

Assets Vulnerability Survey

Jurisdiction: Brighton Betsey Ann FPD
Prepared By: Jeff Jorden
Title: Asst Chief Date: 11/14/24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☒ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☒ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☐ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☐ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [ ] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [ ] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [ ] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [x] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [ ] Unincorporated parts of the County are not covered by storm warning sirens.
- [ ] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [ ] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [ ] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☒ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☒ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☒ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☒ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☐ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☐ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☐ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☒ Severe winter storms create challenges for critical worker travel.
- ☐ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☐ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☐ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☒ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☒ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Brighton Township
Prepared By: John Scets
Title: Road Commissinor Date: 11-14-24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ The Town Ship Buildings do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [x] Town Ship Buildings do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [ ] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [x] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [x] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [ ] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [ ] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [x] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☐ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☑ Township Buildings do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☑ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☐ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: City of Bunker Hill, IL
Prepared By: Carlos Arzuagas
Title: Alderman / ESDA Coordinator Date: 10/28/2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ Shelter Care Facility do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☑ Shelter Care Facility do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☐ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☐ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☑ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☑ Shelter Care Facility do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☐ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☑ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☐ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☐ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Bunker Hill CUSD # 8
Prepared By: Todd Duncan
Title: Superintendent Date: 11/14/2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☒ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☒ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☒ Bunker Hill CUSD #8 schools do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☒ Streets within the community flood during heavy rain events adversely impacting travel.
- ☒ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☒ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☒ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☒ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☒ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [x] BH8 Schools do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [x] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [ ] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [x] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [ ] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [ ] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☐ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☐ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ BHS Schools do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☐ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☐ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☐ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☐ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☐ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☐ Severe winter storms create challenges for critical worker travel.
- ☐ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☒ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☒ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☒ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☒ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☒ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☒ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☒ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☒ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☒ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☒ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☒ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☒ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☒ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☒ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Meissner School has now been vacant for 15 years. Full of asbestos, lead paint, + mold. It continues to decay at an accelerating rate with multiple breaks - Inside is not only a blight, but a community hazard.

Assets Vulnerability Survey

Jurisdiction: Carlinville
Prepared By: Brad Ambul
Title: EMA Coord Date: 3/1/25

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☑ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☑ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☑ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☑ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☑ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☑ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Carlinville Area Hospital & Clinics
Prepared By: Tyler Link
Title: Emergency Preparedness Coordinator Date: 11/14/24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☐ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ Offsite Rural Health Clinics do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☐ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☐ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☑ Offsite Rural Health Clinics do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☐ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☐ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☐ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☒ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☐ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☑ Offsite Rural Health Clinics do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☐ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☐ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☒ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☒ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☒ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Carlinville CUSD#1
Prepared By: Becky Schuchman
Title: Superintendent Date: 02/20/2025

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ Carlinville Schools do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☑ Radio Repeaters has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☑ Carlinville Schools do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☑ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☑ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☑ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
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- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☑ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☑ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☑ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☑ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☑ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Community Hospital of Staunton
Prepared By: Larry Spour
Title: President Date: 11-14-2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☐ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☐ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☑ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☑ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☑ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☑ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☑ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.

☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: VILLAGE OF EAGARVILLE
Prepared By: JOSH DIXON
Title: TRUSTEE Date: 11/14/24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ SEWER LIFT STATIONS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☐ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☑ SEWER LIFT STATIONS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☑ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☑ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☑ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☐ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☑ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☑ SEWER LEFT STATIONS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☐ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: City of Gillespie
Prepared By: Robert Fentz Jr
Title: Alderman Date: 11-14-2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☐ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☒ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☒ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☒ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☒ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☒ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☒ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☒ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☒ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☒ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☒ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☐ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☒ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☒ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☑ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☐ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☒ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☒ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☒ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

- ☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.
- ☑ Other (please specify): Gillespie Sewld, Wilsonville Dorchester Mt. Clare, Greenville would Lose Water Source (& Rural)
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.

☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Power lines - during Tornado of 2013
Power lines - Ice Storms

Assets Vulnerability Survey

Jurisdiction: Gillespie CUSD #7
Prepared By: Brian Page / Shane Cuzly
Title: Maintenance Director / Superintendent Date: 11-14-24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☒ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☒ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☒ Ben Gil Elementary, GHS, GMS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☒ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☒ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☒ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☒ Ben Gil Elementary has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☒ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☒ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☒ Other (please specify): mine subsidence - building (GMS (GHS)

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [x] BES | GMS | GHS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [x] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [ ] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [x] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [x] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- [x] During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- [x] Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- [x] BES/GMS/GHS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- [x] Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- [x] The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- [x] Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- [x] Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- [x] Severe winter storms create challenges for critical worker travel.
- [x] Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- [x] The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- [x] The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- [x] None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- [x] During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- [ ] Other (please specify): _____

_____

Floods (riverine & flash)

- [x] The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- [x] The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- [ ] Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- [x] Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- [x] Flooding can close roads and impact the District's ability to transport students safely.
- [x] Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☒ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☒ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☒ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☒ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☒ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☒ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☒ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☒ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☒ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☒ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- [x] Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- [x] Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- [x] Other (please specify): has the potential to damage GMS/GHS.
- [ ] Other (please specify): _____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☒ Yes ☐ No

If yes, describe the type(s) of damage sustained.

- District lost a school building to mine subsidence
- District had buildings damaged by straight line winds, storms and tornadoes.

Assets Vulnerability Survey

Jurisdiction: City of Girard
Prepared By: Todd Hatalla
Title: _____ Date: 12-14-24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☒ Lift station sewer do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☒ Streets within the community flood during heavy rain events adversely impacting travel.
- ☒ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☒ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☒ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☒ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [x] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [ ] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [ ] Unincorporated parts of the County are not covered by storm warning sirens.
- [ ] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [x] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [x] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☑ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☒ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☒ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☑ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☑ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☒ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- [x] Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- [x] Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- [x] Other (please specify): _____

_____

- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Girard Fire Protection District
Prepared By: Craig Bridges
Title: Asst. Chief Date: 02/20/2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ medical facility do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☑ Communication Towers has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☑ Other (please specify): Water Supply- Sanitary Systems- Severe storms have damaged the main firehouse roof several times

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☑ local medical facility do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☑ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☑ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☑ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☑ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☑ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☑ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☑ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☑ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☑ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☑ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☑ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☑ Other (please specify): dam failure would render the water treatment plant useless

☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Communication devices and towers struck by lightning, The main station has been damaged by tornadic winds and flooding rain.

Most recently the roof was heavily damaged and the communication room and and file storage area flooded.

Assets Vulnerability Survey

Jurisdiction: Henderson Water District
Prepared By: Tim Walter
Title: Operator Date: 11-14-24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☐ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☒ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☒ Henderson's Pump Station do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☒ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☒ Henderson Coops Mound Tower has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☒ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☒ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [x] Henderson do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [ ] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [ ] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [ ] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [ ] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [ ] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- [x] During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- [x] Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- [x] Henderson do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- [x] Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [ ] Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- [ ] The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- [x] Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- [x] Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- [x] Severe winter storms create challenges for critical worker travel.
- [x] Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☑ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☑ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☐ Flooding can close roads and impact the District's ability to transport students safely.
- ☑ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☑ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☑ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☑ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☑ Other (please specify): Otter Lake + Lake Lou Yager or Litchfield Lake

☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

~~Antenna~~ ~~Tank~~ Lightning Strikes Coops Mound Tower

Assets Vulnerability Survey

Jurisdiction: Jersey County Rural Water Company
Prepared By: Greg Bates
Title: Manager Date: 7-22-25

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- [x] Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- [x] Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- [ ] Streets within the community flood during heavy rain events adversely impacting travel.
- [ ] The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- [x] Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- [x] Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- [ ] _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- [x] Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- [x] Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s). SCADA System
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [ ] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [ ] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [ ] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [x] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [ ] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- [x] During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- [x] Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- [x] Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- [ ] The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- [x] Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- [x] Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- [x] Severe winter storms create challenges for critical worker travel.
- [x] Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☒ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☒ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☒ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☒ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☐ Flooding can close roads and impact the District's ability to transport students safely.
- ☒ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☒ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☒ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☒ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☒ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☒ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☒ Other (please specify): CAUSE MAIN BREAKS, TOWER FAILURE

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☒ Yes ☐ No

If yes, describe the type(s) of damage sustained.

FLOOD DAMAGE EXCESSIVE RAIN ~~WASHING~~ WASHING OUT RURAL MAINS

Assets Vulnerability Survey

Jurisdiction: Medora Community Fire Protection District
Prepared By: Rodney Milner
Title: Fire Chief Date: 2/2/2025

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☐ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☑ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☐ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☑ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Village of Mt Clare
Prepared By: Jerry Rondi
Title: Mayor Date: 11-14-24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- [x] Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- [x] Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- [x] Village Hall + Sewer lift stations do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- [ ] Streets within the community flood during heavy rain events adversely impacting travel.
- [x] The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- [ ] Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- [ ] Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- [ ] _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- [x] Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- [x] Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- [x] Other (please specify): Nursing home, Grocery store, Convenience store.

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [x] Village Hall, Sewer lift stations do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [x] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [x] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [ ] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [x] NA A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [x] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- [x] During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- [x] Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- [x] Village Hall, Sewer lift stations do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- [x] Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- [x] The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- [x] Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- [x] Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- [ ] Severe winter storms create challenges for critical worker travel.
- [x] Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- [ ] Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- [x] The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- [x] The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- [ ] None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- [ ] During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- [ ] Other (please specify): _____

Floods (riverine & flash)

- [ ] The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- [x] The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- [ ] Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- [ ] Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- [ ] Flooding can close roads and impact the District's ability to transport students safely.
- [ ] Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- [ ] Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- [x] The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- [x] The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- [x] Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- [ ] Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- [ ] Other (please specify): _____

Drought

- [x] The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- [x] The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- [ ] Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☒ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☒ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☒ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☒ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- [x] Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- [x] Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- [ ] Other (please specify): _____
- [ ] Other (please specify): _____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☒ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Mine Subsidence caused ruptured main water line to be replaced.

Assets Vulnerability Survey

Jurisdiction: Volunteer Mt. Olive Fire Protection District
Prepared By: Donnie A Nowell
Title: Fire Chief Date: Feb 26, 2025

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☑ Other (please specify): Creeks in rural areas have flooded the roadway during significant rain events making the road impassable. At night the traveling public is unable to see the hazard and have been swept off the road.

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☑ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☑ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☑ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☑ Other (please specify): In the event of stranded motorists on I-55 the jurisdiction does not have emergency shelter with generator backup nor the personnel to staff it.

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☑ Other (please specify): Staffing to operate a facility is critical

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☑ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☑ Other (please specify): A city owned lake is currently left with the overflow open due to damage to the dam.

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☑ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.

☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

2013- Tornado struck and damaged Mt. Olive Fire Station. Same tornado struck and destroyed the Mt. Olive Police station rendering it out of service and had to be torn down and replaced.

Early 2000's an ice storm struck the area causing widespread power outages for multiple days.

Calls for stranded and trapped motorist as well as EMS calls were conducted using the police department's surplus Humvee.

This vehicle has since became inoperable and is no longer available.

Assets Vulnerability Survey

Jurisdiction: Village of Nilwood
Prepared By: John Gudgel
Title: Trustee Date: 1-10-2025

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- [x] Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- [x] Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- [x] Streets within the community flood during heavy rain events adversely impacting travel.
- [ ] The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- [x] Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- [ ] Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- [ ] _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- [ ] Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- [ ] Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- [x] Other (please specify): Lack of street name signs & poles greatly impact ER & Ambulances during storms

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [ ] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [x] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [x] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [ ] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [ ] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [ ] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [x] Other (please specify): Lack of Street name signs impact ER, Police, Ambulances finding those hurt in Village

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- [x] During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- [ ] Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- [x] Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- [ ] The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- [x] Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- [x] Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- [x] Severe winter storms create challenges for critical worker travel.
- [x] Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- [x] Other (please specify): Lack of Street Name signs make it more dangerous for those needing Key services

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- [x] The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- [ ] The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- [ ] None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- [ ] During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- [ ] Other (please specify): _____

_____

Floods (riverine & flash)

- [ ] The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- [ ] The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- [x] Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- [x] Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- [x] Flooding can close roads and impact the District's ability to transport students safely.
- [ ] Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☒ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☒ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☒ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☒ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☐ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- [x] Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- [x] Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- [x] Other (please specify): Whole village is above old coal mine from 1919
- [ ] Other (please specify): _____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☒ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Straight line winds - buildings & home destroyed & damaged

Flooding from clogged culverts, plus main street floods affecting travel & homes

Assets Vulnerability Survey

Jurisdiction: North Mac CUSD #34
Prepared By: Kyle M. Hacke
Title: Superintendent Date: 12/19/2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☐ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☐ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☐ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☐ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☐ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☐ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☐ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☐ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☐ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☐ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☐ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☐ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☐ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☐ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☐ Severe winter storms create challenges for critical worker travel.
- ☐ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☐ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☐ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☐ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☐ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Village of Royal Lakes
Prepared By: Parkeoka Haddlestone
Title: Mayor Date: 3-3-25

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☐ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☐ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☐ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [ ] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [ ] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [ ] _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [x] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [x] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [ ] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [ ] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [ ] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [ ] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☐ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☐ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☑ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☐ Severe winter storms create challenges for critical worker travel.
- ☐ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- [x] The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- [x] The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- [x] None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- [ ] During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- [ ] Other (please specify): _____

_____

Floods (riverine & flash)

- [ ] The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- [x] The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- [x] Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- [x] Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- [ ] Flooding can close roads and impact the District's ability to transport students safely.
- [x] Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- [x] The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- [x] The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- [x] Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- [ ] Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- [ ] Other (please specify): _____

_____

Drought

- [x] The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- [x] The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☐ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☐ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☐ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Southwestern CUSD 9
Prepared By: Kevin E. Bowman
Title: Superintendent Date: 12/19/2024

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ Brighton, Shipman, Medora, and HS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☐ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☐ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☐ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☑ Brighton, Shipman, Medora and HS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☐ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☑ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☑ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☑ Brighton, Shipman, Medora and HS do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☐ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☐ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Severe spring storm in 2024 - 2 different tornadoes downed power lines on 267 and blocked the highway.

Assets Vulnerability Survey

Jurisdiction: City of Staunton
Prepared By: Mike Kuethe
Title: Public Works Director Date: 1/9/2025

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☑ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☐ _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☐ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☐ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☐ Unincorporated parts of the County are not covered by storm warning sirens.
- ☐ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☐ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☐ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☐ _____ do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☐ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

_____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☑ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☐ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☐ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☑ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.

☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☐ Yes ☑ No

If yes, describe the type(s) of damage sustained.

Assets Vulnerability Survey

Jurisdiction: Staunton CUSD #6
Prepared By: Brett Allen
Title: Superintendent Date: 11/14/24

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- * ☑ Staunton CUSD #6 do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☑ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders. -Bus travel
- ☑ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☑ Staunton CUSD #6 has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☑ Other (please specify): Heavy rain has caused flooding in and around the school district campus. (Locker Room / Main Entrance / Parking Lots)

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [x] Staunton CUSD #6 do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [x] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [ ] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [x] Unincorporated parts of the County are not covered by storm warning sirens.
- [ ] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [x] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☑ Staunton CUSD #6 do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☐ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☐ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☑ Other (please specify): No backup generator at Staunton CUSD #6.

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☑ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☐ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☑ Other (please specify): The Staunton School District does not have a backup generator.

Drought

- ☐ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☐ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- [x] An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- [x] The community's water transmission mains are vulnerable to the impacts of earthquakes.
- [x] An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- [x] Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- [ ] An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☐ Other (please specify): _____

_____

- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

- Lightning Strike damaged multiple pieces of equipment

- Tornado/Strong Winds downed power poles/transformers on school property.

Assets Vulnerability Survey

Jurisdiction: Unit 7 Fire Protection District
Prepared By: Tyler Link
Title: Captain Date: 8/11/25

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why?
(Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- [x] Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- [x] Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- [x] Dorchester Firehouse do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- [x] Streets within the community flood during heavy rain events adversely impacting travel.
- [x] The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- [x] Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- [x] Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- [ ] _____ has been struck by lightning causing significant damage and rendering it inoperable, which increases vulnerability for residents.
- [x] Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- [x] Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- [ ] Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- [x] Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- [x] Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- [x] Dorchester Firehouse do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- [x] If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- [x] Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- [ ] There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- [x] Unincorporated parts of the County are not covered by storm warning sirens.
- [x] None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- [x] Tornadoes have the potential to damage the community's water tower impacting service to residents.
- [x] Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- [x] A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- [ ] Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- [x] During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- [x] Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- [x] Dorchester Firehouse do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- [x] Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- [x] Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- [x] The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- [x] Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- [x] Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- [x] Severe winter storms create challenges for critical worker travel.
- [x] Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- [x] The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- [x] The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- [x] None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- [x] During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- [ ] Other (please specify): _____

_____

Floods (riverine & flash)

- [ ] The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- [ ] The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- [x] Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- [x] Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- [x] Flooding can close roads and impact the District's ability to transport students safely.
- [ ] Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☑ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☑ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☑ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☑ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☐ Other (please specify): _____

_____

☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- [x] Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- [x] Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- [ ] Other (please specify): _____

_____

- [ ] Other (please specify): _____

_____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

School, Roadways

Affected by Severe Storms, Tornados, Flooding, Snow/ICE, Mine Subsidence

Assets Vulnerability Survey

Jurisdiction: Virden, City of

Prepared By: George Murphy

Title: Mayor Date: 8/14/2025

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Storms (thunderstorms with damaging winds, hail, lightning, & heavy rains)

- ☑ Thunderstorms with damaging winds can cause tree limbs and debris to block roadways, impacting travel and delaying emergency response times.
- ☑ Severe storms with damaging winds have downed power and communication lines impacting service to critical facilities and infrastructure as well as residents.
- ☑ Most businesses and residences do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe storms.
- ☑ Streets within the community flood during heavy rain events adversely impacting travel.
- ☐ The sanitary sewer system is vulnerable to water infiltration during heavy rain events, which can overwhelm the system and lead to backups.
- ☐ Rural gravel roads are prone to washouts during heavy rain events, which impacts travel and response times of emergency responders.
- ☐ Heavy rain events have washed out roads and culverts causing imminent danger to the traveling public and potential long-term road closures.
- ☑ Internet services, cell towers ~~has~~ have been struck by lightning causing significant damage and rendering ~~it~~ them inoperable, which increases vulnerability for residents.
- ☑ Lightning strikes have the ability to render communication and computer equipment inoperable impacting critical systems.
- ☑ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the school(s).
- ☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Tornadoes

- ☑ Tornadoes have the ability to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Utility poles and lines have the potential to be damaged during tornadoes, which can cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Tornadoes have the potential to disrupt emergency communication systems within the community, impacting emergency response services.
- ☑ Many businesses and residences do not have emergency backup generators and therefore are vulnerable to potential power losses caused by tornadoes.
- ☑ If a tornado were to touch down in the community, residents, including students at the school, would be vulnerable because there are no community safe rooms to shelter in.
- ☑ Residents, especially the those who reside in manufactured housing units, are vulnerable to injury during a tornado because there are no community safe rooms within the jurisdiction.
- ☐ There are no storm warning sirens in the jurisdiction to alert residents of an impending tornado.
- ☑ Unincorporated parts of the County are not covered by storm warning sirens.
- ☑ None of the community's critical facilities or infrastructure systems have been hardened to withstand tornadoes.
- ☐ Tornadoes have the potential to damage the community's water tower impacting service to residents.
- ☑ Radio towers have the potential to be damaged by tornadoes. The loss of communications would limit the ability to quickly respond to emergency calls following an event.
- ☑ A tornado has the potential to disrupt power to the Medical Center impacting patient care.
- ☐ Park patrons are vulnerable to tornadoes because the District does not have the equipment to notify individuals of incoming events.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Severe Winter Storms (snow & ice)

- ☑ During severe winter storms, ice and high winds can down power lines and cause power outages that affect critical facilities, communications, and service to residents.
- ☑ Severe winter storms have the potential to cause power loss to key facilities and infrastructure, which would impact service to residents.
- ☑ Many businesses and residences do not have emergency backup generators and therefore are vulnerable to potential power losses caused by severe winter storms.
- ☑ Ice storms have the potential to down trees and tree branches impacting power lines and blocking roadways impeding travel and access of emergency responders.
- ☑ Severe winter storms have the potential to impede travel of emergency responders, especially on rural roads.
- ☑ The jurisdiction is in need of additional designated emergency shelter to protect residents, especially elderly, unhoused, and low income individuals, during severe winter storms.
- ☑ Heavy snowstorms and blowing and drifting snow make it difficult to clear the jurisdiction roads immediately, which can limit residential travel and emergency response times.
- ☑ Roads and bridges covered with ice from severe winter storms cause accidents and impact emergency response times.
- ☑ Severe winter storms create challenges for critical worker travel.
- ☑ Electrical transmission and communication lines are vulnerable to damage from severe winter storms and ice storms.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Excessive Heat

- ☑ The community does not have any designated cooling centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional cooling centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ None of the designated cooling centers have backup generators that would allow them to remain operational if power was lost during an excessive heat event.
- ☑ During excessive heat events, brownouts and blackouts can impact power to critical facilities affecting services to residents.
- ☐ Other (please specify): _____

Floods (riverine & flash)

- ☐ The community's drinking water facility is located in the base floodplain and vulnerable to flooding.
- ☐ The community's wastewater system is vulnerable to water infiltration during flood events, which can overwhelm the system and lead to backups.
- ☐ Recent flood events have caused overtopping and washouts of roadways and culverts in the jurisdiction.
- ☑ Roadways in the jurisdiction flood causing adverse travel and delays in emergency response times.
- ☑ Flooding can close roads and impact the District's ability to transport students safely.
- ☐ Major flood events can damage the levees within the jurisdiction adversely impacting their ability to protect the people and infrastructure located behind them.
- ☑ Other (please specify): Riverine floods are unlikely; flash floods do occur.

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Extreme Cold

- ☑ The community does not have any designated warming centers to protect residents, especially the elderly and young children.
- ☑ The community is in need of additional warming centers to protect residents, especially elderly, unhoused, and low income individuals.
- ☑ Extreme cold events have the potential to cause water line and main breaks impacting service to residents.
- ☐ Electrical substation equipment has failed during extreme cold events impacting service to residents and critical infrastructure.
- ☐ Other (please specify): _____

_____

Drought

- ☑ The community obtains its drinking water from a surface water source. A prolonged drought has the ability to disrupt service to residents.
- ☑ The community's drinking water supply is at risk to a prolonged drought, potentially impacting the jurisdiction's ability to fight fires.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Earthquakes

- ☐ An earthquake can cause damage to bridges, which would render them unusable and impact travel as well as limit access to certain locations.
- ☑ The community's water transmission mains are vulnerable to the impacts of earthquakes.
- ☐ An earthquake has the potential to disrupt the water table under the community, impacting drinking water service to residents.
- ☑ Earthquakes have the potential to impact radio towers serving the community. The loss of communications would limit the community's ability to quickly respond to emergency calls following an event.
- ☐ An earthquake could damage the liners of the landfill and cause potential leaks damaging the lines to the gas and leachate wells.
- ☐ Other (please specify): _____

_____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Dam Failures

☐ If a dam failure occurs, the water surge would inundate downstream communities causing substantial damage to critical facilities and systems.

☑ Other (please specify): There are no dams near in or near our jurisdiction.

☐ Other (please specify): _____

Assets Vulnerability Survey

What asset(s) do you feel are vulnerable to natural hazards in your jurisdiction and why? (Please check the statements that you feel apply to your jurisdiction and complete/add statements to fit your situation.)

Mine Subsidence

- ☑ Mine subsidence has the potential to damage portions of the community, impacting vital services to residents such as drinking water and sanitary waste disposal.
- ☑ Mine subsidence has the potential to damage the community's water transmission lines, impacting service all residents.
- ☑ Other (please specify): Mine subsidence may cause structural damage.
- ☐ Other (please specify): _____

Assets Vulnerability Survey

Have any structures or systems in your jurisdiction been damaged by a natural hazard event? (i.e., critical facilities, infrastructure, community lifelines, electrical or communications networks, etc.)

☑ Yes ☐ No

If yes, describe the type(s) of damage sustained.

Most recent would be lightning damage to water meter transmission system.

APPENDIX J

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/20/1970	3:20 p.m.	Scottville^	n/a	n/a	n/a	n/a	n/a	
03/14/1971	9:10 p.m.	Scottville^	n/a	n/a	n/a	n/a	n/a	
11/15/1973	4:45 a.m.	Carlinville	n/a	n/a	n/a	n/a	n/a	
04/18/1975	6:10 p.m.	Scottville	56 kts	n/a	n/a	n/a	n/a	
03/26/1976	10:30 p.m.	Carlinville	n/a	n/a	n/a	n/a	n/a	
03/28/1977	10:13 a.m.	Palmyra	n/a	n/a	n/a	n/a	n/a	
04/07/1980	11:15 p.m.	Shipman	n/a	n/a	n/a	n/a	n/a	
07/05/1980	2:00 a.m.	Medora	n/a	n/a	n/a	n/a	n/a	-a falling tree crushed a pickup truck -cemetery tombstones were also damaged by falling trees
09/16/1980	5:00 p.m.	Royal Lakes Carlinville^	n/a	n/a	n/a	n/a	n/a	*Royal Lakes* -2 mobile homes were destroyed and 5 were overturned -power failures occurred
06/07/1982	9:00 a.m.	Carlinville	n/a	n/a	n/a	n/a	n/a	
08/05/1983	4:05 p.m.	Bunker Hill	n/a	n/a	n/a	n/a	n/a	
04/29/1984	7:10 p.m.	Carlinville^	50 kts	n/a	n/a	n/a	n/a	
04/29/1984	8:00 p.m.	Carlinville^	n/a	n/a	n/a	n/a	n/a	
04/23/1985	5:00 p.m.	Gillespie	52 kts	n/a	n/a	n/a	n/a	
07/28/1986	1:15 a.m.	Carlinville	n/a	n/a	n/a	n/a	n/a	
07/06/1987	3:00 p.m.	Womac^	56 kts	n/a	n/a	n/a	n/a	
07/09/1987	5:21 p.m.	Carlinville	70 kts	n/a	n/a	n/a	n/a	
05/08/1988	5:15 p.m.	Mt. Olive	n/a	n/a	n/a	n/a	n/a	
10/17/1988	11:00 a.m.	Gillespie	n/a	n/a	n/a	n/a	n/a	

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/25/1989	12:35 a.m.	Girard	n/a	2	0	$70,000	n/a	Oak Leaf Country Club -the new bridge sustained tree damage -2 individuals (the Country Club's caretakers) sustained minor injuries when their mobile home was overturned and destroyed by straight-line winds Girard area -a two-story brick home sustained major structural damage when its roof was momentarily lifted -a 25-foot section of hedge row was uprooted -two small animal outbuildings were flattened Girard -winds blew out the block foundation of a garage -windows were shattered in a home -the roof of a mobile home was damaged -a central air conditioning unit was moved at another home -Barrett Park playground equipment was damaged by fallen trees -a 40-foot refrigerated van was overturned
05/25/1989	1:25 p.m.	Girard	n/a	0	0	n/a	n/a	a 12' x 30' section of roof was stripped down to the rafters at the Girard Fire House
05/25/1990	9:50 p.m.	Carlinville	n/a	n/a	n/a	n/a	n/a	
12/14/1990	10:30 p.m.	Carlinville^	n/a	n/a	n/a	n/a	n/a	
10/04/1991	6:37 p.m.	Carlinville	n/a	n/a	n/a	n/a	n/a	
07/02/1992	4:10 p.m.	Bunker Hill	n/a	n/a	n/a	n/a	n/a	
07/02/1992	4:50 p.m.	Palmyra	n/a	n/a	n/a	n/a	n/a	
07/02/1992	5:54 p.m.	Carlinville	n/a	n/a	n/a	n/a	n/a	
07/02/1992	7:30 p.m.	Brighton	52 kts	n/a	n/a	n/a	n/a	

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
07/02/1992	7:50 p.m.	Carlinville	n/a	n/a	n/a	n/a	n/a	
07/02/1992	8:10 p.m.	Gillespie	n/a	n/a	n/a	n/a	n/a	
07/11/1992	7:50 p.m.	Shipman^	n/a	n/a	n/a	n/a	n/a	
06/16/1994	6:15 p.m.	Mt. Olive	n/a	n/a	n/a	n/a	n/a	winds blew down numerous power lines and several trees
06/23/1994	5:40 p.m.	Staunton	n/a	n/a	n/a	n/a	n/a	winds blew down a large tree as well as some tree limbs
11/20/1994	7:10 p.m.	Beaver Dam State Park	n/a	n/a	n/a	$900	n/a	- large trees were downed - a sign was damaged
06/08/1995	6:25 a.m.	Brighton	52 kts	n/a	n/a	n/a	n/a	winds broke off numerous tree limbs
06/08/1995	6:38 a.m.	Brighton	65 kts	n/a	n/a	$3,500	n/a	- a tree fell and completely demolished a bandstand - wind gust knocked down numerous trees, power poles and power lines
06/08/1995	6:45 a.m.	Girard	65 kts	n/a	n/a	$400	n/a	wind gust knocked down numerous trees, power poles and power lines
06/08/1995	6:58 a.m.	Mt. Olive	65 kts	n/a	n/a	$3,300	n/a	- wind gust knocked down numerous trees, power poles and power lines - a tractor-trailer was blown off the road along Interstate 55
06/20/1995	7:00 p.m.	Girard^	n/a	n/a	n/a	$12,500	n/a	- five to six homes were damaged - power lines were blown down
07/25/1995	8:15 p.m.	Palmyra	n/a	n/a	n/a	$200	n/a	large trees were blown down
07/25/1995	8:45 p.m.	Womac	n/a	n/a	n/a	$200	n/a	large trees were blown down
05/08/1996	11:55 a.m.	Virden	45 kts	n/a	n/a	$15,000	n/a	wind gust blew 2 mobile homes off their foundations in the Whispering Pines Mobile Home Park
04/30/1997	1:30 p.m.	Medora^	52 kts	n/a	n/a	n/a	n/a	winds damaged a few outbuildings
03/27/1998	6:00 p.m.	Chesterfield^	55 kts	n/a	n/a	n/a	n/a	wind gusts destroyed a storage building and blew part of the roof off a barn

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
04/13/1998	6:30 p.m.	Girard	68 kts	n/a	n/a	$20,000	n/a	- a microburst caused damage in a six to eight block area of the City - power lines were downed - swing sets were toppled - fallen trees and limbs caused damage to several homes and vehicles
05/22/1998	3:25 a.m.	Carlinville	55 kts	n/a	n/a	n/a	n/a	wind gusts downed trees and some power lines
05/22/1998	3:30 a.m.	Gillespie	56 kts	n/a	n/a	n/a	n/a	wind gusts downed trees and some power lines
05/22/1998	3:45 a.m.	Staunton	56 kts	n/a	n/a	n/a	n/a	wind gusts downed trees and some power lines
05/22/1998	8:15 a.m.	Carlinville	55 kts	n/a	n/a	n/a	n/a	winds downed a few trees, some large limbs and a few power lines
05/22/1998	8:15 a.m.	Palmyra	55 kts	n/a	n/a	n/a	n/a	winds downed a few trees, some large limbs and a few power lines
06/12/1998	4:05 p.m.	Brighton	52 kts	n/a	n/a	n/a	n/a	winds downed trees and some power lines
06/12/1998	4:08 p.m.	Bunker Hill	52 kts	n/a	n/a	n/a	n/a	winds downed trees and some power lines
06/18/1998	7:55 p.m.	Girard	51 kts	n/a	n/a	n/a	n/a	
06/18/1998	8:16 p.m.	Girard	53 kts	n/a	n/a	n/a	n/a	wind gusts downed some power lines
07/22/1998	4:30 p.m.	Atwater	56 kts	n/a	n/a	n/a	n/a	wind gust damaged trees and outbuildings
11/10/1998	4:36 a.m.	Carlinville	56 kts	n/a	n/a	n/a	n/a	wind gusts downed trees and power lines blocking a few roads
11/10/1998	4:45 a.m.	Nilwood	58 kts	n/a	n/a	$50,000	n/a	winds damaged a grain elevator, some mobile homes, outbuildings and the roof of the Town Hall
06/01/1999	6:45 p.m.	Bunker Hill	60 kts	n/a	n/a	n/a	n/a	wind gusts downed some trees
08/23/1999	7:25 p.m.	Palmyra	55 kts	n/a	n/a	n/a	n/a	wind gusts downed some power lines
04/20/2000	4:25 a.m.	Modesto	50 kts	n/a	n/a	n/a	n/a	debris picked up by wind gusts broke some windows at a home
06/20/2000	8:45 p.m.	Staunton	52 kts	n/a	n/a	n/a	n/a	winds downed power lines
06/23/2000	5:53 p.m.	Virden	56 kts	n/a	n/a	n/a	n/a	winds downed trees and power lines
06/24/2000	2:15 p.m.	Carlinville	56 kts	n/a	n/a	n/a	n/a	winds downed power lines on the north side of the City

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
07/05/2000	4:25 p.m.	Carlinville^	52 kts	n/a	n/a	n/a	n/a	the local power company reported power lines down just west of the City
07/18/2000	7:20 p.m.	Bunker Hill	51 kts	n/a	n/a	n/a	n/a	
08/07/2000	7:00 p.m.	Brighton^	51 kts	n/a	n/a	n/a	n/a	winds downed a large tree
08/22/2000	8:50 p.m.	Modesto^	55 kts	n/a	n/a	n/a	n/a	winds blew down numerous trees and power lines
08/22/2000	9:00 p.m.	Virden	55 kts	n/a	n/a	n/a	n/a	- winds blew down numerous trees and power lines - one was damaged by a downed tree - a grain bin was blown about 700 feet
08/23/2000	10:50 p.m.	Bunker Hill	55 kts	n/a	n/a	n/a	n/a	winds downed large trees
09/09/2001	3:20 p.m.	Shipman	55 kts	n/a	n/a	n/a	n/a	- wind gusts downed an estimated 30 trees and some power lines - virtually all of the Town was without power for a while
09/06/2001	3:30 p.m.	Bunker Hill	55 kts	n/a	n/a	n/a	n/a	- wind gusts downed some trees - minor roof damage was reported
09/06/2001	4:00 p.m.	Carlinville	55 kts	n/a	n/a	n/a	n/a	wind gust downed some trees and power lines
10/24/2001	12:05 p.m.	Bunker Hill	51 kts	n/a	n/a	n/a	n/a	
10/24/2001	12:20 p.m.	Benld^	55 kts	n/a	n/a	n/a	n/a	winds damaged signs along Interstate 55
10/24/2001	12:23 p.m.	Mt. Olive	55 kts	n/a	n/a	n/a	n/a	winds downed trees and power lines
04/19/2002	5:45 p.m.	Chesterfield^	52 kts	n/a	n/a	n/a	n/a	winds severely damaged a barn and downed trees northeast of the Village
04/19/2002	6:10 p.m.	Carlinville^	52 kts	n/a	n/a	n/a	n/a	a home was damaged by a downed tree west of the City
04/19/2002	6:20 p.m.	Eagarville^	52 kts	n/a	n/a	n/a	n/a	winds downed power poles and lines
06/11/2002	3:10 p.m.	Carlinville	60 kts	n/a	n/a	n/a	n/a	winds downed trees and several billboards
06/11/2002	3:15 p.m.	Womac^	55 kts	n/a	n/a	n/a	n/a	
06/11/2002	3:15 p.m.	Brighton	55 kts	n/a	n/a	n/a	n/a	winds downed trees
05/18/2004	3:05 p.m.	Bunker Hill	55 kts	n/a	n/a	n/a	n/a	wind gusts downed some trees and power lines

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/24/2004	11:00 p.m.	Scottville^	60 kts	n/a	n/a	n/a	n/a	- the roof of a barn was blown off - a grain bin was destroyed
05/24/2004	11:05 p.m.	Modesto	60 kts	n/a	n/a	n/a	n/a	- 16 power poles were downed, with lines across IL Rte. 111 - several trees were downed blocking roads in the Village
05/24/2004	11:05 p.m.	Modesto^	60 kts	n/a	n/a	n/a	n/a	
05/24/2004	11:30 p.m.	Staunton	55 kts	n/a	n/a	n/a	n/a	downed trees and power lines blocked IL Rte. 4 in the City
05/24/2004	11:30 p.m.	Virden	55 kts	n/a	n/a	n/a	n/a	a tree was blown onto a house
05/27/2004	4:52 p.m.	Shipman	55 kts	n/a	n/a	n/a	n/a	winds downed several power lines
05/30/2004	5:00 p.m.	Bunker Hill	55 kts	n/a	n/a	n/a	n/a	- winds downed some trees and large tree limbs - a pickup truck was damaged by a large tree limb
05/31/2004	6:52 p.m.	Modesto	55 kts	n/a	n/a	n/a	n/a	the roof was blown off a shed
05/31/2004	6:55 p.m.	Modesto^	55 kts	n/a	n/a	n/a	n/a	a large utility building was destroyed
05/31/2004	7:00 p.m.	Nilwood^	55 kts	n/a	n/a	n/a	n/a	a machine shed was destroyed northwest of the Town
05/31/2004	7:00 p.m.	Virden^	55 kts	n/a	n/a	n/a	n/a	winds downed power lines south of the City
05/31/2004	7:01 p.m.	Gillespie	55 kts	n/a	n/a	n/a	n/a	winds downed power lines
07/05/2004	9:05 a.m.	Brighton	52 kts	n/a	n/a	n/a	n/a	winds downed a large tree
08/25/2004	5:20 p.m.	Plainview^	55 kts	n/a	n/a	n/a	n/a	10 trees were damaged at a home with some pushed over and others with large branches broken
08/25/2004	5:25 p.m.	Gillespie^	55 kts	n/a	n/a	n/a	n/a	winds pushed over soybeans in a field
06/08/2005	3:00 p.m.	Medora	54 kts	n/a	n/a	n/a	n/a	- half of the roof shingles on the Post Office were blown off - the roof a home along IL Rte. 111 was damaged - a tree limb crashed through the window of a home - a large bay door at H&H Auto was blown in a semi-trailer was blown over in a parking lot
06/08/2005	3:20 p.m.	Sawyerville	54 kts	n/a	n/a	n/a	n/a	winds damaged the roof of the Post Office

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Table 1
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1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/10/2005	3:15 p.m.	Gillespie	55 kts	n/a	n/a	n/a	n/a	- wind gust toppled the concession stand and crow's nest at the High School football field - some tree and large tree limbs took out power lines resulting in half the town losing power for several hours
06/13/2005	5:00 p.m.	Bunker Hill	60 kts	n/a	n/a	n/a	n/a	winds downed trees, power lines and blew shingles off of roofs
06/13/2005	5:05 p.m.	Wilsonville^	60 kts	n/a	n/a	n/a	n/a	winds downed trees and crops west of the Village
06/13/2005	5:15 p.m.	Benld	55 kts	n/a	n/a	n/a	n/a	winds downed trees, power lines and caused minor roof damage
08/13/2005	4:05 p.m.	Bunker Hill	55 kts	n/a	n/a	n/a	n/a	winds downed large tree limbs and power lines
08/13/2005	4:10 p.m.	Benld	55 kts	n/a	n/a	n/a	n/a	winds downed large tree limbs and power lines
09/19/2005	6:25 p.m.	Nilwood	57 kts	n/a	n/a	n/a	n/a	winds downed several large trees
04/02/2006	4:20 p.m.	Medora^	55 kts	n/a	n/a	n/a	n/a	a couple of mobile homes were damaged and outbuildings destroyed near the Village
04/02/2006	4:21 p.m.	Brighton	55 kts	n/a	n/a	n/a	n/a	winds downed some power poles and a couple of large trees
05/24/2006	2:55 p.m.	Virden^	61 kts	n/a	n/a	n/a	n/a	- a microburst occurred east of the City along Thomasville Road - the roof of a barn and one home were partially blown off and one machine shed was damaged - numerous trees were either blown over or had numerous limbs broken
05/24/2006	4:05 p.m.	Shipman^	52 kts	n/a	n/a	n/a	n/a	several trees were blown down on Shipman Road northeast of town

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1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/22/2006	4:55 p.m.	Staunton	55 kts	0	0	n/a	n/a	- winds damaged 50 to 100 trees - 4 to 6 homes sustained some kind of structural damage due to the fallen trees and tree limbs - several power lines were blown down leaving 60 to 80 homes without power for a time
07/19/2006	5:20 p.m.	Medora^	55 kts	n/a	n/a	n/a	n/a	- numerous trees and tree limbs were blown down - several corn field were damaged Ameren (regional information, including Macoupin County): some customers were without power for up to 12 days; 1,014 poles were replaced
07/19/2006	5:25 p.m.	Carlinville	55 kts	n/a	n/a	n/a	n/a	winds blew down numerous tree limbs and power lines
07/19/2006	5:35 p.m.	Bunker Hill^	80 kts	n/a	n/a	n/a	n/a	a full-sized pickup truck was blown into a ditch
07/19/2006	5:40 p.m.	Brighton	52 kts	n/a	n/a	n/a	n/a	several trees and power lines were blown down
07/19/2006	5:45 p.m.	Bunker Hill	77 kts	n/a	n/a	n/a	n/a	numerous trees and tree limbs were blown down
06/01/2007	6:55 p.m.	Bunker Hill^	56 kts	n/a	n/a	n/a	n/a	a couple of power poles were reported down southeast of the City
08/16/2007	10:25 a.m.	Womac^	52 kts	n/a	n/a	n/a	n/a	numerous tree limbs were blown down
01/07/2008	6:35 p.m.	Modesto	52 kts	n/a	n/a	n/a	n/a	- numerous large tree limbs were blown down around the Village - several power lines were blown down, a few of which blocked IL Rte. 111 for a time
05/02/2008	8:20 a.m.	Staunton	56 kts	n/a	n/a	$50,000	n/a	- wind gusts downed large tree limbs, a few power lines and blew roof shingles off homes - a garage at a new home under construction was blown apart - a few cars suffered minor damage from falling tree limbs
05/31/2008	6:50 p.m.	Wilsonville	52 kts	n/a	n/a	$10,000	n/a	winds took the roof off a machine shed and tore some roof shingles and siding off a home

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1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/27/2008	1:20 p.m.	Mt. Clare Mt. Clare^ Gillespie^ Gillespie	56 kts	n/a	n/a	n/a	n/a	wind blew down several trees and numerous tree limbs *Mt. Clare/Gillespie* winds blew down several power lines and power poles
06/27/2008	1:45 p.m.	Carlinville	56 kts	n/a	n/a	n/a	n/a	winds blew down several trees, numerous tree limbs and power lines
07/12/2008	3:10 p.m.	Carlinville	52 kts	n/a	n/a	n/a	n/a	-numerous tree limbs were blown down -a 55-foot tree was blown over crashing through a fence and into a backyard - several power lines were blown down
08/05/2008	5:35 p.m.	Piasa^ Shipman^ Woodburn^	65 kts	n/a	n/a	n/a	n/a	a microburst occurred just south of Shipman - numerous trees, tree limbs and power lines were blown down - a barn door blew off Ameren (regional information, including Macoupin County): 33,000 customers were without power for up to 5 days; 96 wires downed; 112 poles replaced; 34 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 734 Ameren personnel responded to the event.

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Table 1
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1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
08/05/2008	5:40 p.m.	Woodburn^ Bunker Hill Bunker Hill^ Staunton^	65 kts	n/a	n/a	n/a	n/a	a microburst occurred just south of Bunker Hill -numerous trees, tree limbs and power lines were blown down -small outbuildings and barns sustained minor damage *Bunker Hill area* -3 of 4 roofs were torn off the relatively new dugouts at the High School baseball fields -a house was damaged by a fallen tree south of Bunker Hill *Woodburn* a mobile home was damaged by two fallen trees southwest of Woodburn
08/05/2008	5:45 p.m.	Gillespie Eagarville^ Mt. Clare^ Benld^ Lake Ka-Ho^ Mt. Olive	61 kts	n/a	n/a	n/a	n/a	numerous trees, tree limbs and power lines were blown down *Gillespie* a large tree fell onto a house causing moderate damage
12/27/2008	12:30 p.m.	Girard	61 kts	n/a	n/a	$10,000	n/a	- winds blew down numerous large tree limbs with a few falling onto homes causing minor roof damage - part of the roof of a mobile home was blown off - an old barn was destroyed and 2 grain bins were damaged - Macoupin County EMA Coordinator identified $10,000 in damages sustained by this event
03/08/2009	10:30 a.m.	Comer^ Carlinville^	52 kts	n/a	n/a	n/a	n/a	numerous power poles were blown down along Bates Rd. & Lampie Rd.

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Table 1
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1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
03/08/2009	10:35 a.m.	Standard City^ Nilwood^ McVey^	56 kts	n/a	n/a	n/a	n/a	- several outbuildings and grain bins were destroyed west of Standard City - several power poles were snapped off along Standard City Rd. - 3 empty rail cars were blown off the train tracks north of Standard City - several small outbuildings were damaged or destroyed and power lines were downed near McVey winds blew down a large tree at the intersection of Boston Chapel Rd. and Waggoner Rd.
05/13/2009	10:40 p.m.	Gillespie	70 kts	n/a	n/a	n/a	n/a	a downburst wind swath caused widespread damage through the center of the City, directly south of an EF0 tornado track - numerous building had roof damage - many trees were blown over or snapped off - the Mayor confirmed the types of damages sustained
06/02/2009	2:35 p.m.	Carlinville	52 kts	n/a	n/a	n/a	n/a	winds blew down a small shed
06/19/2009	4:35 p.m.	Woodburn^	52 kts	n/a	n/a	n/a	n/a	several large tree limbs were blown down
08/19/2009	2:25 p.m.	Girard	52 kts	n/a	n/a	n/a	n/a	numerous large tree limbs and power lines were blown down through the City
05/03/2010	4:24 p.m.	Bunker Hill^ Dorchester^	52 kts	n/a	n/a	n/a	n/a	- winds blew down 15 power poles onto IL Rte. 159 just north of Mansholt Rd. closing the road for approx. 12 hours while the poles were replaced - power poles were blown down north of IL Rte. 138 on Whitefield Rd.
06/02/2010	1:15 a.m.	Brighton	52 kts	n/a	n/a	n/a	n/a	winds blew down several trees

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Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
07/19/2010	11:40 a.m.	Standard City^	65 kts	n/a	n/a	n/a	n/a	- winds destroyed an 80 by 60 foot pole shed near the intersection of 2400N & 1900E - debris from the shed took down power lines and became lodged in a home just east of the shed
04/15/2011	3:44 p.m.	Girard	52 kts	n/a	n/a	n/a	n/a	winds blew down a very large tree limb which landed on a house causing minor roof and siding damage
04/19/2011	4:57 p.m.	Nilwood^	56 kts	n/a	n/a	n/a	n/a	***This event is part of a state disaster proclamation*** - winds blew the roofs off 2 sheds - several pieces of wood from the sheds were sticking out of the mud in a nearby corn field
04/19/2011	5:00 p.m.	Virden	52 kts	n/a	n/a	n/a	n/a	***This event is part of a state disaster proclamation*** - winds blew down several large tree limbs - a barn on Union St. had its roof blown off - North Mac High School sustained minor roof and water damage Ameren (regional information, including Macoupin County): 112,000 customers were without power for up to 5 days; 1,463 wires downed; 626 poles replaced; 459 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 1,901 Ameren personnel responded to the event.
04/19/2011	5:35 p.m.	Shipman	52 kts	n/a	n/a	n/a	n/a	***This event is part of a state disaster proclamation***
04/19/2011	5:40 p.m.	Plainview	56 kts	n/a	n/a	n/a	n/a	***This event is part of a state disaster proclamation*** winds blew down a large tree

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/23/2011	12:10 p.m.	Staunton^	56 kts	1	0	n/a	n/a	***This event is part of a state disaster proclamation*** - winds blew over a semi in the north bound lanes of Interstate 55 just south of the Staunton; the semi ended up in a ditch about 50 feet from the highway - the driver sustained minor injuries Ameren (regional information, including Macoupin County): 107,000 customers were without power for up to 4 days; 1,055 wires downed; 165 poles replaced; 637 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 1,448 Ameren personnel responded to the event.
06/17/2011	11:45 p.m.	Modesto^	52 kts	n/a	n/a	n/a	n/a	winds blew down numerous tree limbs
09/03/2011	5:15 p.m.	Staunton	56 kts	n/a	n/a	n/a	n/a	-wind blew down several tree limbs and power lines part of the roof of a barn was blown off
02/29/2012	2:35 a.m.	Womac^	56 kts	n/a	n/a	n/a	n/a	winds caused minor roof damage and blew down a couple of small sheds
09/05/2012	7:05 a.m.	Girard Girard^ Nilwood^ Nilwood	56 kts	n/a	n/a	n/a	n/a	*Girard* winds blew down several trees *Nilwood* winds snapped a power pole off at its base knocking out power to the town
09/05/2012	7:45 a.m.	Staunton	56 kts	n/a	n/a	n/a	n/a	winds blew down several trees
04/10/2013	3:12 p.m.	Woodburn^	52 kts	n/a	n/a	n/a	n/a	winds snapped off the tops of a couple of trees along Brighton Bunker Hill Rd.
04/10/2013	7:15 p.m.	Brighton	56 kts	n/a	n/a	n/a	n/a	winds uprooted a six-foot tall spruce tree and knocked a few shingles off of a nearby house

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
04/10/2013	7:28 p.m.	Royal Lakes^	65 kts	n/a	n/a	n/a	n/a	winds blew down a couple of two-foot diameter trees next to IL Rte. 159
04/10/2013	7:35 p.m.	Benld	61 kts	n/a	n/a	n/a	n/a	winds blew an anchored 10 x 10 foot metal shed approx. 300 feet
05/20/2013	8:32 p.m.	Plainview Shipman^ Woodburn^	50 kts	n/a	n/a	n/a	n/a	winds blew down several large tree limbs Ameren (regional information, including Macoupin County): 35,117 customers were without power for up to 2 days; 403 wires downed; 66 poles replaced; 211 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 629 Ameren personnel responded to the event.
05/20/2013	9:10 p.m.	Staunton	61 kts	n/a	n/a	n/a	n/a	- winds blew off the decorative steel portion of the roof of a grocery store causing minor leaks into the store - winds blew down several trees and power lines around the City
05/20/2013	9:10 p.m.	Dorchester	61 kts	n/a	n/a	n/a	n/a	winds snapped off a two-foot diameter tree at its base
05/20/2013	9:12 p.m.	Mt. Olive	91 kts	n/a	n/a	n/a	n/a	- winds caused minor damage to the fire station roof - a small shed behind the fire station was destroyed - several large trees were uprooted and a couple other were snapped off - a small ham radio tower behind a house was bent

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/30/2013	6:45 p.m.	Girard Girard^	56 kts	n/a	n/a	n/a	n/a	winds blew down several large trees along Emmerson Airline Rd. Ameren (regional information, including Macoupin County): 73,611 customers were without power for up to 4 days; 735 wires downed; 278 poles replaced; 425 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 1,285 Ameren personnel responded to the event.
05/31/2013	7:58 p.m.	Virden Virden^	78 kts	n/a	n/a	n/a	n/a	- numerous tress and tree limbs were blown down - an outbuilding on the west side of Virden had part of its roof blown off
11/17/2013	11:03 a.m.	Virden	61 kts	n/a	n/a	n/a	n/a	
06/04/2014	4:41 a.m.	Piasa	56 kts	n/a	n/a	n/a	n/a	several large trees were blown over onto IL Rte. 16
10/02/2014	9:55 a.m.	Palmyra	52 kts	n/a	n/a	n/a	n/a	winds blew down 3 power poles on IL Rte. 111
04/09/2015	5:55 p.m.	Brighton Woodburn Bunker Hill Dorchester Wilsonville Gillespie Eagarville Mt. Clare Benld Staunton	56 kts	n/a	n/a	n/a	n/a	*Brighton* winds blew down power lines *Benld/Staunton areas* winds downed several trees
07/11/2015	3:01 p.m.	Scottville^ Modesto^	52 kts	n/a	n/a	n/a	n/a	winds blew down several power lines onto Modesto-Scottville Rd.

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
07/13/2015	6:35 p.m.	Modesto Palmyra Girard Standard City Carlinville Hornsby^	56 kts	n/a	n/a	n/a	n/a	*Modesto* numerous trees, tree limbs and power lines were blown down *Palmyra* numerous trees, tree limbs and power lines were blown down *Girard* numerous trees, tree limbs and power lines were blown down *Carlinville* numerous trees, tree limbs and power lines were blown down a retirement home and an apartment building sustained minor to moderate roof damage
05/07/2016	3:30 p.m.	Carlinville Beaver Dam State Park Plainview Shipman	56 kts	n/a	n/a	n/a	n/a	winds blew down several large trees
05/07/2016	3:38 p.m.	Gillespie	56 kts	n/a	n/a	n/a	n/a	- winds blew down several large trees and tree limbs - a few shingles were blown off the roof of a house
07/13/2016	2:48 p.m.	Modesto	52 kts	n/a	n/a	n/a	n/a	winds blew down several power lines
07/13/2016	2:50 p.m.	Hettick	52 kts	n/a	n/a	n/a	n/a	winds blew down several power lines
07/13/2016	2:55 p.m.	Chesterfield Chesterfield^ Carlinville^ Carlinville	56 kts	n/a	n/a	n/a	n/a	winds blew down several large trees, numerous tree limbs and power lines in the area

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
03/07/2017	12:45 a.m.	Bunker Hill Bunker Hill^	61 kts	n/a	n/a	n/a	n/a	*Bunker Hill* winds took shingles off of roofs, knocked over fences and snapped a few small trees *Bunker Hill area* some sheet metal was torn off a couple of barns
03/07/2017	12:52 a.m.	Staunton Staunton^	52 kts	n/a	n/a	n/a	n/a	*Staunton* winds blew the awning off a business Ameren (regional information, including Macoupin County): 53,000 customers were without power for up to 1 day; 52 wires downed; 187 poles replaced; 36 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 902 Ameren personnel responded to the event.
04/29/2017	3:08 p.m.	Brighton Brighton^ Piasa Medora^ Medora	56 kts	n/a	n/a	n/a	n/a	*Brighton/Medora area* winds blew down several trees and power lines, as well as numerous tree limbs
04/29/2017	3:55 p.m.	Virden	50 kts	n/a	n/a	n/a	n/a	
05/19/2017	4:47 a.m.	Shipman	56 kts	n/a	n/a	n/a	n/a	
05/19/2017	5:06 a.m.	Nilwood^	61 kts	n/a	n/a	n/a	n/a	two storage sheds (80’ x 30’ each) were destroyed
06/14/2017	12:15 p.m.	Staunton	56 kts	n/a	n/a	n/a	n/a	winds blew down several large trees as well as power lines

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
07/23/2017	2:30 a.m.	Brighton	56 kts	n/a	n/a	n/a	n/a	winds blew down numerous large trees around the Village Ameren (regional information, including Macoupin County): 40,021 customers were without power for up to 2 days; 410 wires downed; 160 poles replaced; 454 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 1,391 Ameren personnel responded to the event.
05/14/2018	5:35 PM	Bunker Hill	52 kts	n/a	n/a	n/a	n/a	Several power lines were blown down in Bunker Hill.
06/11/2018	4:55 PM	Shipman	52 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down several large tree limbs.
06/28/2018	4:23 PM	Carlinville	52 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down a tree onto Illinois Route 4 on southeast side of town.
07/01/2018	5:10 PM	Staunton	56 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down several large tree limbs down around town. One large tree limb fell onto a house causing minor damage.
07/14/2018	3:43 PM	Bunker Hill Gillespie East Gillespie^ Dorchester Mt. Clare^	65 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down numerous trees and power lines between Bunker Hill and Gillespie. One tree was blown down onto Illinois Route 16 in Gillespie.
05/23/2019	12:52 AM	White City Mount Olive Benld^	61 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down a tree between Benld and White City. In Mt. Olive, a power pole was snapped off. Ameren (regional information, including Macoupin County): 24,836 customers were without power for up to 2.5 days; 286 wires downed; 80 poles replaced; 25 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 315 Ameren personnel responded to the event.

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/21/2019	11:06 AM	Nilwood^ Nilwood Atwater Standard City^	61 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down several large trees. Just northwest of Nilwood, an 18 to 24 inch diameter tree was snapped off at the base. In Atwater, a mature pine tree was uprooted.
05/25/2020	5:37 PM	Virden	61 kts	n/a	n/a	n/a	n/a	Thunderstorm winds uprooted a large tree in Virden. As it fell it clipped a house causing moderate damage. The tree was about 3 feet in diameter.
07/21/2020	2:48 PM	Modesto Modesto^ Virden	61 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down several trees in Modesto and Virden. Near Modesto a couple of sheds were damaged.
05/27/2021	11:44 AM	Brighton^	61 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down several large trees about 3 miles southeast of Miles Station. One large tree fell onto a pole barn causing moderate damage. The tree also knocked a gas meter off of the house.
12/10/2021	8:33 PM	Bunker Hill Bunker Hill^ Staunton^	61 kts	n/a	n/a	n/a	n/a	***This event was part of a federal emergency declaration (Declaration #3577)*** Thunderstorm winds blew down a large tree onto Illinois Route 159 about a mile south of Bunker Hill. Several power lines were blown down onto School House Road east of intersection with Dorchester Road.
03/05/2022	11:20 PM	Gillespie East Gillespie	56 kts	n/a	n/a	$5,000	n/a	Thunderstorm winds blew down numerous large tree limbs around town. One very large limb briefly blocked a road in town.
06/12/2022	9:00 AM	Modesto^ Nilwood^ Girard^	61 kts	n/a	n/a	$20,000	n/a	Thunderstorm winds numerous trees blown down west of Girard in the Otter Lake area.

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/12/2022	9:25 AM	Standard City^	65 kts	n/a	n/a	$50,000	n/a	Widespread wind damage between Womac and Honey Bend. Multiple small to medium sized trees snapped off. Also, several trees were uprooted near the intersection of Kirkland and Sumpter Roads. One large tree was blown down blocking Illinois Route 108 near intersection with Standard City Road. On Barnett Road, several power poles were blown down between Leefers Road and South Atwater Road. An unoccupied camper was blown over at a house on Illinois Route 108 near intersection with South Atwater Road. A machine shed was destroyed on Dickey Road with the debris blown approximately a quarter of a mile to the east southeast. No deaths or injuries were reported.
06/17/2022	3:49 AM	countywide	61 kts	n/a	n/a	$50,000	n/a	Widespread wind damage across the county. In Shipman and Bunker Hill, numerous large tree limbs as well as several large trees were blown down. In Carlinville, two power poles were snapped off at the base and a large tree was blown over onto a house causing moderate roof damage. About 3 miles west of Girard, multiple mature trees were snapped off near the base, another one was uprooted and a power pole was blown over. A couple of large trees were blown over in Staunton. Ameren (regional information, including Macoupin County): 53,905 customers were without power for up to 2.5 days; 220 wires downed; 115 poles replaced; 42 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 1,344 Ameren personnel responded to the event.

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Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Macoupin County
1970 - 2023

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
02/22/2023	2:30 PM	White City Mount Olive^	61 kts	n/a	n/a	$10,000	n/a	Thunderstorm winds blew down several large trees as well as numerous tree limbs around town.
06/29/2023	11:10 AM	Modesto^ Modesto Girard^ Girard Virden	61 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down numerous trees, tree limbs and several power lines across the northern portions of Macoupin County. In Virden, live power lines were blown down across a residence. Ameren (regional information, including Macoupin County): 181,668 customers were without power for up to 6 days; 3,129 Ameren personnel responded to the event.
06/29/2023	11:36 AM	East Gillespie^ Gillespie^	52 kts	n/a	n/a	n/a	n/a	
07/16/2023	2:36 PM	Wilsonville^	52 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down several large tree limbs.
07/20/2023	9:00 AM	Staunton	56 kts	n/a	n/a	n/a	n/a	Thunderstorm winds blew down several large tree limbs around town.
GRAND TOTAL:				**3**	**0**	**$381,000**	**$0**	

Source: Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Data.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

^ Thunderstorms with damaging winds verified in the vicinity of this location(s).

Table 2
Severe Storms - Hail Events Reported in Macoupin County
1980 - 2023

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/28/1980	6:25 p.m.	Staunton	1.75 in.	n/a	n/a	n/a	n/a	
04/27/1984	1:38 p.m.	Bunker Hill	1.00 in.	n/a	n/a	n/a	n/a	
04/27/1984	1:40 p.m.	Gillespie	1.75 in.	n/a	n/a	n/a	n/a	
07/10/1986	2:05 p.m.	Staunton	1.25 in.	n/a	n/a	n/a	n/a	
07/06/1987	3:40 p.m.	Womac^	1.50 in.	n/a	n/a	n/a	n/a	
05/25/1989	11:32 a.m.	Carlinville	1.75 in.	n/a	n/a	n/a	n/a	
05/25/1989	12:53 p.m.	Carlinville	2.50 in.	6	0	$1,000,000	n/a	*Event Description Provided Below*
- 99% of the city had some type of damage - windows were broken by hail and high winds all over the city - trees and scrubs were uprooted & power lines were downed - several buildings on the square received structural damage including: 150-year old Loomis House sustained the most damage with a 10-foot gaping hole on the 4th floor; a large, ½ inch thick picture window at the House of Beauty shattered leaving glass everywhere and causing water damage to the store's contents; Office Store Co. sustained broken windows, with debris inside the store - 130-foot tall evergreen trees were uprooted around the city square and the flag pole was bent						- approximately 55 windows, some stained glass, were destroyed on the west side of the Courthouse - the glass door on the west side of Starr's Market shattered - South School had approximately 50 broken windows on the west side of the building as well as minor water damage to the interior of the school - about a dozen windows at the high school were also broken - trees fell on homes and vehicles - hail punched holes in siding and ripped siding off homes and garages - a mobile home was damaged by a fallen tree - heavy rains accompanying the storm flooded North Broad with water standing 20 feet on both side of the curbs		
06/16/1994	6:29 p.m.	Womac	1.75 in.	n/a	n/a	n/a	n/a	
05/09/1995	5:15 p.m.	Carlinville	1.75 in.	n/a	n/a	n/a	n/a	
07/19/1996	7:37 p.m.	Virden	2.75 in.	n/a	n/a	n/a	n/a	
05/01/1998	4:50 p.m.	Carlinville	1.00 in.	n/a	n/a	n/a	n/a	
05/12/1998	7:06 p.m.	Modesto	1.75 in.	n/a	n/a	n/a	n/a	
05/12/1998	7:11 p.m.	Palmyra	1.25 in.	n/a	n/a	n/a	n/a	

^ Hail event verified in the vicinity of this location(s).

Table 2
Severe Storms - Hail Events Reported in Macoupin County
1980 - 2023

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/12/1998	7:15 p.m.	Palmyra^	1.75 in.	n/a	n/a	n/a	n/a	
05/12/1998	10:06 p.m.	Hornsby	1.75 in.	n/a	n/a	n/a	n/a	
05/12/1998	10:16 p.m.	Bunker Hill	1.75 in.	n/a	n/a	n/a	n/a	
05/12/1998	10:20 p.m.	Bunker Hill	1.75 in.	n/a	n/a	n/a	n/a	
05/22/1998	3:30 a.m.	Mt. Olive	1.50 in.	n/a	n/a	n/a	n/a	
06/12/1998	3:44 p.m.	Bunker Hill	1.00 in.	n/a	n/a	n/a	n/a	
06/12/1998	3:50 p.m.	Bunker Hill	1.75 in.	n/a	n/a	n/a	n/a	
06/12/1998	3:56 p.m.	Brighton^	1.00 in.	n/a	n/a	n/a	n/a	
06/12/1998	4:00 p.m.	Bunker Hill	2.00 in.	n/a	n/a	n/a	n/a	
06/12/1998	4:03 p.m.	Dorchester^	1.75 in.	n/a	n/a	n/a	n/a	
06/12/1998	4:08 p.m.	Gillespie	1.75 in.	n/a	n/a	n/a	n/a	
06/14/1998	4:55 p.m.	Mt. Clare	1.00 in.	n/a	n/a	n/a	n/a	
06/14/1998	5:02 p.m.	Staunton	1.75 in.	n/a	n/a	n/a	n/a	
06/04/1999	5:10 p.m.	Bunker Hill	1.00 in.	n/a	n/a	n/a	n/a	
06/04/1999	5:46 p.m.	Bunker Hill	1.75 in.	n/a	n/a	n/a	n/a	
05/12/2000	4:00 p.m.	Medora^	1.00 in.	n/a	n/a	$160,000	n/a	numerous cars and some roofs were damaged
05/12/2000	4:05 p.m.	Brighton^	1.00 in.	n/a	n/a		n/a	
05/12/2000	4:11 p.m.	Shipman	1.00 in.	n/a	n/a		n/a	
05/12/2000	4:20 p.m.	Woodburn^	2.00 in.	n/a	n/a		n/a	
05/12/2000	4:30 p.m.	Bunker Hill^	2.00 in.	n/a	n/a		n/a	
05/18/2000	3:45 p.m.	Brighton^	1.00 in.	n/a	n/a	n/a	n/a	
07/05/2000	4:35 p.m.	Carlinville	1.00 in.	n/a	n/a	n/a	n/a	
07/05/2000	4:40 p.m.	Gillespie	1.75 in.	n/a	n/a	n/a	n/a	
07/17/2001	5:59 p.m.	Atwater	1.25 in.	n/a	n/a	n/a	n/a	
04/19/2002	5:05 p.m.	Palmyra^	1.00 in.	n/a	n/a	n/a	n/a	

^ Hail event verified in the vicinity of this location(s).

Table 2
Severe Storms - Hail Events Reported in Macoupin County
1980 - 2023

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
04/24/2002	12:59 p.m.	Scottville	1.75 in.	n/a	n/a	n/a	n/a	
04/24/2002	1:15 p.m.	Carlinville	1.75 in.	n/a	n/a	n/a	n/a	
04/24/2002	1:17 p.m.	Medora	1.75 in.	n/a	n/a	n/a	n/a	
04/24/2002	1:17 p.m.	Carlinville	1.75 in.	n/a	n/a	$1,000,000	n/a	Macoupin County EMA reported approx. 400 vehicles damaged by the hail across the County
04/24/2002	1:29 p.m.	Shipman	1.75 in.	n/a	n/a	n/a	n/a	
04/24/2002	1:39 p.m.	Gillespie	2.00 in.	n/a	n/a	$2,000,000	n/a	initial reports from local insurance companies indicated at least $2 million in damages to vehicles and roofs
04/24/2002	1:40 p.m.	Gillespie	1.25 in.	n/a	n/a	n/a	n/a	
04/24/2002	1:40 p.m.	Bunker Hill^	1.75 in.	n/a	n/a	n/a	n/a	
04/24/2002	1:42 p.m.	Gillespie	1.75 in.	n/a	n/a	n/a	n/a	
05/01/2002	12:12 p.m.	Mt. Clare	1.75 in.	n/a	n/a	n/a	n/a	
05/01/2002	12:15 p.m.	Bunker Hill^	1.75 in.	n/a	n/a	n/a	n/a	
05/01/2002	12:20 p.m.	Mt. Olive	1.75 in.	n/a	n/a	$2,000,000	n/a	roofs damaged, home siding dented, broken windows and dented vehicles
03/13/2003	12:23 a.m.	Bunker Hill^	1.75 in.	n/a	n/a	n/a	n/a	
04/04/2003	1:55 p.m.	Brighton^	1.25 in.	n/a	n/a	n/a	n/a	
04/04/2003	1:58 p.m.	Bunker Hill	1.75 in.	n/a	n/a	n/a	n/a	
04/04/2003	2:10 p.m.	Woodburn^	1.75 in.	n/a	n/a	n/a	n/a	
04/24/2003	4:25 p.m.	Scottville^	1.75 in.	n/a	n/a	n/a	n/a	
05/09/2003	6:58 p.m.	Scottville	2.00 in.	n/a	n/a	n/a	n/a	
05/09/2003	7:00 p.m.	Modesto	2.00 in.	n/a	n/a	n/a	n/a	
05/09/2003	7:30 p.m.	Palmyra	1.75 in.	n/a	n/a	n/a	n/a	
05/09/2003	7:30 p.m.	Palmyra^	1.75 in.	n/a	n/a	n/a	n/a	
05/09/2003	7:45 p.m.	Virden^	1.75 in.	n/a	n/a	n/a	n/a	

^ Hail event verified in the vicinity of this location(s).

Table 2
Severe Storms - Hail Events Reported in Macoupin County
1980 - 2023

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/09/2003	7:48 p.m.	Virden	1.25 in.	n/a	n/a	n/a	n/a	
08/02/2003	4:40 p.m.	Woodburn^	1.75 in.	n/a	n/a	n/a	n/a	
05/18/2004	2:55 p.m.	Brighton^	1.00 in.	n/a	n/a	n/a	n/a	
07/05/2004	11:18 p.m.	Bunker Hill	1.00 in.	n/a	n/a	n/a	n/a	
04/21/2005	7:35 p.m.	Carlinville^	1.75 in.	n/a	n/a	n/a	n/a	
04/21/2005	7:35 p.m.	Carlinville^	1.00 in.	n/a	n/a	n/a	n/a	
05/19/2005	9:20 p.m.	Wilsonville	1.00 in.	n/a	n/a	n/a	n/a	
06/13/2005	4:30 p.m.	Medora^	1.00 in.	n/a	n/a	n/a	n/a	
05/24/2006	2:45 p.m.	Chesterfield^	1.00 in.	n/a	n/a	n/a	n/a	
05/24/2006	4:05 p.m.	Shipman^	1.00 in.	n/a	n/a	n/a	n/a	
07/19/2006	5:50 p.m.	Bunker Hill Bunker Hill^	1.00 in.	n/a	n/a	n/a	n/a	several hundred acres of corn were damaged along and west IL Rte. 159
01/07/2008	6:35 p.m.	Palmyra Otter Lake Sunset Lake Girard	1.75 in.	n/a	n/a	n/a	n/a	
01/07/2008	6:35 p.m.	Modesto	1.00 in.	n/a	n/a	n/a	n/a	
01/07/2008	6:39 p.m.	Modesto^	1.75 in.	n/a	n/a	n/a	n/a	
05/30/2008	8:08 p.m.	Shipman^ Woodburn^	1.00 in.	n/a	n/a	n/a	n/a	
05/31/2008	6:44 p.m.	Brighton^	1.75 in.	n/a	n/a	n/a	n/a	
06/19/2008	4:40 p.m.	Bunker Hill	1.00 in.	n/a	n/a	n/a	n/a	
04/04/2010	9:45 p.m.	Standard City^	1.75 in.	n/a	n/a	n/a	n/a	
04/05/2010	2:26 p.m.	White City Mt. Olive	1.75 in.	n/a	n/a	n/a	n/a	

^ Hail event verified in the vicinity of this location(s).

Table 2
Severe Storms - Hail Events Reported in Macoupin County
1980 - 2023

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
04/24/2010	4:05 p.m.	Brighton^	1.50 in.	n/a	n/a	n/a	n/a	
05/03/2010	4:20 p.m.	Shipman	1.00 in.	n/a	n/a	n/a	n/a	
05/03/2010	4:22 p.m.	Woodburn^ Bunker Hill	1.75 in.	n/a	n/a	n/a	n/a	
04/09/2011	2:50 a.m.	Virden	1.50 in.	n/a	n/a	n/a	n/a	
04/09/2011	4:05 a.m.	Girard Girard^	1.00 in.	n/a	n/a	n/a	n/a	
04/19/2011	4:45 p.m.	Carlinville	1.25 in.	n/a	n/a	n/a	n/a	
04/19/2011	5:25 p.m.	Brighton	1.00 in.	n/a	n/a	n/a	n/a	
04/19/2011	5:45 p.m.	Dorchester	1.00 in.	n/a	n/a	n/a	n/a	
05/25/2011	2:50 p.m.	Bunker Hill^	1.50 in.	n/a	n/a	n/a	n/a	
05/25/2011	3:00 p.m.	Carlinville Carlinville^	1.50 in.	n/a	n/a	n/a	n/a	
05/28/2011	1:00 p.m.	Chesterfield	1.75 in.	n/a	n/a	n/a	n/a	
05/28/2011	1:05 p.m.	Comer^ Carlinville^	2.00 in.	n/a	n/a	n/a	n/a	
05/28/2011	1:08 p.m.	Carlinville^	1.25 in.	n/a	n/a	n/a	n/a	
05/28/2011	1:21 p.m.	Atwater	1.50 in.	n/a	n/a	n/a	n/a	
03/14/2012	5:53 p.m.	Benld Benld^ Mt. Olive Mt. Olive^	1.50 in.	n/a	n/a	n/a	n/a	
04/25/2012	10:41 p.m.	Bunker Hill^	1.75 in.	n/a	n/a	n/a	n/a	
04/28/2012	8:55 p.m.	Woodburn	1.75 in.	n/a	n/a	n/a	n/a	
05/04/2012	11:19 p.m.	Gillespie^	1.00 in.	n/a	n/a	n/a	n/a	

^ Hail event verified in the vicinity of this location(s).

Table 2
Severe Storms - Hail Events Reported in Macoupin County
1980 - 2023

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/28/2012	11:40 p.m.	Dorchester	1.00 in.	n/a	n/a	n/a	n/a	
04/10/2013	3:10 p.m.	Brighton	1.00 in.	n/a	n/a	n/a	n/a	
04/10/2013	3:30 p.m.	Brighton^ Woodburn^	1.75 in.	n/a	n/a	n/a	n/a	
04/10/2013	3:52 p.m.	Carlinville	1.00 in.	n/a	n/a	n/a	n/a	
05/20/2013	9:08 p.m.	Bunker Hill	1.00 in.	n/a	n/a	n/a	n/a	
11/17/2013	11:12 a.m.	Gillespie^	1.00 in.	n/a	n/a	n/a	n/a	
04/28/2014	3:40 p.m.	Mt. Olive	1.00 in.	n/a	n/a	n/a	n/a	
04/09/2015	5:50 p.m.	Brighton^ Shipman Royal Lakes Dorchester Gillespie East Gillespie	3.00 in.	n/a	n/a	n/a	n/a	most of the hail was between 1 and 2 inches with 3 inch hail reported in Gillespie *Shipman* wind driven 1 inch hail caused siding and window damage
04/09/2015	6:25 p.m.	Bunker Hill	1.00 in.	n/a	n/a	n/a	n/a	
06/25/2015	6:25 p.m.	Sunset Lake	1.00 in.	n/a	n/a	n/a	n/a	
03/30/2017	11:50 a.m.	Bunker Hill	1.25 in.	n/a	n/a	n/a	n/a	
04/10/2017	5:30 p.m.	Mt. Olive	1.00 in.	n/a	n/a	n/a	n/a	
09/04/2017	4:08 p.m.	Standard City^ Carlinville^	1.50 in.	n/a	n/a	n/a	n/a	
09/04/2017	4:45 p.m.	Beaver Dam State Park	1.75 in.	n/a	n/a	n/a	n/a	
09/04/2017	5:27 p.m.	Bunker Hill Bunker Hill^	2.00 in.	n/a	n/a	n/a	n/a	
05/27/2018	2:37 PM	Virden	1.25 in.	n/a	n/a	n/a	n/a	

^ Hail event verified in the vicinity of this location(s).

Table 2
Severe Storms - Hail Events Reported in Macoupin County
1980 - 2023

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
12/01/2018	4:00 PM	Lake Ka-Ho	1.75 in.	n/a	n/a	n/a	n/a	
12/01/2018	4:50 PM	Chesterfield	1.00 in.	n/a	n/a	n/a	n/a	
06/21/2020	12:48 PM	Gillespie^	1.75 in.	n/a	n/a	n/a	n/a	
03/27/2021	4:30 PM	Virden	1.00 in.	n/a	n/a	n/a	n/a	
05/03/2021	5:50 PM	Girard^	1.50 in.	n/a	n/a	n/a	n/a	
04/29/2022	6:35 PM	Hettick^	1.00 in.	n/a	n/a	n/a	n/a	
06/12/2022	8:50 AM	Modesto	1.50 in.	n/a	n/a	n/a	n/a	
06/12/2022	9:12 AM	Girard^	1.00 in.	n/a	n/a	n/a	n/a	
06/12/2022	9:25 AM	Nilwood^	2.00 in.	n/a	n/a	n/a	n/a	large hail damaged a car windshield just west of Nilwood
04/20/2023	4:43 PM	Nilwood^	1.00 in.	n/a	n/a	$1,000	n/a	
05/13/2023	2:11 PM	Shipman	1.00 in.	n/a	n/a	n/a	n/a	
07/23/2023	6:05 PM	Carlinville^	1.00 in.	n/a	n/a	n/a	n/a	
08/06/2023	7:07 PM	Staunton	1.50 in.	n/a	n/a	n/a	n/a	
GRAND TOTAL:				**6**	**0**	**$6,161,000**	**$0**	

Source: Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Data.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

^ Hail event verified in the vicinity of this location(s).

Table 3
Severe Storms - Lightning Events Reported in Macoupin County
2001 - 2023

Date(s)	Start Time	Location(s)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
04/10/2001	5:15 p.m.	Sunset Lake	n/a	1	n/a	n/a	- a 49-year old woman was struck and killed by lightning while working outside at her home - witnesses reported that the woman was planting and watering flowers and had knelt down at the edge of the lake to dip out some water when the lightning struck
07/23/2001	4:30 p.m.	Chesterfield	n/a	n/a	$100,000	n/a	a lightning strike damaged grain bins at a grain elevator
09/06/2001	4:10 p.m.	Sawyerville	n/a	1	n/a	n/a	- a man was killed by a lightning strike while working on a roof - a group of workers saw the storm approaching and climbed off the roof; unfortunately the man killed was the last man and did not make it off in time
05/18/2004	3:10 p.m.	Staunton	n/a	n/a	n/a	n/a	- a lightning strike set fire to 3 large oil tanks which contains several thousand gallons of oil - it took about 45 minutes to extinguish the fire
09/19/2005	12:30 a.m.	Chesterfield	n/a	1	n/a	n/a	-an 89-year old man died in his home from smoke inhalation due to a fire that was started by a lightning strike - the man was found in the rubble of the home which was completely destroyed by the fire
09/19/2005	8:30 p.m.	Staunton	n/a	n/a	n/a	n/a	- lightning struck a substation causing substantial damage - power was out for much of the Village until repairs could be finished
04/01/2023	n/a	Mt. Clare	n/a	n/a	n/a	n/a	lightning damaged a lift station
07/01/2023	n/a	Carlinville^	n/a	n/a	$23,003	n/a	lightning struck a Macoupin County owned ETSB tower damaging the tower, generator, and site equipment
GRAND TOTAL:			**0**	**3**	**$123,003**	**$0**	

Source: Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

^ Lightning event verified in the vicinity of this location(s).

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/11/1995 thru 07/16/1995	12:00 PM	99 °F	74 °F	120 °F	Carlinville	n/a	n/a	n/a	n/a	Many roads throughout the region buckled from the extreme heat and crops withered with the dry weather. Although there was no widespread loss of livestock, dairy cows produced less milk and cattle/swine/chickens put on less weight.
07/27/1995 thru 07/31/1995	n/a	92 °F	67 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
08/09/1995 thru 08/20/1995	n/a	94 °F	73 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	Area crops suffered greatly from the hot and dry weather
06/21/1996 thru 06/22/1996	n/a	93 °F	70 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
06/30/1996 thru 07/02/1996	n/a	92 °F	71 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/18/1996 thru 07/19/1996	n/a	93 °F	76 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
08/05/1996 thru 08/07/1996	n/a	92 °F	73 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
06/21/1997	n/a	91 °F	74 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
06/24/1997 thru 06/25/1997	n/a	93 °F	72 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/13/1997 thru 07/14/1997	n/a	97 °F	74 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/19/1997 thru 07/22/1997	n/a	97 °F	69 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/26/1997 thru 07/28/1997	n/a	99 °F	75 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
08/17/1997	n/a	96 °F	68 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
06/25/1998 thru 06/29/1998	n/a	96 °F	72 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/07/1998	n/a	92 °F	74 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/20/1998 thru 07/22/1998	n/a	97 °F	77 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
08/24/1998 thru 08/25/1998	n/a	96 °F	72 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
09/07/1998	n/a	95 °F	73 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
06/07/1999 thru 06/08/1999	n/a	92 °F	71 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/04/1999 thru 07/06/1999	n/a	94 °F	75 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/19/1999 thru 07/31/1999	n/a	100 °F	70 °F	115 °F	Carlinville	n/a	n/a	n/a	n/a	
08/17/2000	n/a	96 °F	69 °F	n/a	Virden	n/a	n/a	n/a	n/a	
08/29/2000 thru 09/03/2000	n/a	96 °F	71 °F	n/a	Virden	n/a	n/a	n/a	n/a	
09/11/2000	n/a	92 °F	73 °F	n/a	Virden	n/a	n/a	n/a	n/a	
06/18/2001 thru 06/19/2001	n/a	92 °F	70 °F	n/a	Virden	n/a	n/a	n/a	n/a	
07/07/2001 thru 07/10/2001	12:00 PM	94 °F	74 °F	110 °F	Virden	n/a	n/a	n/a	n/a	
07/17/2001	11:00 AM	93 °F	70 °F	115 °F	Virden	n/a	n/a	n/a	n/a	
07/21/2001 thru 07/25/2001	n/a	96 °F	75 °F	n/a	Virden	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/29/2001 thru 08/02/2001	11:00 AM	95 °F	71 °F	110 °F	Virden	n/a	n/a	n/a	n/a	
08/07/2001 thru 08/09/2001	12:00 AM	96 °F	71 °F	110 °F	Virden	n/a	n/a	n/a	n/a	
08/21/2001	n/a	97 °F	72 °F	110 °F	Virden	n/a	n/a	n/a	n/a	
06/01/2002 thru 06/04/2002	n/a	92 °F	72 °F	n/a	Virden	n/a	n/a	n/a	n/a	
06/21/2002 thru 06/22/2002	n/a	92 °F	73 °F	n/a	Virden	n/a	n/a	n/a	n/a	
06/29/2002 thru 07/10/2002	n/a	94 °F	71 °F	110 °F	Virden	n/a	n/a	n/a	n/a	
07/20/2002 thru 07/22/2002	11:00 AM	96 °F	74 °F	115 °F	Virden	n/a	n/a	n/a	n/a	
07/27/2002 thru 08/05/2002	n/a	94 °F	68 °F	115 °F	Virden	n/a	n/a	n/a	n/a	
08/22/2002	n/a	91 °F	75 °F	n/a	Virden	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/03/2003 thru 07/09/2003	n/a	95 °F	72 °F	n/a	Virden	n/a	n/a	n/a	n/a	
07/16/2003 thru 07/17/2003	n/a	93 °F	73 °F	n/a	Virden	n/a	n/a	n/a	n/a	
07/27/2003	n/a	91 °F	73 °F	n/a	Virden	n/a	n/a	n/a	n/a	
08/15/2003 thru 08/17/2003	12:00 PM	92 °F	72 °F	110 °F	Virden	n/a	n/a	n/a	n/a	A late summer heat wave hit the area just as most schools were opening. As a result, many schools reduced their schedule to a half day while a few closed altogether.
08/21/2003 thru 08/22/2003	n/a	98 °F	70 °F	110 °F	Virden	n/a	n/a	n/a	n/a	
08/24/2003 thru 08/28/2003	12:00 PM	96 °F	69 °F	110 °F	Virden	n/a	n/a	n/a	n/a	
07/21/2004	n/a	93 °F	76 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
06/24/2005 thru 07/01/2005	n/a	95 °F	68 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/20/2005 thru 07/26/2005	12:00 PM	98 °F	69 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
08/03/2005 thru 08/04/2005	n/a	95 °F	69 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
08/10/2005 thru 08/13/2005	n/a	97 °F	69 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
08/19/2005 thru 08/20/2005	n/a	94 °F	71 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
06/21/2006 thru 06/22/2006	n/a	92 °F	72 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/03/2006 thru 07/04/2006	n/a	94 °F	70 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/17/2006 thru 07/21/2006	12:00 PM	95 °F	66 °F	115 °F	Carlinville	n/a	n/a	n/a	n/a	
07/30/2006 thru 08/03/2006	12:00 PM	99 °F	71 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
08/07/2006	n/a	96 °F	74 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/19/2007	n/a	90 °F	75 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
08/05/2007 thru 08/10/2007	1:00 PM	96 °F	71 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	Many schools across the area went to an early dismissal schedule in order to combat the heat.
08/12/2007 thru 08/16/2007	1:00 PM	102 °F	68 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	Many schools across the area went to an early dismissal schedule in order to combat the heat.
08/22/2007 thru 08/24/2007	n/a	96 °F	71 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
08/28/2007 thru 08/29/2007	n/a	97 °F	66 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/19/2008 thru 07/21/2008	n/a	94 °F	70 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
08/04/2008 thru 08/05/2008	11:29 AM	95 °F	75 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
06/19/2009	9:51 AM	91 °F	70 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	
06/21/2009 thru 06/27/2009	11:00 AM	94 °F	67 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
08/09/2009	n/a	93 °F	74 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
06/23/2010	n/a	97 °F	63 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/14/2010	12:00 PM	92 °F	77 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	
07/17/2010	12:00 PM	93 °F	75 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	
07/22/2010 thru 07/24/2010	12:00 PM	94 °F	70 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
07/28/2010	11:13 AM	92 °F	71 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	
08/03/2010 thru 08/04/2010	10:00 AM	98 °F	73 °F	115 °F	Carlinville	n/a	n/a	n/a	n/a	
08/08/2010 thru 08/14/2010	1:00 PM	96 °F	69 °F	115 °F	Carlinville	n/a	n/a	n/a	n/a	
06/04/2011 thru 06/05/2011	n/a	95 °F	71 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
06/07/2011 thru 06/09/2011	n/a	94 °F	71 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
07/01/2011 thru 07/02/2011	12:00 PM	95 °F	73 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	
07/10/2011 thru 07/12/2011	12:00 PM	95 °F	67 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/17/2011 thru 08/03/2011	12:00 PM	98 °F	67 °F	115 °F	Carlinville	n/a	n/a	n/a	n/a	
08/07/2011	12:00 PM	92 °F	70 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	
08/24/2011	12:00 PM	97 °F	72 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
08/31/2011 thru 09/03/2011	12:00 PM	100 °F	68 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	
06/28/2012 thru 07/08/2012	12:00 PM	104 °F	66 °F	115 °F	Carlinville	n/a	n/a	n/a	n/a	
07/15/2012 thru 07/19/2012	n/a	102 °F	70 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
07/22/2012 thru 07/25/2012	12:00 PM	103 °F	76 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
07/31/2012 thru 08/04/2012	n/a	100 °F	66 °F	110 °F	Carlinville	n/a	n/a	n/a	n/a	
07/09/2013 thru 07/10/2013	n/a	92 °F	74 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/19/2013 thru 07/20/2013	n/a	94 °F	75 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
08/30/2013 thru 08/31/2013	11:00 AM	98 °F	68 °F	105 °F	Carlinville	n/a	n/a	n/a	n/a	
09/10/2013 thru 09/12/2013	n/a	95 °F	69 °F	n/a	Carlinville	n/a	n/a	n/a	n/a	
06/17/2014 thru 06/20/2014	n/a	93 °F	71 °F	n/a		n/a	n/a	n/a	n/a	
07/12/2014 thru 07/13/2014	n/a	92 °F	74 °F	n/a		n/a	n/a	n/a	n/a	
08/21/2014 thru 08/26/2014	n/a	95 °F	69 °F	110 °F		n/a	n/a	n/a	n/a	
09/05/2014	n/a	94 °F	74 °F	n/a		n/a	n/a	n/a	n/a	
07/12/2015 thru 07/13/2015	11:00 AM	94 °F	74 °F	110 °F		n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/17/2015 thru 07/19/2015	1:00 PM	94 °F	77 °F	108 °F		n/a	n/a	n/a	n/a	
07/26/2015 thru 07/29/2015	n/a	96 °F	71 °F	115 °F		n/a	n/a	n/a	n/a	
09/06/2015 thru 09/07/2016	n/a	94 °F	69 °F	n/a		n/a	n/a	n/a	n/a	
06/11/2016 thru 06/16/2016	n/a	94 °F	68 °F	n/a		n/a	n/a	n/a	n/a	
06/22/2016 thru 06/23/2016	n/a	94 °F	71 °F	n/a		n/a	n/a	n/a	n/a	
06/26/2016 thru 06/27/2016	n/a	93 °F	70 °F	n/a		n/a	n/a	n/a	n/a	
07/18/2016 thru 07/24/2016	12:00 PM	92 °F	67 °F	115 °F		n/a	n/a	n/a	n/a	
08/11/2016 thru 08/12/2016	12:00 PM	94 °F	72 °F	108 °F		n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
09/07/2016 thru 09/08/2016	n/a	92 °F	73 °F	108 °F		n/a	n/a	n/a	n/a	
06/13/2016	n/a	94 °F	74 °F	108 °F		n/a	n/a	n/a	n/a	
07/10/2017 thru 07/13/2017	n/a	96 °F	71 °F	105 °F		n/a	n/a	n/a	n/a	
07/19/2017 thru 07/23/2017	12:00 PM	97 °F	67 °F	115 °F		n/a	n/a	n/a	n/a	
07/26/2017	12:00 PM	93 °F	72 °F	107 °F		n/a	n/a	n/a	n/a	
06/15/2018 thru 06/19/2018	12:00 PM	95 °F	69 °F	105 °F		n/a	n/a	n/a	n/a	
06/28/2018 thru 07/06/2018	11:00 AM	93 °F	67 °F	115 °F		n/a	n/a	n/a	n/a	
07/14/2018	9:00 AM	89 °F	73 °F	108 °F		n/a	n/a	n/a	n/a	
08/26/2018 thru 08/28/2018	3:43 AM	92 °F	73 °F	105 °F		n/a	n/a	n/a	n/a	
09/05/2018 thru 09/07/2018	n/a	93 °F	70 °F	n/a		n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
09/20/2018 thru 09/21/2018	n/a	95 °F	71 °F	n/a		n/a	n/a	n/a	n/a	
07/10/2019	11:00 AM	95 °F	75 °F	108 °F		n/a	n/a	n/a	n/a	
07/17/2019 thru 07/21/2019	1:00 PM	93 °F	69 °F	110 °F		n/a	n/a	n/a	n/a	
08/12/2019	12:00 PM	n/a °F	n/a °F	110 °F		n/a	n/a	n/a	n/a	
07/18/2020 thru 07/19/2020	12:00 PM	92 °F	78 °F	110 °F		n/a	n/a	n/a	n/a	
07/26/2020 thru 07/27/2020	12:00 PM	91 °F	73 °F	105 °F		n/a	n/a	n/a	n/a	
08/10/2020	12:00 PM	94 °F	73 °F	105 °F		n/a	n/a	n/a	n/a	
06/12/2021 thru 06/13/2021	n/a	95 °F	70 °F	n/a		n/a	n/a	n/a	n/a	
06/18/2021	1:00 PM	97 °F	77 °F	106 °F		n/a	n/a	n/a	n/a	
07/28/2021 thru 07/29/2021	12:00 PM	90 °F	75 °F	108 °F		n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
08/10/2021 thru 08/12/2021	12:00 PM	93 °F	74 °F	112 °F		n/a	n/a	n/a	n/a	
08/24/2021 thru 08/30/2021	1:00 PM	94 °F	68 °F	110 °F		n/a	n/a	n/a	n/a	
06/12/2022 thru 06/16/2022	11:00 AM	98 °F	69 °F	108 °F		n/a	n/a	n/a	n/a	
06/21/2022	n/a	96 °F	76 °F	n/a		n/a	n/a	n/a	n/a	
06/30/2022 thru 07/01/2022	n/a	93 °F	73 °F	n/a		n/a	n/a	n/a	n/a	
07/04/2022 thru 07/06/2022	12:00 PM	100 °F	70 °F	110 °F		n/a	n/a	n/a	n/a	
07/22/2022 thru 07/24/2022	12:00 PM	97 °F	76 °F	110 °F		n/a	n/a	n/a	n/a	
08/01/2022 thru 08/03/2022	1:00 PM	93 °F	68 °F	109 °F		n/a	n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 4
Excessive Heat Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
08/07/2022 thru 08/08/2022	n/a	92 °F	74 °F	n/a		n/a	n/a	n/a	n/a	
09/20/2022 thru 09/21/2022	n/a	96 °F	70 °F	n/a		n/a	n/a	n/a	n/a	
06/01/2023	n/a	90 °F	81 °F	n/a		n/a	n/a	n/a	n/a	
06/25/2023	n/a	94 °F	76 °F	n/a		n/a	n/a	n/a	n/a	
07/26/2023 thru 07/28/2023	11:00 AM	98 °F	67 °F	107 °F		n/a	n/a	n/a	n/a	
08/20/2023 thru 08/25/2023	12:00 PM	100 °F	69 °F	120 °F		n/a	n/a	n/a	n/a	
GRAND TOTAL:						**0**	**0**	**$0**	**$0**	

Sources: Iowa State University, Iowa Environmental Mesonet, National Weather Service Data, Search for Warnings.
Midwestern Regional Climate Center, cli-MATE.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Cooperative Observation Forms.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 5
General Flood Events Reported in Macoupin County
2003 - 2023

Date(s)	Start Time	Water Body	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
				Home	Business	Infra-structure					
11/17/2003 thru 11/18/2003	7:00 AM	area rivers, streams & creeks	countywide			X	n/a	n/a	n/a	n/a	IL Rte. 4 flooded near Benld. Street flooding was reported in Bunker Hill.
1/5/2005	10:00 AM	area rivers, streams & creeks	countywide			X	n/a	n/a	n/a	n/a	numerous roads were flooded and closed due to stream flooding or excessive ponding of water from the rain.
05/26/2008 thru 05/27/2008	1:12 AM	area rivers, streams & creeks	countywide			X	n/a	n/a	n/a	n/a	Macoupin law enforcement reported that numerous roads were flooded and closed. Some of the roads which were closed included IL Route 108 west of Carlinville. A bridge washed away on Second Road near Plainview. Brighton-Bunker Hill road west of Woodburn was also closed due to flooding. Lower water crossings and secondary roads also had water over them.
09/14/2008 thru 09/15/2008	5:16 AM	area rivers, streams & creeks	countywide				n/a	n/a	n/a	n/a	
12/27/2008 thru 12/28/2008	6:45 PM	Macoupin Creek, area rivers, streams & creeks	countywide				n/a	n/a	n/a	n/a	

[1] An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Macoupin County
2003 - 2023

Date(s)	Start	Water	Location(s)	Impacts[1]			Injuries	Fatalities	Property	Crop	Impacts/
10/08/2009 thru 10/09/2009	6:04 PM	area rivers, streams & creeks	southern portion of county				n/a	n/a	n/a	n/a	
10/30/2009 thru 10/31/2009	8:58 AM	area rivers, streams & creeks	countywide			X	n/a	n/a	n/a	n/a	2 feet of water covered the intersection of Crummystone Road & Lake Road about 1 mile south of Carlinville. Law enforcement also reported that most roads in low lying areas were inundated by flood waters and were closed.
9/3/2010	2:40 AM	area rivers, streams & creeks	northeastern portion of county			X	n/a	n/a	n/a	n/a	Macoupin County Sheriff reported that Nine Mile Road and Lead Line Road near Virden were flooded.
06/18/2011 thru 06/19/2011	1:06 PM	area rivers, streams & creeks	northern portion of county			X	n/a	n/a	n/a	n/a	Macoupin County Sheriff reported water over parts of Nine Mile Road and Schmidt Road near Virden.
10/02/2014 thru 10/03/2014	11:03 PM	area rivers, streams & creeks	countywide				n/a	n/a	n/a	n/a	
12/27/2015 thru 12/30/2015	3:17 AM	area rivers, streams & creeks	countywide				n/a	n/a	n/a	n/a	
7/20/2016	10:50 AM	area rivers, streams & creeks	southwestern portion of county				n/a	n/a	n/a	n/a	
04/30/2017 thru 05/05/2017	1:10 AM	area rivers, streams & creeks	countywide				n/a	n/a	n/a	n/a	

[1] An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Macoupin County
2003 - 2023

Date(s)	Start	Water	Location(s)	Impacts[1]			Injuries	Fatalities	Property	Crop	Impacts/
04/30/2019 thru 05/01/2019	10:12 PM	area rivers, streams & creeks	countywide				n/a	n/a	n/a	n/a	
08/12/2019 thru 08/13/2019	10:31 AM	area rivers, streams & creeks	southeastern portion of county				n/a	n/a	n/a	n/a	
01/10/2020 thru 01/11/2020	10:39 PM	area rivers, streams & creeks	countywide				n/a	n/a	n/a	n/a	
05/14/2023 thru 05/15/2023	10:42 PM	area rivers, streams & creeks	countywide			X	n/a	n/a	n/a	n/a	Numerous roadways were closed due to flooding.
GRAND TOTAL:							**0**	**0**	**$0**	**$0**	

Sources: Iowa State University, Iowa Environmental Mesonet, National Weather Service Data, Search for Warnings.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

[1] An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 6
Flash Flood Events Reported in Macoupin County
1999 - 2023

Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
06/13/1999	2:00 AM	southern portion of county			X	n/a	n/a	n/a	n/a	Several county roads had to be closed because of high water.
07/28/2000	4:30 AM	southern portion of county	X	X	X	n/a	n/a	n/a	n/a	Average rainfall of 4 to 5 inches fell across the south half of Macoupin County during the early morning hours. Reports around Staunton indicated up to 9 inches of rain may have fallen. Residents of the Staunton area said it was the worst flooding they could remember. At one point, there was no way to get in or out of town as all roads were flooded. Numerous basements were flooded with up to 4 feet of water. One street collapsed leaving a hole 6 feet long, 5 feet wide and 4 feet deep. Other roads across the county were closed including Old Route 66 and Route 4 near Carlinville. The next day a farm combine fell into a 40 foot wide and 20 foot deep sink hole which formed in a field near Mt. Olive.
08/24/2000	12:27 AM	countywide				n/a	n/a	n/a	n/a	
06/06/2001	3:00 AM	countywide	X	X	X	n/a	n/a	n/a	n/a	Streets, basements, state roads, and even a golf course were inundated. IL Route 4 between Virden and Girard was flooded. In Virden, 3 to 4 feet of water was reported in the Whispering Pines Mobile Home Park. The Virden Police reported that about 60 percent of the homes in town had flooding problems. Many basements had at least 3 feet of water inside.

[A] Flash flood event verified in the vicinity of this location(s).

[1] An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a flash flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 6
Flash Flood Events Reported in Macoupin County
1999 - 2023

Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
05/07/2002	3:30 AM	countywide			X	n/a	n/a	n/a	n/a	***This event was part of a federally-declared disaster (Declaration #1416)*** Numerous creeks and small streams in the area flooded closing area roads.
05/12/2002	5:00 AM	countywide			X	n/a	n/a	n/a	n/a	***This event was part of a federally-declared disaster (Declaration #1416)*** Up to 4 inches of rain brought creeks and small streams out of their banks flooding area roads.
05/12/2002 thru 05/13/2002	6:00 PM	countywide			X	n/a	n/a	$514,102	n/a	***This event was part of a federally-declared disaster (Declaration #1416)*** - The flood water had dropped some after early morning rain, however additional rain during the afternoon produced flooding again. Some roads in rural areas were washed away. - FEMA Public Assistance figures provided by IEMA identifed $514,102 in total costs for 29 jurisdiction in the County.
05/09/2003	7:30 PM	northern portion of county			X	n/a	n/a	n/a	n/a	Highways 11 and 4 had to be closed due to high water. Several county roads became impassable as some small creeks rose out of their banks.
06/26/2003	1:41 AM	southern portion of county				n/a	n/a	n/a	n/a	

[A] Flash flood event verified in the vicinity of this location(s).

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Table 6
Flash Flood Events Reported in Macoupin County
1999 - 2023

Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
05/27/2004	4:30 PM	countywide			X	n/a	n/a	n/a	n/a	The 2nd consecutive day of 2 to 3 inches of rain caused flash flooding across much of the area. Flooding was reported on roads in and around Gillespie.
08/27/2006	3:00 PM	southern portion of county			X	n/a	n/a	n/a	n/a	Heavy rain caused localized flash flooding across southern Macoupin County. Spanish Needle Road near Gillespie was covered by up to 4 feet of water. Route 16 from the intersection with Route 111 to Shipman was impassible at several locations.
06/24/2007	1:05 PM	southeastern portion of county			X	n/a	n/a	n/a	n/a	Local law enforcement reported a couple of county roads became impassable due to heavy rain.
02/05/2008 thru 02/06/2008	4:41 PM	countywide			X	n/a	n/a	n/a	n/a	Two to four inches of rain fell over portions of Macoupin county during the evening hours of February 5th. The viaduct on Illinois Route 16 in Shipman was flooded and viaducts on the north and south sides of Carlinville on Illinois Route 4 were flooded. Also, water was reported over several roads including Enslow Road just northeast of Standard City. Briar Creek on the east side of Carlinville overflowed its banks, causing minor flooding on several streets in the area.
04/10/2008	8:24 AM	countywide				n/a	n/a	n/a	n/a	

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			Home	Business	Infra-structure					
05/25/2008	8:30 PM	southern portion of county			X	n/a	n/a	$5,000	$5,000	Heavy rain of two to five inches caused flash flooding across the southern third of the County. Routes 16 and 159 were flooded. Some roads in Brighton and Piasa had water up to five feet deep. Portions of Panther Creek Road near Mt. Olive, Prairie Dell Road near Shipman, Spanish Needle Road near Gillespie, Moulton Road near Bunker Hill, and Brighton-Bunker Hill Road were all temporarily barricaded. Two vehicles were disables by flooding on Brighton-Bunker Hill Road. A flooded culvert on another part of Bunker Hill-Brighton Road washed away much of an embankment and took out about four feet of the road.
08/05/2008 thru 08/06/2008	8:30 PM	southwestern portion of county			X	n/a	n/a	n/a	n/a	Very heavy rain fell in a short amount of time on already saturated soils causing flash flooding. Illinois Route 111 was closed about 4 miles south of Piasa due to flooding.

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Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
09/14/2008	6:00 AM	countywide	X		X	n/a	n/a	$796,997	n/a	***This event was part of a federally-declared disaster (Declaration #1800)*** - Up to 5 inches of rain from the remnants of Hurricane Ike fell onto already saturated soils causing flash flooding. - Numerous roads were flooded in the Carlinville, Gillespie, Virden and Mount Olive areas. - Route 4 was closed in Carlinville due to the flooding. - Three water rescues had to be performed in just an hour as 3 people drove into flooded roadways and became stranded. - One driver got out of his car and was swept downstream about a quarter of a mile before grabbing onto a tree till he was rescued. - Numerous culverts were washed out countywide. - In Gillespie, rain soaked soil collapsed the basement wall and foundation of a home on South Macoupin Street. - FEMA Public Assistance figures provided by IEMA identifed $796,997 in total costs for 19 jurisdiction in the County.
12/27/2008	3:07 PM	countywide			X	n/a	n/a	n/a	n/a	Several inches of rain fell in a short amount of time on frozen ground causing flash flooding. Illinois Route 16 near Shipman was closed due to 2 to 3 feet of water over the roadway.

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Table 6
Flash Flood Events Reported in Macoupin County
1999 - 2023

Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
05/25/2009	3:00 PM	southern portion of county			X	n/a	n/a	n/a	n/a	Up to 5 inches of rain fell in a short amount of time causing flash flooding in the Bunker Hill area. Several roads were closed due to the flooding.
07/15/2009	8:30 AM	southern portion of county			X	n/a	n/a	n/a	n/a	Up to 4 inches of rain fell in a short amount of time causing flash flooding. One mile south of Medora, water was flowing over Illinois Route 111. Also, in Staunton several roads in town were flooded due to the heavy rain.
09/20/2009	11:06 AM	northwestern portion of county				n/a	n/a	n/a	n/a	
06/14/2010	3:11 PM	southeastern portion of county				n/a	n/a	n/a	n/a	
07/27/2010	3:43 PM	northern portion of county				n/a	n/a	n/a	n/a	
09/02/2010 thru 09/03/2010	10:30 PM	northern portion of county			X	n/a	n/a	n/a	n/a	Up to three inches of rain fell in a short amount of time causing flash flooding. Several roads were flooded including Nine Mile Road and Lead Line Road west of Virden.
06/10/2011 thru 06/11/2011	10:00 PM	eastern portion of county			X	n/a	n/a	n/a	n/a	Up to three inches of rain fell in a short amount of time causing flash flooding. Several roads were flooded including Old Route 66 at the train track viaduct in Mt. Olive.

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Flash Flood Events Reported in Macoupin County
1999 - 2023

Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
06/18/2011	5:00 AM	northern portion of county			X	n/a	n/a	n/a	n/a	Up to three inches of rain fell in a short amount of time causing flash flooding. Numerous roads around the Virden area were flooded.
07/07/2011 thru 07/08/2011	7:14 PM	countywide				n/a	n/a	n/a	n/a	
04/29/2012	7:54 AM	central portion of county				n/a	n/a	n/a	n/a	
04/30/2012	4:45 AM	countywide				n/a	n/a	n/a	n/a	
05/20/2013 thru 05/21/2013	9:25 PM	countywide			X	n/a	n/a	n/a	n/a	Up to 4 inches of rain fell in a short amount of time causing flash flooding. Several roads were flooded, especially in Carlinville and Girard.
05/31/2013 thru 06/01/2013	10:28 PM	countywide				n/a	n/a	n/a	n/a	
06/11/2014	12:29 AM	northern portion of county			X	n/a	n/a	n/a	n/a	Up to five inches of rain fell in a short amount of time causing flash flooding. Numerous roads were flooded including Illinois Route 4 just south of Carlinville. A vehicle was submerged on West County Lane Road near Quail Lane. The person was rescued but sustained no injuries.

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Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
10/02/2014	10:20 AM	northern portion of county			X	n/a	n/a	n/a	n/a	Up to seven inches of rain fell in a short amount of time causing flash flooding. Several roads were flooded in the area. Also, there were numerous ditches overflowing and several creeks were out of their banks.
06/19/2015	10:34 AM	southeastern portion of county				n/a	n/a	n/a	n/a	
07/11/2015	5:11 PM	northern portion of county				n/a	n/a	n/a	n/a	
07/19/2015	1:57 AM	countywide				n/a	n/a	n/a	n/a	
12/26/2015 thru 12/27/2015	8:00 PM	southern portion of county			X	n/a	n/a	n/a	n/a	Between 3 and 4 inches of rain fell causing flash flooding. Numerous roads were flooded especially across the southern half of the county. Some of the flooded roads were Bayless Road/Three Mile Road near Gillespie, Sunset Street on west side of Mt. Olive, Spanish Needle Road near Gillespie Lake, Brushy Mound Road just south of Carlinville, and Moore Cemetery Road east of bridge that goes over Richardson Branch Creek.
12/28/2015	7:57 AM	countywide				n/a	n/a	n/a	n/a	
07/20/2016	9:00 AM	southwestern portion of county			X	n/a	n/a	n/a	n/a	Up to 4 inches of rain fell in a short amount of time causing flash flooding. Several roads across southwestern Macoupin County were flooded, including Piasa Road just northeast of Brighton.

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Flash Flood Events Reported in Macoupin County
1999 - 2023

Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
07/24/2016 thru 07/25/2016	11:28 PM	northern portion of county				n/a	n/a	n/a	n/a	
04/29/2017 thru 04/30/2017	5:20 PM	countywide				n/a	n/a	n/a	n/a	
07/05/2017 thru 07/06/2017	10:10 PM	central portion of county				n/a	n/a	n/a	n/a	
07/01/2018 thru 07/02/2018	7:37 PM	southern portion of county				n/a	n/a	n/a	n/a	
08/12/2019	6:30 AM	southern portion of county			X	n/a	n/a	n/a	n/a	Up to four inches of rain fell in a 4 hour time period causing flash flooding. Numerous roads were flooded in the southwestern portions of Macoupin County. One motorist had to be rescued from 4 feet of water at the Railroad overpass along Illinois Route 16 at Shipman.
06/22/2020	4:26 PM	northeastern portion of county				n/a	n/a	n/a	n/a	
07/31/2021	8:34 AM	countywide				n/a	n/a	n/a	n/a	

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Date(s)	Start Time	Location(s)	Impacts[1]			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
07/26/2022	7:00 AM	southern portion of county			X	n/a	n/a	$15,000	n/a	Up to 5 inches of rain fell in a 6 hour period causing flash flooding the far southeastern portions of Macoupin County. Several roads were flooded. Just south of Mt. Olive, an unoccupied car became submerged due to flooding.
GRAND TOTAL:						**0**	**0**	**$1,331,099**	**$5,000**	

Sources: Illinois Emergency Management Agency - Office of Homeland Security, Recovery Division, Public Assistance Figures.
Iowa State University, Iowa Environmental Mesonet, National Weather Service Data, Search for Warnings.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Data.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

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Table 7
Severe Winter Storm Events Reported in Macoupin County
1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
12/5/1950 thru 12/7/1950	n/a	Heavy Snow	7.4 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	
11/5/1951 thru 11/6/1951	6:00 p.m.	Heavy Snow	14.5 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
12/14/1951	4:00 a.m.	Blizzard	5.2 in.					Medora Virden	n/a	n/a	n/a	
3/1/1952 thru 3/2/1952	9:00 p.m.	Heavy Snow	4.0 in.					Carlinville Medora	n/a	n/a	n/a	
03/01/1953	9:00 a.m.	Heavy Snow	8.0 in.					Medora Mt. Olive Virden	n/a	n/a	n/a	
01/29/1956	6:00 p.m.	Heavy Snow	5.0 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	
02/11/1956	2:00 a.m.	Heavy Snow	5.0 in.					Medora Mt. Olive	n/a	n/a	n/a	
01/31/1958	10:00 a.m.	Heavy Snow	5.0 in.					Medora	n/a	n/a	n/a	

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[2] Observed Location information was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center's cli-MATE data system and NOAA's Storm Events Database.

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1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
3/8/1958 thru 3/9/1958	6:00 p.m.	Heavy Snow	5.0 in.					Carlinville Medora	n/a	n/a	n/a	
11/27/1958 thru 11/28/1958	9:30 p.m.	Heavy Snow	4.6 in.					Virden	n/a	n/a	n/a	
1/20/1959 thru 1/21/1959	5:00 a.m.	Ice Storm		X	1.0 in.	X		Carlinville Medora Virden	n/a	n/a	n/a	NOAA's Storm Data Publication record for this storm indicated: - ice accumulation of ½ to 1 inch on trees and wires - power and communication lines were heavily damaged partly by ice but mostly by falling limbs - several thousand homes without electricity for 1 to 3 days
02/25/1960	2:30 a.m.	Heavy Snow	6.0 in.					Carlinville Medora	n/a	n/a	n/a	
3/2/1960 thru 3/3/1960	3:00 a.m.	Heavy Snow	10.0 in.					Carlinville Medora	n/a	n/a	n/a	

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
3/8/1960 thru 3/9/1960	2:30 p.m.	Heavy Snow	8.5 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Mt. Olive COOP observer noted that the snow drifted and roads were blocked
3/15/1960 thru 3/16/1960	5:00 p.m.	Heavy Snow	6.0 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	Mt. Olive COOP observer noted that the snow drifted and roads were blocked
2/2/1961 thru 2/3/1961	4:00 a.m.	Heavy Snow	9.5 in.					Carlinville Medora Virden	n/a	n/a	n/a	
1/5/1962 thru 1/6/1962	5:00 p.m.	Heavy Snow	8.0 in.					Carlinville Medora Virden	n/a	n/a	n/a	
1/18/1962 thru 1/19/1962	7:30 p.m.	Heavy Snow	5.1 in.					Medora Virden	n/a	n/a	n/a	
12/10/1963 thru 12/11/1963	7:00 p.m.	Heavy Snow	6.5 in.					Virden	n/a	n/a	n/a	Virden COOP observer noted that there were many auto accidents

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1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
1/11/1964 thru 1/13/1964	1:00 p.m.	Heavy Snow	16.3 in.				35 mph	Carlinville Medora Virden	n/a	n/a	n/a	Virden COOP observer noted the presence of 10-foot drifts while the Medora COOP observer noted the presence of drifts 3-feet deep
02/15/1964	9:00 a.m.	Heavy Snow	7.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
3/9/1964 thru 3/10/1964	5:00 p.m.	Heavy Snow	5.0 in.					Carlinville Medora	n/a	n/a	n/a	
02/24/1965	6:00 a.m.	Heavy Snow	5.0 in.					Medora	n/a	n/a	n/a	
3/3/1965 thru 3/4/1965	8:30 p.m.	Heavy Snow	5.0 in.					Medora	n/a	n/a	n/a	
1/31/1966 thru 2/1/1966	10:30 p.m.	Heavy Snow	6.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Virden COOP observer noted that school dismissed early and there was blowing and drifting all day

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1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
01/26/1967	12:00 a.m.	Ice Storm			X			Carlinville Medora	n/a	n/a	n/a	Carlinville COOP observer noted that there was a damaging ice storm while the Medora COOP observer noted that there was damage from ice
1/12/1968 thru 1/14/1968	8:00 a.m.	Winter Storm	10.2 in.	X	X			Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Medora COOP observer noted there was freezing rain as well as snow while the Carlinville COOP observer indicated the presence of glaze ice
3/11/1968 thru 3/12/1968	11:00 p.m.	Heavy Snow	7.0 in.					Medora	n/a	n/a	n/a	
2/27/1969 thru 2/28/1969	10:30 p.m.	Heavy Snow	9.0 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	
03/08/1969	12:00 a.m.	Heavy Snow	5.6 in.					Carlinville Medora	n/a	n/a	n/a	
12/22/1969 thru 12/23/1969	7:30 p.m.	Heavy Snow	5.0 in.					Carlinville Medora	n/a	n/a	n/a	

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
4/5/1971 thru 4/6/1971	9:00 a.m.	Heavy Snow	12.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
11/19/1972	12:00 a.m.	Heavy Snow	5.0 in.					Carlinville	n/a	n/a	n/a	
12/11/1972 thru 12/12/1972	4:00 p.m.	Ice Storm	X	X	X	X	X	Carlinville Medora Virden	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Data Publication record for this storm indicated: - freezing rain, sleet and snow with the heaviest glazing occurring through Central Illinois from St. Louis to Springfield to Kankakee - tree damage, downed power lines and damage to light structures was experienced								- the storm indirectly caused many vehicle and pedestrian injuries and a few deaths as a result of the slippery conditions Virden COOP observer noted freezing rain and an ice storm with caused a power outage and downed tree limbs while the Carlinville COOP observer noted that this was a severe ice storm				
12/18/1973 thru 12/19/1973	7:00 p.m.	Winter Storm	12.5 in.	X	X	X		Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Data Publication record for this storm indicated: - snowfall accumulations of 10 to 18 inches - government offices, schools and industry were closed - traffic was brought to a standstill all day on the 19th								- heavy snows downed power lines cutting off power to scores of homes in many areas for several hours Carlinville COOP indicated the presence of ice pellets and glaze ice while the Virden COOP observer indicated the presence of glaze ice and noted there was freezing rain				

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
01/10/1974	4:00 p.m.	Winter Storm	4.0 in.		X			Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Carlinville & Medora COOP observers indicated the presence of glaze ice
2/23/1974 thru 2/24/1974	4:30 p.m.	Heavy Snow	4.0 in.					Medora Mt. Olive Virden	n/a	n/a	n/a	Virden COOP observer noted that there was drifting
03/23/1974	7:00 a.m.	Heavy Snow	9.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
2/22/1975 thru 2/24/1975	5:00 p.m.	Winter Storm	10.0 in.		X	X		Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Carlinville & Medora COOP observers indicated the presence of ice pellets and glaze ice while the Virden COOP observer noted the presence of freezing rain some drifting of snow
11/26/1975 thru 11/27/1975	2:00 a.m.	Heavy Snow	8.7 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
3/15/1976 thru 3/16/1976	3:30 p.m.	Heavy Snow	6.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
01/04/1977	7:30 a.m.	Heavy Snow	6.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
1/9/1977 thru 1/10/1977	8:00 a.m.	Blizzard	5.9 in.				X	Carlinville Mt. Olive Virden	n/a	n/a	n/a	Virden COOP observer noted strong winds and blizzard conditions
01/11/1977	9:30 a.m.	Heavy Snow	5.0 in.					Medora	n/a	n/a	n/a	
01/13/1977	5:30 a.m.	Blizzard	5.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Virden COOP observer noted blizzard conditions
02/26/1977	4:00 a.m.	Heavy Snow	6.0 in.					Medora Mt. Olive	n/a	n/a	n/a	
11/26/1977 thru 11/27/1977	9:00 p.m.	Heavy Snow	7.0 in.					Virden	n/a	n/a	n/a	
12/03/1977	12:00 p.m.	Heavy Snow	7.0 in.					Medora	n/a	n/a	n/a	

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Table 7
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1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
12/4/1977 thru 12/5/1977	8:30 p.m.	Winter Storm	6.0 in.		X	X		Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Carlinville COOP observer indicated the presence of ice pellets and glaze ice
01/12/1978	11:00 a.m.	Heavy Snow	4.0 in.					Mt. Olive	n/a	n/a	n/a	
1/13/1978 thru 1/14/1978	6:00 p.m.	Heavy Snow	6.0 in.					Virden	n/a	n/a	n/a	
01/16/1978	12:00 a.m.	Heavy Snow	6.0 in.					Medora Mt. Olive Virden	n/a	n/a	n/a	
01/25/1978	12:00 a.m.	Heavy Snow	6.0 in.					Mt. Olive	n/a	n/a	n/a	
02/13/1978	12:00 a.m.	Winter Storm	5.0 in.	X	X	X	X	Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	- Virden COOP observer indicated the presence of glaze ice, freezing rain, and winds causing the snow to drift - Carlinville & Mt. Olive COOP observers indicated the presence of ice pellets and glaze ice - Medora COOP observer indicated the presence of ice pellets

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
03/02/1978	3:00 a.m.	Heavy Snow	8.0 in.					Carlinville Mt. Olive Virden	n/a	n/a	n/a	
3/6/1978 thru 3/8/1978	10:00 a.m.	Heavy Snow	16.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	NOAA's Storm Data Publication record for this storm indicated: - snowfall accumulations of 5 to 17 inches - many motorists were stranded on highways in drifts up to 7 feet deep and all forms of transportation were at a standstill for a least a day - several carports and roofs collapsed under the weight of the snow

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
3/24/1978 thru 3/26/1978	3:00 a.m.	Ice Storm			2.0 in.		X	Carlinville Medora Virden	n/a	n/a	$700,000	*Event Description Provided Below*
NOAA's Storm Data Publication record for this storm indicated: - a heavy coating of ice, several inches thick in some places, and strong winds caused the worst ice storm in many years over central Illinois - the ice and winds combined to snap power lines, break off large tree limbs, bend home TV antennas and send several tall TV and radio transmitting antennas crashing to the ground - thousands of power poles were downed and electricity was cut off to about 1 million people - no serious injuries or deaths were reported, but numerous traffic accidents and falls on the ice were caused by the slick conditions - numerous small fires were started as fallen wires shorted out on buildings after power poles fell								- 24 counties were declared disaster area by the Governor - cleanup operations too over a week Virden COOP observer noted that disastrous power outages were experienced as a result Carlinville COOP observer noted that ½ inch of ice covered the trees and wires on the 25th Medora COOP observer noted there was a bad ice storm and that many trees were down and there was much damage Committe member from Virden indicated: ice accumulations of 2 inches, $700,000 in damages experienced, trees and vehicles were damaged, power lines and TV antennas were downed, and power was out for 2 weeks and during that time period a home burned to the ground due to lack of available water				
1/26/1979 thru 1/27/1979	10:00 a.m.	Heavy Snow	8.0 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	
01/30/1979	10:00 a.m.	Heavy Snow	4.0 in.					Virden	n/a	n/a	n/a	
02/08/1979	9:00 a.m.	Heavy Snow	6.0 in.					Medora Mt. Olive	n/a	n/a	n/a	

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
01/30/1980	12:00 a.m.	Heavy Snow	7.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
2/29/1980 thru 3/1/1980	4:30 p.m.	Heavy Snow	5.5 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
03/12/1980	10:00 a.m.	Heavy Snow	4.0 in.					Medora Virden	n/a	n/a	n/a	
4/13/1980 thru 4/14/1980	9:00 p.m.	Heavy Snow	7.0 in.					Medora Mt. Olive Virden	n/a	n/a	n/a	
01/27/1980	12:00 a.m.	Heavy Snow	6.0 in.					Medora Mt. Olive Virden	n/a	n/a	n/a	
2/9/1981 thru 2/11/1981	8:00 p.m.	Heavy Snow	8.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
12/16/1981 thru 12/17/1981	10:30 a.m.	Heavy Snow	9.0 in.					Carlinville Medora Virden	n/a	n/a	n/a	
12/22/1981	11:00 a.m.	Heavy Snow	8.0 in.					Carlinville Virden	n/a	n/a	n/a	
12/28/1981	12:00 a.m.	Heavy Snow	7.0 in.					Virden	n/a	n/a	n/a	
1/29/1982 thru 1/31/1982	7:30 a.m.	Heavy Snow	11.0 in.			X		Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	NOAA's Storm Data Publication record for this storm indicated: - snowfall accumulations of up to 24 inches - many highways were closed and about 4,000 persons were stranded on highways for as long as 2 days - sections of the state were without power due to the heavy snow and high winds - some roofs collapsed due to the weight of the snow Mt. Olive & Carlinville COOP observers indicated the presence of ice pellets

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
2/8/1982 thru 2/9/1982	4:00 p.m.	Heavy Snow	6.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
12/20/1983 thru 12/21/1983	8:00 p.m.	Heavy Snow	8.0 in.					Carlinville Medora Virden	n/a	n/a	n/a	
2/26/1984 thru 2/28/1984	7:00 p.m.	Blizzard	15.0 in.				X	Carlinville Medora Virden	n/a	n/a	n/a	NOAA's Storm Data Publication record for this storm indicated: - snowfall accumulations of 3 to 15 inches combined with winds gusting to 40 knots caused blizzard conditions - many roads and schools had to be closed due to drifting snow Virden COOP observer noted strong winds and drifting snow while the Carlinville COOP observer noted blowing and drifting snow

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
03/12/1984	7:30 a.m.	Heavy Snow	5.5 in.					Mt. Olive Virden	n/a	n/a	n/a	
12/19/1985	6:00 a.m.	Heavy Snow	4.0 in.					Mt. Olive	n/a	n/a	n/a	
02/14/1986	12:00 a.m.	Heavy Snow	9.0 in.					Virden	n/a	n/a	n/a	
1/9/1987 thru 1/10/1987	5:30 a.m.	Heavy Snow	9.0 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	
12/14/1987 thru 12/15/1987	8:00 a.m.	Heavy Snow	6.0 in.		X	X		Carlinville Mt. Olive Virden	n/a	n/a	n/a	Virden & Carlinville COOP observers indicated the presence of ice pellets and glaze ice
2/10/1988 thru 2/11/1988	9:00 a.m.	Heavy Snow	5.9 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
03/03/1988	12:00 a.m.	Heavy Snow	8.0 in.					Virden	n/a	n/a	n/a	
12/27/1988	9:00 a.m.	Heavy Snow	6.0 in.					Mt. Olive Virden	n/a	n/a	n/a	
2/6/1989 thru 2/7/1989	n/a	Heavy Snow	7.0 in.					Virden	n/a	n/a	n/a	

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
3/5/1989 thru 3/6/1989	7:00 a.m.	Winter Storm	10.0 in.		X	X	30 mph	Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Data Publication record for this storm indicated snowfall accumulations of 6 to 12 inches - Carlinville COOP observer indicated the presence of ice pellets and glaze ice and noted considerable blowing and drifting of snow							- Medora COOP observer indicated glaze ice and noted winds at 30 mph and drifting - Virden & Mt. Olive COOP observers indicated the presence of ice pellets and glaze ice					
2/3/1990 thru 2/4/1990	9:30 p.m.	Heavy Snow	5.0 in.					Mt. Olive	n/a	n/a	n/a	
3/23/1990 thru 3/24/1990	9:00 a.m.	Heavy Snow	8.5 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
12/21/1990 thru 12/23/1990	5:00 a.m.	Winter Storm	7.2 in.	X	X	X		Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Carlinville & Medora COOP observers noted freezing rain the morning of the 21st

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
01/05/1991	12:00 a.m.	Winter Storm						Carlinville Medora	n/a	n/a	n/a	- NOAA's Storm Data Publication record for this storm indicated a series of snow and ice storms occurred in the first week of January over much of Illinois - Carlinville COOP observer noted that the 5th through the 11th about 2 inches of ice covered the ground making walking anywhere hazardous
11/6/1991 thru 1/7/1991	5:00 p.m.	Heavy Snow	4.2 in.					Carlinville Medora	n/a	n/a	n/a	
1/9/1993 thru 1/10/1993	3:00 a.m.	Heavy Snow	6.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
2/15/1993 thru 2/16/1993	8:30 a.m.	Heavy Snow	6.5 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
2/24/1993 thru 2/25/1993	9:00 p.m.	Heavy Snow	10.7 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
01/16/1994	9:30 a.m.	Winter Storm	5.2 in.		X			Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Carlinville & Medora COOP observers indicated the presence of ice pellets
01/06/1995	12:00 a.m.	Heavy Snow	5.5 in.					Virden	n/a	n/a	n/a	
12/18/1995 thru 12/19/1995	2:00 p.m.	Winter Storm	5.5 in.		X	X		Carlinville Medora Mt. Olive	n/a	n/a	n/a	- Medora COOP observer noted that rain changed to sleet and snow and was very windy with snow drifting - Carlinville COOP observer indicated the presence of ice pellets and glaze ice
01/02/1996	2:00 a.m.	Heavy Snow	5.0 in.					Carlinville	n/a	n/a	n/a	
01/05/1996	n/a	Heavy Snow	5.4 in.					Virden	n/a	n/a	n/a	
2/15/1996 thru 2/16/1996	6:30 p.m.	Heavy Snow	4.5 in.					Carlinville	n/a	n/a	n/a	

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
1/8/1997 thru 1/9/1997	6:00 p.m.	Winter Storm	8.5 in.				X	Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated: - snowfall amounts between 5 and 8 inches fell across the area - strong winds and very cold temperatures followed the storm and caused drifting snow and very cold windchills - schools remained closed for several days
1/15/1997 thru 1/16/1997	11:00 p.m.	Winter Storm	5.0 in.	X		X		Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Events Database record for this storm indicated: - freezing rain, sleet and snow with snowfall amounts ranging from 3 to 7 inches - numerous auto accidents occurred along with some power outages								- most area schools were closed Medora COOP observer noted that sleet fell during the early morning hours before changing to snow				

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
12/21/1998 thru 12/22/1998	12:00 a.m.	Winter Storm	X	X	X	X		Virden	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Events Database record for this storm indicated: - light freezing rain, sleet, and snow came in with a cold front - roads across much of the area became covered with a thin coating of ice causing numerous auto accidents								- temperatures dropped into the single digits between the 21st and 22nd in most areas and only rose into the teens on the 22nd Virden COOP observer indicated the presence of glaze ice				
1/1/1999 thru 1/2/1999	6:00 p.m.	Winter Storm	10.0 in.	X	X	X		Carlinville Mt. Olive Virden	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Events Database record for this storm indicated: - freezing rain, sleet and snow with freezing rain and sleet accumulations of around 1.0 inch and snowfall amounts ranging from 6 to 14 inches - the freezing rain and sleet fell during the middle of the storm, creating a rock hard layer of ice that was very difficult to move								- transportation across the area came to a stop for much of holiday weekend - very cold temperatures after the storm kept conditions icy - most area schools closed through the middle of the week				

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
01/13/1999	4:30 a.m.	Ice Storm			0.25 in.				n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated: - ice accumulations of at least ¼ of an inch - some trees and power lines were downed - ice-covered roads made travel difficult to impossible - area schools were closed through the end of the week
01/29/2000	5:00 a.m.	Heavy Snow	5.0 in.					Carlinville Mt. Olive	n/a	n/a	n/a	
03/11/2000	5:00 a.m.	Winter Storm	6.0 in.					Mt. Olive Virden	n/a	n/a	n/a	
12/13/2000	7:00 a.m.	Heavy Snow	7.0 in.					Mt. Olive Virden	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated some schools in rural areas were closed into the next week as temperatures remained very cold and a couple of minor snowfalls kept travel conditions poor

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
01/26/2001	1:00 a.m.	Winter Storm			X			Virden	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated: - light rain during the early morning hours resulted in a thin coating of ice on area roads - most schools across the area were closed and numerous traffic accidents were reported Virden COOP observer indicated the presence of glaze ice
3/25/2002 thru 3/26/2002	6:00 p.m.	Winter Storm	2.5 in.		X	1.0 in.		Medora Mt. Olive Virden	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated: - sleet and snow with sleet accumulations of 1 inch and snowfall amounts ranging from 3 to 4 inches - the combination of sleet and snow made for extremely hazardous travel conditions across the area

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
12/24/2002	6:00 a.m.	Winter Storm	5.1 in.					Medora Mt. Olive Virden	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated: - snowfall amounts ranging from 4 to 8 inches - travel conditions were difficult on Christmas Day
1/1/2003 thru 1/2/2003	11:00 p.m.	Heavy Snow	5.0 in.					Mt. Olive	n/a	n/a	n/a	
01/25/2004	6:00 a.m.	Winter Storm	4.0 in.	0.5 in.	X	2.0 in.		Medora Virden	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated: - transportation across the region was brought to a halt - many schools were closed into mid-week
1/15/2005 thru 1/16/2005	9:00 p.m.	Heavy Snow	5.0 in.					Carlinville Mt. Olive	n/a	n/a	n/a	
12/08/2005	10:00 a.m.	Heavy Snow	4.0 in.					Carlinville Virden	n/a	n/a	n/a	

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Table 7
Severe Winter Storm Events Reported in Macoupin County
1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
3/20/2006 thru 3/21/2006	7:30 p.m.	Heavy Snow	7.2 in.		X	X		Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	Virden COOP observer noted that beads of sleet fell first prior to the snow while the Mt. Olive COOP observer noted that the snow drifted
11/29/2006 thru 12/1/2006	10:00 p.m.	Winter Storm	5.0 in.	X	4.0 in.	X		Bunker Hill Carlinville Medora Mt. Olive Virden	n/a	n/a	$830,938	*Event Description Provided Below*

This event was part of a federally-declared disaster (Declaration #1681)
NOAA's Storm Events Database record for this storm indicated:
- freezing rain, sleet and snow with ice and sleet accumulations up to 1 inch and snowfall amounts ranging up to 12 inches
- in some areas power was not restored for a week
- many rural schools were closed for several days due to slick roads and power outages
- numerous buildings and automobiles were damaged by falling trees and tree limbs

Macoupin County EMA officials estimated that at least 40,000 of the 50,000 residents lost power during the storm with the southern quarter of the County especially hard hit (most municipalities from Brighton to Bunker Hill to Staunton lost virtually all power)

- Mt. Olive COOP observer noted major tree and power line damage with their power going out at 6 p.m. on the 30th
- Bunker Hill Planning Committee member records indicate that the City lost power and 1.5 inches of ice and 8 to 10 inches of snow covered the City
- FEMA Public Assistance figures provided by IEMA identifed $830,938 in total costs for 48 jurisdiction in the County.
- Ameren (regional information, including Macoupin County): 370,322 customers were without power for up to 10 days; 6,290 wires downed; 1,880 poles replaced; 3,190 Ameren personnel responded to the event.

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
1/12/2007 thru 1/14/2007	10:00 p.m.	Ice Storm		X	0.5 in.	X		Mt. Olive Virden	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Events Database record for this storm indicated: - three rounds of freezing precipitation with ice accumulations from ¼ to ½ inch and sleet accumulations up to 1 ½ inches - significant tree and limb damage was reported as a result of this storm								- widespread power outages were reported with more than 100,000 homes and businesses losing power during this storm Mt. Olive COOP observer noted the power went about at 1 a.m. on the 13th, and that there was ½ inch of ice on trees but none on the roads				
1/20/2007 thru 1/21/2007	11:00 p.m.	Heavy Snow	4.0 in.					Carliville Mt. Olive	n/a	n/a	n/a	
12/8/2007 thru 12/12/2007	11:00 p.m.	Ice Storm		X	0.5 in.	1.0 in.		Mt. Olive	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Events Database record for this storm indicated: - freezing rain and sleet with ice accumulations up to ½ inch and sleet accumulations up to 1 inch - numerous trees and power lines were reported down across the area - some businesses had to close due to power loss and most schools were closed for a couple of days								Mt. Olive COOP observer noted thin ice on the grass but nothing on the road on the 9th and ½ inch ice on trees and clear roads on the 10th Ameren (regional information, including Macoupin County): 16,500 customers were without power for up to 4 days; 195 wires downed; 92 poles replaced; 148 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 425 Ameren personnel responded to the event.				

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
12/14/2007 thru 12/15/2007	4:30 p.m.	Heavy Snow	6.5 in.					Carlinville Medora Virden	n/a	n/a	n/a	
1/31/2008 thru 2/1/2008	12:00 p.m.	Heavy Snow	9.0 in.					Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	
2/21/2008 thru 2/22/2008	4:00 a.m.	Sleet			X	2.0 in.		Mt. Olive	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated: - sleet accumulations of ½ inch to 2 inches - at least 100 vehicle accidents were reported across the region - most area schools were closed both days Mt. Olive COOP observer noted there was a rain/sleet mix

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
3/3/2008 thru 3/4/2008	8:00 p.m.	Heavy Snow	7.0 in.					Medora Virden	n/a	n/a	n/a	
12/18/2008 thru 12/19/2008	4:00 p.m.	Ice Storm			0.25 in.			Mt. Olive	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Events Database record for this storm indicated: - ice accumulations around ¼ inch across Macoupin County - tree limbs were reported down and there were scattered power outages Mt. Olive COOP observer indicated the presence of glaze ice on the 18th but noted that the glazing on the trees was gone on the 19th								Ameren (regional information, including Macoupin County): 45,000 customers were without power for up to 5 days; 600 wires downed; 269 poles replaced; 315 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 1,056 Ameren personnel responded to the event.				
1/26/2009 thru 1/28/2009	9:00 p.m.	Winter Storm	6.5 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	

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1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
1/31/2011 thru 2/2/2011	12:00 a.m.	Winter Storm	9.0 in.		0.25 in.	3.0 in.	40 mph	Carlinville Medora Mt. Olive Virden	n/a	n/a	n/a	*Event Description Provided Below*
This event is part of a state disaster proclamation - NOAA's Storm Events Database record for this storm indicated sleet accumulations ranging from 2 to 3 inches and snowfall amounts ranging from 2 to 6 inches with some areas receiving up to 22 inches of snow and wind gusts of over 40 mph - Virden COOP observer indicated the presence of ice pellets and glaze ice on the 1st and noted that there was ¼ inch of glaze on everything while the Mt. Olive COOP observer indicated the presence of glaze ice on the 1st and ice pellets and glaze ice on the 2nd and noted ¼ inch of ice in the trees - Ameren (regional information, including Macoupin County): 14,000 customers were without power for up to 3 days; 1,494 wires downed; 104 poles replaced; 718 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 1,144 Ameren personnel responded to the event.											
02/21/2013	9:00 a.m.	Winter Storm	5.8 in.	X		X		Carlinville Medora Mt. Olive	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated freezing rain, sleet and snow with snowfall amounts ranging from 6.0 to 8.0 inches

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Severe Winter Storm Events Reported in Macoupin County
1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
03/24/2013	8:00 a.m.	Heavy Snow	12.7 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	*Event Description Provided Below*
NOAA's Storm Events Database record for this storm indicated: - snowfall amounts ranging from 6 to 16 inches								- the heaviest snow fell from parts of Calhoun County, east across Jersey, Macoupin and into Montgomery County - most schools were closed the next day, however overall impacts were minimal				
12/13/2013 thru 12/14/2013	3:00 p.m.	Heavy Snow	5.9 in.	X	X	X		Carlinville Medora Mt. Olive	n/a	n/a	n/a	*Event Description Provided Below*
- Medora COOP observer noted the presence of sleet and indicated that the heavy snow on tree branches caused some breakage								- Mt. Olive COOP observer noted that precipitation started as rain/freezing rain before turning to sleet and snow and indicated they lost power for 19 hours due downed power lines from ice and snow				
01/05/2014	5:00 a.m.	Winter Storm	12.0 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	Event Description Provided Below
This event is part of a state disaster proclamation NOAA's Storm Events Database record for this storm indicated: - snowfall amounts ranging from 9 to 15 inches								- strong northerly winds created snow drifts ranging from 2 to 5 feet - all schools and most businesses were closed on the 5th & 6th, with many schools remaining closed for several days due to very cold temperatures and windchills				

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1950 - 2023

Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
2/4/2014 thru 2/5/2014	10:00 a.m.	Winter Storm	8.0 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	NOAA's Storm Events Database record for this storm indicated: - snowfall amounts ranging from 6 to 10 inches - travel was very difficult in rural areas - most schools were closed for a couple of days
2/15/2015 thru 2/16/2015	6:00 p.m.	Heavy Snow	8.0 in.					Medora Mt. Olive	n/a	n/a	n/a	
2/20/2015 thru 2/21/2015	8:00 p.m.	Winter Storm	4.9 in.	X		X		Medora Mt. Olive	n/a	n/a	n/a	- NOAA's Storm Events Database record for this storm indicated freezing rain, sleet and snow with snowfall amounts up to 6 inches - Mt. Olive COOP observer indicated the presence of ice pellets

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Date(s)	Start Time	Event Type	Magnitude[1]					Observed Location(s)[2]	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
2/28/2015 thru 3/1/2015	3:00 p.m.	Heavy Snow	6.2 in.					Medora Mt. Olive	n/a	n/a	n/a	
11/15/2018	4:00 a.m.	Heavy Snow	6.0 in.					Carlinville Medora Mt. Olive	n/a	n/a	n/a	
1/11/2019 thru 1/13/2019	4:00 p.m.	Heavy Snow	10.6 in.					Carlinville Girard Medora Mt. Olive	n/a	n/a	n/a	
12/15/2019 thru 12/16/2019	10:00 a.m.	Winter Storm	6.0 in.	X				Girard Medora Mt. Olive	n/a	n/a	n/a	
2/14/2021 thru 2/15/2021	10:00 p.m.	Heavy Snow	8.0 in.					Medora Mt. Olive	n/a	n/a	n/a	***This event is part of a state disaster proclamation***

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
2/2/2022 thru 2/3/2022	1:00 a.m.	Heavy Snow	11.0 in.			0.25 in.		Medora	n/a	n/a	n/a	***This event is part of a state disaster proclamation*** There were two rounds of precipitation with this system. The first round was rain changing to a mix of sleet and snow, then another round of heavy snow. Up to a quarter of an inch of sleet as well as a couple inches of snow was reported in parts of Macoupin County during the morning hours of February 2nd. With the second round of precipitation, storm total snowfall ranged from 6 to 9 inches.

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			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (inches)	Strong Wind (mph)					
12/22/2022	11:00 a.m.	Winter Storm	2.0 in.				45 mph	Girard Medora Mt. Olive	n/a	n/a	n/a	The snow combined with gusty northwest winds (35-45 mph gusts) created extremely hazardous travel with sporadic near-blizzard conditions during the heaviest snowfall. Road conditions deteriorated rapidly during this event. Several accidents occurred across the county due to slick snow packed roads. Ameren (regional information, including Macoupin County): 5,987 customers were without power for up to 3 days.
GRAND TOTAL:									**0**	**0**	**$1,530,938**	

Sources: Illinois Emergency Management Agency - Office of Homeland Security, Recovery Division, Public Assistance Figures.
Macoupin County Multi-Jurisdictional All Hazards Mitigation Planning Committee Member responses to Natural Hazard Events Questionnaire.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Cooperative Observation Forms.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Data.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

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Table 8
Extreme Cold/Wind Chill Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
01/04/1995	n/a	1 °F	14 °F	n/a	Virden	n/a	n/a	n/a	
01/19/1996	n/a	-1 °F	12 °F	n/a	Carlinville	n/a	n/a	n/a	
01/31/1996 thru 02/04/1996	n/a	-17 °F	19 °F	n/a	Carlinville	n/a	n/a	n/a	
12/20/1996	n/a	5 °F	12 °F	n/a	Carlinville	n/a	n/a	n/a	
01/11/1997 thru 01/14/1997	n/a	-8 °F	10 °F	n/a	Carlinville	n/a	n/a	n/a	
01/17/1997	n/a	-8 °F	15 °F	n/a	Carlinville	n/a	n/a	n/a	
01/28/1997 thru 01/29/1997	n/a	-7 °F	10 °F	n/a	Carlinville	n/a	n/a	n/a	
01/04/1999 thru 01/06/1999	n/a	-9 °F	16 °F	n/a	Carlinville	n/a	n/a	n/a	
01/08/1999	n/a	3 °F	14 °F	n/a	Carlinville	n/a	n/a	n/a	
12/16/2000 thru 12/17/2000	8:00 PM	-1 °F	17 °F	-30 °F	Virden	n/a	1	n/a	A 79-year old man from Springfield, suffering from early stages of dementia, left his home on the 16th and apparently became disoriented and headed south into Macoupin County . He was found dead in an open field on the 20th.
12/22/2000	n/a	-3 °F	11 °F	n/a	Virden	n/a	n/a	n/a	
12/25/2000 thru 12/26/2000	n/a	-4 °F	14 °F	n/a	Virden	n/a	n/a	n/a	

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Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
01/23/2003 thru 01/24/2003	n/a	-4 °F	15 °F	n/a	Virden	n/a	n/a	n/a	
02/25/2003	n/a	1 °F	14 °F	n/a	Virden	n/a	n/a	n/a	
01/30/2004 thru 01/31/2004	n/a	-10 °F	10 °F	n/a	Virden	n/a	n/a	n/a	
01/15/2005 thru 01/18/2005	n/a	-9 °F	18 °F	n/a	Carlinville	n/a	n/a	n/a	
12/08/2006	n/a	6 °F	14 °F	n/a	Carlinville	n/a	n/a	n/a	
02/04/2007 thru 02/05/2007	n/a	-3 °F	17 °F	n/a	Carlinville	n/a	n/a	n/a	
02/16/2007	n/a	0 °F	13 °F	n/a	Carlinville	n/a	n/a	n/a	
01/20/2008	n/a	1 °F	14 °F	n/a	Carlinville	n/a	n/a	n/a	
01/25/2008	n/a	0 °F	14 °F	n/a	Carlinville	n/a	n/a	n/a	
12/21/2008	3:00 AM	1 °F	9 °F	-20 °F	Carlinville	n/a	n/a	n/a	
01/14/2009 thru 01/15/2009	9:00 PM	-6 °F	8 °F	-24 °F	Carlinville	n/a	n/a	n/a	
01/03/2010 thru 01/05/2010	9:00 PM	-1 °F	12 °F	-24 °F	Carlinville	n/a	n/a	n/a	

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		Low (Min)	High (Max)	Wind Chill (Max)					
01/07/2010 thru 01/10/2010	6:00 PM	-9 °F	14 °F	-24 °F	Carlinville	n/a	n/a	n/a	
12/13/2010	12:00 AM	-1 °F	15 °F	-15 °F	Carlinville	n/a	n/a	n/a	
01/21/2011 thru 01/22/2011	n/a	-6 °F	15 °F	n/a	Carlinville	n/a	n/a	n/a	
02/02/2011 thru 02/03/2011	6:00 PM	0 °F	19 °F	-25 °F	Carlinville	n/a	n/a	n/a	
02/09/2011	n/a	2 °F	11 °F	n/a	Carlinville	n/a	n/a	n/a	
01/03/2014 thru 01/04/2014		-5 °F	17 °F	n/a	Carlinville	n/a	n/a	n/a	
01/05/2014 thru 01/07/2014	6:00 PM	-12 °F	17 °F	-36 °F	Carlinville	n/a	n/a	n/a	***This event was part of a State disaster proclamation*** Ameren (regional information, including Macoupin County): 52,337 customers were without power for up to 2.5 days; 140 wires downed; 30 poles replaced; 46 tree orders received for trees/tree limbs that either fell on a line and caused an outage or were on a line and had to be removed; 145 Ameren personnel responded to the event.
01/21/2014	n/a	6 °F	13 °F	n/a	Carlinville	n/a	n/a	n/a	
01/23/2014	9:00 PM	-2 °F	10 °F	-21 °F	Carlinville	n/a	n/a	n/a	

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		Low (Min)	High (Max)	Wind Chill (Max)					
01/27/2014 thru 01/28/2014	3:00 AM	-4 °F	15 °F	-20 °F	Carlinville	n/a	n/a	n/a	
02/05/2014 thru 02/07/2014	9:00 PM	-14 °F	16 °F	-23 °F	Carlinville	n/a	n/a	n/a	
02/11/2014 thru 02/13/2014	n/a	-11 °F	14 °F	n/a	Carlinville	n/a	n/a	n/a	
03/02/2014 thru 03/03/2014	6:00 PM	-2 °F	19 °F	-24 °F	Carlinville	n/a	n/a	n/a	
01/07/2015 thru 01/08/2015	6:00 AM	-1 °F	18 °F	-22 °F		n/a	n/a	n/a	
02/18/2015 thru 02/19/2015	3:30 AM	-3 °F	15 °F	-20 °F		n/a	n/a	n/a	
02/23/2015	12:00 AM	-2 °F	19 °F	-20 °F		n/a	n/a	n/a	
01/17/2016 thru 01/18/2016	9:00 PM	2 °F	12 °F	-21 °F		n/a	n/a	n/a	
12/18/2016	12:00 AM	n/a	n/a	-24 °F		n/a	n/a	n/a	

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 8
Extreme Cold/Wind Chill Events Reported in Macoupin County
1995 - 2023

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s)[1]	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
01/01/2018 thru 01/02/2018	6:00 PM	-10 °F	16 °F	-30 °F		n/a	n/a	n/a	
01/15/2018 thru 01/16/2018	6:00 PM	-2 °F	14 °F	-25 °F		n/a	n/a	n/a	
01/24/2019 thru 01/25/2019	9:00 PM	n/a	n/a	-20 °F		n/a	n/a	n/a	
01/29/2019 thru 01/31/2019	6:00 PM	-10 °F	19 °F	-40 °F		n/a	n/a	n/a	***This event was part of a State disaster proclamation***
03/04/2019	12:00 AM	-1 °F	19 °F	-20 °F		n/a	n/a	n/a	
02/07/2021	12:00 AM	n/a	n/a	-20 °F		n/a	n/a	n/a	
02/13/2021 thru 02/16/2021	6:00 PM	-2 °F	14 °F	-25 °F		n/a	n/a	n/a	
12/23/2024	3:00 PM	-8 °F	3 °F	-40 °F		n/a	n/a	n/a	
GRAND TOTAL:						**0**	**1**	**$0**	

Sources: Iowa State University, Iowa Environmental Mesonet, National Weather Service Data, Search for Warnings.
Midwestern Regional Climate Center, cli-MATE.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Cooperative Observation Forms.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

[1] Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
1	12/02/1950	3:15 PM	White City^ Mt. Olive	F 2	11.5 mi.	50 yd.	1	3	$25,000	n/a	*Touchdown/Liftoff – Two Counties* touched down in Madison County near Fosterburg and traveled northeast lifting off near Mt. Olive – total length: 18.8 miles One person was killed and three more were injured when a car was carried 200 yards near Mt. Olive
2	08/04/1959	6:15 AM	Girard	F 2	5.7 mi.	10 yd.	n/a	n/a	$25,000	n/a	*Touchdown/Liftoff – Two Counties* touched down in Girard and followed an intermittent path to the southeast before lifting off at Irving in Montgomery County– total length: 26.7 miles
3	10/10/1959	5:15 PM	Staunton	F 2	10.8 mi.	33 yd.	n/a	n/a	n/a	n/a	*Touchdown/Liftoff – Multiple Counties* touched down in Madison County near Godfrey and traveled northeast, moving along the Madison/Macoupin County Line before entering Montgomery County and lifting off at Filmore – total length: 48.7 miles
4	03/29/1960	9:35 PM	Plainview	F 2	0.1 mi.	10 yd.	n/a	n/a	$2,500	n/a	an auto service station and two churches were damaged

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† Property damages sustained as a result of this tornado represent losses sustained in two or more counties. A detailed breakdown by county was not available.

Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
5	05/06/1960	1:05 PM	Scottville	F 1	8.2 mi.	50 yd.	n/a	n/a	$250,000	n/a	*Touchdown/Liftoff – Multiple Counties* touched down in Greene County just east of Carrollton and traveled northeast crossing the northwest corner of Macoupin County and the southeast corner of Morgan County before lifting off southwest of Springfield in Sangamon County – total length: 43.5 miles
6	03/06/1961	2:16 AM	Medora^ Shipman^ Plainview^ Gillespie^	F 1	24.0 mi.	77 yd.	n/a	n/a	n/a	n/a	*Touchdown/Liftoff – Multiple Counties* touched down in Jersey County just north of Jerseyville and traveled east-northeast through Macoupin County into Montgomery County where it changed courses tracking east-southeast through Shelby County and into Cumberland County before lifting off approx. 5 miles southeast of Greenup – total length: 117.9 miles farmsteads near Medora were damaged
7	08/09/1966	9:50 PM	Bunker Hill^	F 0	0.3 mi.	100 yd.	n/a	n/a	$250	n/a	hog houses and trees were damaged near the Macoupin/Madison County Line

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
8	01/24/1967	6:50 PM	Virden Virden^	F 2	2.5 mi.	100 yd.	n/a	n/a	$250,000	n/a	- tornado damaged approx. 100 houses across the southeast part of the city - damage was mostly to roofs or from falling trees or limbs - several mobile homes were badly damaged - one house was left upside down on its roof - two grain bins were lifted over an adjacent building & deposited 200 yards to ¼ mile away - Planning Committee member representing the City identified $200,000 in damages and indicated that several homes were destroyed but no injuries were sustained
9	05/12/1978	3:50 PM	Shipman Plainview^ Carlinville Standard City	F 2	27.9 mi.	700 yd.	1	n/a	$245,000	n/a	*Touchdown/Liftoff – Two Counties* touched down in Shipman and traveled northeast, passing just north of the center of Carlinville before lifting off northeast of Farmersville in Montgomery County – total length: 34.1 miles A man was cut on the hands when the windows of the car that he took shelter in were broken by the tornado

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
10	05/09/1990	7:30 PM	Virden	F 2	0.2 mi.	50 yd.	n/a	n/a	$250,000	n/a	- a mobile home was destroyed - power lines and other structures suffered minor damage
11	05/16/1990	1:56 AM	Royal Lakes^	F 0	0.1 mi.	50 yd.	n/a	n/a	n/a	n/a	
12	08/19/1993	5:15 PM	Atwater^	F 0	0.1 mi.	33 yd.	n/a	n/a	n/a	n/a	tornado touched down in a cornfield causing extensive crop damage
13	05/25/1996	6:25 PM	Nilwood^ Girard^	F 1	8.0 mi.	100 yd.	n/a	n/a	$250,000	n/a	- 6 farms were damaged by the tornado - a couple of barns were destroyed as were several machine sheds and other outbuildings - a garage was destroyed at one home - trees and power lines were downed
14	05/12/1998	7:16 PM	Palmyra^	F 1	1.0 mi.	200 yd.	n/a	n/a	$50,000	n/a	- a couple of farms were damaged by the tornado - 3 barns and a grain bin were destroyed - a truck was overturned
15	06/01/1999	6:55 PM	Carlinville^	F 1	1.8 mi.	50 yd.	n/a	n/a	n/a	n/a	- 4 railcars were blown off the tracks at a coal facility - half a dozen trees were downed in the area
16	04/20/2000	6:59 AM	Shipman^	F 1	1.0 mi.	30 yd.	n/a	n/a	$25,000	n/a	- 2 farm buildings were destroyed - some trees and power lines were downed
17	07/18/2000	5:50 PM	Medora^	F 0	0.1 mi.	40 yd.	n/a	n/a	n/a	n/a	
18	05/01/2002	2:00 PM	Palmyra^	F 0	0.5 mi.	75 yd.	n/a	n/a	n/a	n/a	***This event was part of a federally-declared disaster (Declaration #1416)*** some trees and power lines were downed

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
19	05/08/2003	2:00 PM	Bunker Hill^	F 0	0.2 mi.	50 yd.	n/a	n/a	n/a	n/a	tornado briefly touched down in a field between Bunker Hill & Staunton
20	06/13/2005	5:00 PM	Bunker Hill	F 0	1.5 mi.	40 yd.	n/a	n/a	n/a	n/a	- several large trees were topped - some minor structural damage occurred to some buildings - a few vehicles were also damaged by fallen trees
21	06/13/2005	5:05 PM	Bunker Hill^	F 0	1.0 mi.	50 yd.	n/a	n/a	n/a	n/a	a large machine shed was damaged with debris tossed up to 300 yards northeast of IL Rte. 159 over an open farm field

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
22	06/13/2005	5:05 PM	Bunker Hill^ Wilsonville	F 1	3.0 mi.	70 yd.	n/a	n/a	$100,000	n/a	*Unincorporated Macoupin County* - a large machine shed was completely destroyed near Mansholt Road with debris tossed over 450 yards away - several grain silos and a machine shed on a farm on South Dorchester Road sustained minor damage *Wilsonville* - the roof of a church was damaged - tree and power pole damage was also sustained Macoupin County EMA Coordinator identified $100,000 in damages and indicated that damage was sustained by trees, power lines and a roof

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
23	06/13/2005	5:10 PM	Wilsonville Sawyerville^	F 1	2.5 mi.	60 yd.	n/a	n/a	n/a	n/a	- a machine shed was destroyed and another damaged off of Wilhoit Airport Road with debris from both tossed up to 300 yards away and some of the debris was wrapped around tree trunks - a machine shed just south of IL Rte. 138 on Wilhoit Airport Road was also damaged with debris tossed up to 400 yards away - tree damage was observed just east of Wilhoit Airport Road
24	04/02/2006	4:15 PM	Piasa Shipman^	F 0	2.0 mi.	30 yd.	n/a	n/a	n/a	n/a	*Piasa* - numerous homes sustained roof and siding damage - several trees and wooden power poles were snapped - large branches were knocked out of trees *Unincorporated Macoupin County* - destroyed a barn near Beacon Road - collapsed a parking canopy at Shipman Elevator Company - a woman driving on IL Rte. 16 reported being pushed off the road by the tornado

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
25	04/02/2006	4:15 PM	Piasa^	F 0	0.5 mi.	30 yd.	n/a	n/a	n/a	n/a	- farm buildings and a grain bin were damaged along Little Flock Road - a mobile home was destroyed after being lifted and carried for approx. 20 yards
26	04/02/2006	4:26 PM	Staunton^ Mt. Olive	F 0	11.0 mi.	50 yd.	n/a	n/a	n/a	n/a	*Touchdown/Liftoff* – Two Counties touched down in Madison County south of Dorsey and traveled northeast lifting off at Mt. Olive – total length: 16.0 miles *Unincorporated Macoupin County* - damaged trees and downed power lines - blew shingles off of roofs near Staunton *Mt. Olive* blew shingles off of roofs
27	04/02/2006	4:35 PM	East Gillespie^	F 0	0.1 mi.	20 yd.	n/a	n/a	n/a	n/a	destroyed a mobile home on IL Rte. 4 at Quarry Road
28	07/19/2006	5:50 PM	Bunker Hill^	F 0	0.2 mi.	20 yd.	n/a	n/a	n/a	n/a	- tornado touched down briefly in an open field near the intersection of IL Rte. 138 & IL Rte. 159 - Macoupin County EMA Coordinator indicated that shelter was provided at the Macoupin County Fairgrounds

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1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
29	05/04/2007	4:04 PM	Royal Lakes^	EF 0	0.10 mi.	40 yd.	n/a	n/a	n/a	n/a	
30	05/04/2007	5:05 PM	Shipman^	EF 0	0.01 mi.	40 yd.	n/a	n/a	n/a	n/a	
31	03/08/2009	10:30 AM	Carlinville^	EF 1	4.21 mi.	75 yd.	n/a	n/a	n/a	n/a	- destroyed a lumber shed, an outbuilding and a small shed - seriously damaged 2 grain bins and knocked over another 2 grain bins - caused minor damage to a home - damaged trees
32	05/13/2009	10:38 PM	Gillespie	EF 0	1.65 mi.	40 yd.	n/a	n/a	n/a	n/a	- a building on the high school campus lost its roof - several homes and outbuildings were damaged - a power pole sustained damage

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
33	04/19/2011	4:58 PM	Girard^	EF 3	4.23 mi.	200 yd.	3	n/a	$3,000,000	n/a	*Event Description Provided Below*

This event is part of a state disaster proclamation

- Several farms sustained damage along the path of the tornado with many homes sustaining major roof damage
- Numerous outbuildings were either destroyed or sustained major damage along the tornado's path
- Two individuals seeking shelter in a basement sustained minor cuts and bruises
- The Girard Emergency Manager identified $3 million in damages and indicated that 3 individuals sustained injuries, 3 homes were destroyed, 6 homes were heavily damaged and numerous outbuildings were damaged or destroyed

The path of the tornado was curved. A breakdown of damages by location is provided below.

Emerson Airline Road (2.5 miles west of Girard)
- several houses sustained extensive damage in this location

Henry Road (north of the intersection with Emerson Airline Road)
- 3 farmsteads sustained damage
- one home was destroyed
- one home sustained moderate damage, trapping the residents in the basement until they could be rescued
- several barns were destroyed

Neff Road
- several farmsteads were destroyed or damaged in this area
- one home was destroyed
- numerous outbuildings were destroyed

Pleasant Hill Road (1.2 miles northwest of Girard)
a brick home sustained major damage and all of the outbuildings were destroyed

Illinois Route 4 (1 mile north of Girard)
- a farm was destroyed
- several cows were killed
- approx. 20 power poles were blown down

Prose Road (1/2 mile south of intersection with Substation Road)
- a brick home sustained extensive damage with most of the exterior walls destroyed but with the interior wall structure intact

Kimes Road (near intersection with Adams Road)
- a house sustained moderate roof damage

Adams Road
- a farmstead sustained minor damage

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
34	05/20/2013	9:14 PM	Mt. Olive	EF 2	0.20 mi.	75 yd.	3	n/a	n/a	n/a	-tornado damage path was 4 blocks long and ranged from 50 to 75 yards wide -the second story of a brick building was blown off -large sections of several roofs were blown 2 blocks to the north -a historic two-story home had the roof blown off several homes and businesses had windows blown out

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Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
35	05/31/2013	7:49 PM	Gillespie	EF 2	1.47 mi.	150 yd.	n/a	n/a	n/a	n/a	- blew the windows out of an apartment building at the intersection of Broadway St. & LJ Ave. - north end of the Gillespie High School gymnasium sustained major damage - blew the roof off a house northeast of the high school and snapped off a large pine tree at its base - destroyed a garage at the corner of Henry St. & Fulton St. - caused extensive damage to trees and roofs along its entire path - Planning Committee member for the Village confirmed that damage was sustained to the high school gymnasium and complex, residences, trees and power lines
36	11/17/2013	11:30 AM	Womac^	EF 0	2.11 mi.	50 yd.	1	n/a	$350,000	n/a	*Touchdown/Liftoff – Two Counties* touched down southeast of Womac and traveled northeast before lifting off near northeast of Barnett in Montgomery County – total length: 4.0 miles caused minor tree damage

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
37	03/07/2017	12:50 AM	Sawyerville Lake Ka-Ho	EF 1	6.71 mi.	100 yd.	n/a	n/a	n/a	n/a	*Event Description Provided Below*
Touchdown/Liftoff – Two Counties touched down southwest of Sawyerville and traveled northeast, through the village, crossed Interstate 55 and Historic Route 66 before lifting off southeast of Litchfield in Montgomery County – total length: 12.9 miles - Macoupin County Health Department's Emergency Preparedness Coordinator identified $350,000 in damages and one injury and confirmed the types of damages sustained											*Sawyerville* - destroyed a garage, damaging two cars inside- several outbuildings sustained minor to moderate damage in the southern portions of the Village including a greenhouse - most of the damage was to trees and from the loss of roof coverings on homes and outbuildings - several power poles were downed *Lake Ka-Ho area* tornado caused damage similar to that experienced in Sawyerville
38	04/29/2017	3:04 PM	Piasa^	EF 0	0.68 mi.	50 yd.	n/a	n/a	n/a	n/a	*Touchdown/Liftoff – Two Counties* touched down northwest of Brighton in Jersey County and traveled northeast before lifting off south of Piasa – total length: 2.4 miles caused minor tree damage

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
39	12/01/2018	3:59 PM	Staunton^ Mt. Olive^	EF 1	1.39 mi.	50 yd.	n/a	n/a	n/a	n/a	*Event Description Provided Below*
A tornado touched down over the Country Classic Cars business northeast of Staunton. A carport was damaged and the tornado cut an approximately 50 yard path through the middle portion of the second storage shed on the property. The tornado proceeded east, depositing several pieces of sheet metal and wood onto Old Route 66 and fields to the east. A debris path could be seen strewn for several hundred feet to the northeast. A house, couple of farm buildings and trees were damaged on the south side of Tall Timber Road. Another structure to the north side of Tall Timber Road, at the end of Adden Road, was also damaged. Several pieces of debris could be seen in the field to the northeast of Adden Road and to the west of Two Mile Road. No injuries or fatalities were reported.										
40	06/15/2019	1:43 PM	Mt. Clare Benld	EF 0	1.82 mi.	30 yd.	n/a	n/a	n/a	n/a	The weak tornado moved west to east across the northern portions of Benld producing damage to trees and power lines and minor damage to several homes. No injuries or fatalities were reported.
41	07/15/2020	3:47 PM	Palmyra^	EF U	0.15 mi.	15 yd.	n/a	n/a	n/a	n/a	The tornado was very short lived and did not damage any rating indicators.
42	06/24/2021	7:18 PM	Modesto^	EF U	0.23 mi.	10 yd.	n/a	n/a	n/a	n/a	A tornado tracked across an open field before dissipating less than a minute later. No damage reported.

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Table 9
Tornadoes Reported in Macoupin County
1950 - 2023

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles)[1]	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
43	03/31/2023	5:47 PM	Nilwood^	EF 0	0.85 mi.	50 yd.	n/a	n/a	$10,000	n/a	*Event Description Provided Below*
Touchdown/Liftoff – Two Counties touched down east of Nilwood and traveled northeast, crossing Interstate 55 before lifting off southeast of Farmersville in Montgomery County – total length: 6.33 miles											A tornado touched down in near the intersection of Waggoner and Boston Chapel Roads. It ripped a portion of the roof off of a farm building and threw some of the debris with enough force to embed a plank of wood into the roof of a home. It then traversed a few fields and wooded areas, crossing into Montgomery County at West County Line Road.
GRAND TOTAL:							**9**	**3**	**$4,832,750**	**$0**	

Sources: Macoupin County Multi-Jurisdictional All Hazard Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Data.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.
NOAA, National Weather Service, Storm Prediction Center, SVRGIS, Tornadoes (1950-2023) Database.

During the process of collecting and verifying the tornado data used in this updated Plan, discrepancies were identified in the existing tornado information databases. Discussions were immediately conducted with the NWS to verify tornado coordinates so that these discrepancies could be corrected or clarified. Consequently, this Hazard MitigationPlan has the most accurate information on tornadoes for the County. If the reader compares the tornado information in this Plan with other databases, they may encounter the same discrepancies until these databases are formally corrected.

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Table 10
Drought Events Reported in Macoupin County
1980 - 2023

Year(s)	Start Month	Duration (Months)	Magnitude Drought Intensity Category[1]					Percent Crop Yield Reduction from Previous Year		Designated USDA Primary Natural Disaster Area	Crop Damages	Impacts/Event Description
			D0	D1	D2	D3	D4	Corn	Soybeans			
1983	n/a	n/a						56.9 %	43.4 %	n/a		All 102 counties in Illinois were proclaimed state disaster areas because of high temperatures and insufficient precipitation beginning in mid-June
1988	June	16						31.3 %	16.2 %	n/a		Approximately half of all Illinois counties, including Macoupin County, were impacted by drought conditions
2005-2006	May	18.5	X	X	X	X		19.0 %	14.0 %	Yes	$2,358,983 *	
2011	August	3.5	X	X	X			10.8 %	27.3 %	No	$10,068,532 *	
2012-2013	June	11	X	X	X	X		34.6 %	---	Yes	$63,033,950 *	
GRAND TOTAL:											**$75,461,465 ***	

* Crop Damage figures were obtained from USDA Risk Management Agency and only represent losses sustained by insured crops

Sources: Illinois State Water Survey, Illinois State Climatologist.
National Drought Mitigation Center, United States Drought Monitor.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.
United States Department of Agriculture, National Agricultural Statistics Service, Quik Stats Lite.

[1] An "X" identifies the level of drought intensity reached by at least a portion of the County during the event, if available.

US Drought Monitor – Drought Intensity Category Descriptions

D0	abnormally dry	D3	extreme drought
D1	moderate drought	D4	exceptional drought
D2	severe drought		

APPENDIX K

MAY 25, 1989
SEVERE STORM EVENT

MACOUPIN COUNTY ENQUIRER

Macoupin County's Dominant Newspaper - First in News - Features - Circulation

Wind, hail shatter area

By Tim Snodgrass

Dark, ominous clouds descended on Carlinville on Thursday afternoon, May 25 at approximately 1:35 bringing high winds, rain and golf-ball sized hail.

The storm, which came from the west, surprised local residents with its strength by up-rooting trees and shrubs. The storm left 99 percent of the city with some type of damage. Windows were broken by the hail and high winds all over the city.

The storm lasted only about 18 minutes but caused millions of dollars of damage to property in Carlinville.

The Carlinville Emergency Disaster Control Assistance, ESDA, Carlinville Rescue Squad and Fire Department, along with city and county police departments, responded to the several calls of trees blocking roads and utility companies called upon other area workers to come to Carlinville to help restore utilities to the city.

Carlinville Police Chief Ronnie Reiher said, "We had two dispatchers on duty at the time of the storm and it was all we could do to keep up with the numerous phone calls we received. Off-duty police officers also responded and helped with traffic control.

"I was surprised and relieved that there weren't any serious casualties."

Clean-up crews worked into the evening and through the Memorial Day weekend to clear roads and restore services.

The torrential rains caused severe, momentary flooding at various locations in the city which halted vehicle traffic.

Because of the storm, Carlinville was sealed off to in-coming motorists at all points leading to the city. Only Carlinville residents were allowed into the city along with utility company personnel and emergency personnel.

Several buildings on the square received structural damage as the high winds and hail pelted buildings leaving a trail of broken glass and debris strewn all over the Square.

The century-and-one-half-old Loomis House, owned by Alex "Red" and Fern Perardi sustained the most damage. The large half-inch thick picture window of the House of Beauty shattered leaving glass everywhere and causing water damage to the contents of the beauty shop. A 10-foot hole was knocked out of the brick wall on the south side of the four-story building causing the brick to fall two-stories onto the roof of an adjoining apartment knocking a large hole in the ceiling of the occupied apartment causing severe water damage to the occupants' possessions.

Thirty-foot tall evergreen trees were up-rooted from the city Square and the flag pole was bent from the force of the winds.

According to Carlinville Mayor Jack Pascoe, damages to city property has been estimated in excess of $1 million.

"We were extremely fortunate that there were no casualties or serious injuries.

"The citizens of Carlinville rallied together to clean up after the storm. The cooperation between townspeople and city employees was outstanding. I would also like to commend all of the city employees for their extra efforts. It would be impossible to list all of the many people who volunteered their services and assistance."

Pascoe also said that the Carlinville street department crews will be picking up tree limbs which residents are asked to stack on the terrace, close to the road, cut in six to nine foot lengths. Residents may also take limbs to the City Street Department building lot on North Plum Street if they desire.

Pascoe added, "I want to thank all of the nearby communities who offered their services and assisted in so many ways. Illinois Power Company has done an outstanding job of restoring services by utilizing the crews from neighboring communities in addition to local personnel.

"It was heartwarming, the way everyone worked together, neighbor helping neighbor."

The We Care Recycling Center, located on Plum Street behind the Marvel Theatre, has containers available for glass only. The recycling center will donate all proceeds from the glass to the city in the form of new shrubs for the city Square.

Carlinville Unit School District #1 Superintendent James Bottrell said, "It was a harrowing experience and I think everyone did exactly what they should have done.

"We are real fortunate in that there were no serious injuries. We had some scared folks. We took what we felt were the necessary precautions to make sure that no one was injured."

Bottrell added that he waited until he had heard from ESDA that it was okay to send school busses out in the rural areas. School children who live in town were held at school until their parents came by to get them. Those students who walked home were kept at the school until it was deemed safe for them to walk home due to downed power lines and debris.

The South School suffered the most damage of all of the schools. There were approximately 50 broken windows on the west side of the school building. There was also some minor water damage to the interior of the school.

"There was no structural damage to any of the buildings including the new construction site at the high school.

"We have a real question about the temporary roof at the new construction site. The roofers were in the process of applying the final roof covering and were 15-20 percent finished. There's a possibility that the whole thing will have to be taken off and re-applied," Bottrell said.

Hail penetrated the protective covering but it is not yet known how extensive the damage is to the roof. The construction company's insurance will cover any damage done to the new construction area. Bottrell also said that about a dozen windows at the high school will have to be replaced and that there was some water damage to dry wall in the new construction area of the high school.

"We'll have to do some close inspections of the roofs at other schools. We have some older roofs that may need repair, but we haven't had the chance to examine that thoroughly," Bottrell said.

A Carlinville Area Hospital spokesman said there were only six out-patients treated for minor cuts and five cardiac patients treated, mostly from local nursing homes.

As near to a tornado as anyone cares to be

By Tim Snodgrass

The Indians said it would never happen, but it did. And boy did it!

I was in my car when the storm hit. I was on my way to Gillespie to cover a ribbon-cutting ceremony. I never got very far. I wound up at the car wash on North Broad Street. By the time I got there, there were two cars in each bay so all I could do was park next to a vacuum cleaner and hold on.

At first, it just seemed like a bad thunderstorm so I decided it was safe to get out of the car to take some photographs. When I saw the awning of Ballinger's Barber Shop whirling down the street and felt the hail on my head, back and legs, I decided that I had enough photographs of the storm and got back in the car.

When the worst of the storm had moved on, I was one of the first to drive away. If I had waited another couple of minutes, I might have needed a canoe to cross North Broad. That street flooded so badly that water was standing 20 feet on both sides of the curbs.

As I drove west on East First North Street, I turned left toward the police station and that's when I saw the downed trees and power lines blocking the road down by the South School. I drove to the Square and was overwhelmed with what I saw. The big, beautiful evergreen trees on the Square were lying down as if they were tired. I'll miss those trees next Christmas. The flag pole was bent to almost a 30 degree angle. I just stopped there at the stop sign and looked at the damage. It was

[Continued on page 4]

Carlinville storm damage

[Continued from page 1]

everywhere I looked. I tried to find one spot or building that was left untouched by the storm, but all I saw was damage. As I came around the Square, I saw the Loomis House with the 10-foot gaping hole on the fourth floor. I parked my car and ran into Sullivan's for a handful of film. That's when the real action began.

In no time at all, emergency crews, policemen, and utility crews were on the roll. People started to come out of hiding to take a look around. Carlinville looked like it had been invaded with hundreds of tourists driving around in crazy patterns. I even saw a person drive the wrong way around the Square right past a police car. I decided right then and there that I was going to stay on foot. I felt it was safer to get rained on than to drive.

Everywhere I looked there were trees down and parts of buildings and awnings scattered in the roads. There was so much glass in some places that the streets glistened.

When I finally got over the initial shock of seeing my town almost destroyed, I thought it was time to start taking photographs. The only problem was that everywhere I looked seemed like a good place to start so I started taking pictures on the Square and I worked my way west until I got to the high school. I ruined a brand new pair of leather deck shoes that day. I didn't do my feet too much good either from all of the water I waded through.

Everywhere I went, people were busy boarding up broken windows. I was really surprised at how quickly some people were getting plywood up. They either anticipated the storm and stocked up on plywood or were able to get to the lumber yard before the "tourists" hit the streets.

When I made my way back to the Square from the high school, I saw Harry Starr IV directing traffic at the corner of the South School and Dick and Judy's Restaurant. Other helpful citizens directed traffic at various congested intersections until police could get there to help.

[Continued on page 10]

Carlinville storm

[Continued from page 4]

The city police smartly closed off the Square to traffic.

As I ran around from damaged house to damaged house, it seemed like I was trapped in some kind of Twilight Zone tunnel. I could see everything, but I heard not a sound. I only recall hearing distant sirens as emergency crews tried to make their way to another severe accident scene.

I gazed in true wonderment when I got to the Courthouse and saw practically every window on the west side knocked out including the beautiful, old leaded glass windows. When I looked at the Courthouse through my zoom lens I saw where the shades on the windows had been shreaded by the storm. I didn't really have time to take it all in because everywhere I looked, I saw another photograph waiting for my camera. I tried to look into the faces and eyes of everyone I saw to try to get an emotional idea of how the storm affected them. I saw a lot of fear-filled blank stares and mouths held open wide in amazement.

I ran into several friends and acquaintances. We never spoke. All we had to do was to look at each other, shake our heads, and go about our business. What could be said?

I decided to walk down to the southeast corner of the Courthouse. That's when I saw the semi truck stopped in front of Drury's Day Care Center with half of a 40-foot tree resting on top of the cab. The truck driver escaped the truck without a scratch.

By the time I finished taking photographs, I had taken six rolls of film. That came out to 168 photographs.

For a few days after the storm, everywhere I went I could hear chain saws running as people continued to clean up tree limbs. Some side streets in Carlinville look like a wooded path cut through the jungle from all of the tree limbs stacked out on the street waiting for city crews to pick them up.

So, the Indians said this would never happen in Carlinville because of its unique location in a valley with creeks and rivers bordering the area. So much for Indian lore. At least that tale anyway.

To me, one of the most amazing results of the storm is the fact that there were no serious casualities at all.

There were also no fires as a result of the storm. I find this odd. In almost every account of this type of storm I've ever heard about, there are always one or two stories about seriously hurt people or deaths.

It is really a shame too that there is no official way to record wind speed in Carlinville. Dr. Jack Campbell reported that Carlinville received 1.37 inches of rain from 2:00 a.m. Thursday to midnight. I could have sworn that we got a foot of rain from being out in all of that mess. As far as wind speed and seeing funnel clouds go, I only heard unconfirmed reports of both so your guess is as good as mine. Litchfield Airport recorded the winds at 28 m.p.h. at the time the storm hit Carlinville. They must have been out of the path of the storm--way out.

Storms make great photographs, but I'd rather take pictures of the other side of nature.

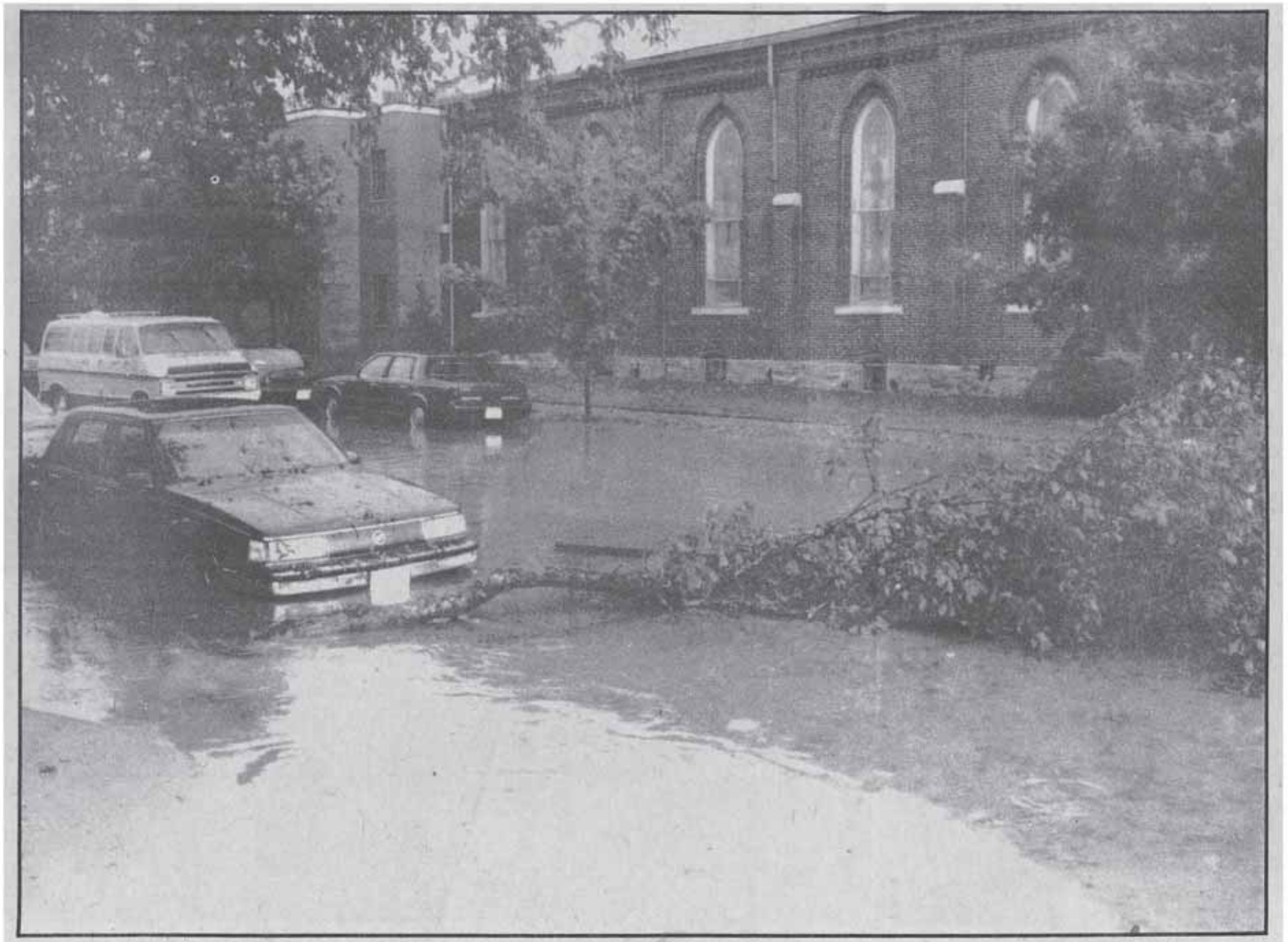
By the way, did you happen to see any Indians in town during the storm?

Mayor Pascoe announces office hours

Carlinville Mayor Jack Pascoe will be available to meet city residents at his office on Tuesdays from 4-7 o'clock in the evening and on Saturdays from 10:00 a.m. until 1 o'clock in the afternoon.

The office is located next to the Carlinville City Hall. The telephone number for Mayor Pascoe's office is 854-5586.

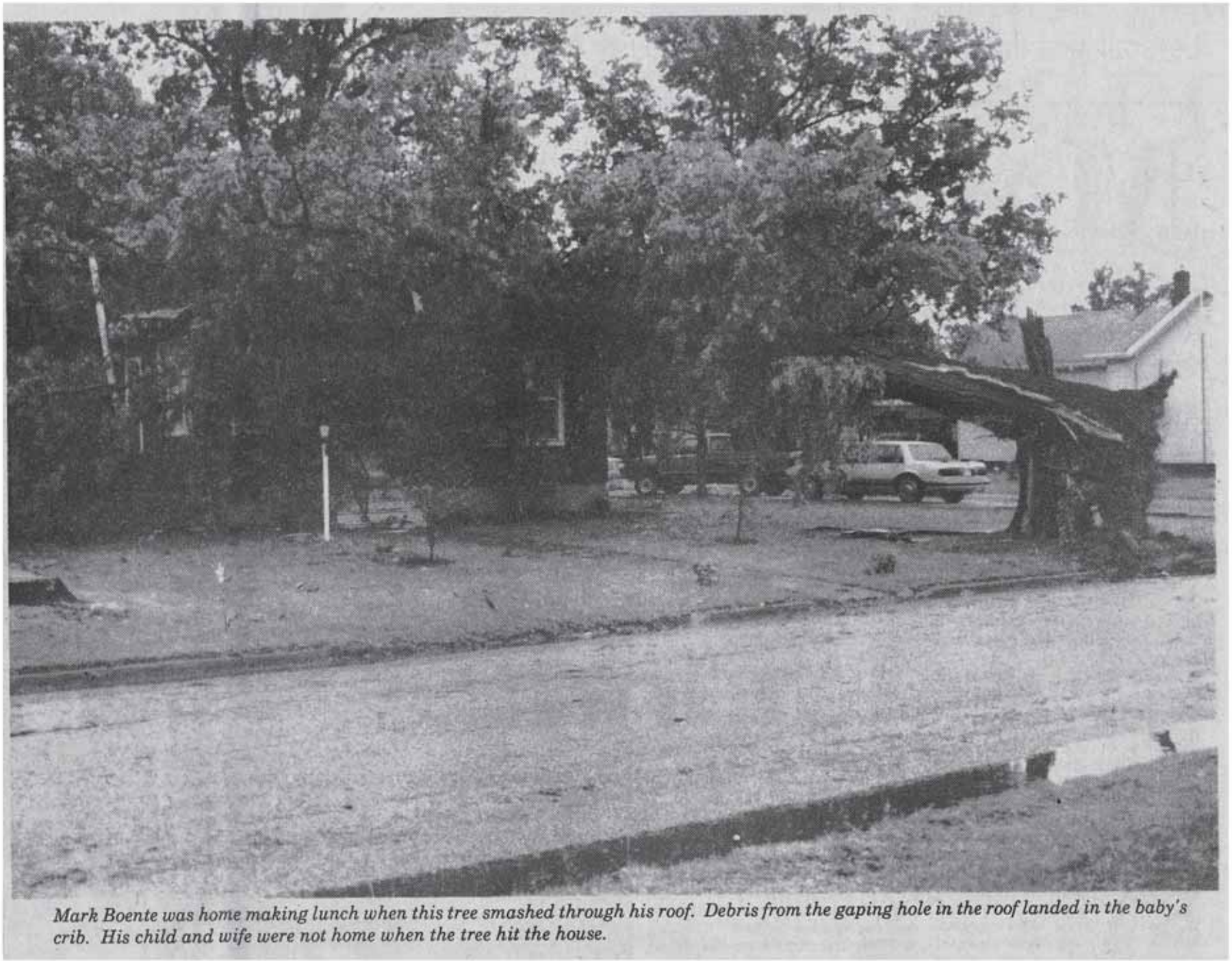
This mobile home on North East Street could not be seen until workers removed tree limbs. The occupant of the trailer was inside when the tree fell on it. Fortunately he was not injured.



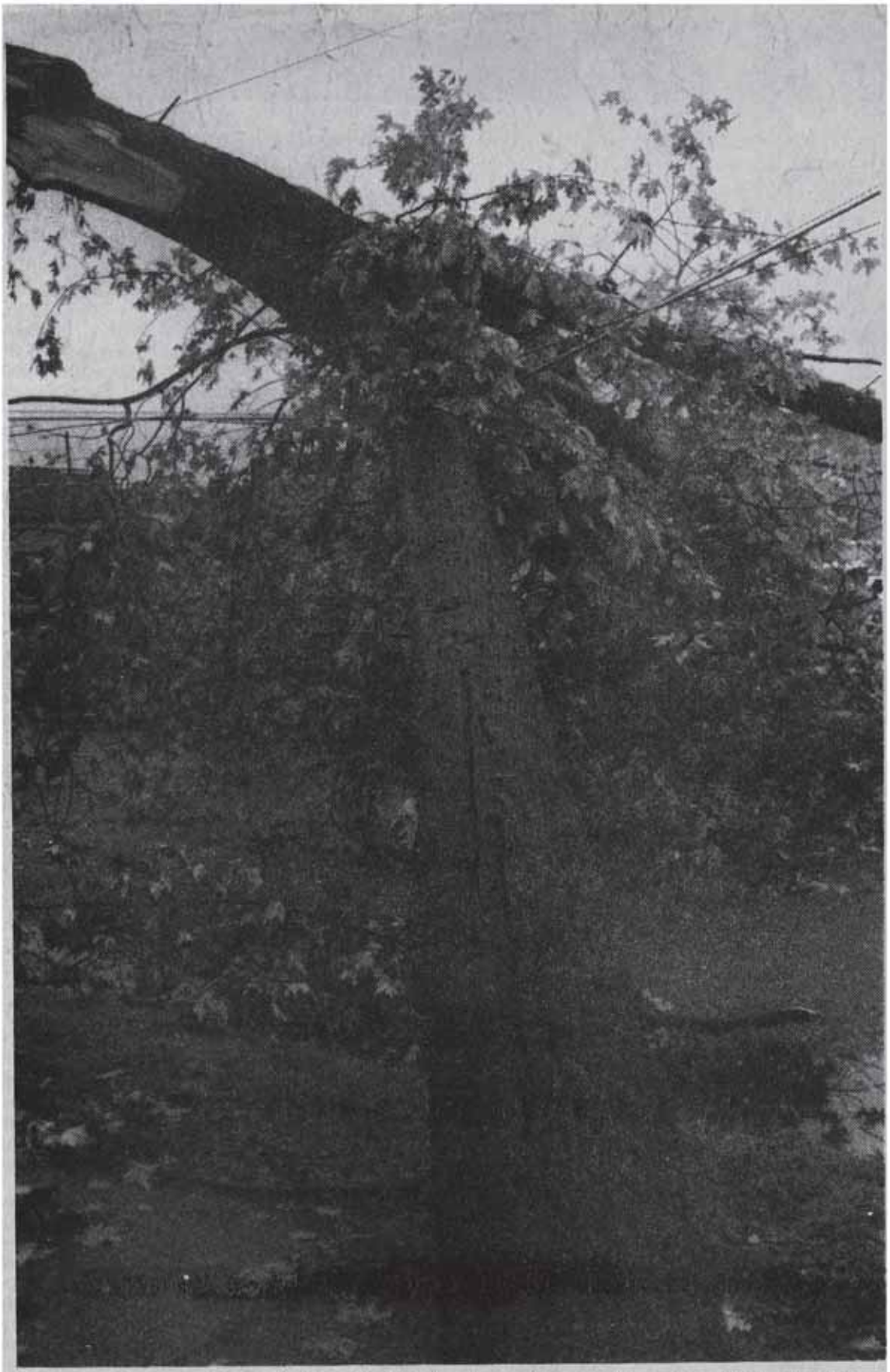
Many streets were flooded following the heavy rains that accompanied the storm that hit Carlinville on Thursday afternoon, May 25. A tree limb floats by the parked car soon after the storm passed.

Sandy Schwab looks at the mess from the broken glass door on the west side of Starr's Market in bewilderment as she sweeps the shattered glass.

The awning leading into the Carlinville Clinic buckled under the force of the storm as did the tree that leans against the west side of the building.

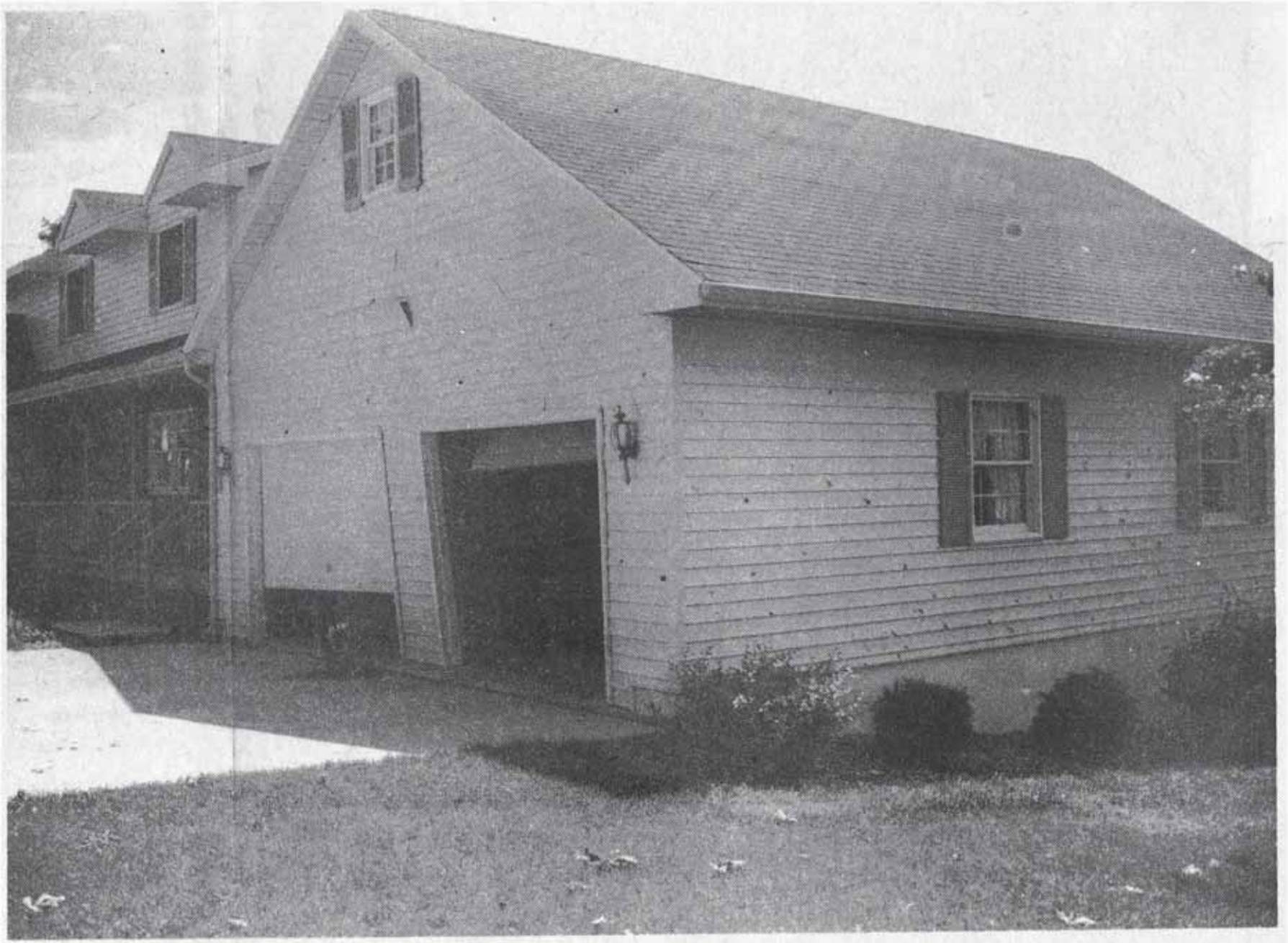


Mark Boente was home making lunch when this tree smashed through his roof. Debris from the gaping hole in the roof landed in the baby's crib. His child and wife were not home when the tree hit the house.



This was the scene all over Carlinville after the storm. Several trees and utility poles were downed as a result of the high winds from the storm.

Approximately 50 windows were broken on the west and south sides of the South School. The elementary school received more damage than any other school in town.



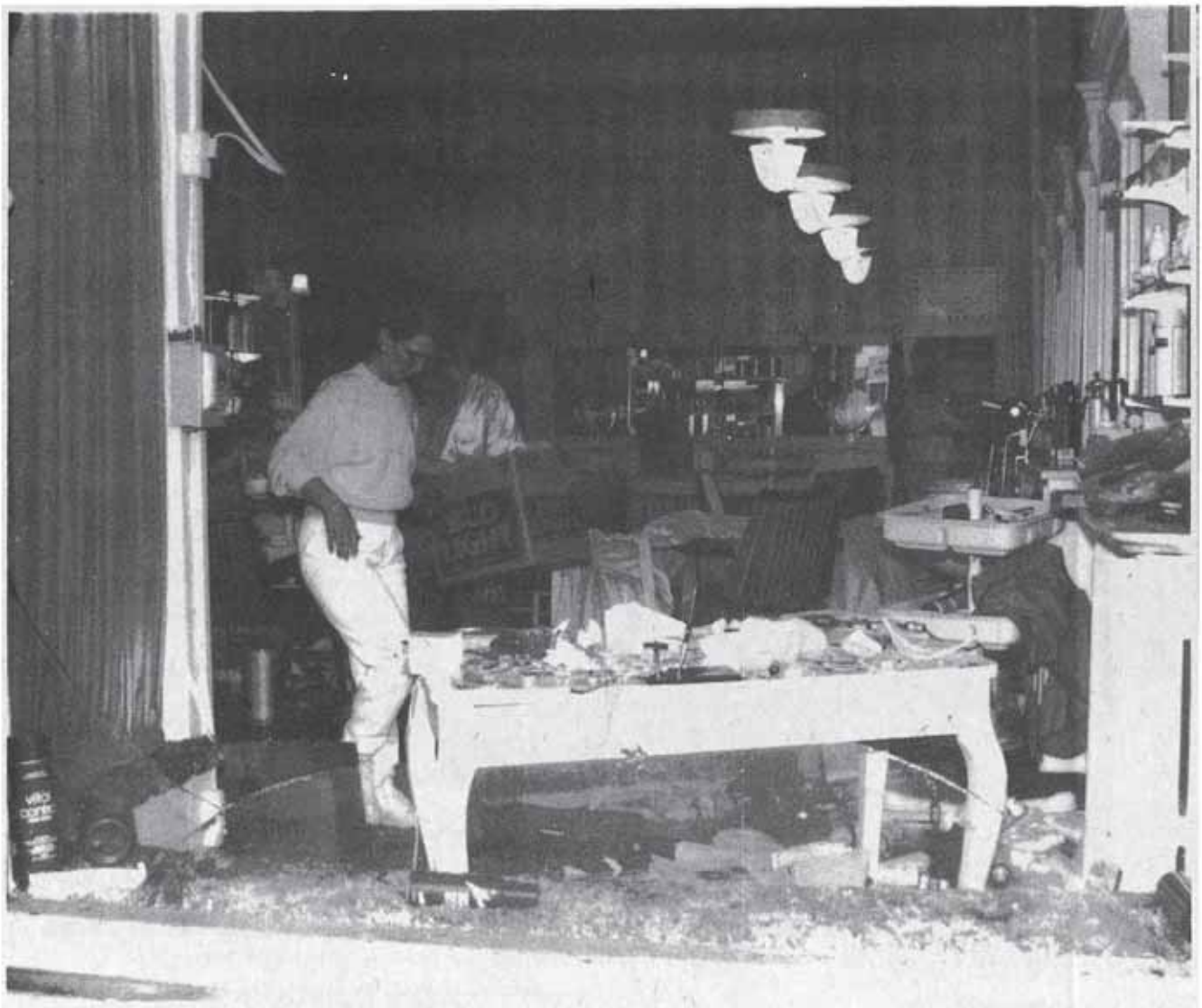
The front of Gerald Lippold's garage was pushed back by the heavy winds shearing the foundation bolt. Hail put several holes in his garage and ripped siding off in several places.

Appendix K

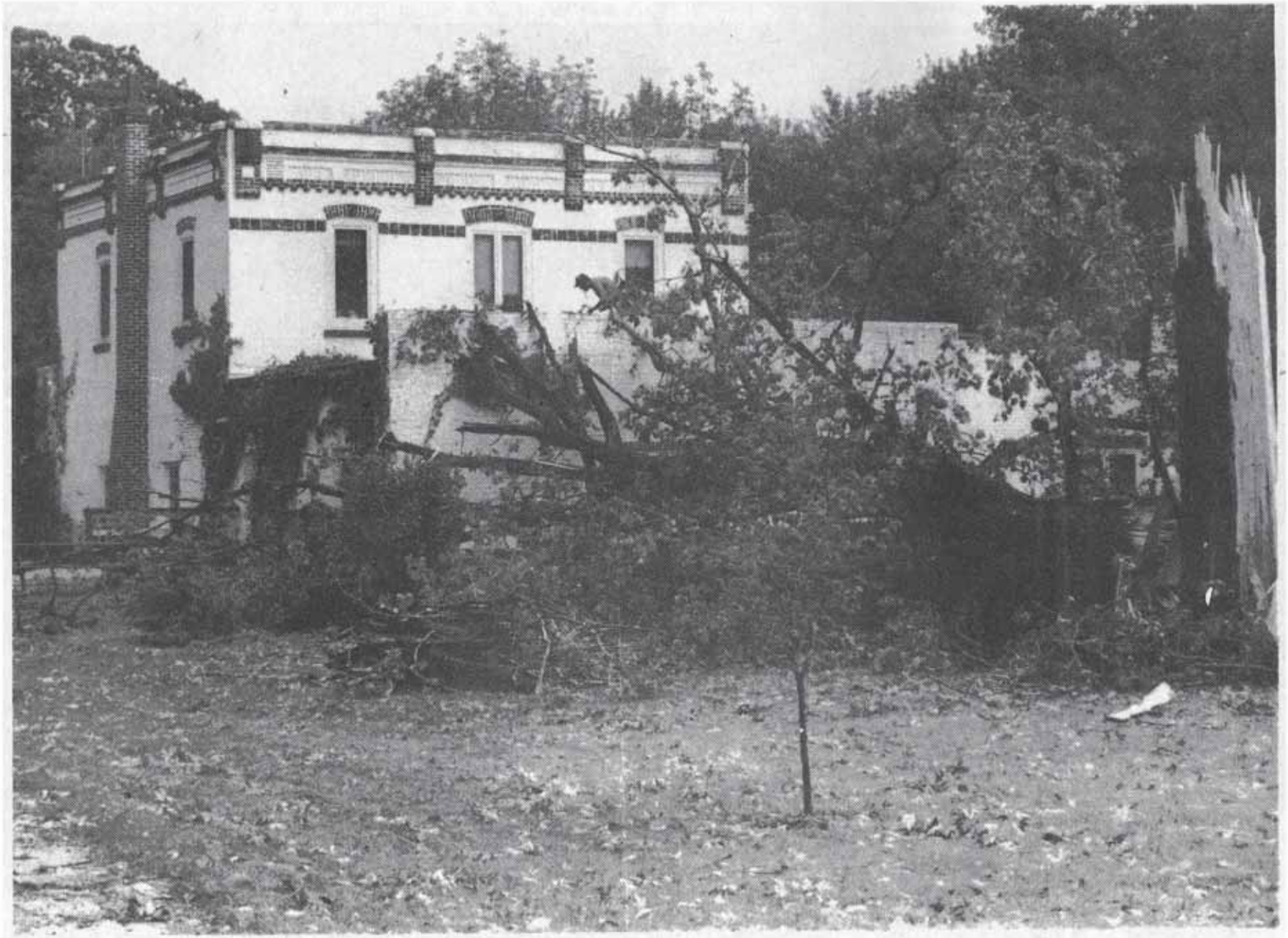
Windows on the west side of the Courthouse were broken including the stained glass windows. The shades on the windows are in shreads from the force of the storm.

An employee at the Office Store Co. on the Square looks at the broken glass and debris inside the store as she wonders where to start first.

This car wasn't so lucky, but fortunately the driver was not inside when the tree fell on top of it.



Elaine Brockmeier helps AlanWestenberg and Ann Snodgrass clean up the broken glass from the one-half inch thick plate glass window at The House Of Beauty on the Carlinville Square that schattered under the force of the storm.



Crumystone (old Carlinville Waterworks) is partially hidden by this tree that fell on part of Clay Heinz's Crumystone residence.

Clay Heinz squats by the roots of a tree that the wind blew over in his yard. The hole, which cannot be seen in this picture, where the tree was up-rooted is big enough to hide a car.

THE GIRARD GAZETTE

Alive in Spirit - Growing with Girard

35¢ per copy

Volume 109 Girard, Ill. 62640 Wednesday, May 31, 1989 Two sections—30 pages No. 22

Thunderstorms, winds, hail cause damage in Macoupin

Emergency officials were kept busy Thursday during a daylong series of thunderstorms that accounted for some major property damage.

Girard Fire Chief Gary Otten reports that about 1:35 a.m. Thursday the first storm hit and cut a path from the number five green at Oak Leaf Country Club east into Girard leaving roof damage, broken windows, uprooted trees and downed power lines.

The golf course's caretakers, Roger and Lynda Lynn, were in the mobile home located near the clubhouse when it was overturned and totally destroyed by a devastating blast of straight-line winds. They were taken to Carlinville Area Hospital, treated for minor injuries and released. Fallen tree damage was also reported to the club's new bridge.

The two story brick home of Theresa Bristol just west of the golf course sustained major structural damage when its roof was momentarily lifted. The storm continued east uprooting a 25-foot section of hedge row at the Henry Morgan farm, flattening two small animal outbuildings on the Rick Theel property and blowing out the block foundation of a garage there, shattering windows at the Sean Burgess home, damaging the roof of a Doc and Carolyn Barrett mobile home, and moving a central air conditioning unit at the Fred Adamski home on South and 8th streets.

Barrett Park playground equipment was damaged by fallen trees and a 40-foot refrigerated van, unattached to the tractor, was overturned at the Dan Pruitt home on 7th St.

A second major storm with rain, high winds, and hail hit Girard about 12 hours later at 1:25 p.m. The National Weather Service again had no confirmed tornado sightings in Macoupin or Montgomery counties. A 12'x30' section of roof was stripped down to the rafters from the northwest corner of the Girard Fire House.

Macoupin County Emergency Services Disaster Agency coordinator Jim Pitchford estimates Girard storm damage at about $70,000. Outlaying areas between Girard and Carlinville were apparently untouched.

Carlinville storm damage is expected to total several million dollars as straight-line winds there accompanied by golf ball to tennis ball size hail pelted cars and homes, shattering scores of westward-facing windows, including those at the courthouse.

Spotlight

A large maple tree fell on Larry Waters' family car Thursday during the windstorm in Palmyra. The car was totally demolished.
(Staff photo by Nancy Dowell)

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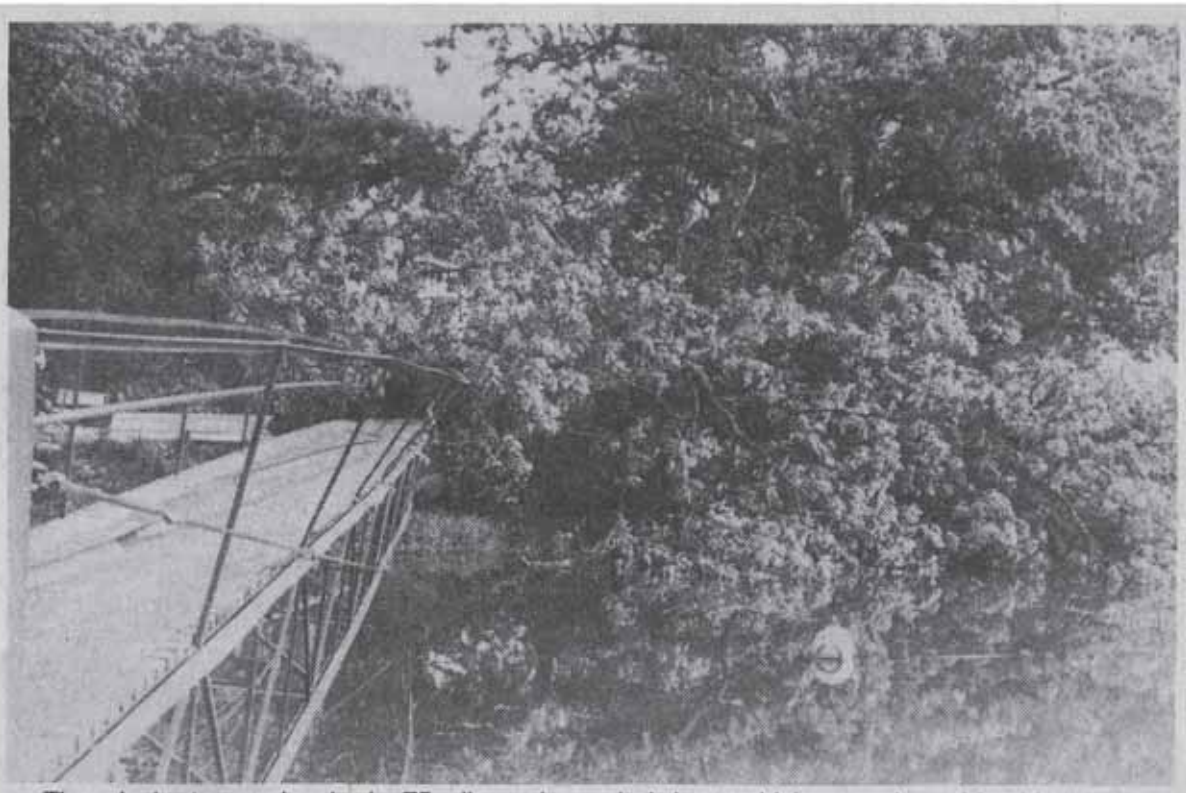
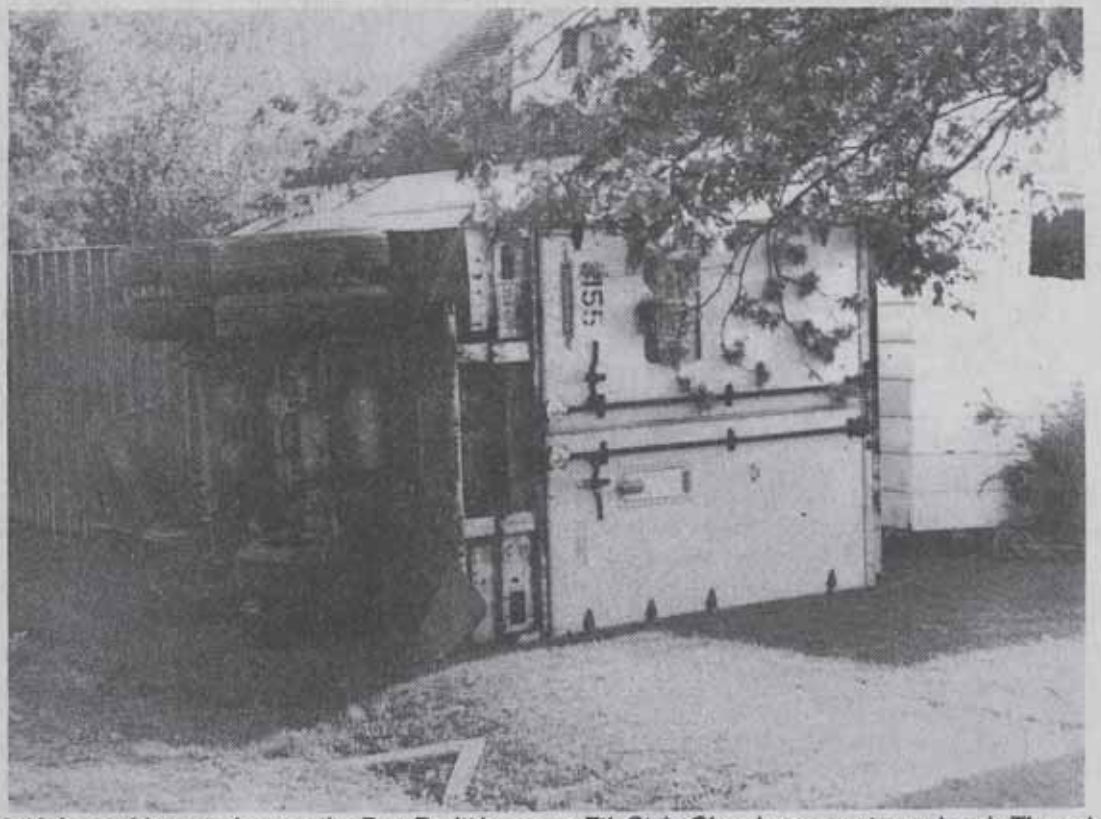


Thursday's storm unleashed a 75 mile per hour wind sheer which caused considerable property damage in Girard. At Oak Leaf Country Club, caretakers Roger and Lynda Lynn were in their mobile home at 1:15 a.m. when it was totally destroyed. Lynda says, "We had both woke up from the noise. Roger looked out the window and saw a tree coming towards the trailer. He shouted 'get down' but before I could react, everything started moving. I was pinned in and Roger had to get me out." The Lynns were badly shaken and bruised from the ordeal. The foot bridge at Oak Leaf Country Club was also damaged in the storm. See releated story. (Staff photos by Joe Schroeder)



A 40-foot refrigerated van at the Dan Pruitt home on 7th St. in Girard was overturned early Thursday morning when a thunderstorm created a devastating straight wind. (Staff photo by Rita Ham)

The State Journal-Register
Springfield, Illinois Friday, May 26, 1989 First edition 35 cents

Widespread damage in Carlinville, but few injuries

by Bill Bush and Mark Hollis

CARLINVILLE — Mark Boente is relieved his wife and 7-month-old daughter weren't home when high winds Thursday afternoon sent a large tree crashing through the roof.

One hole was directly above his baby daughter's crib. Plaster and wood fell where the child would have been sleeping if she hadn't been staying with her grandparents, Boente said.

His wife was undergoing surgery in St. John's Hospital at the time.

"Somebody up there was watching over us," said Boente, of 517 S. Mayo St. "Nobody got hurt. Everything is fine. It's all replaceable."

Boente and other residents of this Macoupin County town about 40 miles south of Springfield were removing fallen trees, sweeping up broken glass and mopping water from their homes and businesses.

Doyle Miller, pastor of the Emmanual Baptist Church, 117 West Second St. E., returned to his four-story church to find almost every window shattered. Luckily, the storm didn't hit on a weekend when the building would have been filled with children. Only four church members were in the building when the storm hit.

The wind shattered almost every window in the restored Macoupin County Courthouse, near the town square. Trees and shrubs on the courthouse grounds were uprooted.

Surprisingly, the storm, which snapped huge trees like toothpicks, spared most residents from injury. Six people were treated at Carlinville Area Hospital and released, some of whom had been cut by flying glass. Others were cardiac patients frightened by the storm, a nurse said.

Schools kept children late to keep them from walking home through the debris and over downed power lines.

For most of the town, the storm was a total surprise.

Lonnie Hyman, 34, was working at a farm machinery supplier when he noticed the ominous looking weather. Before long the storm was raging, he said.

"It was so windy out, and the rain was coming down so hard, that you couldn't see six feet in front of you," he said. "Then the big hail started coming in. We had hail like the size of golf balls."

Georgia Weller watched from the front door of her house at 500 E. Main St. as the wind sent a large tree

○ *continued on page 2*

Carlinville

● *from page 1*

crashing into her neighbor's house. She saw the sky darken and then turn a bright green just before the severe wind began.

"I never did see a funnel cloud," she said. "The sky just turned pitch-black. I mean, it was like late at night."

Boente said he was watching the storm from his living room when all the house windows began breaking. Suddenly he heard the tree crash through the roof of his house, and he went to the basement.

His living room, two bedrooms and a sunroom had lost parts of their ceilings. The rooms were littered with broken glass and water. Friends helped him move what furnishings that were left undamaged into a trailer for storage. He doesn't know if he will rebuild his house or start over at another site.

A reporter for Hillsboro radio station WSMI, which has offices in Carlinville, broadcast live when the storm hit there about 2 p.m.

"We could hear the hail, and (the reporter) was describing bricks flying off buildings and falling into the street," operations manager Terry Tode said from Hillsboro.

"We watched the storm on radar and started mentioning it when it crossed the Mississippi," he said. "We watched it march across Greene, Macoupin and Montgomery counties, and on into Christian and Shelby."

The station's damage, however, was in Hillsboro, when huge hailstones broke the plate glass window.

> *"I never did see a funnel cloud. The sky just turned pitch- black. I mean, it was like late at night."*

Carlinville native Howard Kuntzmann, 60, of 311 Minton St., said Thursday's storm was the worst weather he has seen in his lifetime in the community.

Kuntzman, whose own home sustained minor damages, said about every building he saw after the storm passed through the community was damaged. "A new ridge vent on my roof looked like someone beat it with a sledge hammer," he said.

The Carlinville Fire Department could not respond immediately to at least one fire call Thursday afternoon, Kuntzman said, because of a townwide power outage that prevented the fire department's electric doors from opening.

Carlinville police closed the community to local traffic after hail — reportedly of tennis ball size — and high winds pounded homes and vehicles there.

"They said (rough weather) never would hit Carlinville because Indians believed the creeks surrounding it would protect it," Kuntzman said of local folklore.

MARCH 19, 1948
TORNADO EVENT

Appendix K

Appendix K

1836 1986
SESQUICENTENNIAL

BUNKER HILL GAZETTE-NEWS

Serving the Bunker Hill Community Since 1866

Gazette, Vol. 133, News, Vol. 111, No. 12 Special Edition - Thursday, March 19, 1998

Washington Street after the 1948 tornado, looking at the block where the Village Drive-In is now located. One tree had a piece of straw stuck in its trunk. The white building standing was a filling station.

50th Anniversary Of The

Friday, March 19, 1948

TORNADO

which destroyed 80% of Bunker Hill causing 19 deaths, and approximately 165 injured. Reported damage of 1 1/2 million dollars was left in the tornado's wake at 6:45 a.m.

The following special edition features written testimony of residents of Bunker Hill and many photos of the damage caused by the tornado on March 19, 1948.

Corner of Warren and Union Streets, Gertrude Wawne's house.

Aerial view of the business district of Bunker Hill after the tornado (looking east at what is now the United Community Bank Building).

50TH ANNIVERSARY OF THE

Tornado devastates City of Bunker Hill

From Bunker Hill Gazette-News, March 25, 1948

Terrific disaster descended on Bunker Hill at 6:45 a.m. Friday morning when a tornado ripped through this 112-year-old city, taking a toll of 19 dead and 126 injured, and left a timbled mass of reckage in its wake. The storm rolled over the business and residential area like a giant steamroller smashing brick and frame structures like paper boxes, laying 80 percent of the city waste and caused damages estimated at 1 1/2 million dollars.

As soon as Dr. Draper was freed from the wreckage pinning him and his wife, he got Mrs. Draper, who was seriously injured, ready for the ambulance when it arrived, he hurried, although injured himself, with Phyllis Baker, a registered nurse who was home on vacation, to the Meissner School and took over the first aid station there. The station had been set up earlier by Paul Wisch, coach at the school, and Paul Byron Hale, Meissner music instructor. He was soon joined by Dr. Lusk of Carlinville, one of the first out-of-town arrivals on the scene and the two doctors with the assistance of Miss Baker gave emergency treatment to the injured. A morgue was set up in another room of the school and the dead were laid there until they could be removed.

In the meantime, Dr. George Hess was working feverishly in the business area, giving medical attention to all the injured brought to him and directing the ambulance to the victims who were to be hospitilized.

Mr. A. H. Wise and son, Bill, of Jacoby Funeral Home, got into action early using the local ambulance and firm truck and made two trips to Alton Memorial Hospital before the out-of-town ambulances arrived. They did yeoman's duty all day long. Passenger cars were also pressed into service to move the injured and dying to the hospital.

Early Friday morning road blocks were established by the Illinois State Highway Patrol to re-route traffic and keep out sight-seers. By nightfall, the Army and National Guards had posted patrols all over the city to prevent looting and they were assisted by auxillary guards from Legion and V.F.W. posts, who reported from surrounding towns.

Ambulances were slow in appearing on the scene, because all communication lines were destroyed by the storm. But in the interim some of the farmers in the community hurried to town with bulldozers and tractors and with local work crews, managed to clear some of the main streets so that the ambulances could get to the school house and other points where injured were collected.

About 9 o'clock ambulances from Litchfield, Carlinville, Alton, and Gillespie arrived and from then on aid in all forms came from all over the area.

Power service was also cut off by the storm and the telephone lines, which were out, were replaced by powerful radio systems which police and highway units brought in.

The first emergency food line to be established was set up on the business district by the Bahn's Grocery Store, which while damaged to some extent had most of their grocery stock intact.

The First National Bank Building in the heart of the business district was the only other building in the business area that was left intact, and the post office was immediately set up in the lobby. By afternoon, food stations were set up by the Red Cross, the Salvation Army and the Lebanon Legion Post served sandwiches and hot coffee, which by that time was welcomed by the wearied workers. By evening these food stations had things well enough organized so that they could serve hot food.

All of Bunker Hill's five churches were completely destroyed and the entire business district with the exception of the First National Bank building and Bahn's Grocery Store.

By Saturday the clean-up and digging out was well underway and the process of reconstruction started as residents whose homes were not completely destroyed, began making the necessary repairs that would get a roof over their heads. A heavy rain all day Sunday did not slow the work of the citizens and the volunteer workers appreciably and all hands were going at it zealously all week.

Fields and pastures for miles northeast of Bunker Hill in the storm path were littered with twisted corrugated roofing and storm debris.

Many homes southwest of Bunker Hill were also wrecked. In their eagerness to come to Bunker Hill's aid, the relief agencies inadvertently overlooked sending help to the farm tornado victim's, it was learned Tuesday, and help was immediately rushed to them.

A list of deceased are as follows:

Allen, Jacqueline Jean (Jean Fensternman Allen's baby).
Gregory, J.C.
Gurley, Marrin
Hales, Elizabeth
Kay, Jacky
Kay, Georgette
Landreth, Georgie May
Landreth, Mrs. Rachel
Langacher, Mrs. Chris
Osburn, Juanita
Pollock, Mrs. Isabel
Ridgley, Rose
Tipton, William
Vroman, Carolyn Sue
Vroman, Danny
Vroman, James
Vroman, Norma
Weimers, Mrs. Oscar (Jane)
Kehr, Charles

From the Bunker Hill Gazette-News, March 25, 1948

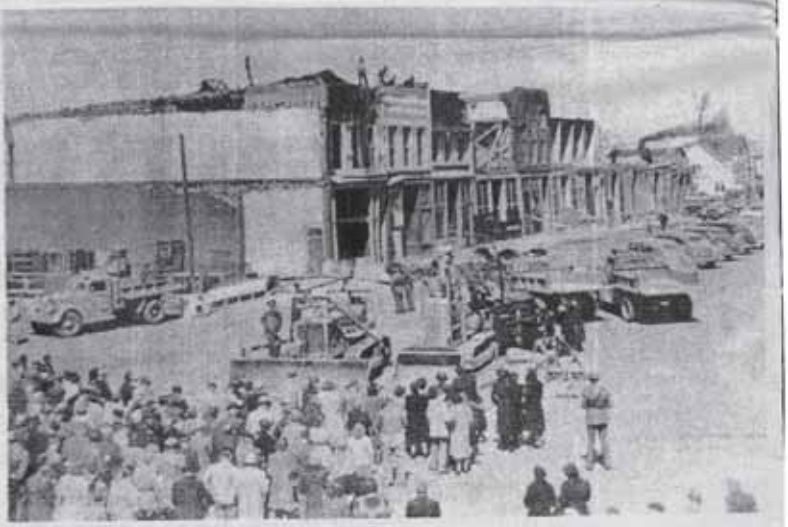
The Salvation Army, under the direction of Brigadier John C. Kelly, dinsional secretary, and Mrs. Kelly from Peoria, is distributing food and clothing in both Bunker Hill and Fosterburg storm ravaged sections, and from the large tent set up in Bunker Hill has been serving an average of 1500 hot meals each day.

Officials told Gazette-News Tuesday of a rural family found Monday night whose home was demolished in the storm and which had received no aid. Two couples were found in the basement of a farm home between Bunker Hill and Fosterburg, and that all were so panic stricken yet, that they refused to leave their home, even though it was in a very hazardous condition. Workers rushed back to the Salvation Army Station for a permanent tent and other provisions and returned to the farm to further assist.

Father Davenport's home after the tornado.

Inside one of Bunker Hill's businesses after the tornado.

Large trees on top of the telephone building.



Easter Services held in the middle of the tornado devastated Bunker Hill.

We Are Grateful

From the Bunker Hill Gazette-News, March 25, 1948

All of the citizens of Bunker Hill wish to voice their heartfelt thanks to every individual and all governments and relief agencies, who responded so quickly and wonderfully with aid of every nature, following the great catastrophe that struck Bunker Hill Friday. The response was so spontaneous, tremendous and abundant that it justifies our faith in mankind and makes our hearts glad that we are part of the great country that produces such kind, generous, unselfish people. God Bless You.

It would be impossible to compile a list that would include all our benefactors by name since individuals from all over the community and this section of the state poured into our city after the disaster, so we can't do that, but we want you all to know we do appreciate your efforts in our behalf.

We do want to go on record however and we are all joined by the Bunker Hill City Officials in giving recognition to the Illinois Highway Department, the Illinois Highway Patrol, the Red Cross, the Salvation Army, the American Legion and Veterans of Foreign Wars Posts, the U.S. Army and the National Guard, who were all on the job, the first day and have been working tirelessly since.

The People of Bunker Hill

MARCH 19, 1948 TORNADO

We lived through the Battle of Bunker Hill

Mr. Ivan C. McElroy submitted the following letter to Reader's Digest in November 1965. They didn't publish it, but thanked him for sending it in.
Written by Ivan C. McElroy
Submitted to the Bunker Hill Gazette-News by his daughter, Geraldine Cook, Staunton, IL.

The morning of Friday, March 19, 1948, began much the same as most any weekday mornings. My wife, Eva, and I arose about six in the morning. She began preparing breakfast while I shaved.

The first event making that morning unusual was our nine year old daughter, Geraldine, calling out that she was sick. My wife went to her and found she had a high temperature. After bathing Gerry's face and making her more comfortable, she returned to the kitchen and remarked that it looked stormy in the southwest. I glanced out the window and mumbled an agreement. Neither of us being afraid of storms, we paid little attention to it.

A few minutes later, passing by the window, I noticed the sky looked very threatening. The clouds were rolling and tossing about like small boats in a hurricane. Eva came to the window and looked at the sky for a moment. When she turned to me I saw a fleeting look of uneasiness in her eyes, but when she spoke she said, "Dear, will you call the boys, breakfast is almost ready."

The boys, John, 10, and Donald, 11, slept upstairs. Our oldest son, James, 13, was staying with friends in the country. We had moved near town just a month previous and he wished to finish the eighth grade without changing schools.

By this time, the wind was tossing everything around that wasn't fastened down. Eva, my wife, apparently calm, set the platter of bacon and eggs, the dish of oatmeal on the table in the kitchen and was pouring coffee when the boys came downstairs, hungry as usual.

Just then we heard a noise in the distance like the roar of several aeroplanes in formation and Eva said, "That is the most prolonged roar of thunder I've ever heard."

I knew what the roar meant, but I couldn't say the word that would strike terror in the hearts of my wife and children. We had gone into the dining room now and Eva went to see about Gerry when I suddenly spoke in a commanding tone of voice, "Bring Gerry in here quick!" She moved swiftly, almost mechanically, bringing our daughter away from the windows which were bulging in and out as if they were made of rubber. She silently took the rocking chair I had placed for her, wrapping Gerry in a blanket she had brought with her. I had moved another chair close and sat on it clasping our sons tightly, one on each knee.

The children offered no resistance to this unusual behavior. They knew without being told that this storm was different and that there was danger. I did not have to call the boys to me. They were there and they were quiet. I looked at my wife, intending to try to ease her fears, but her head was bowed, her lips moving and I knew she was praying. I closed my eyes and joined her in a silent prayer to God.

Outside it was very dark and the noise was deafening. The house shook as if it were afflicted with palsy. It sounded as though angry giants were throwing everything within reach, to vent their fury upon us between crashes of fallen trees.

How long did we sit there while this tumult raged around us? Hours! Days! It certainly seemed like it. Actually, it was only minutes. The torrent outside subsided and a different noise aroused us from our shocked lethargy. Water pouring in from overhead in the kitchen. Splashing through water on the floor and with water still coming in, we moved everything into the dining room except the table.

Maybe someday we could laugh at the way our breakfast looked. Oatmeal, swimming in dirty water, bacon and eggs garnished with fallen plaster will never be forgotten. Since no one was hungry now, the table received only a passing glance for several hours.

Going outside, we discovered that our chicken house was gone. Not a chicken had been killed by this storm. The garage had escaped serious damage. We did not give the upstairs a thought. There were too many other things needing attention. Later found that the roofing was gone. Large, gaping holes in the walls and windows still unbroken is still a mystery. On the bed the boys had just left a few minutes ago, the mattress was cut in two as if by a giant knife. The bed was blown across the room with enough force to break both the wall and the iron bedstead.

How would the boys have fared had they been on that bed? We are very thankful that we will never know the answer to that question. But what of our other son? Was he all right? Had the storm reached where he was?

Looking toward the neighbors, one house had both porches torn off and the chimney torn down. Across the street the back part of the house had collapsed and the barn was torn down. I went to help get their cows out of the wreckage. They were all alive by some miracle.

I did not realize until I started up town to the garage where I worked as a mechanic that the storm was worse than it had been at home. The farther I walked the more the destruction was. One house the walls had collapsed leaving the inside intact. The family was staring in stunned silence at their home. Across the street a house was tipped at a crazy angle with one corner in the basement and another reaching toward the heavens.

Farther on, many houses were just splinters, others blown away completely.

Downtown, everything was a mass of debris. I have never seen such utter destruction and all wrought in just a few minutes.

Everyone who was not too badly injured went silently to work digging in the hopeless mass of debris to rescue the injured, dying and dead. Fire had broken out in the wreckage of several homes, but the fire trucks and ambulances were battered and buried under the twisted remains of the buildings that housed them. The streets were so littered it was impossible to get any vehicle through. Had we stopped to think it would of seemed utterly hopeless.

Men, women and children all working together with the one thought of rescuing those trapped in the endless sea of debris. We did not hear the bulldozer that had cleared a path for rescue operations, nor the cars, trucks, ambulances and fire trucks from neighboring cities which followed closely behind.

My first knowlege that help had arrived was when I felt a tug on my sleeve and heard a pleasant feminine voice say, "Sir, you had better rest a while and have some coffee." Rest and coffee! When people were trapped and screaming for help?

Then I saw the uniform and armband, saw the emblems and trucks which had brought workers and rescue materials. Thank God! The Red Cross had arrived with doctors, nurses and helpers of all kinds needed in this sort of disaster. With a smile she told us, "We have a large caravan of trucks on the way from St. Louis with tents, tarps, blankets, food supplies and clothing."

Unbelievable as it sounds, less than three hours after the tornado virtually destroyed this town of about fourteen-hundred people, the Red Cross had arrived and set up headquarters in the school. Although the building was a badly damaged one, they had set up a first aid station and morgue and before night had food and clothing dispersal rooms.

Much praise is due to a brave telephone operator at Woodburn, a small village three miles away who stayed at her switchboard in the face of high winds and gave out the news. First that the village of Fosterburg had been destroyed and a few minutes later told the outside world of the disaster at Bunker Hill, Illinois.

The Salvation Army arrived quickly too, closely followed by veteran organizations, lodges, church groups and many individuals bringing food, clothing, bedding and other needed supplies. A large group of State Police soon arrived with a portable radio station since all communication lines were short circuited and down. Before nightfall, a number of bulldozers, cranes and other large equipment appeared on the scene, clearing space for tents which were quickly furnished with portable stoves, cots and things needed to temporarily house the uninjured of a homeless town.

There was some looting that first night. Martial law was declared the following day and quite a number of soldiers from Scott Field took up temporary residence.

The battle to rebuild Bunker Hill had begun in earnest.

Sunday morning dawned bright and clear. The noise of the clearing operations filled the air soon after daybreak. At eleven all equipment was shut off, all work ceased for one hour. People of all faiths gathered together uptown at an intersection of a city street and State Route 112 which runs through the business district. A local minister in work clothes climbed on a Caterpiller tractor in the middle of the highway and led a wonderful service while State Police detoured traffic around the town. Many travelers parked their cars, walked up and joined in the services. Indeed, we had much to thank God for. The death toll of our town was only nineteen. It was truly a miracle since every house and building was badly damaged or destroyed.

Of course, several scores were injured. Many will carry the scars, both physical and mental to their graves. A few families decided to go elsewhere to set up houses again. However, most people went to work with renewed courage and faith in the future to build a new home and a new town on the old foundation. It wasn't easy, especially to start all over again. Insurance was in most cases sadly inadequate and some the task seemed hopeless. But as you know, every cloud has its silver lining. Churches, lodges, clubs, organizations of all kinds and individuals from far and near sent gifts and donations. Lumber companies sold materials at or below cost, furniture dealers did likewise. Clothing, bedding and non-perishable food came by the truck loads.

Carpenters, bricklayers and other laborers came in large numbers. Some brought house-trailers and some lived in tents set up by Red Cross. It was certainly a noisy town that spring and summer. Hammers pounding here, mixers rumbling along with other noises of everyday living.

The Red Cross furnished funds to rebuild homes for those who were destitute and made loans to many others according to their needs. By winter, most homes and places of business were finished enough to occupy. In less than two years, most of the town had been entirely rebuilt.

Thanks to God, the Red Cross, many organizations and individuals, who so graciously opened their hearts and purses to aid a stricken neighbor.

"The Battle of Bunker Hill had been won."

Everything in splinters.

50TH ANNIVERSARY OF THE

Post Card #39. The tornado caused many similar sights.

"Mother's voice has a strong urgency with overcast of fear"

by Ron Bartels

It is very early in the morning, still too early to have to get up. Today's the day of our big play--Miss Scim's (Clarabel Scim Walters) third grade class will put on *Pinocchio* with the help of second grade teacher, Miss Kerle (Frieda Kerle). I have the part of Geppetto, the toy maker, little Merle Ray (Merle Wadsworth) is Pinocchio and my cousin Beverly (Beverly Bort Quigley) is the Blue Fairy. Mom (Marie Bartels) will probably let me sleep in a little bit later because we will perform for the rest of the school (Meissner) on the stage library auditorium. Later on this evening we will perform for our families and the public.

But wait! Mom is calling for me to come down immediately from my upstairs bedroom. She yells to hurry and to be sure and put on my shoes. There is a strong urgency in her voice with an overcast of fear. By the time that I reach the kitchen downstairs, mom has scooped up my year old baby brother (Randy Bartels) from his high chair. His unfinished corn flakes and milk sit in the baby bowl on the tray of his high chair. Mom says that dad (Harold Bartels) has gone on to work and that now the rest of us must go down to the basement because something terrible is about to happen. Looking out the windows the sky is as black as ink and does not have the normal soft glow of early morning. There seems to be no air to breathe and there is complete silence which is even missing the usual chirping of birds.

We clomp down the creaky old wooden stairs into what is actually a dirt floor cellar with sandstone walls and a lone wooden frame window. I'm not sure that mom ever explained what the imminent terrible event was or that she knew herself. She clutched the baby and directed me to stand with her against the sandstone wall farthest from the tiny cellar window. Now all the stops are pulled! A deafening roar begins that seems to an eight-year-old like every track in Litchfield has a locomotive chugging by at the same time.

Being curious, I want to go over and look out the window, but mom warns me of possible broken glass flying at us. While she shields the baby, I sneak a look out the window. The wind is ferocious and I see leaves and papers and a bushel basket fly by. Minutes seem like an eternity...then suddenly it's quiet again.

We emerge from the cellar and on out the front door into a different world, much like the scene from *The Wizard of Oz!* Instead of giggling Munchkins, we see through the drizzle, a world of total devastation. The house to the north has no roof and its occupants, Mary Wood and her nephew Donnie Sanner, are busy shaking broken glass from small rugs out of their paneless window frames. To the south, Helen Forler and son Jimmy are trapped in their bungalow house. The roof structures of the front and back porches have collapsed against the only two doorways. They eventually pop up out of the sloped door of a basement entryway. Across the street, we see the battered home of Luther and Clara Mason, and what is that? It's grandma (Vida Weidner) and she has nothing on but a ripped pink chenille bedspread wrapped around her, Indian style. As she cautiously cuts across the Mason's lawn, she tries to keep her bare and bleeding feet from stepping on debris and broken glass. Once she sees that we are all right, she tells of the horror of her house exploding and the walls collapsing on grandpa (John Weidner) and how she had to dig and claw through downed lathe and plaster walls so that she could extract him to a spot where he could breathe and be sheltered from an incessant rain. Earlier she had left the bedroom and gone into the front hallway and had looked up to see the ceiling open up and the dark sky appear as the wind shucked off her nightgown, leaving her stark naked. After draping herself in the bedspread, she went into the street to see if she could find a working phone to call Ralph Gerdt to help move grandpa. Then a passing neighbor lady asked grandma to hold her baby while she went to look for her other baby. (Both babies were dead!)

We now go inside our house to get grandma cleaned up and a drink of water. In the kitchen sits baby brother's cornflakes and milk, now covered in pieces of black soot that have blown out of the chimney of the heating stove. Behind that stove lies cowering ol' Ding, the pet Chow dog. He has been totally forgotten in the melee and will be, to his dying day, frightened by the slightest rumble in the sky! My Great Aunts, Babe and Lottie (Loretta and Charlotte Bartels), have made their way through downed trees and power lines from uptown where Aunt Babe was the telephone operator on duty and a long distance operator in Oklahoma heard her scream: "TORNADO" as the roof blew off the telephone building (across the street from Bruckert's garage). They tell us of the devastation in the uptown area. Great Uncle Art and Aunt Tillie (Arthur and Matilda Heal) who live in a small house between Ross and Helen Myers' home and the Catholic priest's home have saved themselves from certain death by kneeling to pray in their front doorway and it is ironically the only part of their house that remains standing.

Our house becomes a waystation for the sick and injured due to the relative minor damage to it and also its location on the main drag - Washington Street (Route 112 now 159). It takes a while for ambulances to get through from "down below" because of all the downed old trees across the highway. A lady from Gillespie stops by to use our bathroom, she had been a passenger on a Cavallo bus that didn't make it through town.

Today I will not make my usual trek to my classmate's (Udell Meyers) house and get an extra roll from his mom (Pauline Meyers) on the way to school. We will not put on our school play and the school (the only school building at the time) will become a hospital and morgue. The front sidewalk will be lined with Red Cross and Salvation Army tents where hot food and blankets and clothes are made available. As the spring of '48 warms into summer, the drone of buzz saws is everywhere, along with the smell sun-heated tarpaulin tents used for temporary homes. There is no more school session for this year except for a "tornado" school set up by the Red Cross which has mostly crafts and is basically a baby sitting service to keep kids off the streets where debris and downed power lines are everywhere. The governor orders the National Guard to Bunker Hill to help victims and stop looters which are running rampant. The Guard also directs traffic as thousands of sightseers come into town bumper to bumper and are backed up for miles to see the unbelievable twisted and torn former sleepy, tree lined, graceful village.

1948 TORNADO
50TH ANNIVERSARY
OPEN HOUSE
See back page for more information

"I thought it was the silly Schwallenstecker boys flying kites"

by Lily Cook Waltz,
Brighton, IL

We lived in Woodburn and I remember well that fateful morning, walking out on our front porch, which faced east, and seeing the blackest cloud I had ever seen. Against this vastness, I saw what I thought was the silly Schwallenstecker boys flying kites (no offense, LaVern & Ollie). I hollered for mother to come and see. She knew what I saw was sheets being rolled along with the tornado.

It was reported the tornado had struck Fosterburg and was headed in a northeasterly direction. Mother knew many wouldn't have breakfast and would be stunned.

We had chickens and plenty of eggs. Mom boiled all those eggs, peeled them and made egg salad. She went to Thyers Grocer and got all the bread he had, made up sandwiches and hot drinks.

In the mean time, Dad was at the flour mill in Alton and it was reported that Woodburn was wiped out and he immediately left work to get home. Fosterburg was a mess, but we were fine. The news bulletin reported Bunker Hill had been hit.

They packed the food in the car and drove to Bunker Hill to pass out those sandwiches and hot drinks before the Red Cross got there. No one ever recognized her compassion and concern for those devastated by such an ordeal.

I can remember wondering if the town would ever be rebuilt and how all the bricks strewn everywhere could ever be cleaned up and homes replaced. But, soon (it seemed that very day) clean up started and the town seemed even better. It's wonderful what can be accomplished when devastation has struck and working together with much determination takes over.

My unforgettable birthday

by Robert Moyer
Alton, IL

Today I just learned of your plan for remembering the 1948 tornado . . . and although your memories are for the Greater Bunker Hill area, I, here at Alton, have a great memory of it myself.

. . . It was on the morning of my 14th birthday . . . March 19th, and I did something I got the "razor-strap" on the rear end for later. . . I stood on our back porch step and I looked up into that tornado . . . as it roared overhead . . . just two blocks to the east of us . . . and it completely destroyed one dairy farm located on a hill along Belle Street and severely damaged another small ancient dairy farm, the Kranz Dairy, at intersection of Belle Street and Mitchell Street in North Alton.

Just after leaving that area the storm lifted a bit and then it hit across Alby Street and then worst damage just near the Coca-Cola warehouse at intersection of Elm Street and Trube Street, near Oakwood Avenue, where a body was found in tree limbs. The storm was awful.

This storm then did its worst damage in the Bunker Hill area we learned later.

But I'll never forget this terrible sight I saw as I stood on our back porch and actually looked up into the tornado as it passed just two blocks from our house in North Alton that morning . . . the morning of my 14th birthday. Everyone else had went to cellars. Another memory I carried for decades was that strange smell of that storm. Knowing what I know now . . . I'll NEVER EVER do a thing like that again.

Piles of rubble were common scenes throughout the town.

MARCH 19, 1948 TORNADO

Dozens of tractors and equipment used to clean up debris.

How I remember the tornado of 1948

by Elden Duelm

It was a hot, muggy, sticky, stormy looking morning as I got out of bed to do my morning farm chores. I was fourteen years old and lived on a farm two and one-half miles southwest of Bunker Hill, on what was known then as the Enke farm.

My parents and one older brother were already in the barn as I arrived to help milk the twenty eight cows that we milked by hand each morning and evening before I caught the bus or go to high school in Bunker Hill.

I remember having delivered a bucket of milk to the "milk-house" about 30 yards from the milk barn. I remember how oppressive the air was. It was sort of "green" and terribly sticky, and it was difficult to breathe.

As I arrived back to the milking area, I remember remarking that it was terrible outside and that the "sound of the train" about a mile to the west was unusually loud (evidently it was the storm). I sat down at the side of a cow when all-of-a-sudden it started blowing terribly hard. I rushed to the front of the milk area where my mother, father, and brother were gathering. We stood in a huddle, praying, because the sound was deafening. One of us reached out to slightly open the front door to peek out to see what was happening and the door flew open and ripped right off the hinges. We think that opening that door may have relieved the pressure in the barn and saved it from destruction.

There was a machine shed about 100 yards to the East of the front door which we could not see because of the "stuff" blowing through the air.

We were "scared" and were praying "out loud."

Then all of a sudden, it was deathly quiet. It was so quiet, it actually hurt your ears. The air was still and it was raining hard.

We rushed outside to assess the situation and found that a "cattle shed" which surrounded the west and north sides of our barn was completely gone. We looked around and accross the country side. My dad remarked that something was terribly wrong across the field to the northwest, about a half-mile away. Where a house and farm had been, there appeared to be nothing but a large twisted tree stump.

He said, "I'm going to go see what is wrong" and headed for the truck. Within in a few minutes, he came back and said that the roads were blown shut with trees, and rubish and said that he was going to go to town "Bunker Hill" and get help.

It wasn't long until he was back saying that "Bunker Hill was gone too and he was going to go to try to help."

I don't remember exactly when we went to town, but probably later that day. I remember how terrible it looked with trees stripped, twisted, and destroyed and houses in shambles. What impressed me most was that the people were sort of wandering around through the debris and all at once one would say, Oh I found my photo album, or some other small precious belonging. It was sort of "weard." People seemed to be in a daze.

We took the truck and loaded up one of the families whose house had been destroyed and brought them and what belongings we could find to our house and moved them in with us. They stayed there until their house could be rebuilt or repaired.

I particulary remember the Lutheran Church, where I had been confirmed just a year ago. It appeared that the roof was raised, the four walls just folded in and then the roof laid down on top of them.

Another thing that really impressed me was the attitude of the people, they all became brothers and sisters, members of one family, all in the same condition. They shared their tears, their belongings that were left, and tried to help each other to "make it through the day."

Of course being a Freshman in High School, I remember being out of school for a couple of weeks because the High School (the Meissner School) was being used as a hospital, morgue, and storage area.

When we did go back to school, I remember that the Salvation Army had placed a tent out front and provided food and necessary items to those who needed them. I remember this as our first "cafeteria" at school.

There were so many stories going around about the tornado and incidents surrounding it that it is hard to clearly separate the facts from the fantasy.

I particularly remember one incident where an occupant of a house was in a doorway when the tornado struck. The entire house was destroyed and blown away except the doorway and the person standing in it.

I actually saw straw blown between tires and rims on cars without the tire going flat, straw sticking out of posts, dishes sitting on a table undisturbed but the house around it blown away and completely destroyed.

The Bunker Hill tornado was the talk of the entire area, it made news headlines around the country, and probably has been one of the most discussed incidents in Bunker Hill History. You can ask anyone from Bunker Hill who was alive on that day where they were and they can probably tell you exactly where they were and what they were doing and how the Tornado affected them.

Bunker Hill Gazette-News Special Edition 50th Anniversary of the 1948 Tornado.

Roaring winds alert danger

By Mrs. H. Juanita Welch
San Diego, CA

It was a very quiet morning when we first awoke. We could hear Richard moving about, getting ready to go to work. Lois was tending to their baby daughter, Carole. Marion, Jimmy and I were being quiet, didn't want to disturb their routine. When all of a sudden, we heard this very loud roaring wind coming closer. Richard yelled for us to run to the cellar door and go down - before he finished the sentence, the roof was being lifted, blown away. So many things were being lifted and lost forever.

Marion asked if Jimmy and I were OK, we said "yes." Marion's leg was cut and bleeding, but he didn't notice. Richard and Lois were mostly concerned about their Carole. Richard was hit by the flying bricks of his fireplace, blood streamed down his face.

Lois and I somehow got our children dressed, while Richard and Marion went looking for the "girls," Aunts Laura, Stella and Ollie, they all escaped serious injuries - even if the "Welch" home they were in completely collapsed. Thank God they survived.

Memories, no one lives without them. For most, they are good, for some, sad. Time and faith help us meet each new day with hope.

Yes, I remember March 19, 1948, a Friday morning, my husband, Marion James Welch, our son James, and I were visiting Bunker Hill. For three reasons: 1) family reunion (3-21-48); 2) doctor's appointment at Barnes Hospital set up by USN Doctors (3-22-48); and 3) employment opportunities M.J. Welch (retired U.S. Navy).

None of the above were accomplished. Marion, James and I returend to San Diego, CA. We made every day count till the day the Lord took my beloved husband, Marion James Welch, Sept. 21, 1983, to a peaceful haven of no pain. (Heart cancer, stroke and diabetes). May he rest in peace.

I live with my memories of forty-nine years of a happy and wonderful marriage to a very special person.

Tornado memories of an eight-year-old

by Joyce (Bland) Brownfield

My twin sister, six-year-old brother and I were standing at the window watching my dad walk to the bus to go to work. I can remember seeing dark clouds but also a blue sky. Then suddenly, the wind began blowing very hard and my mother, with my baby brother, and we three siblings huddled together on the couch. All kinds of junk was flying past the window across the room and when a bicycle flew past, we kids were all screaming so much that my mother went over to the window with all of us hanging on to her and put the shade down. I stood on the couch to see out the window above the couch and peeked out and saw the neighbor, Alvie Throne's, house hovering above the ground about 20 feet and quickly got down and hung onto the rest of my family. When the wind calmed some, we went outside to the basement and to was still so windy we held onto each other and a walnut tree. After the wind completely stopped we went outside and the sun was shining and electric lines were all over the ground.

Then lots of relatives from a block away came to our house, as their homes were destroyed. They brought boxes and boxes of wet clothes. A cousin near my age had a large hole above her left eye and was taken to the hospital. Someone brought a baby cousin of mine to our house and he had straw stuck in his clothes and diaper. His leg looked blue and swollen and later he was taken to the hospital where it was found to be broken. A lot of my relatives in the Landreth family were injured. One of my aunts was killed and one died the next day. So, I can remember a lot of upset and sad people.

I had bad dreams about the tornado for quite some time and remained very afraid of storms for many years.

Looking east from the Walerts Home.

50TH ANNIVERSARY OF THE

TORNADO AID RELIEF

Facing west at Washington and Fayette Streets. Far right - Lincoln Statue with no Lincoln.

The Army Camp at Meissner School looking north towards the Methodist Church.

Head of Lincoln Statue rescued from looter

The following memories were told by Lowell W. Bodenbach and Norma Bodenbach - submitted by their daughter, Melodye Gosch. Bunker Hill.

During the afternoon of the '48 tornado there were a lot of curiosity seekers and yes, sorry to say, some looters coming into town.

So, they stationed some of the young men of the community at road blocks at all four roads coming into town. If they had no legitimate business they were turned around. My dad, Lowell (Bodie) Bodenbach, was one of those young men. He said that he caught some guy who had slipped into town trying to get "out" of town with the head from Lincoln's statue, which had toppled during the storm. Dad then reclaimed it and took it to the bank to be put in the vault for safe-keeping.

My mother, Norma (Musgrove) Bodenbach told that she went to Meissner School to help as it was turned into a hospital. After working a few hours she fainted when a little girl she knew was brought in on a "door" stretcher with nothing on but a pink bow in her hair and was pronounced dead. The doctor in charge told her she wasn't going to do any good there, so she went to help set up the Red Cross emergency shelters. She helped prepare food for these that needed it.

An entry into Melodye's baby book under "Important Events" reads as follows: "We had a tornado when Melodye was thirteen months old. She was in Daddy's arms when it hit. She wasn't injured."

The Salvation Army tent that supplied clothing, shoes and such to the citizens of Bunker Hill.

The cook tent where people were served meals and received takeout food.

Bay windows blown in during tornado

by Bob Meehan as told to Diane Meehan McKaig:

I went to the State basketball tournament in Champaign on the 18th of March and returned home about 1:30 a.m. The tornado woke me up at 7 a.m. on March 19th. Mom was calling me, but I did not hear her. When the bay windows of our house came tumbling in, it woke me up. I tried to make it to the basement, but when I got into my parents bedroom, the wall came in on me. I jumped on my mother's bed and the wall came down on me. I was pinned on the bed. Chester Rull and my sister, Eileen (Ike) Bode, lifted the wall up so I could get out. I had bad cuts on my leg and little finger.

I had no clothes to put on so I went to Miss Sandford's house and Clara Duclm brought me a pair of bib overalls and a pair of house slippers. This was all I had to wear for 4 days. My hair was standing up so straight that no one recognized me when I got uptown. The town was full of ambulances taking people to hospitals. I went to the nursing home and started digging until I came to a man's arm and hand, I had to quit. A State Policeman took me to the hospital in Alton to get my finger stitched up. He left me at the hospital and I did not have a way home. I hitch-hiked back to Bunker Hill.

My father, Thomas Meehan, Sr., lost a 13 room house, the Kaiser Frazier building, dime store building and grocery store. He didn't have enough insurance to rebuild anything. It almost broke him financially, but not spiritually.

There were 4 people living in the upstairs of our 13 room house on Putnam Street. They all wound up on the ground covered up with house debris. No one was seriously injured.

My family went and lived in Edwardsville after the tornado. I went to church on Easter Sunday in a suit (too large) from the Salvation Army. They were very good to everyone, feeding us hot meals, clothing us, and never asking for a penny.

I found most of my train set and a lot of my phonograph records and I put them under the floor of the house. Someone stole them the first night.

It was quite an experience that I will never forget. God was good to us because we all could have been killed.

Front view of Meissner School, where Red Cross and all the relief centers were located.

Aerial view looking northwest from the top of Meissner School at the aid relief setup after the tornado.

MARCH 19, 1948 TORNADO

BUNKER HILL CHURCHES

St. Mary's Catholic Church was a total loss.

The Zion Lutheran Church after the tornado.

South side of Berean Baptist Church.

First Congregational Church after the tornado.

The front stairs were the only thing left standing on the Methodist Church.

Black Friday in Bunker Hill

This article was taken from The Lutheran Witness periodical from St. Louis on April 20, 1948.
Submitted to the Bunker Hill Gazette-News by Virginia Price, East Alton, IL.

Disaster struck in no uncertain terms early on Friday morning, March 19, when tornado winds ripped through the Fosterburg-Bunker Hill-Gillespie area, taking an estimated toll of 19 dead and 165 injured in Bunker Hill alone, and leaving a mass of wreckage and bleak destruction in its wake. The storm, which has been described as having "smashed brick and frame structures like paper boxes," caused the greatest devastation in Bunker Hill, where it cut a swath a mile wide through the very heart of the city, demolishing completely the recently renovated church as well as the parsonage and school building of our Zion Lutheran Congregation and bringing death to two of its members.

The suddenness with which the storm struck prevented most of the residents from reaching their basements or other places of shelter. However, many who were caught in the path of the storm nevertheless miraculously escaped with only minor injuries. Among them were our good Editor of District Edition of the Lutheran Witness and his wife, the Rev. and Mrs. A.C. Waechter. Knowing that the readers of the Supplement would be interested to learn of their Editor's experiences, we have personally interviewed Pastor Waechter and herewith pass his story on to you. It is representative of the grace and protection which the Lord afforded also to many members of his congregation.

"It was about 6:45 Friday morning," Pastor Waechter said. "My wife and I were at the breakfast table, about to have our morning devotions. The weather was threatening, and my wife had just remarked about it being the tornado season. I replied that I had read of recent tornadoes in some of the southern States. With that an ominous-looking cloud formation of greenish-yellow color suddenly came into view through our west kitchen window. There was continuous lightning throughout the cloud and a rumbling noise that was rapidly moving closer. Realizing what it meant, we jumped up. Mrs. Waechter attempted to open the kitchen door, but succeeded in getting it open only part way. What happened then; I don't know," Pastor Waechter continued. "My theory is that the kitchen separated from the rest of the house, and we in some way were blown out. Our injuries would seem to indicate that we were hurled through the back porch screen. We found ourselves lying on the concrete next to the cistern outside. I remember looking up and seeing the house moving and coming down just a foot to the side of us. My next sensation was the bricks from the chimney were raining down upon us. Mrs. Waechter, who was also partly covered with the bricks, was lying beside me, face down, evidently unconscious. Tossing the bricks away from her, I shook her and asked whether she was badly hurt. With that she regained consciousness, and when she assured me that she was not seriously injured, I lifted her to her feet. We saw that the garage was still standing and took shelter there. By that time, the tornado itself had already passed and was howling away in the distance, leaving a heavy rain in its wake."

Pastor and Mrs. Waechter suffered multiple cuts and bruises, but are deeply grateful to the Lord for His most evident protection of their lives. They suffered almost complete loss of their personal property, with the exception of some clothing and their new Chevrolet car, which was in the garage and escaped with only a few scratches, evidently caused by flying glass. A fair amount of our Editor's treasured library, completely indexed and numbering between 1,500 to 2,000 volumes, has been salvaged and is still usable, though very few of the books came through without any damage. The church records and the greater part of the contents of the District files were also saved. Pastor and Mrs. Waechter are now living in a new home in south Bunker Hill, which was placed at their disposal by Mr. Arno Barth, a contractor, and a member of the Bunker Hill congregation.

The two members of Zion Congregation who lost their lives were Mrs. Barbara Lengacher, age 71, who was killed instantly under the wreckage of her home, 3 1/2 miles southwest of Bunker Hill, and Jane Wiemers, 5-year-old daughter of Mr. and Mrs. Oscar Wiemers, who was found by her mother under a bed spring across the street from their home and was pronounced dead upon arrival at St. Francis Hospital, Litchfield. Mrs. Wiemers and the three other children were among those wounded, the mother having sustained a serious heel injury. Others seriously injured and still in the hospital at this writing are Mrs. Anna Mamie, an elderly widow, who has a chest injury, and Raymond Seeger, who suffered a broken leg.

Besides the loss of their church buildings, which at present prices could be replaced at a cost of no less than $75,000 to $100,000, many members of the congregation suffered also severe personal losses. It is estimated that between 15 to 25 homes in the congregation were completely destroyed. A somewhat larger number than that were damaged considerably, but are still habitable.

The congregation for the present is conducting services in St. Peter's Lutheran Church at Prairietown. The first service was held there on the Sunday afternoon after the disaster, Pastor Waechter choosing at his text for this occasion Acts 28:15 b. He encouraged his stricken people, many of whom had driven through a heavy rain to attend the service, to both gratitude and courage. Zion's plans for the future have not yet been definitely formulated. A resolution has been passed to rebuild. However, the only money available at this time is $14,800, which the congregation realized from its insurance. Salvage operations are under way at this time, and the congregation is being assisted in this work by members of other congregations in the area.

Pastor Waechter and the members of his congregation are deeply grateful for the assistance which they have received thus far from their fellow Lutherans. It was especially encouraging and reassuring to them to find that the first to set up a temporary relief agency of any kind were their own fellow Lutherans of Carlinville in the person of Pastor Luther Steiner and women of his congregation. We understand that they were on the scene by nine o'clock the morning of the disaster, serving sandwiches and coffee. Their lead has been followed by the women of Farmersville and by other congregations, who since have been working either independently or with other relief agencies in the area.

In concluding the interview, Pastor Waechter summarized his reactions and those of his people by quoting the words of the Apostle in Cor. 4.8: *"We are troubled on every side, yet not distressed; we are perplexed, but not in despair."*

E.H.B.

50TH ANNIVERSARY OF THE

BUNKER HILL CHURCHES

Side view of the Methodist Church in Bunker Hill.

Another view of the First Congregational Church.

East side of Berean Baptist Church.

The Zion Lutheran Church Parsonage.

Two statues in front of the remains of St. Mary's Catholic Church.

In Memory of Jacqueline Jean Allen
Sept. 12, 1947 to March 19, 1948

Age 6 months, 3 days, at the time that this picture was taken.

Taken from us and sadly missed by parents, William (Dub) and Virginia (Jean) Allen, her brothers Daryll, Jeff, Dubbie and sisters Roxann, Lonna, Marina, who never got to know her because of her being the "Big Sister". God's tiniest of Angels.

The sound of the wind, the darkness of the sky

by Jean Garrison,
Wood River, IL

I was living in Bunker Hill with my parents, Rev. and Mrs. C.M. Miller, at the corner of Wilbur and Franklin Streets. I was 'up' preparing to leave for my teaching job in Alton but was stayed by my mother's concern about the weather. Mother and Dad were commenting on the sound of the wind, the darkness of the skies and they neither one had heard the same ever before.

There was a roar, oh yes, and then the winds really struck. Windows were blown in - Venetian blinds went to the ceiling and the rain came pounding in. I have no concept of the time involved but the aftermath was really horrendous and widespread. You have the tendency to believe it's just happening to you but on looking out, you see the devastation of the entire neighborhood.

My most vivid recollection is of the automobile horns of damaged cars both on the streets and also in garages which were damaged. And of course this noise continued until the batteries were dead. It went on and on and on.

Someone came to our back door asking for blankets and mother went to my hope chest and grabbed 'em up and we, a bit later, learned somone had been killed on the next street. Very soon, it seems, the noise of the chain saws began and this was to continue for days, clearing the debris from streets all over town.

Bunker Hill was changed forever. The big, old houses were "gone with the wind" - the unique two storied shops on Washington instantly became one story, or worse yet, none at all. Abe Lincoln lost his head, and the bandstand in the middle of town disappeared.

The Easter service held in the middle of town was truly inspiring. Everyone came together to comfort and to help.

Bunker Hill resident remembers roof of house sailing past her window

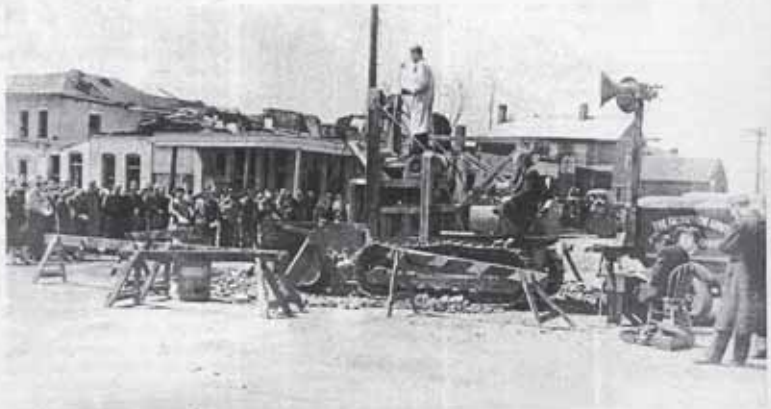
Becky (Miller) Wieseman was living on the corner of Franklin and East Alton Streets. She was in an upstairs bedroom and remembers seeing the roof of Mame Schrier's house going by the window. She and her mother, Alice, and brothers, Bill and John and sisters, Heddy Ann and Freda didn't make it to the basement before a neighbor came to inform them a tornado had hit. They headed uptown on foot, seeing Mrs. Jack Duncan being carried from her home with a severe eye injury. Becky's father, Kenny Miller, was in a car pool on his way to Shell when they saw a tornado and thinking it wasn't headed toward Bunker Hill, continued to Roxana.

The Sunday after the tornado, Becky sat in a field, which is now Meehan's Grocery Store, and counted cars lined bumper to bumper coming to view the disaster until she was so tired she went home.

Roy Wieseman was living on the family farm with his parents, Henry and Josie, brother, Lloyd and sister, Vera. He and his father were milking cows when Leland Scroggins arrived to tell them a tornado had hit Bunker Hill. Leland then went to the home of his sister and brother-in-law, Albert Loveless, where he found them pinned under a section of their house. He was able to lift it enough for them to get out. Later Leland and Albert tried together to lift that same section and couldn't.

Roy and Henry walked to the Henry Gosch farm which was totally destroyed. Chickens were disoriented and featherless. Roy took Mrs. Gosch to Otto Gosch's farm, then walked to town and helped tend to the injured. When they returned home later Roy and Henry found they had left the cows in the stanchion all day.

Both Roy and Becky remember sirens blowing all day of the tornado and later days with the air full of smoke and the smell of sawdust as Bunker Hill began to recover.



Memorial Service attended by many after the tornado.

MARCH 19, 1948 TORNADO

BUNKER HILL HOMES

Scraps of the Gabriel house blown into the timber.

This is Jacoby's home where I took care of Mr. Jacoby. I was standing in behind the wall where I have it marked. Mrs. Jacoby was bumped down at my feet afterwards. I reached for some covers where the bed had folded up and put one over her and one over myself and led her around the wall into the front room, which was moved partly off the foundation and did what I could for him as he was calling me. I stood and prayed for those at home for everything was almost flat as far as I could see. Then a man came and said my folks were safe and Dad came with others. We went to the school house until others were cared for.
Author unknown.

"We found one Nippon China plate intact!"

by Dorris Gabriel

I came home from Millstadt, IL., (walked the last 3 miles) to find everything gone. The house my father, Authur Gabriel, had just finished building, was blown to bits along with the garage and chicken house. Only one rooster survived.

My father had alerted my mother and sister, Rosemary, of a severe storm. Rosemary made it to the basement. My mother was *blown into the basement* and suffered a broken back. My father was *blown into the front yard.*

Only the basement floor was left of the house, along with dad's workbench and tools. Nothing else, no furniture or clothes. We found one Nippon China plate intact and a wall mirror.

Friends from Millstadt, where I was teaching school, came within a few days to help clean up the wreckage and brought furniture and clothes and a gift of money & gave us a car. The Red Cross put up a tent and helped in many other ways.

Dad started rebuilding immediately. We moved back *into the house, where we live* now, when there was just a roof overhead, no windows or doors. We all learned to use hammers and other building tools until the house was finished.

1948 Tornado Open House
Saturday, March 28
See Back Page For More Details.

West view of the Al Wieseman home.

Herman Gosch, now Helen Myers' home, at 307 W. Brookline St.

Woods home at 403 W. Park.

Jack Bond (formerly Eden home) now the Doug Dey home at 400 S. Clinton St.

Wilford Rensing home at 403 W. Brookline St.

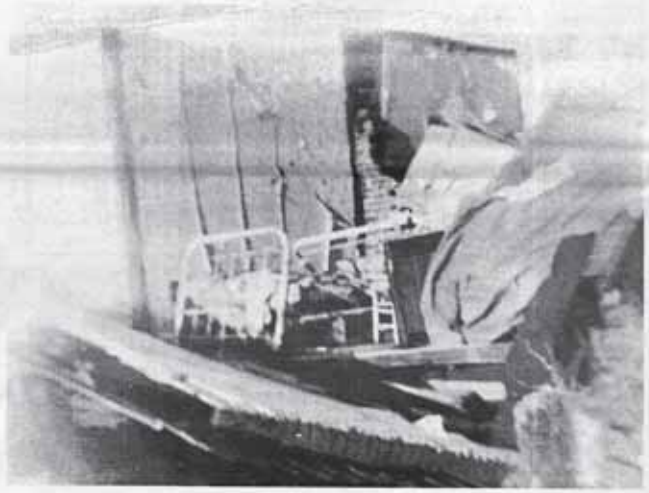
50TH ANNIVERSARY OF THE

BUNKER HILL HOMES

C. Fensterman's home and garage.

Jacoby and Schaum homes on Putnam St.

Stairs to Ben Fensterman's Home. Pictured top to bottom, Thelma Pettyjohn, Mrs. Virgil Throne and Mrs. Jim Garrison. Corner of Wilbur and Washington Streets.



Vroman home where four of five members of the family were killed during the tornado.

BEFORE & AFTER

The Chris Seeger residence prior to the tornado.

The same house after the 1948 tornado.

MARCH 19, 1948 TORNADO

BUNKER HILL HOMES

The Hall house on Clay Street.

Home just south of the Seim home on Clinton Street.

Oscar Landreth home.

The back view of the Al Wieseman home.

Bronson Howard "Estate" with Walter Heal and R.E. Rigg's homes in back.

The home of Mrs. John Suedell.

Wm. Whitfield home with the Schrier home (red brick) in the background.

50TH ANNIVERSARY OF THE

BUNKER HILL HOMES

Southwest corner of Walter W. Heal's home at 310 South Washington Street.

North side of Walter W. Heal's home.

"Six feet of rubble in the street"

by Wayne Heal

March 19, 1948, started normal for me. It changed around 6:30 a.m. when dad (Larcher), brother Earl, and I came in for breakfast and mother had received word that Bunker Hill had been hit by a tornado. We all stuffed some food and headed for Bunker Hill. We came from the north but had to abandon the car at the north edge of town. It was rather sobering when trying to get to my grandparents and having to make our way through the main part of town on top of six feet of rubble in the street from the top part of the stores. Grandparents Walter and Laura Heal lived at 310 South Washington. This is the house that the Wheelers now own. Our first view was the north side with the north wall down, the roof was against the garage across the highway and every room was exposed as if it were a doll house. Neither of our grandparents were injured. The other picture is taken at the southwest corner of the house.

After getting them moved out to our place northwest of town and putting their furniture in the hayloft in the barn, I remember the next three weeks as pulling trees to the two big piles in the southwest or northeast parts of town with our John Deere G. so they could be burned.

The remains of a destroyed home in Bunker Hill.

Sutton House where the Tom Mullink home is now.

The Clarence Young home.

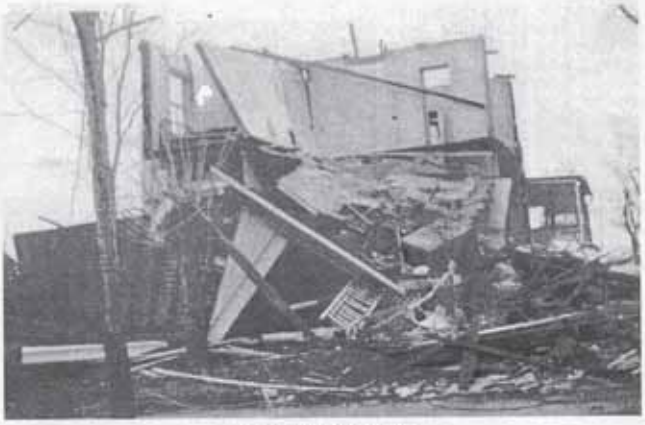
The rear of the R.E. Rigg home.

The front of the R.E. Rigg home.

MARCH 19, 1948 TORNADO

BUNKER HILL HOMES

You can see an inside stairwell to this home after the tornado beared its contents.



The Ed Schrier home.

Henry Taube home at the corner of Elm and Hickory Streets.

Charles Fensterman's home.

The walls of this house are gone, the roof remains.

The Kathryn Dey - Lola Leirs home.

Roaring Noise, Heavy Rain, Darkness engulfed town

From front page of The St. Louis Globe-Democrat, March 20, 1948

A roaring noise like a rumbling freight train gave a split-second warning of the tornado yesterday that devastated Bunker Hill and Fosterburg. Survivors in the two Illinois communities told the Globe-Democrat as they dazedly stared at the wreckage of their homes, schools and churches.

Rain swept with bullet-like force and sudden darkness added to the horror as houses were swept from foundations, leaving only a handful of structures still standing in the two towns northeast of Alton.

Some traced their survival to acts of chance, or to the alertness of relatives whose warning saved them from upper stories that blew away as they were dashing down a flight of stairs.

AUTO ROLLED OVER

Orin Baab, a 36-year-old employee of the City Waterworks at Bunker Hill, said tragedy swept into the southwest part of town at 6:50 a.m.

"I just got into my automobile," Baab said. "If I'd stayed in my home a minute later I'd have been killed when it disintegrated. As it was, my car rolled over and over - I don't know how many times - and ended up in a neighbor's garden."

Baab said he was taking a friend, Miss Aleta Smith, 36, to her job at a local tannery, and that both emerged from the demolished automobile with slight injuries.

Miss Phyllis Baker, 26, a nurse, said her mother's cry: "Get out of bed" saved her life. The mother, Mrs. Nina Baker, and her husband, Harry Baker, were downstairs when Mrs. Baker shouted her warning.

"I grabbed a shirt and slacks and as I ran down the stairs the upper half of our two-story brick house collapsed," Miss Baker said. "Part of the second floor collapsed too, but we were unhurt."

HELP EXTRICATE COUPLE

Miss Baker and her parents extricated Dr. C.W. Draper and his wife from their adjoining home, and Dr. Draper and Miss Baker went to the Meissner School, the only major structure left standing. Paul B. Hale, a teacher who had medical training during World War II, had already set up a first aid station, Miss Baker said.

More than 100 persons were given emergency treatment in the two-story brick structure, which also was used as a temporary morgue.

Several families in Fosterburg received warning in time to scurry into basements, where they huddled while the tremendous winds literally leveled the small town about 20 miles south of Bunker Hill.

Families crowded into the school yard at Bunker Hill where the Red Cross had set up a canteen. Michael F. Seyfrit of Carlinville, home service chairman for the Red Cross, said many of the homeless would be quartered temporarily in the school building and in churches in near-by towns.

50TH ANNIVERSARY OF THE

BUNKER HILL BUSINESS DISTRICT

Aerial view looking at the business district from the northeast.

Washington Street. Left - Behren's Drug Store. Middle - Otto Smith Standard Station. Right - Lueking's Garage.

The Gazette News Office in 1948 located on E. Warren Street.

Bahn's Market and the Bank Building were the only 2 buildings uptown left fully standing.

Tornado Watches and Warnings

* A tornado watch is issued by the National Weather Service when weather condtions are such that tornadoes are likely to develop. This is the time to remind family members where the safest places in your home are located, and then listen to the radio or television for further developments.

* A tornado warning is issued when a tornado has been sighted or indicated by radar. The danger is very serious and everyone should go to a safe place, turn on a battery-operated radio and wait for further instructions.

Hayes Store (now Corner Clothing) northwest corner of Washington and Warren Streets.

BUNKER HILL BUSINESS DISTRICT

MARCH 19, 1948 TORNADO

BUNKER HILL BUSINESS DISTRICT

The American Legion Hall.

Northeast corner of Washington and Warren Streets, where Bunk House Saloon is now located.

Jacoby Hardware on the corner of Washington and Fayette Streets (now the Gazette News Office).

Between the Telephone Office and the filling station (where Bruckert's Car Lot is now).

Dr. Hess' Office next to the bank uptown.

The front porch overhangs of many of the businesses hanging in the air the day of the tornado.

Memories of the Tornado

by Albert C. Landreth

Albert C. Landreth was half shaved when he stepped out onto the back porch and looked at the sky because it was getting very windy out. At that time there was a lot of blue sky overhead and dark clouds all around. Albert went back inside to see if his family was all right. By the time he got back in the house it was starting to raise up. About that time it got black as night. We were all scared and clung to each other. The two older boys, Terry and Eddie, were clinging to Albert's legs and Georgia was holding the youngest boy, Bob, in her arms. Then the house started shaking and the west end was raised up and fell back down on its foundation. The next thing Albert remembers was lying out on Clay Street. Rain was hitting him and woke him up. They lay there for a few minutes when Albert's brother, Herman, came down to see if we were all right. Herman told Albert that his wife had been killed and the boys were all hurt. They all had broken legs and Albert's knee had been crushed. The doctor told Albert that noting could be done to save it. Within a few minutes a half-dozen men or so from town were there with a stretcher. They took the dead and put them on a back porch. The men put Albert and his sons on a stretcher and carried them several blocks to where the ambulance was waiting to take them to the hospital. Albert was put in the ambulance with his sister-in-law, Rachel Landreth, wife of Gilbert Landreth. She died shortly after. She was the mother of Charles, Lois, Jane and Dean.

Albert's parents, Oscar and Iva Landreth, lived next door. They escaped with minor injuries. The house was lifted up and broke in half, with parts of it landing in the basement.

BEFORE AND AFTER

The Behren's Drug Store on the corner of Washington and Warren Streets before the 1948 tornado hit.

Behren's Drug Store after the tornado. The second story is completely gone.

50TH ANNIVERSARY OF THE

Mayor Kenny Miller (Becky Wieseman's Father) 4th from left in front of Bank Building which was set up as a temporary post office. Steps on the left lead to Dr. Behren's Office.

Dorris and Rosemary Gabriel with Rev. and Mrs. Roos and their daughter.

"Only the kitchen and dining room were livable"

by Helen (Dana) Zink,
Springfield, IL

March 19, 1948, is a day that will always be in my memory. At the time, I was 13 years old. Not only because of the vastness and total destruction of our town by the tornado, but how it separated our family of 8, which included our Aunt Nell Coleman, living in a 11 room house - down to a family of 4 living in a 5 room house. My sister Margaret and her family lived next door and brother Joe and wife Marilyn lived in the Riggs Apartments.

After the tornado destroyed our house (only the kitchen and dining room were livable) it seems everyone scattered to live with someone else.

We lived in a basement apt. of a friend in Rosewood Heights that summer, until Dad had the new house built, utilizing the old kitchen and dining room.

My sisters, Betty and Bobbie, got married that summer, my brother Allie got an apartment in Alton, where he worked at Laclede Steel, Aunt Nell moved to Gillespie where she worked in a clothing factory. That left mom, dad, Rita and me.

When school started, Rita stayed with Kathleen Coatney and her family, and I stayed with my best friend, Barbara Williamson and her mom and dad. We would go back to Rosewood Heights on the weekends and take the bus back to Bunker Hill on Monday morning in time for school.

We finally settled into our new home, then dad found out he had cancer and passed away in July of 1949. My sister Rita got married in December of 1949 and that left just mom and me.

That is my story of family separated by an act of God, but we also thanked God many times for sparing our lives. Many families were not as fortunate and it was very sad.

Post card #28 says "A gathering here, but not a happy one." Lawrence Schreier's home on E. Warren St.

"Before we could get to the stairs, the wind blew us out the back door"

by Lula Vaughn,
Bunker Hill, IL

March 19, 1948, my husband Bill and our new son Keith (10 months old) were living in an apartment house that belonged to Warner Rull. This house had 4 apartments and only one bathroom. Can you see people living like that today?

For you oldies, this was the "old Highfull" house. It was behind the Siam house on the corner of W. Warren and S. Clinton. Mr. Rull had four apartments there - Charles, Irma and Nikki Payne lived across the hall from him downstairs. Upstairs, we had one apartment and the other was occupied by one of the Kehr girls and her husband, whose name I have forgotten.

When the tornado hit, Mr. Rull was shaving in the bathroom, and a big tree blew on the house and landed on his bed. Someone was looking after him.

Early that morning, Bill had gone to work at Laclede Steel. The Payne's called me downstairs to go to the basement. I came downstairs, and then decided to go back upstairs and get a blanket for Keith. There were french doors on the west side of the house, and before I could get to the stairs, the wind had blown Keith, Irma, Nikki and I out the back door. There we were, sitting out there. Irma had Nikki in her lap and I had Keith on my lap just like we went out there to sit in the sun to talk.

We then went in to go to the basement, but it was too late and besides, the tornado had sucked the linoleum up the wall about 6 inches, and we could not get the door open. Later when they pulled the chair away from the table, the backs came off of the chairs as the tornado had sucked the screws out of the chairs.

Again I went back upstairs to get a blanket and found that part of the roof had dropped on a chair that was full of clean diapers.

We decided to go over to the Siam sisters who were teachers in the local school. I was barefooted and I walked across glass and other sharp objects and never got my feet cut. When this happens (tornado), you think your house is the only one that has been hit. What a surprise to find that lots of houses, trees and lines were down and the town is a mess.

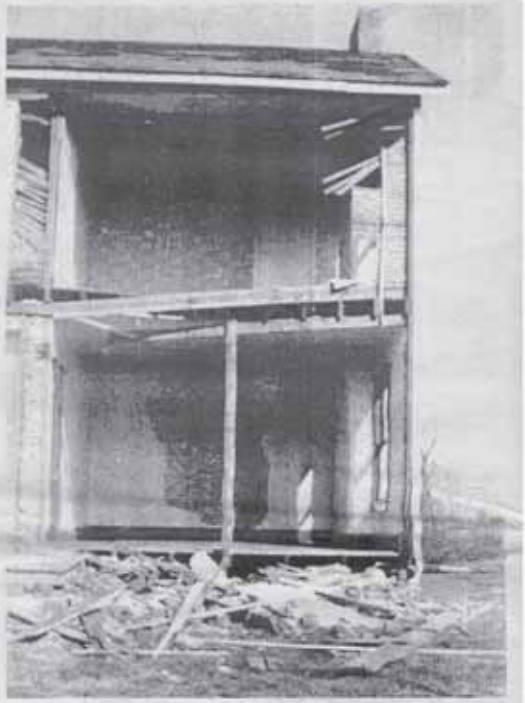
When we got to the Siam house, I found that Keith was passing out, coming to and passing out again. We all decided that I should take him to the doctor uptown, not realizing that the poor doctor has his own problems and he has been blown away too.

I did go back to the house to get my shoes - so here I am, 19 years old and headed to town with a sick baby when Mr. Paul Lockyer comes by and offers to take me to town. People yelled at him to get off the streets, so he got mad (and I won't repeat what he said) but we decided to take Keith to the hospital in Litchfield. Not knowing that the south end of Gillespie had been hit too, we made a detour and finally made it to Litchfield.

Keith's head was crushed like an eggshell and he had to stay in the hospital for three weeks, and it was many weeks before he could go without his helmet. But he has [illegible] having checked in at the school or with the Red Cross, no one knew where we were. It was 3:00 p.m. before Bill found us. While he was at the hospital, he got a parking ticket and did not have a dime on him. He went to the police station and told them why he was there and if he could, he would pay the fine. They cancelled the fine and gave him a certificate for a new pair of shoes. He had those shoes for many years.

The week before the tornado, Mr. Rull put a new furnace in the house as the old one smoked everything up. Irma and I worked hard at cleaning all the wallpaper, the floors and the stairs. Had we waited a week, we would have not had to work so hard.

But we came out pretty good, considering what other people went through.



The inside view of a home struck by the 1948 tornado.

Al Wieseman standing upstairs at home in a room with 3 sides blown away.

William Wieseman, Bill West, Arno Barth, Donald and Leo Wieseman at William Wieseman's garage.

MARCH 19, 1948 TORNADO

BUNKER HILL AUTOMOBILES

Picture from Dorris Gabriel reads "Our recently repaired car."

Postcard number 32 reads "No Joyriding Today Brother."

Lou Jansen's car at 213 Hickory St.

One of the many cars damaged by the tornado.

The tornado ravaged this car.

Edna Bauser's new 1948 Hudson. Bill Miller and Terry Teakert are seated on the car.

Baby keepsake travels To Seymour, Illinois

This letter was received by a Bunker Hill resident a little over 3 months after the tornado. The envelope contained the hair from a baby's first haircut wrapped in a piece of paper that had the name and age of the child. Seymour, IL is near Champaign. The letter read:

Seymour, Illinois
June 29, 1948.

To whom it may concern:

This envelope & it's contents were found in our hayfield on June 26, as I was picking up the remaining bales. If this isn't asking too much, I would like to hear from you telling all of the damage it did & some of the things you lost.

Just to let you know how far this envelope came, we are 10 miles west of Champaign, on Route 10. I believe this is about as far away as anything has been found. You may let me know if I am correct.

Thank You,
Clyde E. Wood

"My four children and I sat together on the couch"

by Alice Bland
Bunker Hill, IL

On the morning of March 19, my husband, Charlie, was preparing to go to work. I said it looked awful stormy but he said he saw blue sky. He got on the bus to go to Olin and ten minutes later the tornado hit at 6:45. My four children and I sat together on the couch. A bicycle and lots of stuff flew by the window and I pulled the shade down as the children were so scared. When the wind calmed down, I looked out and Alvie Throne's house was a pile of boards. Since it was still very windy, we went outside to the basement and stood in water. When we came out Alvie Throne was in a neighbor's yard and said his family was all right.

At Olin, they told Charlie that Bunker Hill had blown away. They brought the workers back on the bus to the south edge of Bunker Hill and let them out. Charlie ran all the way and to his relief saw our house was still standing. The tornado had taken the doors and screens off and all the outside buildings were gone. My parents, Oscar and Iva Landreth's, home had went up in the air and came down splitting in half. They were in the middle of the house and fell into the basement, but were only slightly hurt. A neighbor came with a baby nephew of mine and we put him to bed. Someone came to check him and found he had a broken leg and took him to the hospital. A lot of relatives were injured and a sister-in-law was killed. That first night fifteen relatives, including us, slept at our house. They brought lots of wet clothes with them. The next morning, another sister-in-law died.

A brother came from Wyoming and they weren't going to let him into Bunker Hill from the 10 mile corner but finally did. Charlie and other relatives helped clean up Bunker Hill.

When a tornado is coming you have only a short time to make life-or-death decisions. Remember:

If at home:

* Go at once to the lowest level of the building.
* If there is no basement, go to an inner hallway or a smaller inner room without windows, such as a bathroom or closet.
* Get away from windows.
* Go to the center of the room. Stay away from corners because they tend to attract debris.
* Get under a piece of sturdy furniture and hold on to it.
* Use arms to protect head and neck.
* If in a mobile home, get out and find shelter elsewhere.

If at work or school:

* Go to the basement or to an inside hallway at the lowest level.

Tornado was hitting Bunker Hill

by Marlene (Johnson) Kruessel
St. Louis, MO

We lived in Woodburn. My dad worked in Alton. As he was going to work through Bunker Hill, he got to the railroad tracks and realized he forgot his dinner bucket.

Just as he turned around to go back home, a telephone pole went down across the railroad

Just as he turned around to go back home, a telephone pole went down across the railroad tracks and the tornado was hitting Bunker Hill.

Our Lord sure takes good care of us.

Woodburn was sort of in the middle of two very bad tornadoes that morning, Bunker Hill and Fosterburg.

The sky turned an odd looking blue/gray/goldish color that morning, but no storm hit us.

I used to brag that my Uncle Murray Gray rebuilt all of Bunker Hill after the tornado. (He was a brick-layer contractor). I realize now he had many helpers, but as a kid, he did it by himself.

50TH ANNIVERSARY OF THE

Looking south from the triangle at Warren and Washington Streets.

Mass destruction after the tornado.

The Bunker Hill Business Section from the Truesdale Home.

1948 Tornado Open House
Saturday, March 28
See Back Page For More Details.

View north from lawn of Roger Mercer, corner of Putnam and Park Streets.

Westside of Washington Street.

The tornado hit Fosterburg before it continued on to wipe out Bunker Hill. Pictured is the demolished home of Catherine Plegge, grandmother of Dorothy Bruckert.

The prediction of Tornadoes

by Carl Stanton

While television and radio give out severe-weather warnings, and local communities have their own warning sirens, the recent Florida tornado proves that it is not always possible to give enough advance warning before the twister strikes. If optimistic predictions made in the Bunker Hill Gazette of Oct. 22, 1885 had materialized, this would not be the case.

"The Gazette said at that time: The weather bureau thinks that in time it will be able to predict tornadoes with a reasonable degree of certainty, and is willing to begin the business in the spring. Considering the advance that has been made in a knowledge of the laws governing the changes of the weather, this additional step forward is by no means so remarkable as many suppose. The tornado seasons in each section of the country are now perfectly well known, the tornado regions are mapped out, and in a valuable study issued last summer by the bureau, the phenomena attending a large number of tornadoes were fully described. The entire study of the subject has developed the fact that tornadoes are liable to occur only when certain well-known conditions exist, and the ascertainment of the conditions has made the prediction of the result a simple and easy matter."

Little did the editor know what the future held in store for Bunker Hill. But it is interesting that they were working on the problem so long ago.

Bunker Hill Gazette-News Special Edition 50th Anniversary 1948 Tornado.

Normal school day turns into a disaster

By Dorothy Bruckert
Bunker Hill, IL

What I thought was to be a normal school day, turned into a disaster that early morning on March 19, 1948.

We lived 2 miles east of Fosterburg. I was still asleep when my father, Harvey Plegge, saw the tornado coming up the creek toward our farm. He watched the funnel turn and go toward Fosterburg where his mother, Catherine Plegge, lived. We hurried there to find her OK. She had gone across the street and that house was only knocked off its foundation. Her house was blown away except for a new hardwood floor, which had been her bedroom.

My dad and others were beginning to clean up the street and mom and I were checking on friends, when we heard that Bunker Hill was hit just as bad.

We stopped by our house, grabbed some crackers, put some water in the radiator and "flew" to Bunker Hill. We could only get part way up Franklin Street, because of the downed trees.

My grandparents, Arthur and Matilda Schmidt, lived on the northeast corner of Franklin and Park streets in an 11 room house, which was piled high with the large bay window on top. Three people were also living upstairs and a school teacher that roomed there was sleeping in the southwest bedroom of the house. She and her bed were blown into the yard, unharmed.

My school, in Fosterburg, where I was in the 3rd grade, was totally blown out into the timber. A farmer found my report card stuck in his hedge fence Northeast of Decatur. It had only a little hole in it from the hedge. I received several pieces of correspondence and an article that appeared in the St. Louis paper.

With my school being demolished, I attended some neighboring schools until the Fosterburg students were bused to Alton. There, our 3rd grade country books were replaced with 7th grade city books. The country schools only went for 8 months, so we got out earlier than the Alton schools. They didn't care much for that.

That fall, some of the students started school in a new chicken house and others went to school in a double garage. I have many other memories as a result of the tornado, too numerous too mention.

MARCH 19, 1948 TORNADO

1925, 1928 & 1938 TORNADOES

The Great Tri-State Tornado of 1925

Widely considered the most devastating and powerful tornado in American History, the Great Tri-State Tornado ripped through Missouri, Illinois, and Indiana on March 18, 1925. In its 219-mile-long wake it left four completely destroyed towns, six severely damaged ones, 15,000 destroyed homes, and 2,000 injured. Most significantly, 695 people were killed, a record for a single tornado. The Great Tri-State Tornado left a legacy that is evidenced by ghost towns, lost ancestors, and stories passed from generation to generation.

The tornado developed during an afternoon thunderstorm near Ellington in southeast Missouri, crossed the Mississippi River about 75 miles southeast of St. Louis, then followed a northeast course as it plowed through southern Illinois and southwestern Indiana before finally dissipating.

The tornado exacted its greatest toll on southern Illinois. Speeds of the tornado reached 60 miles per hour in the region, and although it crossed predominantly rural land its path followed a string of railroads, placing several towns in its way.

As a result, 540 people died in southern Illinois in the following towns: Gorham (37), Murphysboro (234), DeSoto (69), and West Frankfort (148). In addition, 52 people died on farms and small settlements in southern Illinois. The counties of Jackson, Franklin, Hamilton, and White were affected within southern Illinois.

In Franklin County, two communities were struck by the storm cloud. The town of Parrish was virtually destroyed, the town was never rebuilt and today it exists as a smattering of older homes. One hundred forty-eight lives were lost in West Frankfort, as were 20% of its homes and businesses.

In Jackson County, the towns of Murphysboro and DeSoto were hardest hit. Murphysboro suffered from 234 deaths, while 40 percent of the homes were destroyed and another 30 percent were damaged by strong winds and the fires that swept through town after the tornado. Witnesses recalled seeing the fires from as far as 60 miles away. One person described seeing a Murphysboro house lifted into the air and then explode like a bomb and others had similar stories. Sixty-nine people died in DeSoto when approximately 30% of the town was destroyed.

During a 3.5 hour lifespan, the devastating funnel cloud averaged a quarter-mile in width but at times grew as wide as a mile. The tornado and its debris cloud were so large that they could scarcely be distinguished as such by some witnesses. The enormity of the tornado and its ranking as the greatest tornado in American history can be summarized by the following statistics.

* longest continuous contact on the ground.
* third fastest traveling speed.
* continuous exertion of force resulting in damage throughout most of its lifespan.
* a record 3.5-hour duration.

Storms do damage through this section of Illinois in 1928

by Elden Duelm

In the June 22, 1928 issue of the Bunker Hill Gazette-News there was a description of severe storms that broke forth over this part of the state and did much damage to trees, roofs, stock, etc.

On a Sunday night about 9:30 p.m. the lightening began to flash above the horizon, and in about 45 minutes the electric flashes were coming from all directions and a large black cloud, appeared in the sky with ragged edges hanging down in a light cloud below. When the storm broke loose the wind was traveling at a high rate of speed and the rain fell in torrents.

People that got caught on the "hard road" on Route 16 and Route 4, said it was the worst they had ever witnessed. Valleys or low places between hills and ditches of road in creek bottoms seemed to be the most dangerous for cars as these places caused a vacuum and the wind swept with such fury of suction that cars could hardly stay on the road

Towns were in darkness, and huge limbs from trees could be heard to make a creaking sound and break from their mother tree and fall.

Bunker Hill reported quite a little damage reported done to large shade trees. Cars coming up the hard road through the night would get caught in this trap and had to leave the slab and go through the mud to get into Bunker Hill.

About 11:30 p.m. a large Mid-West Transit Co. bus bound from St. Louis to Chicago skidded on the wet pavement about 4-1/2 miles west of Hillsboro on Route 16, crashed through the fence at the side of the pavement and turned upside down over a steep embankment. According to the driver, he reached the top of the rather steep hill and as the bus started down the incline the bright lights of other cars in the driving rain blinded him. A Hupmobile Roadster was stalled with engine trouble on the right side of the road and although the driver of the stalled car tried hard to warn the bus driver of his presence by flagging him down, the latter did not see the stalled car until it was almost on it. He swerved the bus sharply to the left, the heavy vehicle skidded on the wet pavement, crashed into the stalled car and into a car passing from the other direction, through the fence and upside down over an embankment.

Six passengers and the driver were taken to hospitals. Most of the passengers were asleep at the time. It took about 30 minutes

1928 Tornado

continued from below

before they could be removed from the bus. None were fatally injured.

Four men were injured and a horse killed when lightning struck a barn on a farm five miles north of Staunton.

Locally, the Bunker Hill cemetery was said to be covered with broken limbs and there were trees blown down.

A roof was reported blown off a shed at a home. The roof having been lifted by the wind and deposited unbroken in a field. The tin roof on the Jacobi Hardware store was partly blown off. Some chickens were reported to have been blown away when a chicken coop was wrecked.

There was considerable other damage which was not immediately reported.

Tornado loss in 1938 was $250,000

by Elden Duelm

According to the April 8, 1938 issue of the Bunker Hill Gazette-News, Harry Lee, a Bunker Hill contractor, estimated the loss in Bunker Hill from the March 30, 1938 tornado was $250,000. Ninety percent of the places damaged were covered by tornado insurance.

With the exception of Zion Lutheran Church, which escaped unharmed, all five churches were either wrecked or badly damaged.

The Henry Ross house was the most badly wrecked; the twister spared the life of the owner when he crawled under a stairway while bricks and debris rumbled down around him.

Within a few hours after the tornado struck, temporary repairs and preparations for rebuilding were underway by the business people and home owners in the stricken area.

Insurance adjusters got a real workout as the worst disaster in history hit Bunker Hill.

Streets were blocked by debris or fallen trees in almost every section of town, but workmen hewed and sawed to make sufficient openings for vehicles to pass through, especially fire apparatus in the event of fire.

It was the worst catastrophe that struck Bunker Hill. Several fires have been of a most destructive nature and many years ago a heavy windstorm hit the area, but there was nothing to compare with the damage wrought by the March 30th, 1938 tornado.

(Unknown at the time was the untold damage and destruction to be caused in the future by the 1948 tornado in Bunker Hill.)

Strange Oddities

Of all the strange oddities, a few are not readily explainable and among these is the ubiquitous plucked chicken. Within the damage descriptions of rural tornadoes, there will likely be mention of a chicken "stripped clean of every feather." It has been suggested that the feathers explode off the bird in the tornado's low pressure. That explanation does not hold up because the bird would be blown away long before experiencing the lowest pressure at the center of the tornado. Secondly, the lowest pressure in a tornado is probably not low enough to explode a feather...if indeed a feather would ever explode. It is curious how the exploding feather theory became accepted by so many people over the years, even though the remains of an exploded feather was never found. But when it comes to tornadoes, facts, evidence and accurate descriptions have never bothered amateur tornado theoreticians and much of the news media.

In 1842, Elias Loomis performed an experiment that left much to be desired in the control of experimental variables. It received wide attention at the time. His goal was to gain insight into the wind speed needed to defeather a chicken. An account written a few years later states: "In order to determine the velocity needed to strip feathers, the six-pounder (cannon) was loaded with five ounces of powder, and for a ball a chicken was killed. The gun was pointed upwards and fired. The feathers rose twenty or thirty feet and were scattered by the wind. On examination, they were found to be pulled out clean, the skin seldom adhering to them. The body was torn into small fragments, only a part of which could be found. The velocity was 341 miles per hour." Loomis speculated that if a live bird was

at 100 miles per hour, the ... alts would be more successful, but, to my knowledge, he never attempted it. He did place dead chickens under a vacuum jar to see if the feathers would explode. They did not. A widely accepted alternative theory in the 19th century was the opposing electric charges during the tornado's passage stripped feathers from chickens and tore the clothes from people. It was supposed that the highly charged tornado induced an opposite charge in objects it approached and things would be sent flying. While static electricity is undoubtedly present in a debris filled funnel, this makes no scientific sense whatsoever. There is simply no mechanism that would produce powerful opposing charges on the bird and feather at the same time.

The most likely explanation (Vonnegut, 1965) for the defeathering of a chicken is the protective response called "flight molt." Chickens are not stripped clean, but in actuality they lose a large percentage of their feathers under stress in this flight molt process. In a predator-chicken chase situation, flight molt would give the predator a mouth full of feathers instead of fresh fowl. In a tornado, the panicked chicken's feathers simply become loose and are blown off. Stories of chickens found dead, sitting attention and stripped clean of feathers may be on par with reports of the blowing of a cow's horn or a two-gallon jug being blown into a quart bottle without cracking.

****

The Great Bend, Kansas tornado of November 1915 is the tornado which seems to have the greatest number of oddities associated with it. Why? Who knows! It was an unusual time of year for a violent tornado this far west. In fact, it is the latest date in the year that a violent tornado has ever struck the state of Kansas. The funnel began its late-evening journey five miles southwest of Larned, 16 miles southwest of Great Bend. It was visible only occasionally during the flashes of lightning. The oddities began southwest of Pawnee rock where a farm was leveled to the ground and two people were killed. From a short distance away, one could not tell that a farmstead had ever existed there. Five horses were the only uninjured survivors. They were carried from the barn a distance of a quarter-mile. All were unhurt, all were found together, hitched to the same rail.

At the edge of Great Bend, the Charles Hammond house was unroofed. The family was completely unaware of the damage until they came outside to survey the neighbor's damage. At Grant Jones' store, the south wall was blown down and scattered, but shelves and canned goods that stood against the wall were unmoved. The Riverside Steam Laundry, built of stone and cement block, was left with only a fragment of upright wall, yet two nearby wooden shacks seemed almost untouched. At the Moses Clay ranch, on the east edge of town, 1000 sheep were killed, the most ever killed by a single tornado. A cancelled check from Great Bend was found in a corn field, one mile outside of Palmyra, Nebraska...305 miles to the northeast, the longest known distance that debris has ever been carried. A "rain of debris," receipts, checks, photographs, ledger sheets, money, clothing, shingles, and fragments of books fell on almost every farm north and west of Glasco, 80 miles to the northeast.

A necktie rack with 10 ties still attached was carried 40 miles. A four-page letter from a swain to his fair damsel in which he promised all" was carried 70 miles. A flour sack from the Walnut Creek Mill was found 110 miles to the northeast, perhaps the longest distance ever recorded for an object weighing more than one pound. Up to 45,000 migrating ducks were reported killed at Cheyenne Bottoms. Dead ducks fell from the sky 40 miles northeast of that migratory bird refuge.

In Great Bend, an iron water hydrant was found full of splinters. Mail was lifted from the railroad depot and scattered for miles to the northeast. Some of it was returned to Great Bend, but some of it was sent on from where it was found...one of the earliest forms of air mail! Farmers living two miles from town were unaware of the tragedy and were "dumb-founded" when they visited town the next day and "beheld the tragic spectacle." Over 20,000 visitors viewed the wreckage the following Sunday.

Aerial view of the town of Bunker Hill after the 1948 tornado (looking southeast).

50th Anniversary Of The 1948 Tornado
OPEN HOUSE

Saturday, March 28, 1998 • 9:30 a.m. to 1:30 p.m.
Bunker Hill Municipal Building, 801 S. Franklin St., Bunker Hill

Featuring...

- **Photos used in this Special Edition of the Bunker Hill Gazette-News.**
- **Photos, newspaper clippings, etc. that we were not able to use.**
- **Slides and materials from Luther Mason's collection.**
- **Extra copies of this Special Edition will be available for 25¢ each.**

Anyone wishing to bring personal items to the Open House may do so that day.
Anyone who does not wish to have their items displayed at the Open House please call the Gazette by Thursday, March 26th. (618-585-4411)
(All items will be displayed under glass, so that no accidents may occur.)

Refreshments will be served.

(Photos and materials from this Special Edition may be picked up at the Gazette-News Office any time after Monday, March 30th.)

Co-Sponsored by The Bunker Hill Gazette-News and The City of Bunker Hill.

THANK YOU

The Gazette-News would like to thank everyone who wrote memories, submitted pictures, papers, scrapbooks and all the information concerning the 1948 Tornado. This special edition could not have been possible without all your help.

THE TELEGRAPH

Vol. 163, No. 64 Thursday, March 19, 1998 50 cents

'Morning stood still'

Tornado ripped area apart 50 years ago today

By ANDE YAKSTIS
Telegraph staff writer

FOSTERBURG — Fifty years ago today, a tornado tore a path of destruction from Fosterburg to Bunker Hill, killing 30 people.

"I saw the big, black twister drop out of the sky and tear our town into pieces," said 72-year-old Clyde Miller, a survivor of the storm in Fosterburg.

Residents remember the fateful day, March 19, 1948, at 6:40 a.m., when the deadly tornado suddenly dropped on the sleeping town.

"It's still a nightmare 50 years later," said Miller, who huddled with his family in a fruit cellar and heard the storm roar overhead.

"We heard our house explode and the pieces blew miles away across the countryside," said Miller, a retired Olin Corp. employee who lives in East Alton.

More stories, photos, Pages A-7, D-5

Miller said he climbed out of the cellar and looked across town at the demolished houses, businesses and churches.

"Our town was nearly gone," he said. "I wondered if anyone was alive."

Glen and Ruth Voumard ran to the basement with their two children, Dennis and Donna, to escape the Fosterburg storm.

"The tornado roared into town like a dozen freight trains," Glen Voumard said. "Our clock stopped at 6:40 a.m. when the twister struck our home.

"Our town was leveled like a World War II bombing raid," Voumard, 76, said. "I thought that our family might be the only people alive."

Voumard and other rescuers dug out injured neighbors from the rubble.

"It was sad when we found someone who was dead in their home. One lady died in her bed."

Neighbors grieved over the death of 12-year-old Erma Scroggins. And townspeople carried dozens of injured people to a temporary first-aid shelter in Voumard's basement.

"Ambulances backed up to our house to rush the injured folks to hospitals in Alton," he said.

Farmer Eugene Gvillo and his father were feeding the hogs when they spotted the twister churning across the countryside, ripping up houses and barns.

"I looked up and saw the sky turn green and then black as night," Gvillo, 63, said.

"We could hardly breathe," Gvillo said. "Not a limb on the trees was stirring. It was like the

☐ See TORNADO, Page A-7

The Telegraph/RUSS SMITH

Jean Hammond and her brother, Clyde Miller, show their mother's wedding ring, which Miller found while plowing 20 years after it was lost in the 1948 tornado.

THE TELEGRAPH ★

A woman stands in her destroyed Bunker Hill home after the tornado hit in 1948.

Tornado

■ Continued from Page A-1

morning suddenly stood still."

Gvillo saw the giant funnel cloud twisting and turning like a big black snake across the farm country.

"The twister sucked up haystacks and barns and spit out the splinters," said Gvillo, who was 13 years old at the time.

The tail of the tornado touched down in Fosterburg with all its fury with winds estimated at 90 mph.

"I watched Fosterburg disappear in 30 seconds," said Gvillo, whose aunt Sadie Tichenal died in the storm in her farmhouse.

The tornado raged through Fosterburg then picked up speed and snaked a path toward Bunker Hill, 15 miles away.

The 200-foot-high, black funnel cloud towered over Bunker Hill like the shadow of a giant monster, residents recalled.

The sky turned green then orange and black just seconds before the twister ripped through Bunker Hill, where many people were sleeping at 6:50 a.m.

Families woke up to flying glass and roofs of their houses collapsing around them.

"The twister roared like a bunch of 16-wheeler trucks rolling through town," said Albert "Pappy" Landreth, who operated Landreth's Market with his brother, Herman.

Landreth, who was a 24-year-old father of three, lost his wife, Georgia, in the tornado.

"I felt our housing bouncing up and down," the 74-year-old Landreth recalled. "The force of the tornado threw me, my wife and children out into the street."

Landreth was knocked unconscious.

"I woke up in the street with rain hitting me in the face," he said.

Landreth remembers the shock of finding his wife dead and three children with broken legs.

"My leg was amputated after the tornado," he said. "A big piece of timber from the house crushed my knee."

Although there were fatalities, there were miraculous stories of survival amid the rubble.

Dorothy Bruckert's grandmother and grandfather, Matilda and Arthur Schmidt, survived when the tornado ripped apart their two-story, 11-room house at Park and Franklin streets in Bunker Hill.

"My grandparents and four other people were in the home when the tornado struck it," said Bruckert, Bunker Hill Township supervisor. "It was a miracle that they got out of the house alive."

Residents will remember the deadly storm at church services Sunday in Fosterburg and Bunker Hill.

Zion Presbyterian Church in Fosterburg was destroyed in the tornado and rebuilt on the same site, said Gvillo, a member of the church.

"We'll pray for families who lost loved ones in the terrible storm of 1948," he said.

Twister spun mysteries

By ANDE YAKSTIS
Telegraph staff writer

BUNKER HILL — Residents are still baffled by mysterious happenings during a tornado that struck Bunker Hill and Fosterburg 50 years ago today.

The twister demolished houses and businesses in the two towns on March 19, 1948, killing 30 and injuring 200.

"People witnessed some unexplainable happenings in the tornado," farmer Eugene Gvillo of Fosterburg said.

Residents said they saw pieces of straw driven into tree trunks by the twister.

"The force of the tornado blinded all of my aunt Sadie Tichenal's chickens," Gvillo said. "I saw a bed rail driven through the cedar tree trunk in "Buck" Edsal's yard."

Personal belongings from Clyde Miller's house in Fosterburg were blown miles away when the tornado destroyed his home.

"A World War II government bond with my name on it was found in a farm field a hundred miles away from my home in Fosterburg."

Dorothy Bruckert's third-grade report card was blown into the eye of the twister when the storm destroyed the Fosterburg Grade School. It was found more than 100 miles away in a farm field north of Decatur.

"Someone mailed the grade card back to me. The card had only a slight tear from sailing through the air in the terrible twister."

One of the most amazing stories of the tornado was the mysterious recovery of Nellie Miller's wedding ring.

"My mother Nellie's ring disappeared from the bedroom dresser when the tornado exploded our house into splinters," said Clyde Miller of Fosterburg.

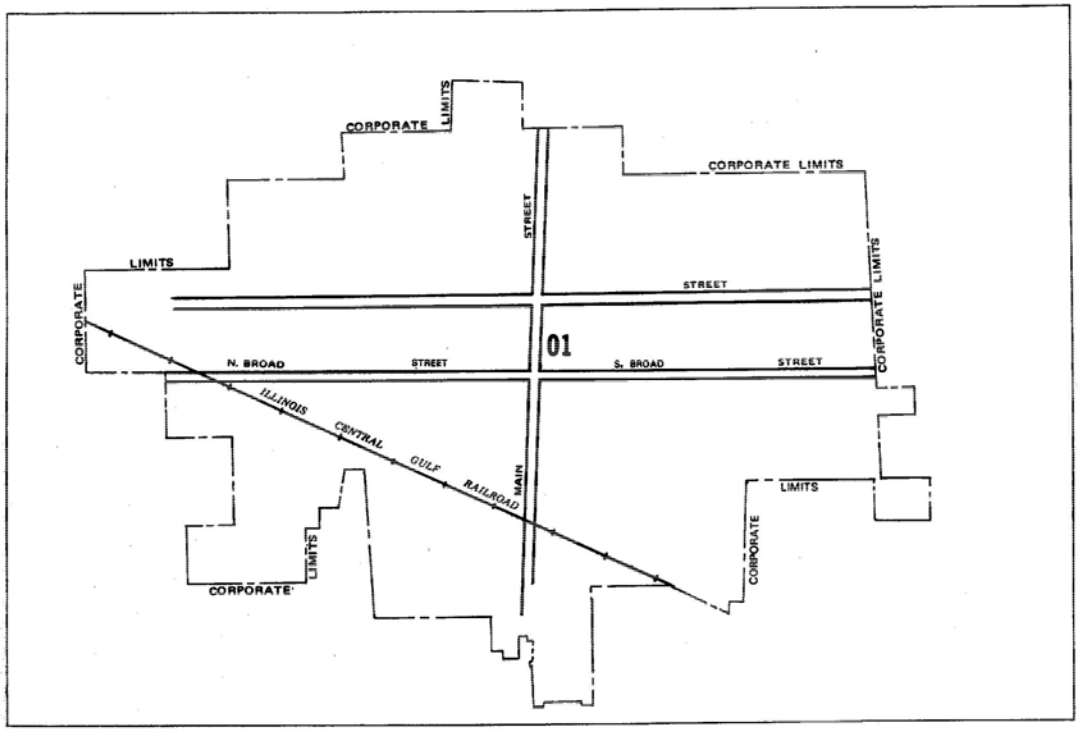
Twenty years later, he was hoeing potatoes in his garden and spotted something gold and shiny in the soil.

"I reached down and picked up my mother's gold wedding ring," he said. "I couldn't believe it. It didn't have a spot of rust on it."

Nellie Miller told her son that the recovery of her ring was like finding a treasure.

"My mother called it a miracle of the tornado of 1948."

APPENDIX L



KEY TO MAP

ZONE DESIGNATIONS*

ZONE C

ZONE A

ZONE C

Base Flood Elevation Line with elevation in feet — 513

Base Flood Elevation where uniform within zone — (EL 987)

Elevation Reference Mark — $RM7_X$

River Mile — •M1.5

***EXPLANATION OF ZONE DESIGNATIONS**

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by FEMA are

ZONE	EXPLANATION
A	Areas of 100-year flood base flood elevations and flood hazard factors not determined
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet, average depths of inundation are shown, but no flood hazard factors are determined
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet, base flood elevations are shown, but no flood hazard factors are determined
A1-A30	Areas of 100-year flood, base flood elevations and flood hazard factors determined
A99	Areas of 100-year flood to be protected by flood protection system under construction, base flood elevations and flood hazard factors not determined
B	Areas between limits of the 100-year flood and 500-year flood, or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile, or areas protected by levees from the base flood (Medium shading)
C	Areas of minimal flooding (No shading)
D	Areas of undetermined, but possible flood hazards
V	Areas of 100-year coastal flood with velocity (wave action), base flood elevations and flood hazard factors not determined
V1-V30	Areas of 100-year coastal flood with velocity (wave action), base flood elevations and flood hazard factors determined

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only, it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

To determine if flood insurance is available in this community contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

INITIAL IDENTIFICATION: JUNE 14, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS: JUNE 11, 1976

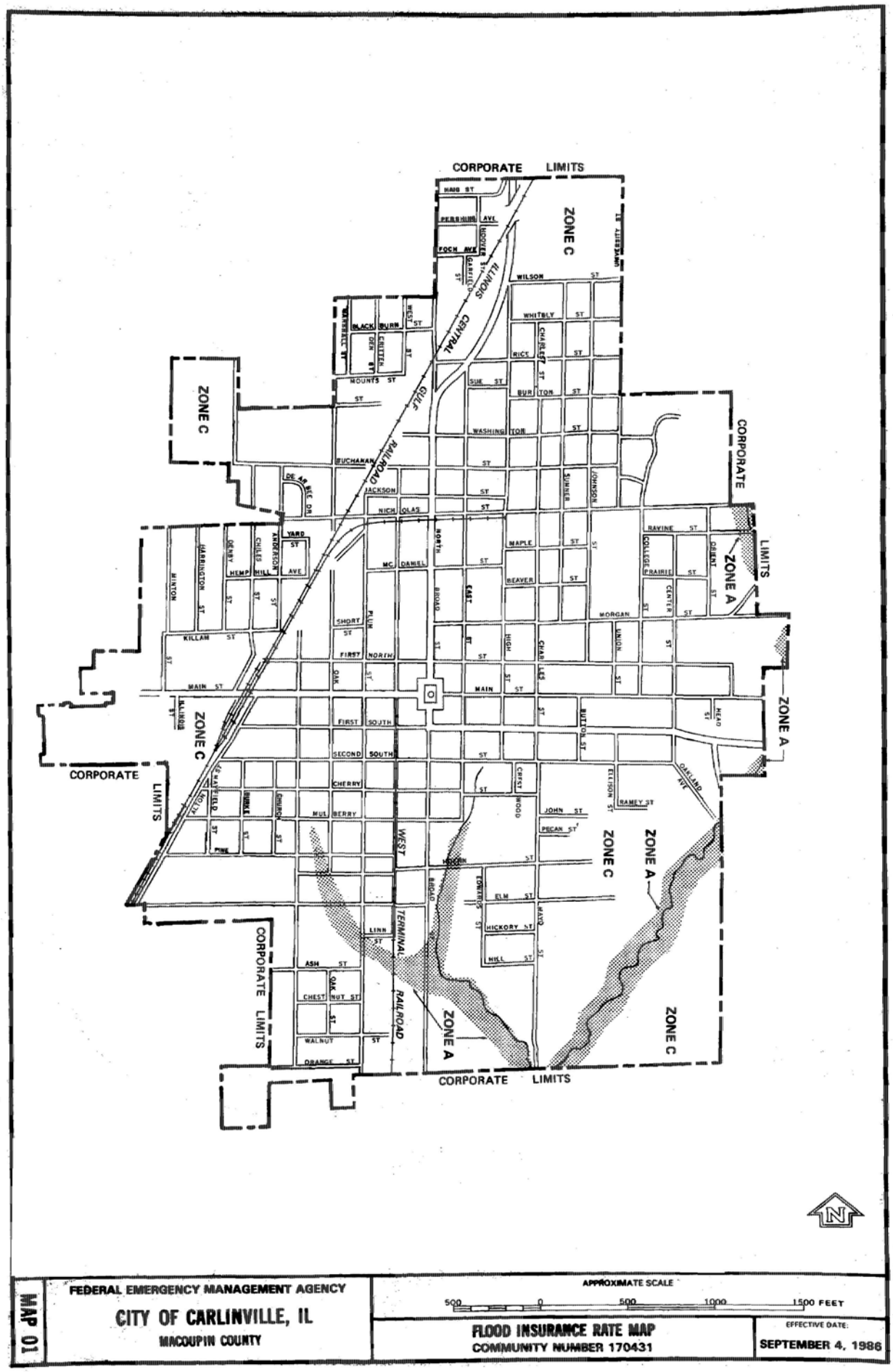
FLOOD INSURANCE RATE MAP EFFECTIVE: SEPTEMBER 4, 1986

FLOOD INSURANCE RATE MAP REVISIONS:

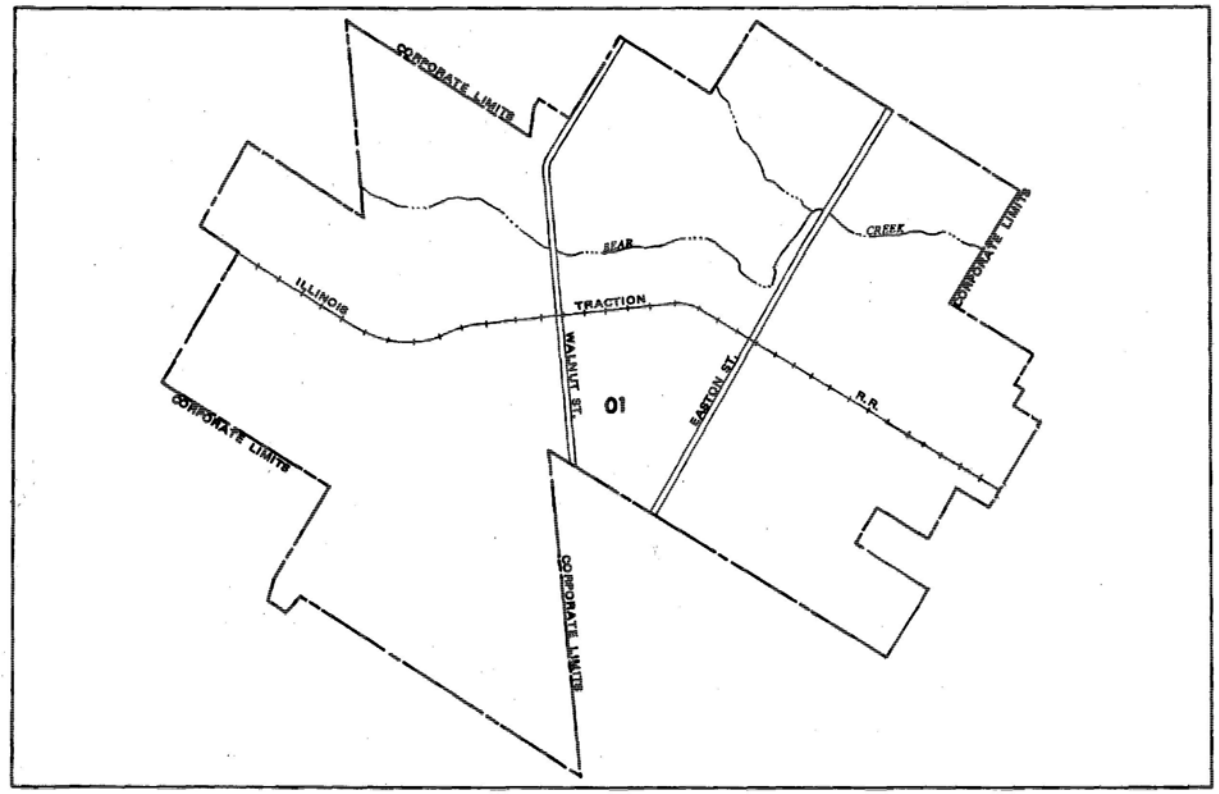
FEDERAL EMERGENCY MANAGEMENT AGENCY

FIRM

FLOOD INSURANCE RATE MAP 01
MAP INDEX
CITY OF CARLINVILLE, IL
MACOUPIN COUNTY
COMMUNITY NUMBER 170431 B



MAP 01	FEDERAL EMERGENCY MANAGEMENT AGENCY CITY OF CARLINVILLE, IL MACOUPIN COUNTY	APPROXIMATE SCALE 500 0 500 1000 1500 FEET FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 170431	EFFECTIVE DATE: SEPTEMBER 4, 1986



KEY TO MAP

ZONE DESIGNATIONS*

ZONE C

ZONE A

ZONE C

Base Flood Elevation Line with elevation in feet — 513

Base Flood Elevation where uniform within zone — (EL 987)

Elevation Reference Mark — $RM7_X$

River Mile — •M1.5

*EXPLANATION OF ZONE DESIGNATIONS

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by FEMA are

ZONE	EXPLANATION
A	Areas of 100-year flood base flood elevations and flood hazard factors not determined
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet, average depths of inundation are shown, but no flood hazard factors are determined
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet, base flood elevations are shown, but no flood hazard factors are determined
A1-A30	Areas of 100-year flood, base flood elevations and flood hazard factors determined
A99	Areas of 100-year flood to be protected by flood protection system under construction, base flood elevations and flood hazard factors not determined
B	Areas between limits of the 100-year flood and 500-year flood, or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile, or areas protected by levees from the base flood (Medium shading)
C	Areas of minimal flooding (No shading)
D	Areas of undetermined, but possible flood hazards
V	Areas of 100-year coastal flood with velocity (wave action), base flood elevations and flood hazard factors not determined
V1-V30	Areas of 100-year coastal flood with velocity (wave action), base flood elevations and flood hazard factors determined

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only, it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

To determine if flood insurance is available in this community contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

INITIAL IDENTIFICATION: JUNE 7, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS: APRIL 23, 1976

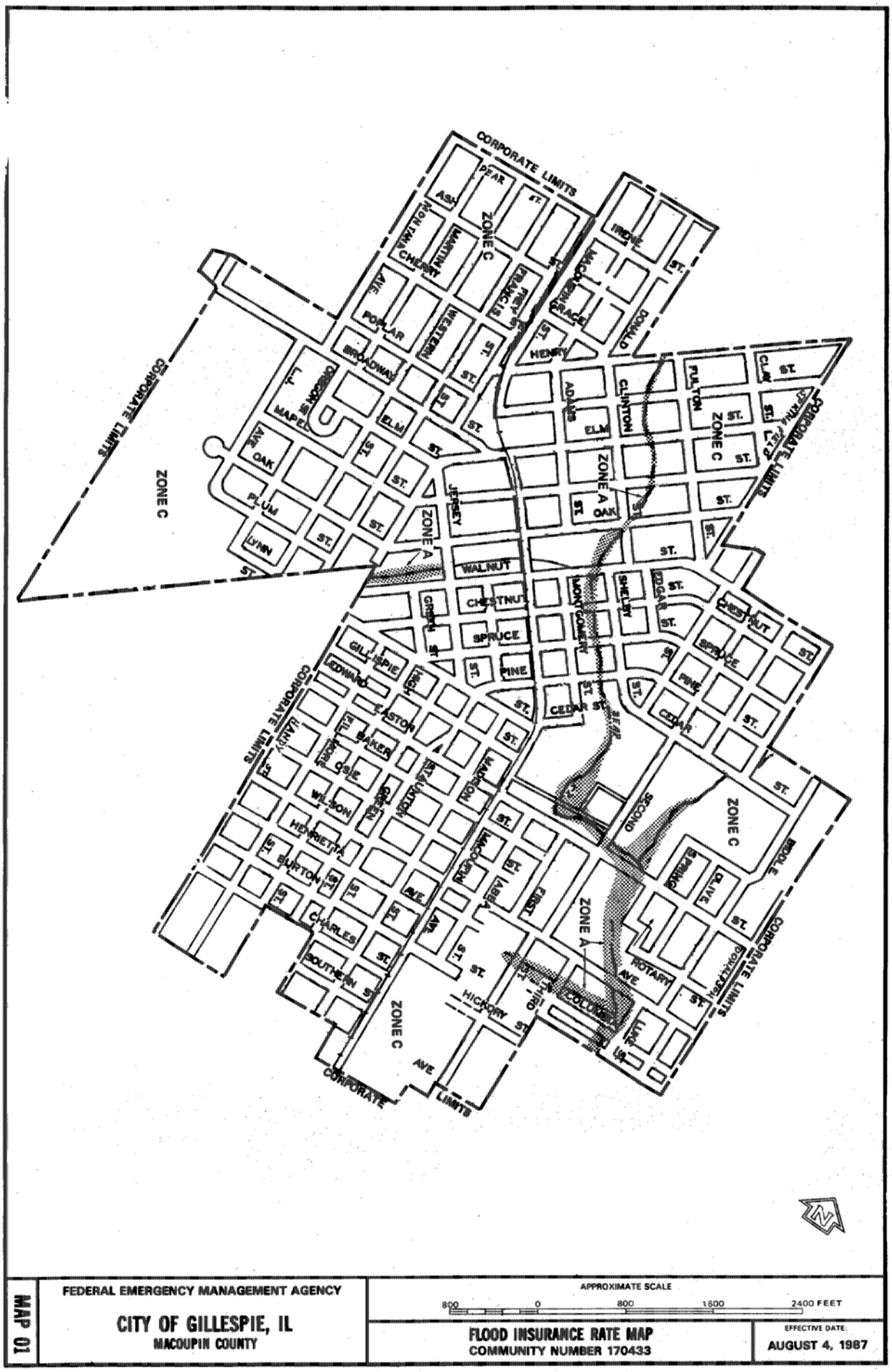
FLOOD INSURANCE RATE MAP EFFECTIVE: AUGUST 4, 1987

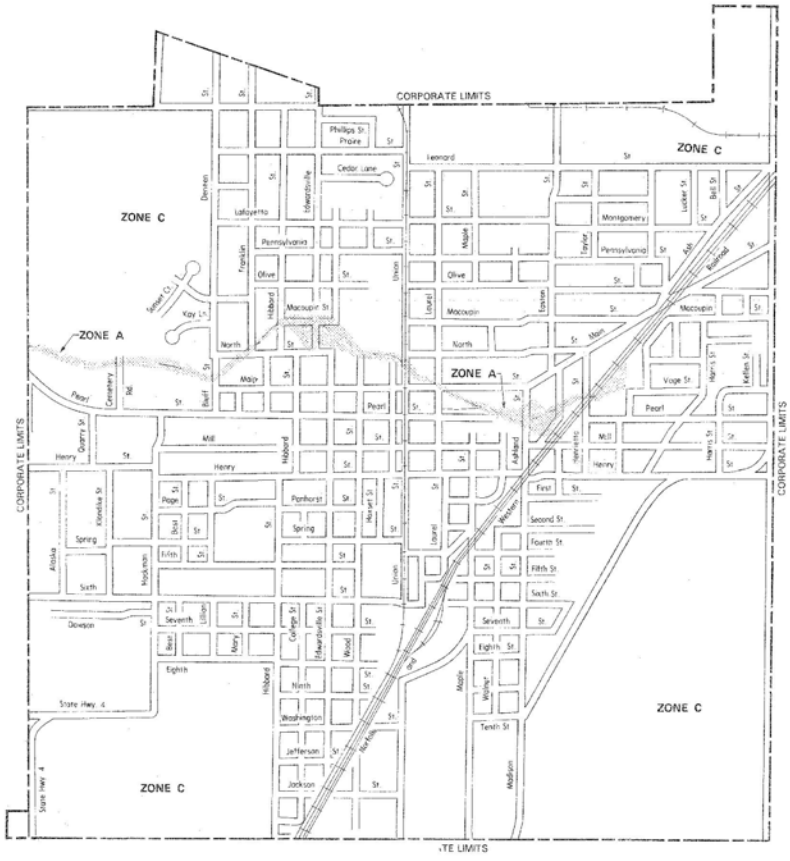
FLOOD INSURANCE RATE MAP REVISIONS:

FEDERAL EMERGENCY MANAGEMENT AGENCY

FIRM

FLOOD INSURANCE RATE MAP 01
MAP INDEX
CITY OF GILLESPIE, IL
MACOUPIN COUNTY
COMMUNITY NUMBER 170433 B


CORPORATE LIMITS
ZONE C
ZONE A
ZONE C
ZONE C
ZONE A
ZONE C
ZONE C
ZONE A
ZONE C
CORPORATE LIMITS
CORPORATE LIMITS
CORPORATE LIMITS
CORPORATE LIMITS
CORPORATE LIMITS
ASH
DEAR
MORTIMER
MARTIN
CHERRY
POPLAR
WESTERN
FRANCIS
MACOUPIN CREEK
GRACE
DONALD
IRENE
HENRY
BROADWAY
MAPLE
ELM
OAK
PLUM
LYNN
JERSEY
ADAMS
CLINTON
FULTON
CLAY
WALNUT
CHESTNUT
GREEN
SPRUCE
PINE
CEDAR
MONTGOMERY
SHELBY
EDGAR
GILLESPIE
EDWARD
EASTON
BAKER
WILSON
HENRIETTA
BURTON
CHARLES
SOUTHERN
MACOUPIN
ABBA
LINN
SECOND
FRANK
OLIVE
POOLE
ROTARY
COLONIAL
HICKORY
LAKE
MAP 01
FEDERAL EMERGENCY MANAGEMENT AGENCY
CITY OF GILLESPIE, IL
MACOUPIN COUNTY
APPROXIMATE SCALE
800 0 800 1600 2400 FEET
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 170433
EFFECTIVE DATE:
AUGUST 4, 1987



KEY TO SYMBOLS

ZONE C
ZONE A
ZONE C

Base Flood Elevation Line — 513 —

Base Flood Elevation (513' MSL)

Elevation Reference Mark RM7 ×

River Mile • M1.5

*EXPLANATION OF ZONE DESIGNATIONS

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by FIA are:

Zone Symbol	Category
A	Area of special flood hazards (SFHA) and without base flood elevations determined.
A1 through A30	Area of special flood hazards (SFHA) with base flood elevations. Zones are assigned according to flood hazard factors, and dates of SFHA identification.
AO	Area of special flood hazards that have shallow flood depths (less than two feet) and/or unpredictable flow paths. Base flood elevations are not determined.
V	Area of special flood hazards, with velocity, that are inundated by tidal floods. Zones are assigned according to flood hazard factors and dates of SFHA identification.
B	Area of moderate flood hazards.
C	Area of minimal flood hazards.
D	Area of undetermined, but possible, flood hazards.

"TO DETERMINE IF FLOOD INSURANCE IS AVAILABLE IN THIS COMMUNITY, CONTACT YOUR INSURANCE AGENT, OR CALL THE NATIONAL FLOOD INSURANCE PROGRAM, AT (800) 638-6620, OR (800) 424-8872."

INITIAL IDENTIFICATION
MAY 17, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
MAY 21, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:
JULY 17, 1981

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

APPROXIMATE SCALE
400 0 800

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
STAUNTON, ILLINOIS
MACOUPIN COUNTY

ONLY PANEL PRINTED
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
170434 0001 B

EFFECTIVE DATE:
JULY 17, 1981

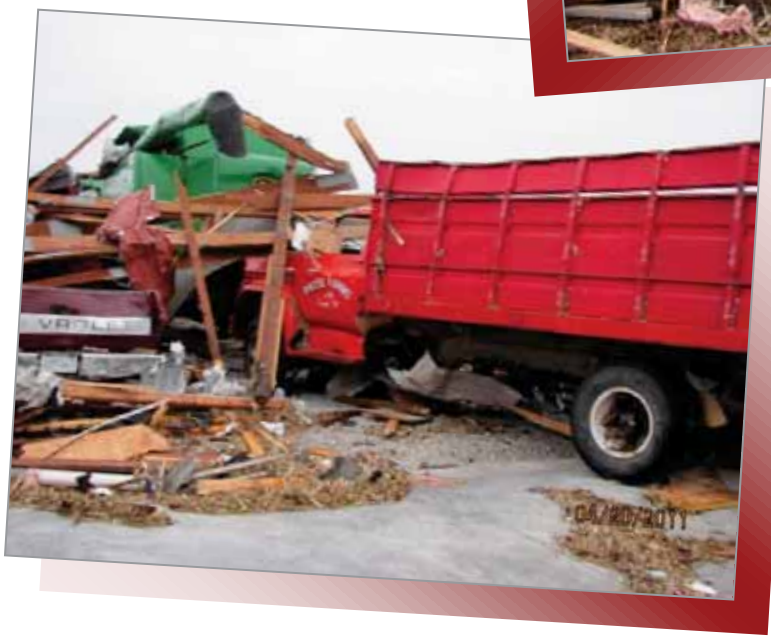
federal emergency management agency
federal insurance administration

APPENDIX M

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area



Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

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Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
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April 19, 2011 - EF3 Tornado
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Photographs provided by James Pitchford, Macoupin County EMA Coordinator

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Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

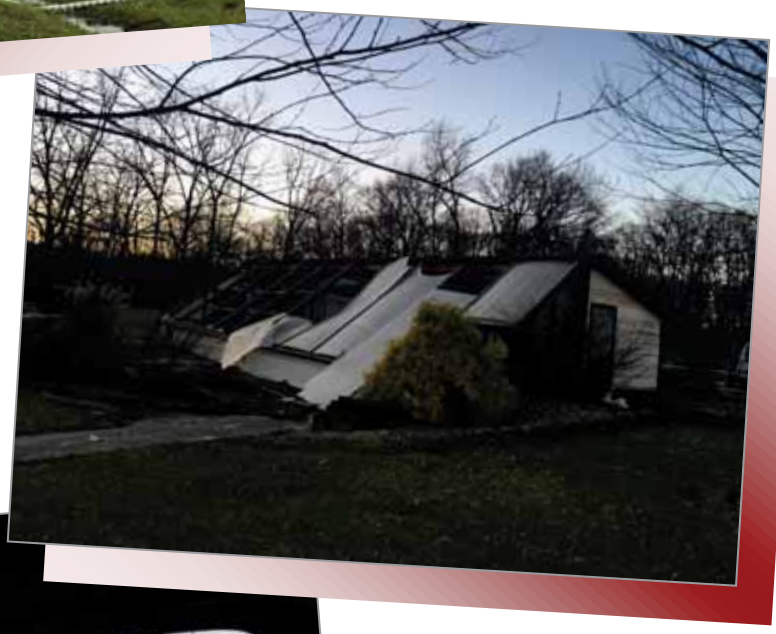
April 19, 2011 - EF3 Tornado
Girard, Illinois Area

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

March 7, 2017 - EF1 Tornado
Sawyerville, Illinois

Photographs courtesy of the National Weather Service & Tiffany Boehler, Macoupin County Public Health Department

March 7, 2017 - EF1 Tornado
Sawyerville, Illinois



Photographs provided by Tiffany Boehler, Macoupin County Public Health Department

March 27, 2009 - Mine Subsidence at Benld Elementary School Benld, Illinois

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

March 27, 2009 - Mine Subsidence at Benld Elementary School Benld, Illinois

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

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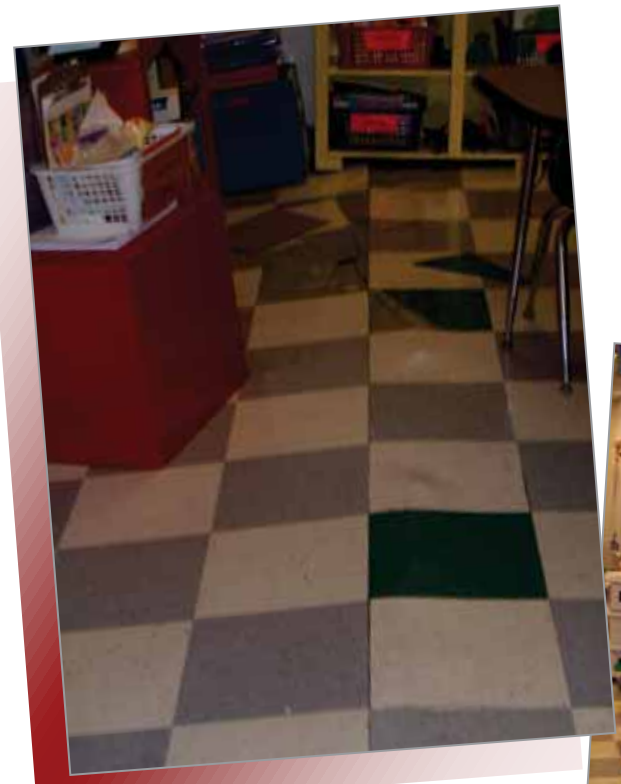
March 27, 2009 - Mine Subsidence at Benld Elementary School
Benld, Illinois

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

March 27, 2009 - Mine Subsidence at Benld Elementary School
Benld, Illinois

Photographs provided by James Pitchford, Macoupin County EMA Coordinator

March 27, 2009 - Mine Subsidence at Benld Elementary School Benld, Illinois



Photographs provided by James Pitchford, Macoupin County EMA Coordinator

APPENDIX N

DIRECTORY OF COAL MINES IN ILLINOIS

Macoupin County

This directory accompanies the Illinois Coal Mines map or maps for this County.

February 2023

ILLINOIS
Illinois State Geological Survey
PRAIRIE RESEARCH INSTITUTE

Prairie Research Institute
Illinois State Geological Survey
615 East Peabody Drive
Champaign, Illinois 61820
(217) 333-4747
http//:www.isgs.illinois.edu

INTRODUCTION

Coal has been mined in 77 counties. More than 7,400 coal mines have operated since commercial mining began in Illinois circa 1810. Our maps of known mines for each county may help the public to identify mined areas. This accompanying coal mine directory provides basic information about the coal mines. Please note, however, that the accuracy and completeness of the maps and directories vary depending on the availability and quality of source material. Little or no information is available for many mines, especially the older ones, because mining activity was not regulated or documented until the late 1800's. Even then, reporting requirements were minimal.

The coal mine maps are maps compiled by the Illinois State Geological Survey (ISGS) of known mines: underground and surface coal mines as well as underground industrial mineral mines. Buffer regions for industrial mineral underground mines were incorporated into the maps due to limited information regarding these mines. The size of the buffer region is dependent on the uncertainty or inaccuracy of the mine location based on the quality of the source material. For more information regarding industrial mineral mines please contact the ISGS Industrial Minerals Section.

In cooperation with the Illinois State Geological Survey, the Office of Mines and Minerals (a division of the Department of Natural Resources) is in search of old underground mine maps of Illinois. Many of the undocumented maps are believed to be in libraries, historical societies and personal files of old mine employees. The Department asks that anyone who knows of one of these maps, please contact the Department at (618) 650-3197 or by emailing rgibson@siue.edu. A map specialist will come to your location, if you wish. Otherwise maps can be mailed, or you may stop by one of our offices in Edwardsville, Springfield, Ottawa, or Benton. These maps will be checked against existing inventory. If they are found to be a new discovery, they will be electronically imaged and returned to the owner (if requested).

MINE MAPS

The mined areas are shown on county base maps at a scale of 1:100,000.

Three types of mine information are shown on the maps: an index number that identifies the mine in the directory, a symbol that marks the 'location' of the mine, and an outline of the mined area if that is known. The location is almost always the site of the main mine opening or, in the case of surface mines, the location of the tipple (coal washing and storage facility). The type of symbol indicates whether the opening is a shaft, drift, or slope and whether the mine is active or abandoned. Another symbol represents a mine with an uncertain type of portal and/or uncertain location. When the exact location is unknown, the symbol is placed in the center of the section or quarter section in which the mine was reported to exist. If a mine cannot be located within a section, it is not shown on the map, but is listed in the directory.

The boundaries of the mined areas are also shown for most of the mines; however, for some mines the only information available is the location of the main opening. There are three types of coal-mined areas: underground, surface, and indefinite--which are shaded with different patterns. The underground mines also show large blocks of unmined coal within the mine, when that information is available. The indefinite areas, which have been plotted from sketchy or incomplete information, usually are underground workings, although the directory should be consulted to determine the specific mine type.

For most counties, one map shows all known mines. However, in Gallatin, Saline, Vermilion, and Williamson Counties, several seams have been extensively mined. For the sake of readability, separate maps have been produced for the mines in each seam. Mines in the Herrin Coal are shown on one map, those in the Springfield Coal are shown on another, and the mines in all other coals are shown on a third map. In Vermilion County, the mines that operated in the Herrin and the Danville Coals are presented on separate maps.

Quadrangle maps at 1:24,000 scale have been completed for select areas and contain more detailed outlines with directories that contain more detailed coal mine information. The maps and directories are available as downloadable PDF files or can be purchased. Please visit the ISGS web site for more information.

MINE DIRECTORIES

Each county directory is keyed to the mine map by the mine index number; the directory provides basic information about the coal mines shown on the map. The data have been compiled from a variety of sources such as the annual Coal Report of the Illinois Office of Mines and Minerals and field notes taken by ISGS geologists. The information presented in the table is described below. A blank in any column indicates that information is not available for that item. Again, we welcome any additional information that you may have.

ISGS Index Each mine in the state is identified with a unique number; this number is shown on the map and is the link between the map and the directory. The number is permanently assigned to a mine regardless of changes in the mine name, ownership, or operator.

Company Name A mine may have been operated by more than one company or the operating company may have changed its name. Separate entries in the directory show each name and the years of operation under the name. In many instances, names have been abbreviated to fit within the space available.

Mine Name and Mine Number An entry is included for each name and/or number the mine operated under, even if the company name remained the same. Many companies use the same name for all their mines, but differentiate them by number. Again, abbreviations have been used where necessary.

Mine Type Underground mines are either "shaft," "slope," or "drift" which refers to the type of opening used to remove the coal from the mine. In shaft mines the coal is removed through a vertical shaft. Slope designates mines in which the coal is removed via a sloping incline from the ground surface to the mining level. In slope mines, miners and equipment may use either the slope or a vertical shaft to get into the mine. A drift mine is an underground mine that is excavated where the coal outcrops in the side of a bluff or the highwall of a surface mine. The mine type for surface mines is "strip" because these mines are more commonly called "strip mines."

Method This refers to the pattern by which the coal was removed. Most underground mines in Illinois have used a type of room and pillar pattern, the areas where the coal is removed are the 'rooms' with 'pillars' of coal left in place to support the roof. In some mines, the pillars were later pulled to extract additional coal. The abbreviations are listed below and most are illustrated in Figure 1.

RP	Room & Pillar; specific type unknown
RPB	Room & Pillar Basic; irregular panels, typical of old mines
MRP	Modified Room & Pillar; a somewhat more regular pattern than Room & Pillar Basic
RPP	Room and Pillar Panel; similar to Modified Room & Pillar
BRP	Blind Room and Pillar; every 6th or 7th room is left unmined to provide additional support
CRP	Checkerboard Room and Pillar; evenly spaced large pillars
LW	Longwall; all coal is removed Old longwall mines were backfilled with rock to provide support Modern longwall mines allow roof to collapse behind as mining progresses
HER	High Extraction Retreat; a form of Room & Pillar mining that extracts most of the coal

Years Operated Years that the mine operated; these dates may include periods when the mine was idle or not in full operation. Dates of mining from different sources are sometimes contradictory. The conventions that we have used to indicate where we were uncertain of dates are as follows. If we know the full range of dates that a mine operated under a specific name, those are given (1928-1934). If we know when a mine last operated, but not when it began, we use a dash and end date (-1934). If we know that a mine operated in a particular year, but not when it opened or closed, we just give the year we know (1920). To avoid confusion with the previous case, if a mine opened and closed in the same year, the year is repeated (1926-1926). In cases where a mine operated under different names, but we don't know when the name change occurred, the full range of dates is given for all names (John Smith Sr. Mine 1913-1944, Bill Smith Mine 1913-1944). A blank indicates that we have no information on the dates that the mine operated.

Coal Seam Mined The seam name is that used by the Illinois State Geological Survey. Figure 2 shows these coal seams in a stratigraphic column and provides a cross-reference to other names commonly used for these coals. If a mine has operated in more than one seam, there are separate entries in the table for each seam mined.

Location The location given is the site of the main portal or, for surface mines, the tipple. For small surface mines, the pit and the tipple are assumed to be the same. The location is based on the Public Land Survey System of townships and sections. Townships are identified by a township (north-south) and range (east-west) designation such as T14N-R6E. Townships are subdivided into approximately 36 one-square-mile sections, which are numbered from 1 to 36.

ORDERING INFORMATION

A 1:100,000 scale color plot with the directory is available at a cost of $12.50. This can be ordered by contacting the Information Office at (217) 244-2414 or sales@prairie.illinois.edu.

ACCURACY OF MAP

The maps and digital files used for this study were compiled from data obtained from a variety of sources and have varying degrees of completeness and accuracy. They present reasonable interpretations of the geology of the area and are based on available data. These data were compiled and digitized at a scale of 1:62,500, except for areas where quadrangle studies have been completed and the data was compiled at 1:24,000 or better. Locations of some features may be offset by 500 feet or more due to errors in the original source maps, the compilation process, digitizing, or a combination of these factors. These data are not intended for use in site-specific screening or decision-making. Data included in this map are suitable for use at a scale of 1:100,000.

DISCLAIMER

The Illinois State Geological Survey and the University of Illinois make no guarantee, expressed or implied, regarding the correctness of the interpretations presented in this data set and accept no liability for the consequences of decisions made by others on the basis of the information presented here.

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DIRECTORY OF COAL MINES FOR MACOUPIN COUNTY, ILLINOIS (February 2023)

ISGS INDEX	COMPANY NAME	MINE NAME	MINE NO.	MINE TYPE	METHOD	YEARS OPERATED	SEAM MINED	COUNTY	LOCATION TWP	RGE	SEC
66	SUPERIOR COAL CO.	SUPERIOR	3	SHAFT	RPP	1905-1953	HERRIN	MACOUPIN	8N	7W	36
67	CHICAGO-VIRDEN COAL CO.	VIRDEN		SHAFT	RPP	1892-1904	HERRIN	MACOUPIN	12N	6W	9
67	ILLINOIS COLLIERIES CO.	ILLINOIS COLLIERY	1	SHAFT		1904-1909	HERRIN	MACOUPIN	12N	6W	9
67	GLENRIDGE COAL CO.	GLENRIDGE	1	SHAFT		1909-1913	HERRIN	MACOUPIN	12N	6W	9
67	MONTOUR COAL CO.	MONTOUR 402		SHAFT		1913-1918	HERRIN	MACOUPIN	12N	6W	9
67	PITTSBURG COAL CO.	PITTSBURG 402		SHAFT		1918-1920	HERRIN	MACOUPIN	12N	6W	9
67	ILLINOIS COAL & COKE CORP.	ILLINOIS COAL & COKE	3	SHAFT		1920-1923	HERRIN	MACOUPIN	12N	6W	9
67	ILLINOIS COAL CORP.	EMPIRE	3	SHAFT		1923-1932	HERRIN	MACOUPIN	12N	6W	9
67	VIRDEN COAL CO.	NORTH		SHAFT		1932-1937	HERRIN	MACOUPIN	12N	6W	9
67	LINCOLN LIQUIDATING CO.	VIRDEN		SHAFT		1937-1939	HERRIN	MACOUPIN	12N	6W	9
67	VIRDEN MINING CORP.	NORTH		SHAFT		1939-1960	HERRIN	MACOUPIN	12N	6W	9
68	CONSOLIDATED C C OF ST LOUIS	CONSOLIDATED	15	SHAFT	MRP	1905-1951	HERRIN	MACOUPIN	7N	6W	9
68	BELL & ZOLLER COAL & MNG CO	BELL & ZOLLER	15	SHAFT	MRP	1951-1951	HERRIN	MACOUPIN	7N	6W	9
69	LOOMIS (T. S.)	LOOMIS		SHAFT		1878-1882	HERRIN	MACOUPIN	10N	7W	28
69	FARRELL & FLINT	SOUTH SHAFT	2	SHAFT		1882-1884	HERRIN	MACOUPIN	10N	7W	28
69	CARLINVILLE COAL CO.	CARLINVILLE		SHAFT		1884-1885	HERRIN	MACOUPIN	10N	7W	28
69	FARRELL & LOOMIS	FARRELL & LOOMIS	1	SHAFT		1885-1887	HERRIN	MACOUPIN	10N	7W	28
69	CONSOLIDATED C C OF ST LOUIS	CARLINVILLE		SHAFT		1887-1889	HERRIN	MACOUPIN	10N	7W	28
69	LOOMIS (T. J.), LESSEE	LOOMIS		SHAFT		1889-1891	HERRIN	MACOUPIN	10N	7W	28
69	CARLINVILLE COAL CO.	CARLINVILLE	1	SHAFT		1891-1917	HERRIN	MACOUPIN	10N	7W	28
69	STANDARD OIL CO.	STANDARD 1A AIR SHAFT		SHAFT		1917-1925	HERRIN	MACOUPIN	10N	7W	28
73	MT OLIVE & STAUNTON COAL CO.	MT OLIVE & STAUNTON	2	SHAFT	RPP	1904-1957	HERRIN	MADISON	6N	6W	10
185	ROYAL COAL CO.	ROYAL	1	SHAFT	MRP	1903-1914	HERRIN	MACOUPIN	12N	6W	8
185	CHI,WILMINGTON & FRANKLIN	ROYAL		SHAFT	MRP	1914-1919	HERRIN	MACOUPIN	12N	6W	8
185	ROYAL COLLIERY CO.	ROYAL	2	SHAFT	MRP	1919-1924	HERRIN	MACOUPIN	12N	6W	8
186	CARPENTER & GIRARD	CARPENTER & GIRARD		SHAFT	MRP	1867-1881	HERRIN	MACOUPIN	12N	6W	32
186	YOUNG, ARMSTRONG & LOWE	YOUNG, ARMSTRONG & LOWE		SHAFT	MRP	1881-1882	HERRIN	MACOUPIN	12N	6W	32
186	GIRARD COAL & TILE CO.	GIRARD		SHAFT	MRP	1882-1883	HERRIN	MACOUPIN	12N	6W	32

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ISGS INDEX	COMPANY NAME	MINE NAME	MINE NO.	MINE TYPE	METHOD	YEARS OPERATED	SEAM MINED	COUNTY	LOCATION TWP	RGE	SEC
186	GIRARD COAL CO.	GIRARD		SHAFT	MRP	1883-1904	HERRIN	MACOUPIN	12N	6W	32
186	ILLINOIS COLLIERIES CO.	ILLINOIS COLLIERIES	5	SHAFT	MRP	1904-1909	HERRIN	MACOUPIN	12N	6W	32
186	GIRARD COLLIERIES CO.	GIRARD	5	SHAFT	MRP	1909-1913	HERRIN	MACOUPIN	12N	6W	32
186	MONTOUR COAL CO.	MONTOUR 403		SHAFT	MRP	1913-1918	HERRIN	MACOUPIN	12N	6W	32
186	PITTSBURG COAL CO.	PITTSBURG 403		SHAFT	MRP	1918-1920	HERRIN	MACOUPIN	12N	6W	32
186	ILLINOIS COAL & COKE CORP.	ILLINOIS COAL & COKE	4	SHAFT	MRP	1920-1923	HERRIN	MACOUPIN	12N	6W	32
186	ILLINOIS COAL CORP.	EMPIRE	4	SHAFT	MRP	1923-1923	HERRIN	MACOUPIN	12N	6W	32
187	STANDARD OIL CO.	STANDARD B	1	SHAFT	RPP	1917-1924	HERRIN	MACOUPIN	10N	7W	21
188	SUPERIOR COAL CO.	SUPERIOR	4	SHAFT	RPP	1918-1954	HERRIN	MACOUPIN	7N	7W	10
189	WILLIAMSON, TOWNSEND & CO.	WILLIAMSON & TOWNSEND		SHAFT	RPP	1881-1882	HERRIN	MACOUPIN	7N	6W	21
189	ELLSWORTH COAL CO.	ELLSWORTH	7	SHAFT	RPP	1882-1886	HERRIN	MACOUPIN	7N	6W	21
189	CONSOLIDATED C C OF ST LOUIS	ELLSWORTH	7	SHAFT	RPP	1886-1896	HERRIN	MACOUPIN	7N	6W	21
189	HEBENSTREIT (B.)	CONSOLIDATED	7	SHAFT	RPP	1896-1897	HERRIN	MACOUPIN	7N	6W	21
189	CONSOLIDATED C C OF ST LOUIS	CONSOLIDATED	7	SHAFT	RPP	1897-1951	HERRIN	MACOUPIN	7N	6W	21
189	STAUNTON MINE SEVEN, INC.	STAUNTON	7	SHAFT	RPP	1951-1952	HERRIN	MACOUPIN	7N	6W	21
189	BELL & ZOLLER COAL & MNG.	BELL & ZOLLER	7	SHAFT	RPP	1951-1951	HERRIN	MACOUPIN	7N	6W	21
190	VOGE (HENRY)	VOGE		SHAFT	RP	1869-	HERRIN	MACOUPIN	7N	7W	25
190	CONSOLIDATED C C OF ST LOUIS	CONSOLIDATED	14	SHAFT	MRP	1904-1923	HERRIN	MACOUPIN	7N	6W	30
228	STANDARD OIL CO.	STANDARD 2B		SHAFT	RPP	1919-1919	HERRIN	MACOUPIN	10N	6W	4
228	STANDARD OIL CO. OF INDIANA	STANDARD	2	SHAFT	RPP	1919-1925	HERRIN	MACOUPIN	10N	6W	4
228	IDLE / ABANDONED	STANDARD B		SHAFT	RPP	1926-1944	HERRIN	MACOUPIN	10N	6W	4
228	STANDARD MNG & CONVERTERS	STANDARD B		SHAFT	RPP	1945-1947	HERRIN	MACOUPIN	10N	6W	4
281	NEIL (WILLIAM)	NEIL		SHAFT	MRP	1879-1882	HERRIN	MACOUPIN	7N	8W	14
281	BUNKER HILL COAL CO.	BUNKER HILL		SHAFT	MRP	1882-1893	HERRIN	MACOUPIN	7N	8W	14
281	NEIL (WILLIAM) & CO.	NEIL		SHAFT	MRP	1893-1912	HERRIN	MACOUPIN	7N	8W	14
282	MT. OLIVE COAL CO.	MT. OLIVE	5	SHAFT	RPP	1887-1894	HERRIN	MACOUPIN	7N	6W	1
282	CONSOLIDATED COAL & COKE CO.	MT. OLIVE		SHAFT	RPP	1887-1889	HERRIN	MACOUPIN	7N	6W	1

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282	MADISON COAL CORP.	MT. OLIVE	5	SHAFT	RPP	1894-1915	HERRIN	MACOUPIN	7N	6W	1
282	MT. OLIVE COAL CO.	MT. OLIVE	5	SHAFT	RPP	1915-1920	HERRIN	MACOUPIN	7N	6W	1
282	MADISON COAL CORP.	MADISON	5	SHAFT	RPP	1920-1934	HERRIN	MACOUPIN	7N	6W	1
282	MT. OLIVE COAL CO.	HOOSIER		SHAFT	RPP	1934-1940	HERRIN	MACOUPIN	7N	6W	1
314	CHI,WILMINGTON & VERMILION	C., W. & V.	1	SHAFT	RPP	1900-1914	HERRIN	SANGAMON	13N	6W	34
314	CHI., WILMINGTON & FRANKLIN	C., W. & F.	1	SHAFT	RPP	1914-1924	HERRIN	SANGAMON	13N	6W	34
413	SUPERIOR COAL CO.	SUPERIOR	1	SHAFT	RPP	1904-1951	HERRIN	MACOUPIN	8N	6W	29
503	SUPERIOR COAL CO.	SUPERIOR	2	SHAFT	RPP	1904-1953	HERRIN	MACOUPIN	7N	6W	6
761	MT. OLIVE COAL CO.	MT OLIVE SOUTH	8	SHAFT	MRP	1881-1883	HERRIN	MACOUPIN	7N	6W	11
761	ELLSWORTH COAL MINING CO.	ELLSWORTH	8	SHAFT	MRP	1883-1886	HERRIN	MACOUPIN	7N	6W	11
761	CONSOLIDATED C C OF ST LOUIS	CONSOLIDATED	8	SHAFT	MRP	1886-1914	HERRIN	MACOUPIN	7N	6W	11
762	RIDGELY, SUTTON & DANIELS	RIDGELY, SUTTON & DANIELS	6	SHAFT	MRP	1881-1882	HERRIN	MACOUPIN	7N	6W	32
762	ELLSWORTH COAL CO.	ELLSWORTH	6	SHAFT	MRP	1882-1886	HERRIN	MACOUPIN	7N	6W	32
762	CONSOLIDATED C C OF ST LOUIS	CONSOLIDATED	6	SHAFT	MRP	1886-1896	HERRIN	MACOUPIN	7N	6W	32
762	WEISENBAUM (T. E.)	CONSOLIDATED	6	SHAFT	MRP	1896-1897	HERRIN	MACOUPIN	7N	6W	32
762	CONSOLIDATED C C OF ST LOUIS	CONSOLIDATED	6	SHAFT	MRP	1897-1909	HERRIN	MACOUPIN	7N	6W	32
763	YOUNG, FULLER & MCKINNEY	YOUNG, FULLER & MCKINNEY		SHAFT	MRP	1881-1882	HERRIN	MACOUPIN	8N	6W	18
763	YOUNG & MCKINNEY	YOUNG & MCKINNEY		SHAFT	MRP	1882-1883	HERRIN	MACOUPIN	8N	6W	18
763	GILLESPIE COAL CO.	GILLESPIE		SHAFT	MRP	1883-1886	HERRIN	MACOUPIN	8N	6W	18
763	CONSOLIDATED C C OF ST LOUIS	GILLESPIE		SHAFT	MRP	1886-1909	HERRIN	MACOUPIN	8N	6W	18
843	GILLESPIE COAL CO.	LIBERTY	1	SHAFT	RPP	1918-1940	HERRIN	MACOUPIN	8N	7W	13
843	PERRY COAL CO.	LITTLE DOG		SHAFT	RPP	1941-1945	HERRIN	MACOUPIN	8N	7W	13
843	LITTLE DOG COAL CO.	LITTLE DOG		SHAFT	RPP	1945-1967	HERRIN	MACOUPIN	8N	7W	13
843	FLORIDA COAL CO.	LITTLE DOG		SHAFT	RPP	1967-1968	HERRIN	MACOUPIN	8N	7W	13
886	MONTEREY COAL CO.	MONTEREY	1	SHAFT	RPP	1969-2007	HERRIN	MACOUPIN	9N	7W	15
886	MONTEREY COAL CO.	MONTEREY	1	SHAFT	LW	1994-2007	HERRIN	MACOUPIN	9N	7W	15

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886	MACOUPIN ENERGY, LLC	SHAY	1	SHAFT	RP	2009-2020	HERRIN	MACOUPIN	9N	7W	15
933	FREEMAN UNITED COAL MNG CO	CROWN	2	SHAFT	RPP	1976-2007	HERRIN	MACOUPIN	12N	6W	23
996	FREEMAN UNITED COAL MNG CO.	CROWN	3	SHAFT	RPP	1981-2007	HERRIN	MACOUPIN	11N	6W	1
996	SPRINGFIELD COAL CO., LLC	CROWN	3	SHAFT	RPP	2007-2013	HERRIN	MACOUPIN	11N	6W	1
2796	VOGE (HENRY)	VOGE		SHAFT	MRP	1897-1897	HERRIN	MADISON	6N	6W	8
2796	MT OLIVE & STAUNTON COAL CO.	MT OLIVE & STAUNTON		SHAFT		1897-1899	HERRIN	MADISON	6N	6W	8
2796	STAUNTON COAL CO.	STAUNTON	1	SHAFT		1899-1904	HERRIN	MADISON	6N	6W	8
2796	MT OLIVE & STAUNTON COAL CO.	MT OLIVE & STAUNTON	1	SHAFT		1904-1923	HERRIN	MADISON	6N	6W	8
2894	KEISER	KEISER		SHAFT	MRP	1877-1879	HERRIN	MACOUPIN	7N	6W	2
2894	MT. OLIVE COAL CO.	MT OLIVE		SHAFT	MRP	1881-1883	HERRIN	MACOUPIN	7N	6W	2
2894	ELLSWORTH COAL & MNG. CO.	ELLSWORTH	10	SHAFT	MRP	1883-1886	HERRIN	MACOUPIN	7N	6W	2
2894	CONSOLIDATED C C OF ST LOUIS	CONSOLIDATED	10	SHAFT	MRP	1886-1909	HERRIN	MACOUPIN	7N	6W	2
2895	MT. OLIVE COAL & MINING CO.	MT OLIVE		SHAFT	MRP	1874-1883	HERRIN	MACOUPIN	7N	6W	2
2895	ELLSWORTH COAL & MINING CO.	ELLSWORTH	9	SHAFT	MRP	1883-1886	HERRIN	MACOUPIN	7N	6W	2
2895	CONSOLIDATED C C OF ST LOUIS	CONSOLIDATED	9	SHAFT	MRP	1886-1891	HERRIN	MACOUPIN	7N	6W	2
2896	ANCHOR COAL CO.	ANCHOR		SHAFT	RPB	1882-1886	HERRIN	MACOUPIN	7N	6W	15
2896	CONSOLIDATED C C OF ST LOUIS	ANCHOR		SHAFT	RPB	1886-1888	HERRIN	MACOUPIN	7N	6W	15
2897	PANHORST & VOGE	STAUNTON		SHAFT	MRP	1871-1878	HERRIN	MACOUPIN	7N	6W	29
2897	FULLER, YOUNG & CO.	FULLER & YOUNG		SHAFT	MRP	1878-1879	HERRIN	MACOUPIN	7N	6W	29
2897	RIDGELY, SUTTON & DANIELS	RIDGELY, SUTTON & DANIELS	5	SHAFT	MRP	1881-1882	HERRIN	MACOUPIN	7N	6W	29
2897	ELLSWORTH COAL CO.	ELLSWORTH	5	SHAFT	MRP	1882-1886	HERRIN	MACOUPIN	7N	6W	29
2897	CONSOLIDATED C C OF ST LOUIS	STAUNTON	5	SHAFT	MRP	1886-1888	HERRIN	MACOUPIN	7N	6W	29
2898	BAUSER & TRUESDALE	BAUSER & TRUESDALE		SHAFT	RPB	1904-1911	HERRIN	MACOUPIN	7N	8W	13
2898	BAUSER (ED A.)	BAUSER		SHAFT	RPB	1911-1936	HERRIN	MACOUPIN	7N	8W	13
2898	GATSCHENBURGER & VOGES	GATSCHENBURGER & VOGES		SHAFT	RPB	1937-1938	HERRIN	MACOUPIN	7N	8W	13
2898	BAUSER (ED A.)	BAUSER		SHAFT	RPB	1938-1940	HERRIN	MACOUPIN	7N	8W	13

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2899	HUGGINS (P. C.)	HUGGINS		UG	RP	1881-1882	HERRIN	MACOUPIN	7N	8W	16
2899	CARROLL (MATT)	CARROLL		SHAFT		1882-1883	HERRIN	MACOUPIN	7N	8W	16
2899	RAYNOR & LOCK	CROW HOLLOW	2	SHAFT		1883-1889	HERRIN	MACOUPIN	7N	8W	16
2900	CROW HOLLOW COAL CO.	CROW HOLLOW	1				HERRIN	MACOUPIN	7N	8W	21
2901	NAYLOR MINE	NAYLOR		UG	RPB	1867-1879	HERRIN	MACOUPIN	7N	8W	24
2903	JORDAN & LANSFORD	JORDAN & LANSFORD		SHAFT	RP	1903-1903	HERRIN	MACOUPIN	7N	8W	35
2903	LANSFORD (E.) & CO.	LANSFORD		SHAFT		1903-1904	HERRIN	MACOUPIN	7N	8W	35
2903	JORDAN (FRITZ T.)	JORDAN	3			1904-1911	HERRIN	MACOUPIN	7N	8W	35
2903	JORDAN (ABBOTT T.)	JORDAN		SHAFT		1911-1913	HERRIN	MACOUPIN	7N	8W	35
2904	HAUSMAN (FRED)	HAUSMAN		SHAFT	RPB	1934-1936	HERRIN	MACOUPIN	7N	9W	36
2904	MOORE (ROSCOE)	MOORE		SHAFT	RPB	1936-1942	HERRIN	MACOUPIN	7N	9W	36
2904	F. & M. COAL CO.	F. & M.		SHAFT	RPB	1943-1943	HERRIN	MACOUPIN	7N	9W	36
2905	LOVEJOY COAL CO.	LOVEJOY		SHAFT		1939-1939		MACOUPIN	7N	9W	36
2906	PERRY COAL CO.	KIMBERLY		SHAFT	RP	1922-1923	HERRIN	MACOUPIN	8N	6W	7
2907	YOCK (JOSEPH) & BROTHER	YOCK		SHAFT	RP	1881-1884	HERRIN	MACOUPIN	8N	6W	9
2907	ST. BARNARD COAL CO.	ST. BARNARD		SHAFT	RP	1884-1886	HERRIN	MACOUPIN	8N	6W	9
2907	CONSOLIDATED C C OF ST LOUIS	CLYDE		SHAFT	RP	1886-1896	HERRIN	MACOUPIN	8N	6W	9
2907	WILLIAMS (W. W.)	CLYDE		SHAFT	RP	1896-1897	HERRIN	MACOUPIN	8N	6W	9
2907	CONSOLIDATED C C OF ST LOUIS	HORNSBY		SHAFT	RP	1903-1906	HERRIN	MACOUPIN	8N	6W	9
2908	DORSEY COAL CO.	DORSEY		SHAFT	RPB	1881-1886	HERRIN	MACOUPIN	8N	7W	13
2908	CONSOLIDATED C C OF ST LOUIS	DORSEY		SHAFT	RPB	1886-1887	HERRIN	MACOUPIN	8N	7W	13
2909	MEDORA COAL & MINING CO.	MEDORA		SHAFT	LW	1882-1885	UNKNOWN	MACOUPIN	8N	9W	6
2910	SHIPMAN COAL CO.	SHIPMAN		SHAFT	LW	1889-1891	COLCHESTER	MACOUPIN	8N	9W	25

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2911	DAVIS COAL CO.	DAVIS		SHAFT	LW	1878-1882	HERRIN	MACOUPIN	9N	9W	2
2911	CHESTERFIELD COAL & MNG. CO.	CHESTERFIELD		SHAFT		1882-1888	HERRIN	MACOUPIN	9N	9W	2
2911	BREMEN COAL CO.	BREMEN		SHAFT		1893-1894	HERRIN	MACOUPIN	9N	9W	2
2912	OLD CALAMITY,OPER BEF 1883	OLD CALAMITY		SHAFT			HERRIN	MACOUPIN	10N	7W	21
2915	CARLINVILLE MINING CO.	SOUTH		SHAFT	RPP	1918-1920	HERRIN	MACOUPIN	10N	7W	33
2915	BARTELS COAL CO.	BARTELS		SHAFT	RPP	1920-1924	HERRIN	MACOUPIN	10N	7W	33
2915	SOUTH MINE COAL CO.	SOUTH		SHAFT	RPP	1924-1949	HERRIN	MACOUPIN	10N	7W	33
2915	CARLINVILLE COAL MNG. CO.	SOUTH		SHAFT	RPP	1949-1953	HERRIN	MACOUPIN	10N	7W	33
2916	BARTELS (HENRY) & SON	SOUTH		SHAFT	RP	1870-1886	SPRINGFIELD	MACOUPIN	10N	7W	33
2916	BARTELS (WILLIAM)	SOUTH		SHAFT	RP	1886-1891	SPRINGFIELD	MACOUPIN	10N	7W	33
2917	SIPORA (JOHN)	SIPORA		SHAFT	RP	1911-1913	HERRIN	MACOUPIN	10N	9W	29
2918	CHISM & CURTIS	CHISM & CURTIS		SHAFT	RP	1893-1895	HERRIN	MACOUPIN	10N	9W	29
2918	CURTIS (SAMUEL F.)	CURTIS		SHAFT	RP	1895-1900	HERRIN	MACOUPIN	10N	9W	29
2918	LOPER (G. B.)	LOPER		SHAFT	RP	1900-1910	HERRIN	MACOUPIN	10N	9W	29
2918	TRUITT (J. W.) & SONS	TRUITT		SHAFT	RP	1925-1926	HERRIN	MACOUPIN	10N	9W	29
2918	LYONS COAL CO.	LYONS		SHAFT	RP	1928-1933	HERRIN	MACOUPIN	10N	9W	29
2918	FROST & CO.	FROST		SHAFT	RP	1928-1928	HERRIN	MACOUPIN	10N	9W	29
2918	TRUITT & SONS	TRUITT		SHAFT	RP	1934-1936	HERRIN	MACOUPIN	10N	9W	29
2918	DAVIS COAL CO.	DAVIS		SHAFT	RP	1937-1938	HERRIN	MACOUPIN	10N	9W	29
2918	CHESTERFIELD COAL CO.	CHESTERFIELD		SHAFT	RP	1938-1939	HERRIN	MACOUPIN	10N	9W	29
2918	POLI (A. N.)	POLI		SHAFT	RP	1939-1939	HERRIN	MACOUPIN	10N	9W	29
2918	ANDERSON (C. G.)	DAVIS		SHAFT	RP	1940-1940	HERRIN	MACOUPIN	10N	9W	29
2919	RANDOLPH (JOHN)	RANDOLPH		SHAFT	RP	1892-1893	HERRIN	MACOUPIN	10N	9W	29
2919	HARBAUGH (J. F.)	HARBAUGH		SHAFT	RP	1893-1896	HERRIN	MACOUPIN	10N	9W	29
2919	HARBAUGH (J. T.)	HARBAUGH		SHAFT	RP	1896-1900	HERRIN	MACOUPIN	10N	9W	29
2919	HARBOUR (JOHN, JR.)	HARBOUR		SHAFT	RP	1900-1902	HERRIN	MACOUPIN	10N	9W	29
2919	HARBAUGH (GEORGE)	HARBAUGH		SHAFT	RP	1902-1903	HERRIN	MACOUPIN	10N	9W	29

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2919	HARBAUGH (JOHN)	HARBAUGH		SHAFT	RP	1903-1904	HERRIN	MACOUPIN	10N	9W	29
2919	HARBAUGH (JAMES)	HARBAUGH		SHAFT	RP	1904-1914	HERRIN	MACOUPIN	10N	9W	29
2919	DAWSON (A. W.)	DAWSON		SHAFT	RP	1914-1915	HERRIN	MACOUPIN	10N	9W	29
2920	MCCORMICK (R.)	MCCORMICK		SHAFT	RP	1893-1899	HERRIN	MACOUPIN	10N	9W	29
2920	MCCORMICK BROTHERS	MCCORMICK		SHAFT	RP	1899-1900	HERRIN	MACOUPIN	10N	9W	29
2921	DAVIS COAL CO.	DAVIS		SHAFT		1924-1925	HERRIN	MACOUPIN	10N	9W	29
2922	BEILBY (THOMAS)	BEILBY		DRIFT	RPB	1878-1879	HERRIN	MACOUPIN	10N	9W	29
2922	RUDOLPH & BEILBY	RUDOLPH & BEILBY		DRIFT	RPB	1881-1883	HERRIN	MACOUPIN	10N	9W	29
2922	BEILBY & CO.	BEILBY		DRIFT	RPB	1883-1885	HERRIN	MACOUPIN	10N	9W	29
2922	BEILBY & RUDOLPH	BEILBY		DRIFT	RPB	1885-1886	HERRIN	MACOUPIN	10N	9W	29
2922	BEILBY & CO.	BEILBY		SHAFT	RPB	1886-1890	HERRIN	MACOUPIN	10N	9W	29
2922	BODE (AUGUST)	BODE		SHAFT	RPB	1894-1909	HERRIN	MACOUPIN	10N	9W	29
2923	FALCUTT (JOHN B.)	FALCUTT		SHAFT		1923-1926	HERRIN	MACOUPIN	10N	9W	30
2924	HARBAUGH (JOHN J.)	HARBAUGH		SHAFT		1907-1917	HERRIN	MACOUPIN	10N	9W	30
2925	RANDS (THOMAS)	RANDS		DRIFT	RP	1897-1903	HERRIN	MACOUPIN	10N	9W	30
2925	CHALLONS COAL CO.	CHALLONS		SHAFT	RP	1934-1935	HERRIN	MACOUPIN	10N	9W	30
2925	GREENSTREET (ORVIL)	GREENSTREET		SHAFT	RP	1935-1935	HERRIN	MACOUPIN	10N	9W	30
2925	PALULIS (STANLEY)	PALULIS	1	SHAFT	RP	1935-1936	HERRIN	MACOUPIN	10N	9W	30
2926	BOWMAN & JOHNSON	BOWMAN & JOHNSON		SHAFT		1936-1936	HERRIN	MACOUPIN	10N	9W	30
2927	PITCHFORD (CLAUDE)	PITCHFORD		SLOPE		1939-1941	HERRIN	MACOUPIN	10N	9W	30
2928	DAVIS (DORRIS)	DAVIS		SHAFT	RP	1882-1885	HERRIN	MACOUPIN	10N	9W	30
2928	DAVIS BROTHERS	DAVIS		SHAFT	RP	1885-1890	HERRIN	MACOUPIN	10N	9W	30
2929	DAVIS (R. R.)	DAVIS		SHAFT	RP	1898-1899	HERRIN	MACOUPIN	10N	9W	30
2929	DAVIS BROTHERS	DAVIS		SHAFT	RP	1899-1907	HERRIN	MACOUPIN	10N	9W	30

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2930	COGGER & CO.	COGGER		SHAFT	RP	1886-1890	HERRIN	MACOUPIN	10N	9W	31
2930	TRILL (CHARLES)	TRILL		SHAFT	RP	1890-1893	HERRIN	MACOUPIN	10N	9W	31
2930	TRILL BROTHERS	TRILL		SHAFT	RP	1896-1896	HERRIN	MACOUPIN	10N	9W	31
2930	WALDEN (W. H.) & SON	WALDEN		SHAFT	RP	1935-1935	HERRIN	MACOUPIN	10N	9W	31
2930	KIRCHNER, WYATT & SPICER	WALDEN		SHAFT	RP	1936-1936	HERRIN	MACOUPIN	10N	9W	31
2931	GREEN RIDGE COAL CO.	GREEN RIDGE		SHAFT	RP	1895-1897	HERRIN	MACOUPIN	11N	6W	5
2931	O'GARA KING COAL CO.	GREEN RIDGE		SHAFT	RP	1897-1898	HERRIN	MACOUPIN	11N	6W	5
2931	GREEN RIDGE COAL CO.	GREEN RIDGE		SHAFT	RP	1898-1907	HERRIN	MACOUPIN	11N	6W	5
2931	VIVIAN COLLIERY CO.	GREENRIDGE		SHAFT	RP	1907-1913	HERRIN	MACOUPIN	11N	6W	5
2931	MIDDLE STATES COAL CO.	MIDDLE STATES	27	SHAFT	RP	1913-1917	HERRIN	MACOUPIN	11N	6W	5
2931	RIDGE COAL MINING CO.	GREEN RIDGE		SHAFT	RP	1917-1919	HERRIN	MACOUPIN	11N	6W	5
2931	UNION FUEL CO.	RIDGE	6	SHAFT	RP	1919-1923	HERRIN	MACOUPIN	11N	6W	5
2932	COOPER (HENRY) & SONS	COOPER		SHAFT	RP	1878-1881	HERRIN	MACOUPIN	11N	6W	18
2932	NOONAN (DENNIS)	NOONAN		SHAFT	RP	1881-1888	HERRIN	MACOUPIN	11N	6W	18
2932	COOPER (H.) & SON	COOPER		SHAFT	RP	1888-1889	HERRIN	MACOUPIN	11N	6W	18
2932	CARBON COAL CO.	CARBON		SHAFT	RP	1893-1902	HERRIN	MACOUPIN	11N	6W	18
2932	NILWOOD CARBON COAL CO.	NILWOOD		SHAFT	RP	1893-1902	HERRIN	MACOUPIN	11N	6W	18
2932	WEAVER COAL & COKE	WEAVER		SHAFT	RP	1902-1903	HERRIN	MACOUPIN	11N	6W	18
2932	MANUFACTURERS FUEL CO.	MANUFACTURERS FUEL		SHAFT	RP	1903-1906	HERRIN	MACOUPIN	11N	6W	18
2932	PRAIRIE STATE COAL & COKE	PRAIRIE STATE	1	SHAFT	RP	1906-1909	HERRIN	MACOUPIN	11N	6W	18
2932	NILWOOD COAL CO.	NILWOOD		SHAFT	RP	1909-1910	HERRIN	MACOUPIN	11N	6W	18
2932	ILLINOIS CENTRAL FUEL CO.	ILLINOIS CENTRAL FUEL		SHAFT	RP	1910-1917	HERRIN	MACOUPIN	11N	6W	18
2932	NILWOOD COAL CO.	NILWOOD		SHAFT	RP	1917-1919	HERRIN	MACOUPIN	11N	6W	18
2932	UNION FUEL CO.	UNION FUEL	1	SHAFT	RP	1919-1921	HERRIN	MACOUPIN	11N	6W	18
2933	STANDARD OIL CO.	STANDARD		SHAFT		1918-1918	HERRIN	MACOUPIN	11N	6W	29
2934	UTT (JOHN W.)	VIRDEN		SHAFT	RPP	1878-1889	HERRIN	MACOUPIN	12N	6W	9
2934	UTT (JOHN W.) HEIRS	VIRDEN		SHAFT	RPP	1889-1890	HERRIN	MACOUPIN	12N	6W	9
2934	VIRDEN COAL CO.	SOUTH		SHAFT	RPP	1890-1904	HERRIN	MACOUPIN	12N	6W	9
2934	ILLINOIS COLLIERIES CO.	ILLINOIS COLLIERIES	4	SHAFT	RPP	1904-1909	HERRIN	MACOUPIN	12N	6W	9

DIRECTORY OF COAL MINES FOR MACOUPIN COUNTY, ILLINOIS (February 2023)

ISGS INDEX	COMPANY NAME	MINE NAME	MINE NO.	MINE TYPE	METHOD	YEARS OPERATED	SEAM MINED	COUNTY	LOCATION TWP	RGE	SEC
2934	LUKINS & ANDREWS	SOUTH		SHAFT	RPP	1909-1910	HERRIN	MACOUPIN	12N	6W	9
2935	DUGGER & TULLEY	DUGGER & TULLEY		SLOPE	RPB	1902-1903	HERRIN	MACOUPIN	12N	9W	4
2936	WOODS (PETE)	WOODS				1934-1935	HERRIN	MACOUPIN	12N	9W	4
2937	MUSTARD (L.)	MUSTARD				1918-1918	HERRIN	MACOUPIN	12N	9W	4
4537	WEAVER MINE	WEAVER						MACOUPIN	7N	9W	23
4538								MACOUPIN	7N	9W	35
4540								MACOUPIN	9N	9W	1
4541	CHESTERFIELD C. C.	CHESTERFIELD						MACOUPIN	9N	9W	2
4542								MACOUPIN	10N	9W	29
4543								MACOUPIN	10N	9W	29
4544								MACOUPIN	10N	9W	29
4545								MACOUPIN	10N	9W	29
4546								MACOUPIN	10N	9W	30
4547								MACOUPIN	10N	9W	30
4548								MACOUPIN	10N	9W	30
4549								MACOUPIN	10N	9W	30
4550								MACOUPIN	10N	9W	30

DIRECTORY OF COAL MINES FOR MACOUPIN COUNTY, ILLINOIS (February 2023)

ISGS INDEX	COMPANY NAME	MINE NAME	MINE NO.	MINE TYPE	METHOD	YEARS OPERATED	SEAM MINED	COUNTY	LOCATION TWP	RGE	SEC
4551								MACOUPIN	10N	9W	30
4552								MACOUPIN	12N	9W	4
4553								MACOUPIN	12N	9W	4
4554	LAKE & HENRY	LAKE & HENRY		DRIFT	RP	1937-1937	HERRIN	MACOUPIN	12N	9W	4
4555	CHERRY MINE (POSS. LOC.)	CHERRY		DRIFT		1931-		MACOUPIN	12N	9W	4
4556								MACOUPIN	12N	9W	4
4557								MACOUPIN	12N	9W	4
6692	SIEVERS & MAXE	SIEVERS & MAXE		SHAFT	RP	1876-1880	HERRIN	MACOUPIN	7N	6W	33
6692	SIEVERS & VOGE	SIEVERS & VOGE		SHAFT	RP	1880-1881	HERRIN	MACOUPIN	7N	6W	33
6692	SIEVERS (AUGUST)	SIEVERS		SHAFT	RP	1881-1882	HERRIN	MACOUPIN	7N	6W	33
6692	RICHARDSON & CO.	SIEVERS		SHAFT	RP	1882-1883	HERRIN	MACOUPIN	7N	6W	33
6692	KELLY (D. W.)	SIEVERS		SHAFT	RP	1883-1884	HERRIN	MACOUPIN	7N	6W	33
6692	SIEVERS	SIEVERS		SHAFT	RP	1884-1885	HERRIN	MACOUPIN	7N	6W	33
7016				UG			HERRIN	MACOUPIN	12N	9W	8

APPENDIX O

Plan Maintenance Checklist

We are in the process of conducting our annual evaluation/status update for our Multi-Jurisdictional Hazard Mitigation Plan. Please review the following tasks and complete and return this checklist along with the necessary forms. If you have any questions, please let us know.

Jurisdiction: _____

Prepared By: _____

Title: _____ Date: _____

TASK 1: DAMAGE INFORMATION

Has your jurisdiction sustained any natural hazard-related damages to critical facilities and infrastructure within the last year?

☐ Yes ☐ No ☐ Don't Know

If Yes, please complete and return the attached critical facilities damages questionnaire.

TASK 2: STATUS OF EXISTING PROJECTS/ACTIVITIES

Please look over the attached Mitigation Action Tables for your jurisdiction and determine whether any of the mitigation projects/activities listed have been completed or are in progress (in the planning stages.)

Does your jurisdiction have any mitigation projects/activities in progress (in the planning stages) or completed?

☐ Yes ☐ No

If Yes, please fill out and return the attached Mitigation Action Progress Report for each project/activity that has been completed or is in progress.

Has your jurisdiction undergone any changes in priorities within the last 12 months that would impact the implementation of the listed mitigation projects/activities?

☐ Yes ☐ No

If yes, please detail the changes in priorities.

_____

_____

_____

Plan Maintenance Checklist

TASK 3: IDENTIFICATION OF NEW PROJECTS/ACTIVITIES

Are there any new mitigation projects/activities your jurisdiction would like to see add to the Plan? (Remember, only projects included in the Plan are potentially eligible for federal mitigation projects funding.)

☐ Yes ☐ No

If yes, please complete and return the attached New Mitigation Project Form.

TASK 4: JURISDICTION EVALUATION

Have there been any significant changes in development in your jurisdiction within the last 12 months (i.e. expansion of existing businesses, siting of new businesses, new subdivision development, or expansion of existing subdivisions, demolition of businesses/residents to create green spaces, etc.)

☐ Yes ☐ No

If yes, please specify the type of development changes.

Has your jurisdiction adopted any new/updated policies, plans, regulations, or reports (i.e., comprehensive plans, building codes, zoning ordinance, etc.) that could be incorporated into this Plan?

☐ Yes ☐ No

If yes, please provide the name of the policy, plan, regulation, or report and its purpose.

Were any components of the Hazard Mitigation Plan (i.e., mitigation actions, vulnerability analyses, etc.) integrated into any new/updated policies, plans, regulations, or reports (i.e., comprehensive plans, building codes, zoning ordinance, etc.)?

☐ Yes ☐ No

If yes, please provide the name of the policy, plan, regulation, or report and what component(s) of the hazard mitigation plan were integrated.

Plan Maintenance Checklist

TASK 4: JURISDICTION EVALUATION CONTINUED…

Do any new critical facilities or infrastructure need to be added to your jurisdiction's Critical Facilities Survey?

☐ Yes ☐ No

If yes, please provide the name and address of the facility.

What are your plans for sharing information on the Plan and its annual progress with your jurisdiction and constituents (i.e., informal presentation at board/council meeting, posting update to social media or website, etc.)?

Critical Facilities Damage Questionnaire

Supplemental information about ***damages to critical infrastructure/facilities*** (i.e., government buildings, schools, communication towers and radio equipment, water & sewer treatment facilities, hospitals, medical centers, etc.) that have ***taken place*** in the participating jurisdictions and County is needed for the risk assessment/vulnerability analysis portion of the Plan. If you could take a moment and think about the critical infrastructure damages caused by past natural hazard occurrences and provide any available information in the form below, it would be greatly appreciated.

Please complete <u>one record</u> for <u>each natural hazard event that damaged a critical facility</u>. Do not combine multiple events on one record. Additional forms are located on the back of this page. Please return the completed form(s) to Andrea or Zak. Thank you!

Jurisdiction: _____

Prepared By: _____ Date: _____

1.) Date of Event (month/day/year if possible)**:** _____

2.) Critical Facility Damaged: _____

3.) Type of Hazard:

☐ thunderstorm (straight-line winds)	☐ tornado	☐ landslide
	☐ snow storm	☐ sinkhole
☐ hail	☐ ice storm	☐ mine subsidence
☐ lightning strike	☐ extreme cold	☐ earthquake
☐ heavy rain	☐ drought	☐ levee failure
☐ flood	☐ excessive heat	☐ dam failure

4.) Types of Damages: _____

_____

5.) Estimate of Damages: $ _____

Mitigation Action Progress Report

As part of the Plan Maintenance "monitoring" phase, the implementation status of each project and activity listed in the Plan for the participating jurisdictions needs to be identified.

1) Please review the Mitigation Action Tables provided for your jurisdiction to determine whether any of the projects/activities listed have been ***"Completed"*** or are ***"In Progress"*** (in the planning stages.)
2) For each project or activity that is ***"Completed"*** or "***In Progress"***, please fill out the following Progress Report.

Jurisdiction: _____

Prepared By: _____

Title: _____ Date: _____

Progress Report Period	From Date: To Date:
Project/Activity Description	
Responsible Agency	
Project Status	☐ In Progress ☐ Approved by Council/Board ☐ Included in Capital Improvement Plan/Slated for Construction & Implementation ☐ Grant Completed & Submitted ☐ Letting/Contractor Selected ☐ Notice to Proceed Issued ☐ Construction Underway ☐ Anticipated Completion Date: _____ ☐ Other (please specify): _____ ☐ Completed ☐ Project Delayed ☐ Project Cancelled

SUMMARY OF PROJECT PROGRESS FOR THIS REPORT PERIOD

What was accomplished during this reporting period for this project?

Were any obstacles, problems or delays encountered?	☐	Yes	☐	No	☐ Don't Know
If Yes, please describe:					

If the project was delayed, is it still relevant?	☐	Yes	☐	No	☐ Don't Know
If Yes, should the project be changed/revised?					

Other comments:

New Hazard Mitigation Projects Form
Multi-Jurisdictional Hazard Mitigation Plan

Participating Jurisdiction _____

Prepared by: _____

Title _____ Date: _____

	Project Description	**Position/Organization Responsible for Implementation & Administration of the Project** *(i.e. Mayor / City Council; Public Works Director; Fire Chief / Board of Trustees)*	**Time Frame to Complete the Project** *(i.e. 1 year; 5 years; 2-5 years)*
1.			
2.			
3.			
4.			

APPENDIX P