



Cumberland County 2015 Multi-Hazard Mitigation Plan



FEMA



Multi-Hazard Mitigation Plan Cumberland County, Illinois

Adoption Date: -- _____ --

Primary Point of Contact

Steve Sherwood
Coordinator
Cumberland County EMA
P.O. Box 182
Greenup, IL 62428
Phone: (217) 849-4040
Email: emacoordinator@cumberlandco.org

Secondary Point of Contact

Donna Whitaker
Corner and 911 Coordinator
Cumberland County 911
P.O. Box 581
Toldeo, IL 62468
Phone: (217) 849-2065
Email: cumb911@rr1.net

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Cumberland County Board

Floyd Holkenbrink, Chairman
Bob Marti, Vice Chairman
Todd Beard
Ron Black
Roy Clapp
Luke Parr

2015 Multi-Hazard Mitigation Plan Steering Committee

Steve Sherwood – Coordinator, Cumberland County Emergency Management Agency
Donna Whitaker – Coordinator, Cumberland County Coroner / 911
Joy Sutherland – County Clerk, Cumberland County
Sheri Drotor – Administrator, Cumberland County Health Department
Chris Jackson – Environmentalist, Cumberland County Health Department
Chuck Layton – Fire Chief, Village of Toledo

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Section 1. Introduction

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

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

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

The Natural Hazards Research and Mitigation Group at Southern Illinois University Carbondale (SIU) and Cumberland County Emergency Management Agency have joined efforts in developing the County's first mitigation plan. This plan incorporates state-of-the art hazard analyses, addresses changes in probability and impact of specific hazards, incorporates changes in land-use, population and demographic within the county. Detailed GIS and Hazus-MH Level 2 analyses were performed for the Risk Assessment and sound mitigation strategies were established for each jurisdiction. This document hereby serves as the Cumberland County 2015 Multi-Hazard Mitigation Plan.

Section 2. Planning Process

2.1 Timeline

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

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

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

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

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

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

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

2.2 Jurisdiction Participation Information

Approximately seven jurisdictions participated in the development of this MHMP with the intent of formally adopting the plan and subsequently fulfill the requirements of the DMA 2000. Various representatives from each jurisdictions were present at the meetings (see Section 2.3 Planning Team Information). Each jurisdiction falls under the one of the following categories: County, City, Village, Town, School, or Non-Profit Organization.

<u>Participating Jurisdictions</u>			
Cumberland County	Greenup	Jewett	Neoga
Toledo	Cumberland CUSD #77	Neoga CUSD #3	

2.3 Planning Team Information

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

Cumberland County Planning Team Members

Jurisdiction	Name	Title
Cumberland County	Steve Sherwood	EMA Coordinator
	Donna Whitaker	Coroner / 911 Coordinator
	Floyd Holkenbrink	County Board Chairman
	Ron Black	County Board Member
	Luke Parr	County Board Member
	Bob Marti	County Board Member
	Roy Clapp	County Board Member
	Todd Beard	County Board Member
	Joy Sutherland	County Clerk
	Beverly Howard	Deputy Clerk
	Rhonda Wilson	Circuit Clerk
	Jo Ellen Flood	Treasurer
	Ashley Keach	Supervisor of Assessments
	Lois Dryden	Former Supervisor of Assessments
	Sheri Drotor	Health Department Administrator
	Chris Jackson	Environmentalist
	Stephen Ozier	Sheriff
	Alan Baker	Assistant Fire Chief
	Patti Corder	Ambulance Coordinator
	Ben Bland	County Engineer
Greenup	Ben Mayes	Firefighter & EMT
	James Cline	Chief of Police
Jewett	Emily McGinnis	Village Trustee
	Dan Scales	Village Clerk
Neoga	Jeff Morrison	Building Inspector
	Robert Thomas	Emergency Coordinator
Toledo	Chuck Layton	Fire Chief
	Bille Chambers	Reporter
	Mike Fletcher	Mayor
	Steve Layton	Firefighter
	Chris Thies	Chief of Police
Cottonwood	Denny Thornton	Road Commissioner
Crooked Creek	Howard Henderson	Highway Commissioner
Cumberland CUSD #77	Todd Butler	School Administrator
Neoga CUSD #3	Steven Butler	Superintendent

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

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

The first MHMP meeting was held in Toledo, Illinois on December 13th, 2013. Representatives from SIU explained the rationale behind the MHMP process and answered questions from the participants. SIU representatives also provided an overview of GIS/Hazus-MH, described the timeline and the process of mitigation planning.

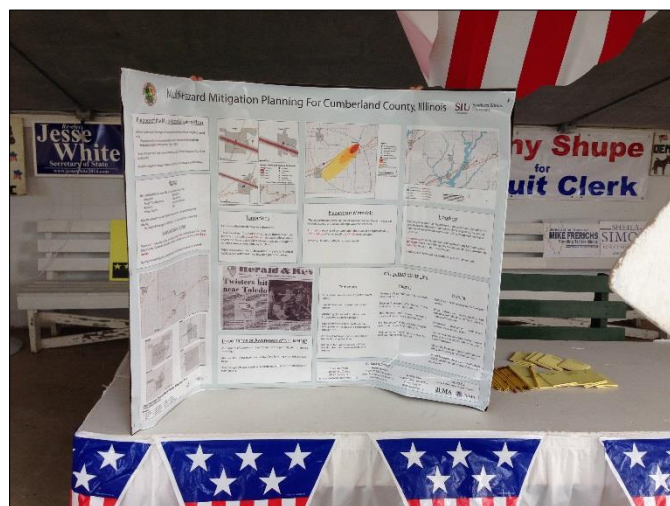
The Cumberland County Planning Team assembled for five formal meetings. Each meeting was approximately two hours in length. Additional meetings were held outside of the four formal meetings. Appendix A includes the minutes for all meetings. During these meetings, the Planning Team successfully identified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

Planning Meetings

MEETING 1	Dec 13 th , 2013
MEETING 2	Feb 27 th , 2014
MEETING 3	May 22 nd , 2014 & Sept 15 th , 2014
MEETING 4	Nov 17 th , 2014
MEETING 5	March 16 th , 2015

2.4 Public Involvement

The Cumberland County EMA solicited public input throughout the planning process and two public meetings were held on May 22nd, 2014 and September 15th, 2014 to review the county's risk assessment. In addition to the publicized meeting, the Cumberland County EMA presented an educational poster covering the MHMP at the 2014 Cumberland County Fair. This poster included results from the Risk Analysis conducted by SIU. The public was encouraged to recommend mitigation strategies. Appendix A contains the minutes from the public meeting. Appendix B contains press releases and/or articles sent to local newspapers throughout the MHMP development process.



Mitigation Poster Presented at the 2014 Cumberland County Fair

2.5 Neighboring Community Involvement

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

2.6 Review of Technical Documents

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

Federal Emergency Management Agency	NOAA / National Water Service Storm Prediction Center
<i>Developing the Mitigation Plan (April 2003)</i>	<i>Severe Weather Data</i>
<i>Mitigation Ideas (January 2003)</i>	Illinois Emergency Management Agency
<i>Local Mitigation Planning Handbook</i>	<i>2013 Illinois Natural Hazard Mitigation Plan</i>
<i>Flood Insurance Study (Feb 2011)</i>	<i>Hazardous Materials Incident Reports</i>
United State Census Bureau	Illinois Environmental Protection Agency
<i>County Profile Information</i>	<i>2014 303d Listed Waters and Watershed Maps</i>
<i>2010 Census Data</i>	Illinois State Water Survey
<i>American Community Survey (2009-2013)</i>	<i>Climate Data</i>
United States Department of Transportation	Illinois Department of Natural Resources
<i>PHMSA Hazardous Materials Incident Data</i>	<i>Repetitive Loss Data</i>
United States Geological Survey	<i>Dam and Levee Data</i>
<i>Earthquake Data</i>	Illinois State Geological Survey
United States Army Corps of Engineers	<i>Geologic Data</i>
<i>National Inventory of Dams</i>	Cumberland County
<i>National Levee Database</i>	<i>2013 Assessment Records</i>
NOAA National Climatic Data Center	<i>2013 Countywide GIS Parcel Database</i>
<i>Climate Data</i>	Coles County
	<i>2014 Cumberland County Comprehensive Plan</i>

2.7 Adoption by Local Government

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

Section 3. County Profile

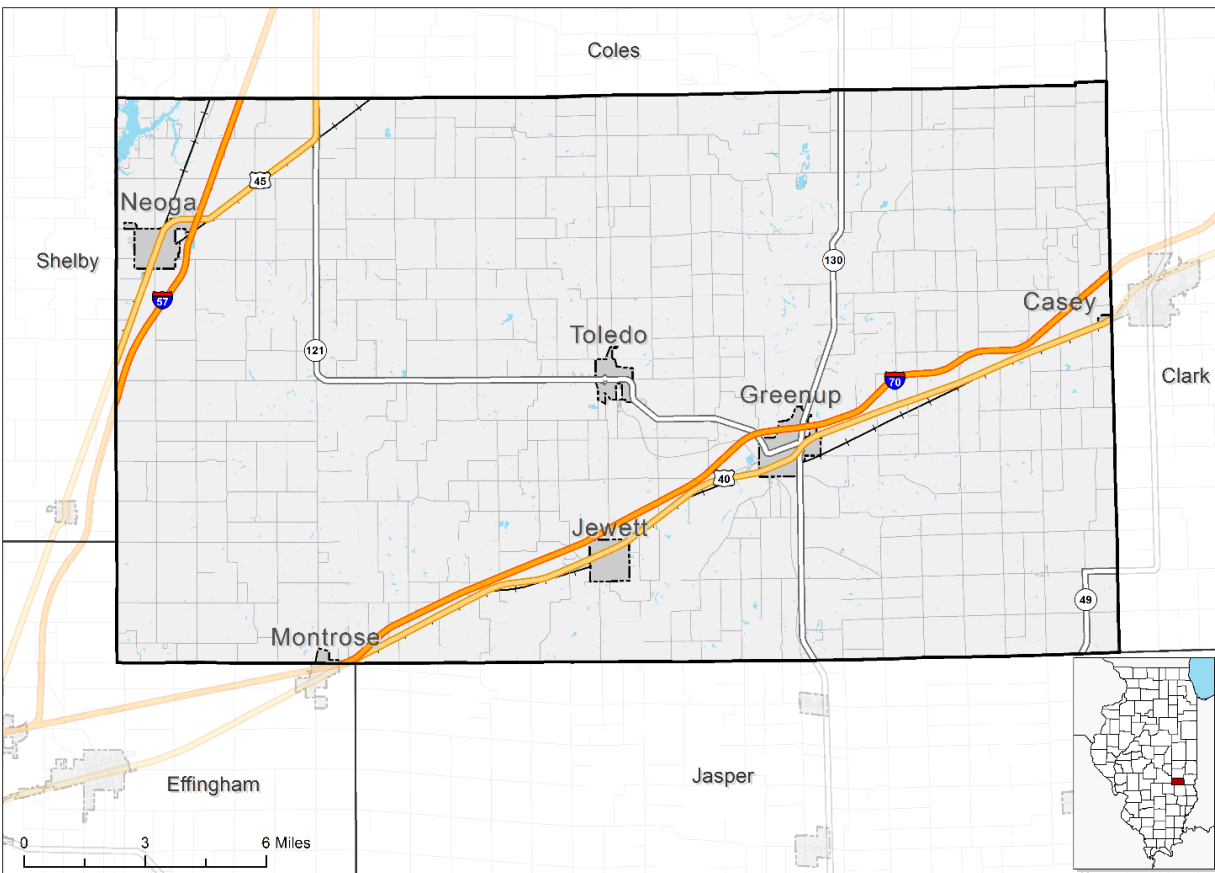
3.1 County Background

Cumberland County is located in east central Illinois (Figure 3-1). It is approximately 200 miles south of Chicago and 100 miles slightly northeast of St. Louis. It is surrounded by Coles County to the north, Clark County to the east, Jasper County to the south, Shelby County to the west, and finally Effingham County to the southwest. Primary road transportation routes include Interstate 57 and 70, U.S. Highways 40 and 45, and State Highways 121 and 130. Cumberland County has a total area of 221,968 acres of about 347 square miles. The county is rural with sixty-eight percent of its area covered in cropland. Toledo is the county seat of Cumberland County. The estimated 2013 population of the county was 10,939 and Toledo, had a population of in 1,226.



Cumberland County Courthouse, Toledo Illinois

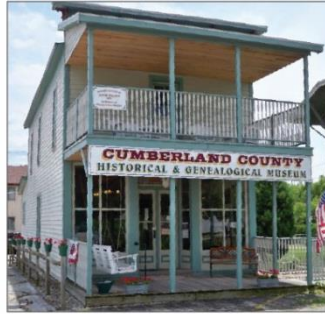
Figure 3-1. Cumberland County and Surrounding Region



The county has strong ties to the historical and cultural growth of central Illinois. Cumberland County was founded in 1843 and was named after the National Road (Cumberland Road) that was projected to run through it. The National Road was the first major improved highway and runs through the Village of Greenup which presently consists of The Greenup Museum Complex. The Greenup Museum Complex boasts three 100-year-old buildings on the National Register of Historical Places: The Historic Greenup Depot, the Johnson Building and Genealogical Library, and the Military Museum.



Greenup Depot



Johnson Building

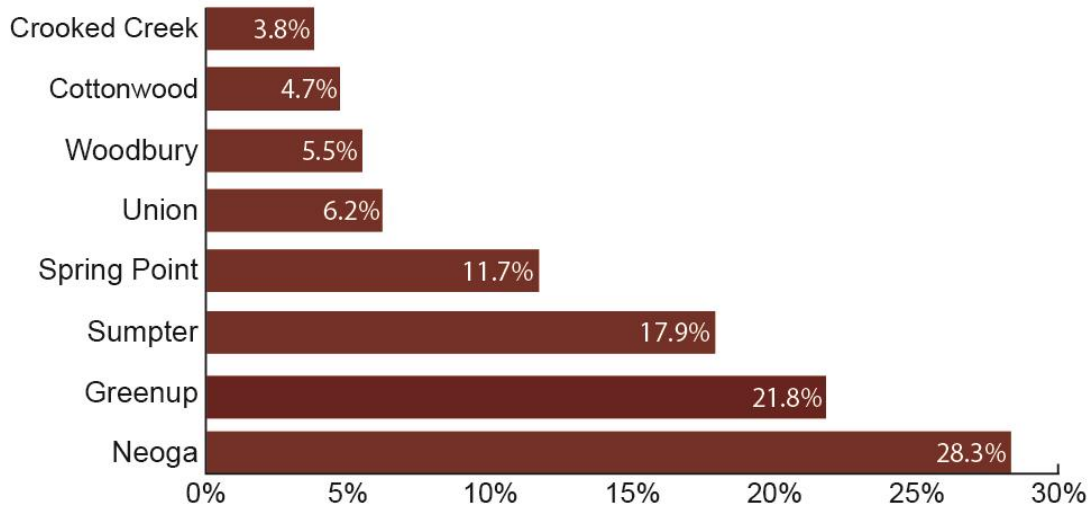


Military Museum

3.2 Demographics

According to the 2010 U.S. Census, Cumberland County's population was 11,048, a decrease of 9.7% from 2000 to 2010. As of July 1st, 2013, Cumberland County's population estimate is 10,939. The population is spread through 8 townships: Cottonwood, Crooked Creek, Greenup, Neoga, Spring Point, Sumpter, Union, and Woodbury. The largest incorporated jurisdiction in Cumberland County is Neoga, which has a population of approximately 3,124. Figure 3-2 displays the breakdown of population by township from the 2010 Census.

Figure 3-2. Cumberland County 2010 Population by Township



3.3 Economy and Industry

Cumberland County is strategically located along Interstates 57 and 70, and is home to three well designated industrial parks complete with utilities and roadway and railway access. While manufacturing continues to be the county's second largest industry, it is also home to thousands of acres of farmland. Cumberland main industry, agriculture, has been made possible by its chief natural resource, soil. Corn, soybeans and wheat are the major crops. Other farm products include milk, cattle, hogs, hay, popcorn, orchard fruit, and timber. Table 3-1 lists the top employers and the approximate number of employees in Cumberland County. Cumberland County's leading employers include Evapco Inc., Neoga CUSD #3, Heartland Christian Village, Cumberland County Government Cumberland CUSD #77, and Cumberland Rehabilitation. Manufacturing, retail trade, and education represent the largest sectors, employing 50.7% of the workforce (American Community Survey 2013). The 2013 annual per capita income in the county is \$22,952, compared to an Illinois average of \$29,666.

Table 3-1. Cumberland County's Major Employers

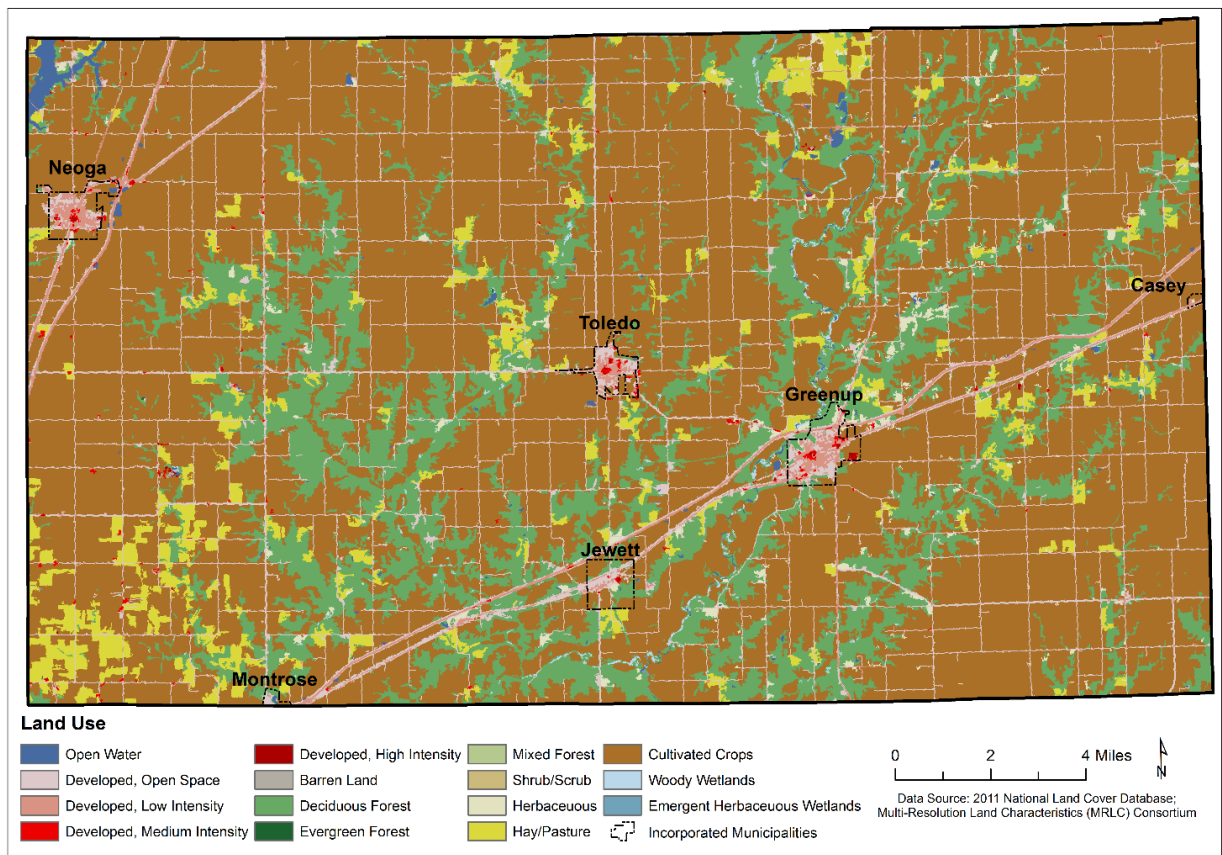
Employer	Industry	Approximate Number of Employees
Evapco, Inc.	Manufacturing	250
Neoga CUSD #3	Education	111
Heartland Christian Village	Nursing Center	78
Cumberland CUSD #77	Education	77
Cumberland County Government	Government	70
Cumberland Rehabilitation	Nursing Center	54
Brighton Cabinet Co.	Manufacturing	40
Kern Manufacturing	Manufacturing	30

Source: Cumberland County Development Corporation

3.4 Land Use and Development Trends

Today, Cumberland County's single largest land use is agriculture, followed by deciduous forest and low intensity urban development (National Land Cover Database, 2011). Agricultural lands are found almost everywhere in Cumberland County where the purpose of the land includes, but not limited to, farming, farmsteads, dairying, pasturage, horticulture, floriculture, and animal and poultry husbandry. Deciduous forest cover is primarily found along Spring Point Creek, Turkey Creek, Muddy Creek, Otter Branch Creek, Crooked Creek, and Range Creek. Cumberland County does not have a zoning ordinance in place and this has resulted in a unique and diverse land use situation in the county. Residential growth tends to occur in rural areas outside of the municipal boundaries. Significant development occurs in regions surrounding Neoga, Toledo and Greenup.

Figure 3-3. Land Use in Cumberland County

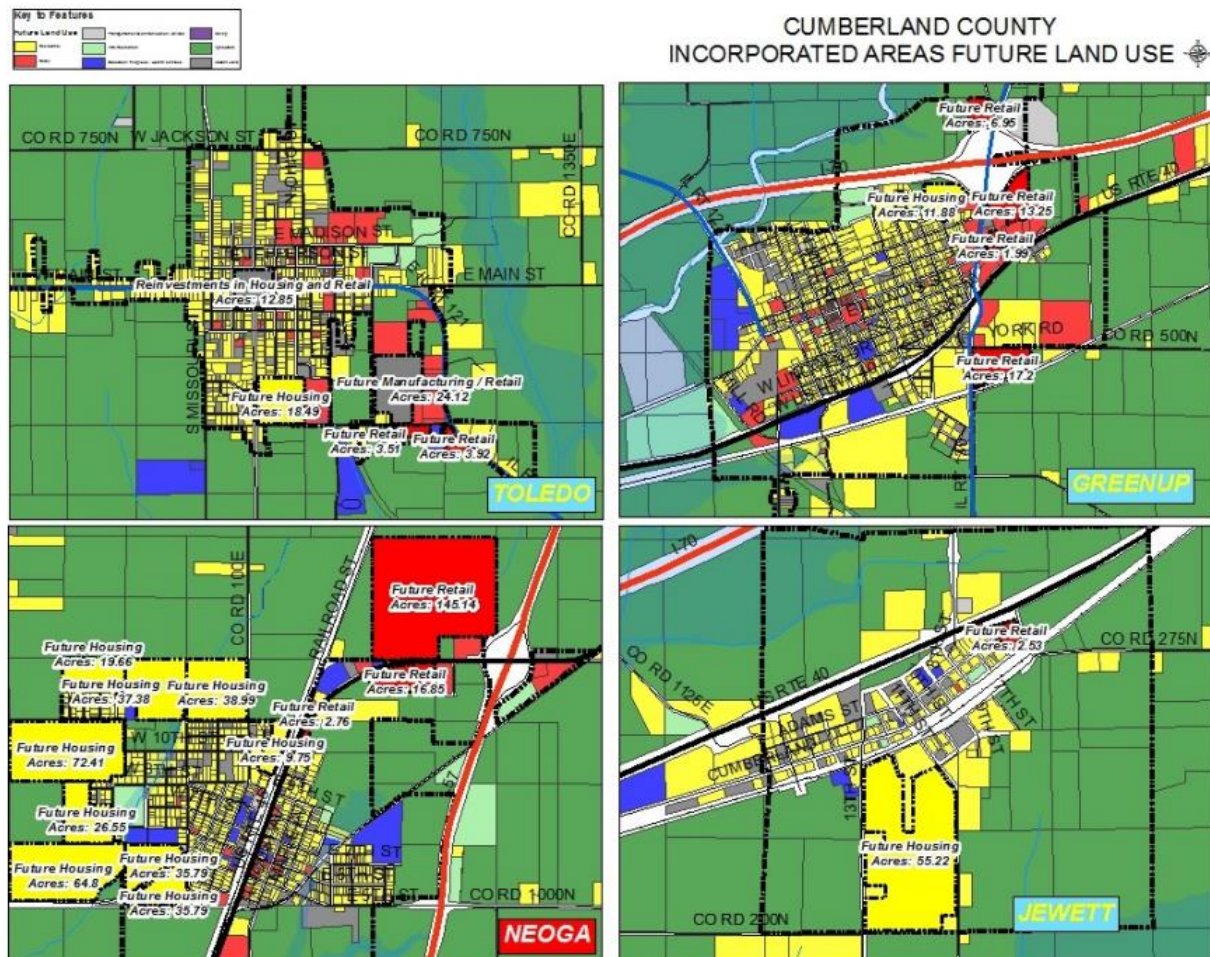


The Cumberland County Comprehensive Plan was developed in 2014 with one of the goals to establish a land use and growth management program to enable greater control over land use and development. The Comprehensive Plan Steering Committee identified several areas that they felt would be the suitable areas for future land use and development. The areas identified were housing, manufacturing and retail options close to the municipalities. Table 3-2 displays the breakdown of the proposed future land use in acres for each incorporated area. Figure 3-4 displays the future land use in the incorporated areas of Cumberland County.

Table 3-2. Cumberland County Incorporated Jurisdiction Future Land Use

Land Use	Neoga	Greenup	Jewett	Toledo
Housing	331.37 acres	11.88 acres	55.22 acres	18.49 acres
Retail	161.99 acres	39.39 acres	2.53 acres	7.43 acres
Industrial	-	-	-	24.12 acres

Figure 3-4. Future Land Use in Cumberland County Incorporated Areas



3.5 Climate

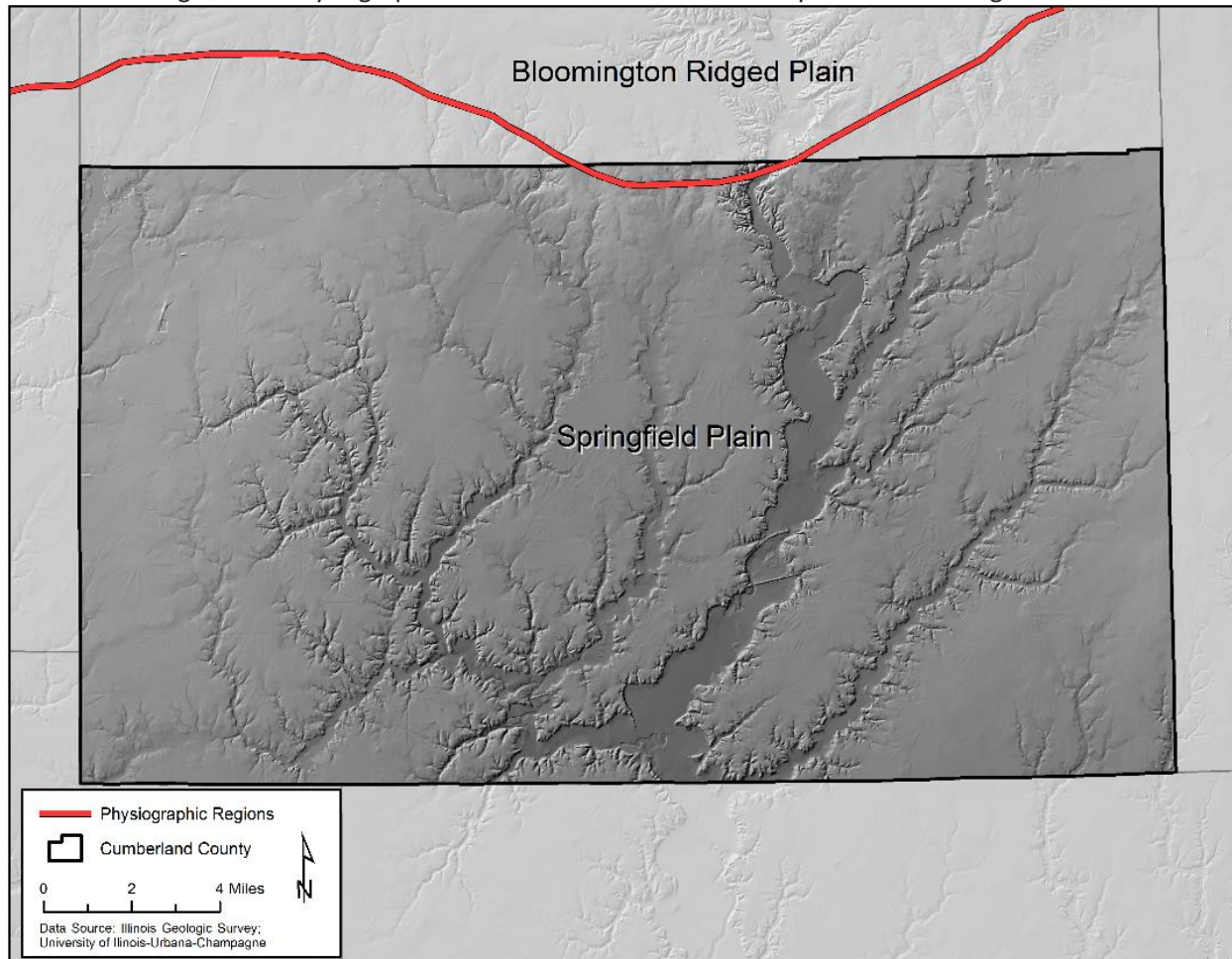
Cumberland County has a typical mid-western continental climate characterized by cold winters and hot summers. According to records from the weather station in Effingham, Illinois, the average annual temperature for Cumberland County is 52.8 degrees Fahrenheit (°F). The coldest average temperatures are in January, and the warmest average temperatures are in July. The coldest temperature recorded was -29°F on January 24, 1915. The warmest temperature recorded was 111°F on July 15, 1936. According to records from the weather station located in Greenup, Illinois, the average annual total precipitation is 41.68 inches, which includes an average annual snowfall of 12.8 inches. The largest daily snowfall on record was 13 inches on December 19, 1973. The largest recorded daily rainfall total was 6.01 inches on September 14, 1989.

3.6 Topography

Cumberland County is situated in the Central Lowland Province of the Till Plains Section and lies mostly within the Bloomington Ridged Plain physiography region. Figure 3-5 depicts the physiographic divisions within Cumberland County. A small portion, 0.51%, of the county lies within the Springfield Plain physiographic region. The Springfield Plain includes the level portion of the Illinois drift sheet in central

and southern Illinois. It is characterized by its flatness and by its relatively shallow entrenchment of drainage. The Bloomington Ridge Plain includes most of the Wisconsin moraines, which are characterized by low, broad concentric ridges with intervening wide stretches of relatively flat or gently undulating ground moraines. The highest elevation (~675 feet above mean sea level) is found in the northwest corner near the Village of Neoga. The lowest elevation (~505 above sea level) is found along the Embarras River.

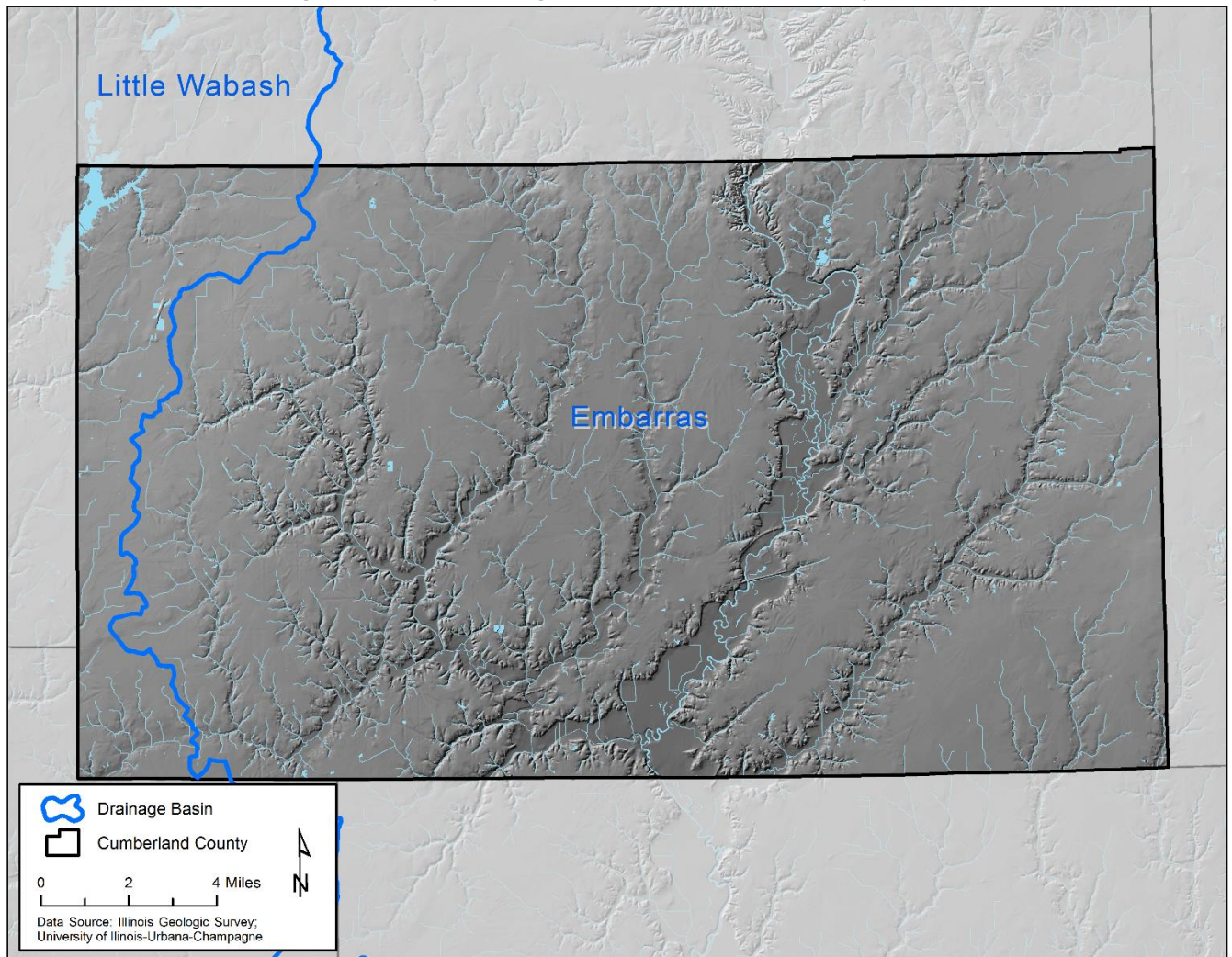
Figure 3-5. Physiographic Divisions of Cumberland County and Surrounding Terrain



3.7 Major Lakes, Rivers, and Watersheds

Cumberland County has several water bodies, with Lake Mattoon being the most significant. Of the 102 Illinois Counties, Cumberland County ranks third in portion covered by perennial streams. Figure 3-6 depicts the major drainage basins in Cumberland County. According to the USGS, Cumberland County consists of two drainage basins: Embarrass & Little Wabash. There are numerous small streams that feed into the Embarras River which flows north to south throughout the middle of the county.

Figure 3-6. Major drainage basins in Cumberland County



Section 4. Risk Assessment

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

4.1 Hazard Identification

4.1.1 Existing Plans

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

4.1.2 National Hazard Records

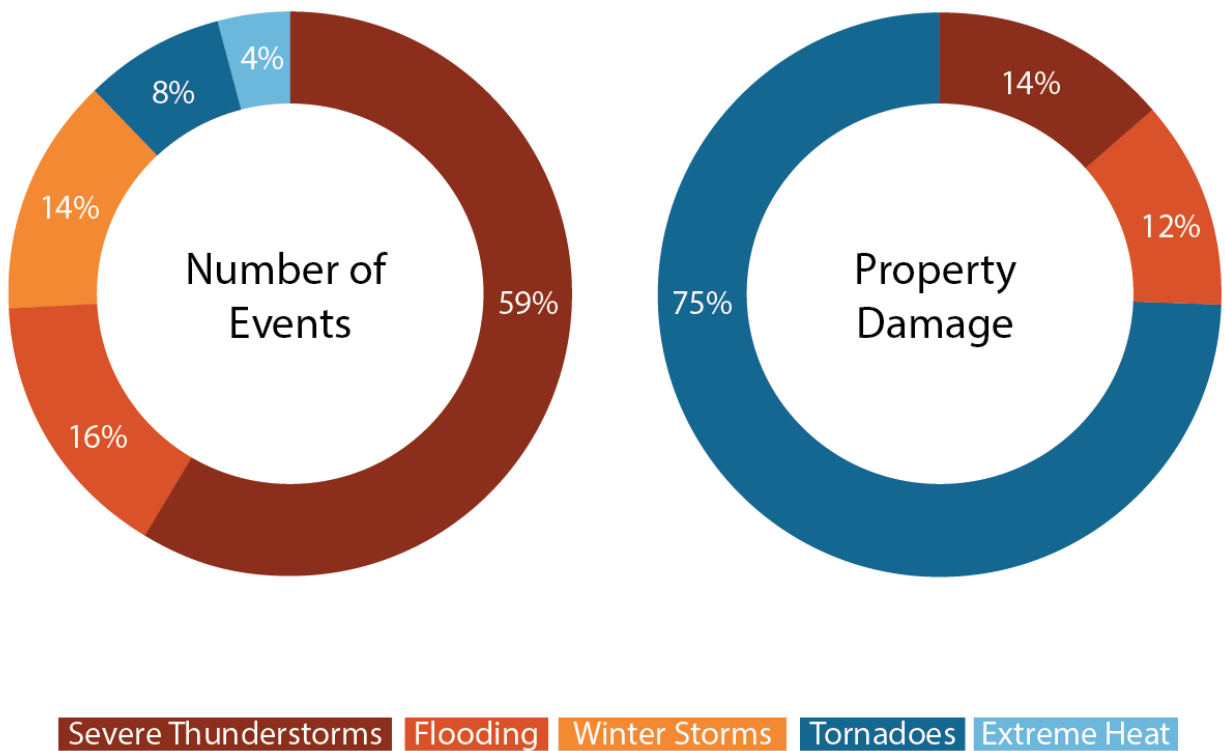
To assist the Planning Team, historical storm event data from the National Climatic Data Center (NCDC) was compiled. NCDC records are estimates of damages reported to the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature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

The NCDC database included 231 reported meteorological events in Cumberland County from 1950-2014 (the most updated information as of the date of this plan). The following hazard-profile sections each include a summary table of events related to each hazard type. Table 4-1 summarizes the meteorological hazards reported for Cumberland County. Figure 4-1 summarizes the relative frequency of NCDC reported meteorological hazards and the percent of total damage associated with each hazard for Cumberland County. Full details of individual hazard events are on the [NCDC website](#). In addition to NCDC data, Storm Prediction Center (SPC) data associated with tornadoes, strong winds, and hail was mapped using SPC-recorded latitudes and longitudes. Appendix D includes a map of these events.

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

Hazards	Time Period		Number of Events	Property Damage	Deaths	Injuries
	Start	End				
Flooding	1996	2011	23	\$440,000	0	1
Severe Thunderstorms	1979	2012	87	\$513,000	1	2
Tornadoes	1960	2006	12	\$2,807,500	6	56
Winter Storms	1995	2011	20	\$0	9	40
Extreme Heat	1997	2007	6	\$0	9	0

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



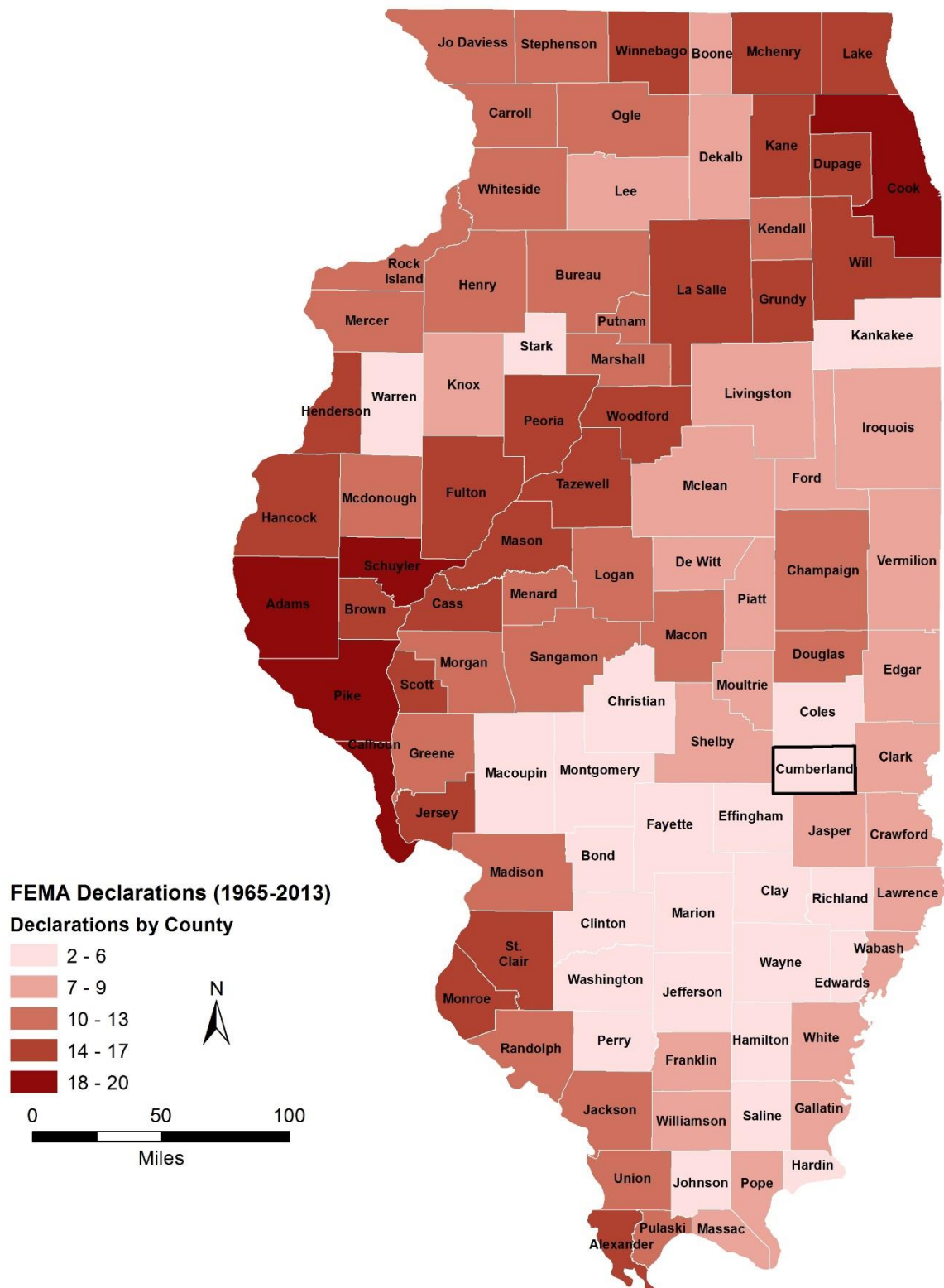
4.1.3 FEMA Disaster Information

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

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

Declaration Number	Date of Declaration	Description
438	06/10/1974	Flooding; Severe Storms
1112	05/06/1996	Severe Storms; Severe Winds; Torrential Rains
1416	05/21/2002	Flooding; Excessive Rainfall; Severe Storms; Tornado
3230	09/07/2005	Hurricane Sheltering
1771	06/24/2008	Flooding; Severe Storms
1960	03/17/2011	Severe Winter Storm

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



4.1.4 Hazard Ranking Methodology

Based on Planning Team input, national datasets, and existing plans, the Cumberland County Planning Team developed and ranked a list of hazards. These hazards ranked the highest based on the Risk Priority Index discussed in Section 4.1.5.

Cumberland County Hazard List

TORNADOES

SEVERE THUNDERSTORM

FLOODING

WINTER STORMS

DROUGHT / EXTREME HEAT

EARTHQUAKES

HAZARDOUS MATERIALS RELEASE

FIRE

DAM / LEVEE FAILURE

4.1.5 Risk Priority Index

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

Table 4-3. Hazard Probability Ranking

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

Table 4-4. Hazard Severity Ranking

Magnitude/Severity	Characteristics
8 – Catastrophic	Multiple deaths Complete shutdown of facilities for 30 or more days More than 50% of property is severely damaged
4 – Critical	Injuries and/or illnesses result in permanent disability Complete shutdown of critical facilities for at least 14 days More than 25% of property is severely damaged
2 – Limited	Injuries and/or illnesses do not result in permanent disability Complete shutdown of critical facilities for more than seven days More than 10% of property is severely damaged
1 – Negligible	Injuries and/or illnesses are treatable with first aid Minor quality of life lost Shutdown of critical facilities and services for 24 hours or less Less than 10% of property is severely damaged

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

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

Hazard	Probability	Magnitude/Severity	Risk Priority Index	Rank
Tornadoes	3	8	24	1
Severe Thunderstorms	4	4	16	2
Flooding	4	4	16	3
Winter Storms	4	2	8	4
Extreme Heat / Drought	4	2	8	5
Earthquakes	2	4	8	6
Hazardous Materials Release	3	2	6	7
Fire	3	1	3	8
Dam / Levee Failure	2	1	2	9

4.1.6 Jurisdictional Hazard Ranking

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

Table 4-6. Hazard Ranking by Jurisdiction

Jurisdiction	Tornadoes	Severe Storms	Flooding	Winter Storms	Heat / Drought	Earthquakes	HAZMAT	Fire	Dam / Levee Failure
Greenup	2	3	4	1	5	9	6	7	8
Jewett	1	2	3	4	5	6	7	8	9
Neoga	3	2	8	1	4	5	6	7	-
Toledo	4	5	7	2	6	8	3	1	9
Cumberland CUSD #77	3	1	2	4	5	6	7	8	9
Neoga CUSD #3	3	2	8	1	5	7	6	4	-

4.2 Vulnerability Assessment

4.2.1 Asset Inventory

Processes and Sources for Identifying Assets

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

Essential Facilities List

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

Table 4-7. Cumberland County's Essential Facilities

Facility	Number of Facilities
EOC	2
Fire Stations	3
Police Stations	4
Medical Care	6
Schools	5
Government	13

Facility Replacement Costs

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

Table 4-8. Cumberland County's Building Exposure

General Occupancy	Estimated Total Buildings	Total Building Exposure
Residential	4,267	\$421,482,124
Agriculture	1,154	\$39,245,054
Commercial	281	\$68,961,473
Industrial	7	\$33,081,663
Total:	5,709	\$562,770,314

Future Development

Cumberland County is expected to see a modest increase in population due to the expansion of existing distribution centers, light industry, and the creation of new opportunities in the service industry such as retail stores, restaurants, and hotels. Most of this expansion is expected to take place within the incorporated limits of Neoga, Greenup, and Toledo within close proximity to transportation corridors such as Interstates 57 and 70 (see section 3.4 Land Use and Development Trends).

4.3 Risk Analysis

4.3.1 GIS and Hazus-MH

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

Updates to the default Hazus-MH data include:

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

The following assumptions were made during analysis:

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

Depending upon the analysis options and the quality of data the user inputs, Hazus-MH generates a combination of site-specific and aggregated loss estimates. Hazus-MH is not intended as a substitute for detailed engineering studies; it is intended to serve as a planning aid for communities interested in assessing their risk to flood-, earthquake-, and hurricane-related hazards. This plan does not fully document the processes and procedures completed in its development, but this documentation is available upon request. Table 4-9 indicates the analysis type (i.e. GIS, Hazus-MH, or historical records) used for each hazard assessment.

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

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

4.3.2 Tornado Hazard

Hazard Definition

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

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

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

Table 4-10. Enhanced Fujita Tornado Rating

Enhanced Fujita Number	Estimated Wind Speed	Path Width	Path Length	Description of Destruction
0 Gale	40-72 mph	6-17 yards	0.3-0.9 miles	Light damage, some damage to chimneys, branches broken, signboards damaged, shallow-rooted trees blown over.
1 Moderate	73-112 mph	18-55 yards	1.0-3.1 miles	Moderate damage, roof surfaces peeled off, mobile homes pushed off foundations, attached garages damaged.
2 Significant	113-157 mph	56-175 yards	3.2-9.9 miles	Considerable damage, entire roofs torn from frame houses, mobile homes demolished, boxcars pushed over, large trees snapped or uprooted.
3 Severe	158-206 mph	176-566 yards	10-31 miles	Severe damage, walls torn from well-constructed houses, trains overturned, most trees in forests uprooted, heavy cars thrown about.
4 Devastating	207-260 mph	0.3-0.9 miles	32-99 miles	Complete damage, well-constructed houses leveled, structures with weak foundations blown off for some distance, large missiles generated.
5 Incredible	261-318 mph	1.0-3.1 miles	100-315 miles	Foundations swept clean, automobiles become missiles and thrown for 100 yards or more, steel-reinforced concrete structures badly damaged.

Previous Occurrences of Tornadoes

There have been several occurrences of tornadoes in Cumberland County during recent decades. The National Climatic Data Center (NCDC) database reported twelve tornadoes/funnel clouds in Cumberland

County since 1950. Table 4-11 identifies NCDC-recorded tornadoes that caused damage, death, or injury in Cumberland County. Additional details of individual hazard events are on the NCDC website.

The most damaging tornado event occurred in August 1977 when a strong tornado touched down in eastern Shelby County near Windsor, moving across Lake Mattoon, then crossing just south of Toledo before lifting 2 miles west-southwest of Greenup. Six people were killed at Lake Mattoon; most of the 56 injuries were also noted at this location. Damage around the lake was approximately \$2.5 million, with 9 homes and 55 trailers destroyed.

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

Location or County*	Date	Scale	Deaths	Injuries	Property Damage
Greenup	02/09/1960	1	0	0	\$25,000
Cumberland County	03/06/1961	1	0	0	\$25,000
Jewett	06/13/1963	1	0	0	\$25,000
Cumberland County	08/21/1977	3	6	56	\$2,500,000
Janesville	04/08/1999	0	0	0	\$50,000
Neoga	10/17/1996	0	0	1	\$0
Toledo	04/12/1984	1	0	2	\$250,000
Total:			6	59	\$2,875,000

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

Geographic Location for Tornado Hazard

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

Hazard Extent for Tornado Hazard

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

Risk Identification for Tornado Hazard

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

Risk Priority Index

$$\begin{array}{rclclcl}
 \text{Probability} & \times & \text{Magnitude} & = & \text{RPI} \\
 3 & \times & 8 & = & 24
 \end{array}$$

Vulnerability Analysis for Tornado Hazard

Tornadoes can occur within any area in the county; therefore, the entire county population and all buildings are vulnerable to tornadoes. To accommodate this risk, this plan considers all buildings located

within the county as vulnerable. Tables 4-7 and 4-8 display the existing buildings and critical infrastructure in Cumberland County.

Critical Facilities

All critical facilities are vulnerable to tornadoes. Critical facilities are susceptible to many of the same impacts as any other building within the jurisdiction. These impacts vary based on the magnitude of the tornado but can include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, and loss of facility functionality (e.g., a damaged police station will no longer be able to serve the community). Table 4-7 lists the types and number of critical facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

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

Infrastructure

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

GIS-based Tornado Analysis

Three tornado scenarios were conducted for Cumberland County. The following analysis quantifies the anticipated impacts of tornadoes in the county in terms of numbers and types of buildings and infrastructure damaged.

GIS-overlay modeling was used to determine the potential impacts of an EF4 tornado. The analysis used two hypothetical path based upon two EF4 tornados: 11 miles through Jewett and Greenup and 19 miles through Neoga, Toledo and Greenup. The Historic Lake Mattoon F3 tornado path was also analyzed using the same GIS-overlay modeling method. In August 1977, a strong F3 tornado touched down in eastern Shelby County near Windsor, moving across Lake Mattoon, then crossing just south of Toledo before lifting 2 miles west-southwest of Greenup. Six people were killed at Lake Mattoon; most of the 56 injuries were also noted at this location. Damage around the lake was approximately \$25,000 with 9 homes and 55 trailers destroyed.

Table 4-12 depicts tornado damage curves and path widths utilized for the modeled scenarios. The damage curve is based on conceptual wind speeds, path winds, and path lengths from the Enhanced-Fujita Scale guidelines.

Table 4-12. Tornado Path Widths and Damage Curves

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

Degrees of damage depend on proximity to the path centerline within a given tornado path. The most intense damage occurs within the center of the damage path, with decreasing amounts of damage away from the center. To model the F3 and EF4 tornadoes, three tornado paths were created in GIS with buffers added (damage zones) around the tornado paths. Table 4-13 and Figure 4-5 illustrate the zone analysis. Figure 4-6 depicts the selected hypothetical tornado paths.

Table 4-13. F3 and EF4 Tornado Zones and Damage Curves

Zone	Buffer (feet)	F3 Damage Curve	EF4 Damage Curve
1	0-150	80%	100%
2	150-300	50%	80%
3	300-600	10%	50%
4	600-900	0%	10%

Figure 4-5. EF4 Tornado Analysis (Damage Curves) Using GIS Buffers

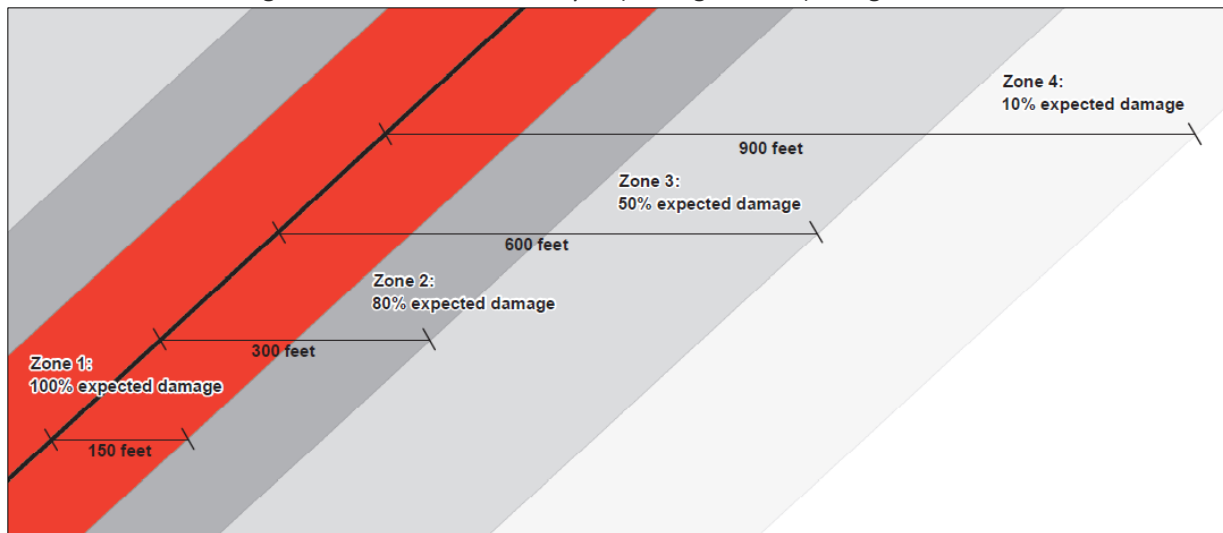
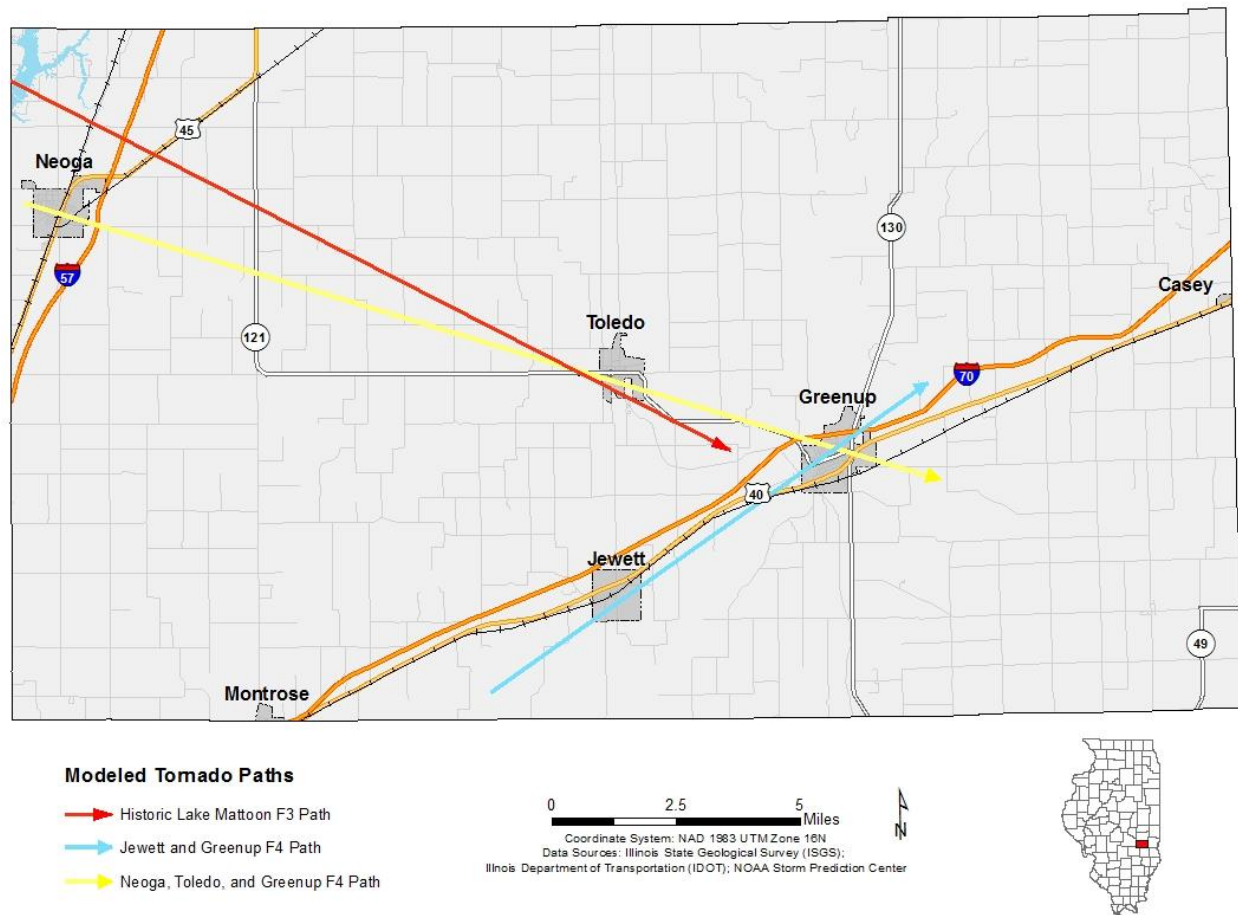


Figure 4-6. Modeled Tornado Tracks for Cumberland County



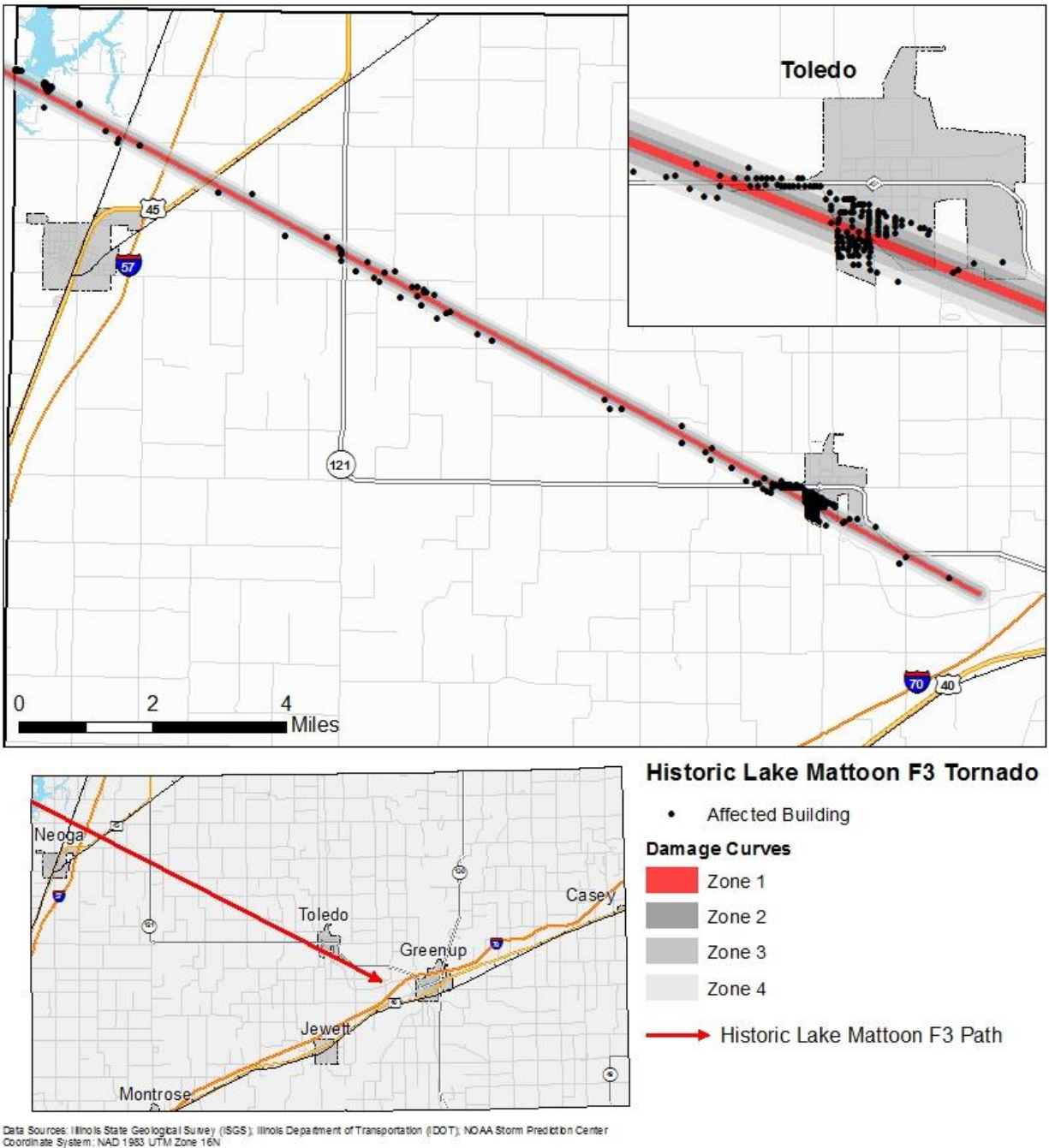
Modeled Impacts of the Historic Lake Mattoon F3 Tornado

The GIS analysis estimates that the modeled F3 tornado would damage 235 buildings. In the Village of Toledo, 119 buildings would be damaged, which is approximately 24% of the total buildings in Toledo. The estimated building losses are approximately \$2,500,000. The building losses are an estimate of building replacement costs multiplied by the damage percent. Table 4-14 and Figures 4-7 show the results of the EF3 tornado analysis.

Table 4-14. Estimated Building Loss by Occupancy Type

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	\$1,266,541	\$766,472	\$481,333	\$0
Agriculture	\$6,962	\$19,138	\$8,603	\$0
Commercial	\$0	\$0	\$5,146	\$0
Industrial	\$0	\$0	\$0	\$0
Total:	\$1,273,503	\$785,610	\$495,081	\$0

Figure 4-7. Building Inventory Affected by the Historic Lake Mattoon F3 Tornado



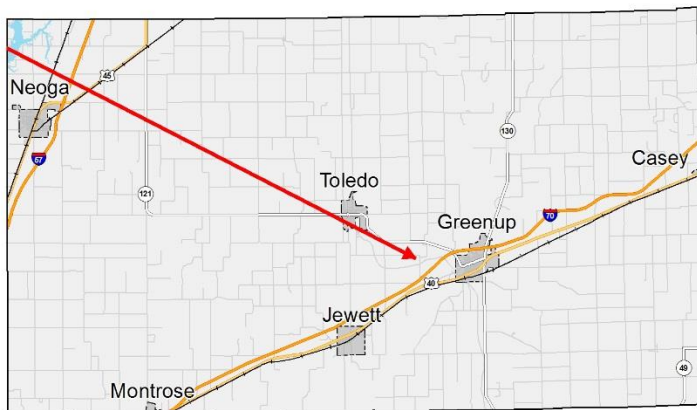
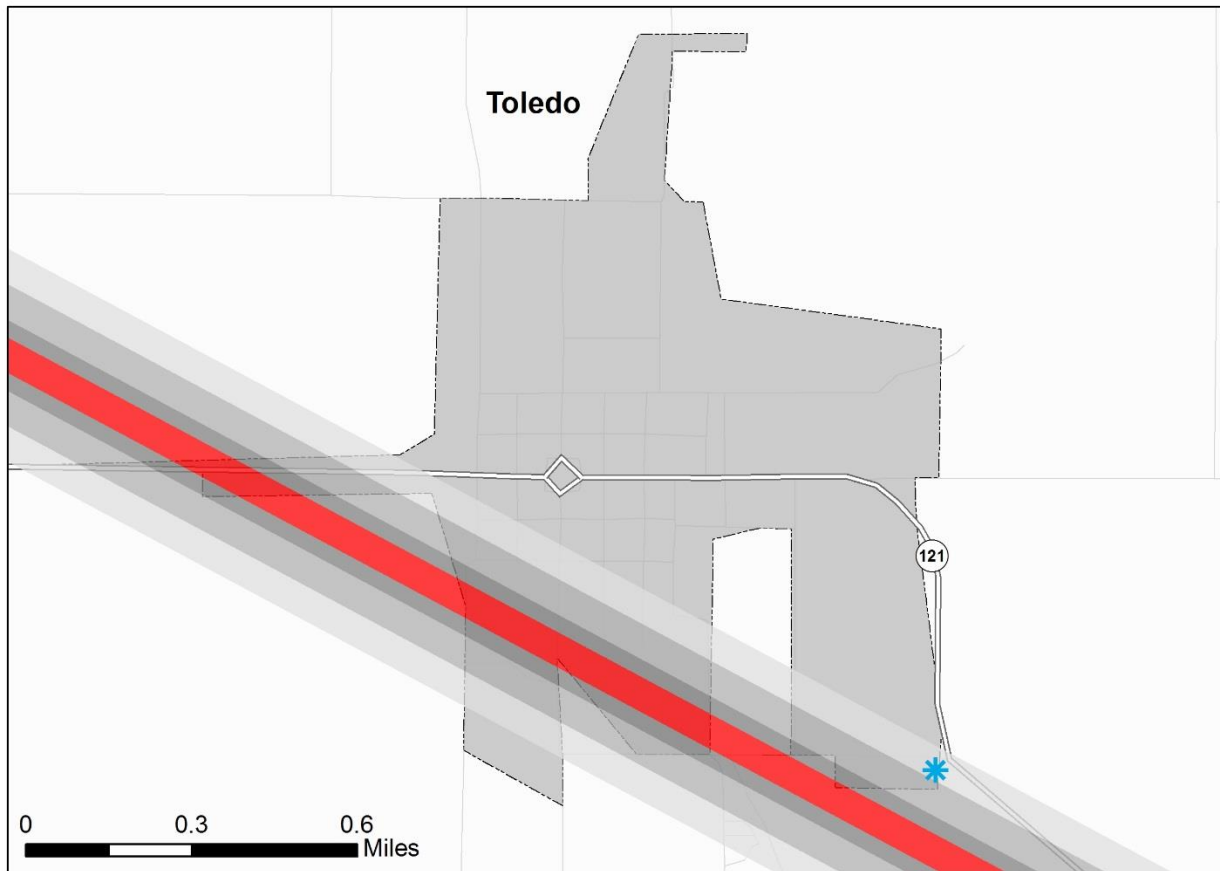
Essential Facilities Damage

There is one essential facility located within 900 feet of the F3 tornado path. The affected facilities are identified in Table 4-15, and their geographic locations are shown in Figure 4-8.

Table 4-15. Essential Facilities Affected by the Historic Lake Mattoon F3 Tornado

Essential Facility	Facility Name
Government	Cumberland County Highway Department

Figure 4-8. Essential Facilities Affected by the Historic Lake Mattoon F3 Tornado



Data Sources: Illinois State Geological Survey (ISGS); Illinois Department of Transportation (IDOT); NOAA Storm Prediction Center
Coordinate System: NAD 1983 UTM Zone 16N

Historic Lake Mattoon F3 Tornado

* Government Facility

Damage Curves

- Zone 1
- Zone 2
- Zone 3
- Zone 4

→ Historic Lake Mattoon F3 Path

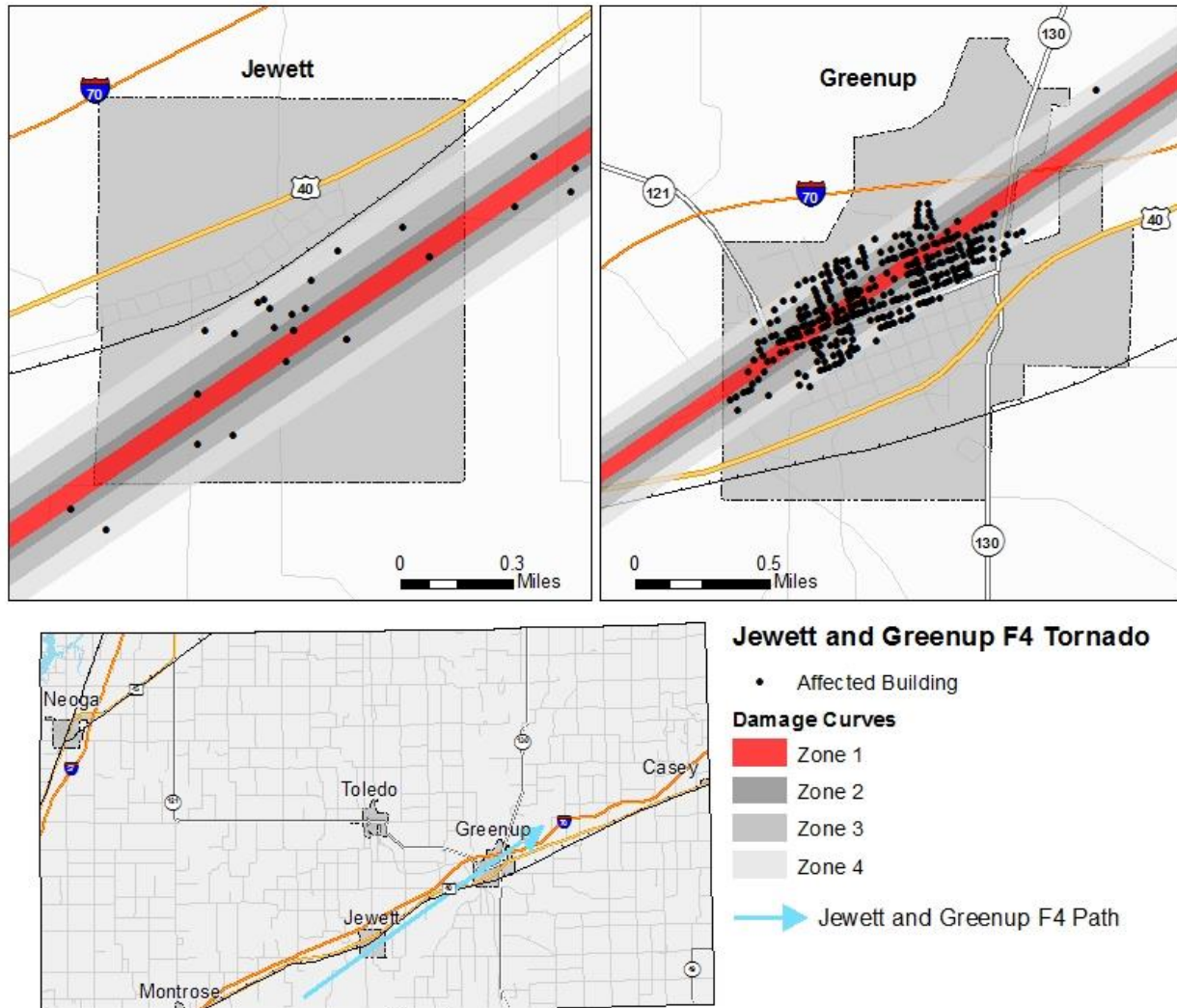
Modeled Impacts of the Jewett and Greenup EF4 Tornado

The GIS analysis estimates that the modeled EF4 tornado would damage 441 buildings, which is approximately 52% of the total buildings in Greenup and 20% of the total buildings in Jewett. The estimated building losses are approximately \$12,700,000. The building losses are an estimate of building replacement costs multiplied by the damage percent. Table 4-16 and Figures 4-9 show the results of the EF4 tornado analysis.

Table 4-16. Estimated Building Loss by Occupancy Type

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	\$3,194,210	\$2,964,182	\$2,557,307	\$610,776
Agriculture	\$97,608	\$3	\$40,389	\$2
Commercial	\$597,410	\$1,224,254	\$1,269,420	\$209,036
Industrial	\$0	\$0	\$0	\$0
Total:	\$3,889,228	\$4,191,554	\$3,867,116	\$822,150

Figure 4-9. Building Inventory Affected by the Jewett and Greenup EF4 Tornado



Data Sources: Illinois State Geological Survey (ISGS); Illinois Department of Transportation (IDOT); NOAA Storm Prediction Center
 Coordinate System: NAD 1983 UTM Zone 16N

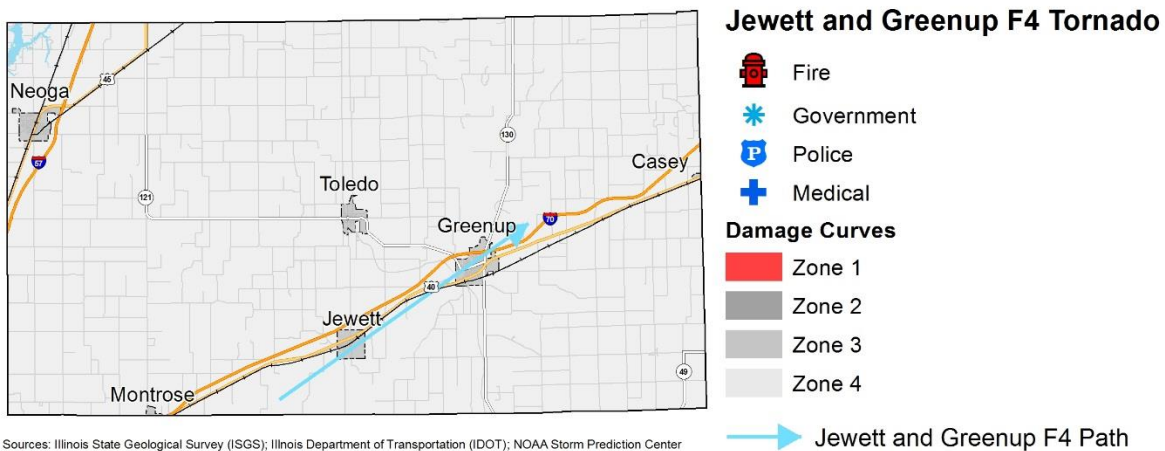
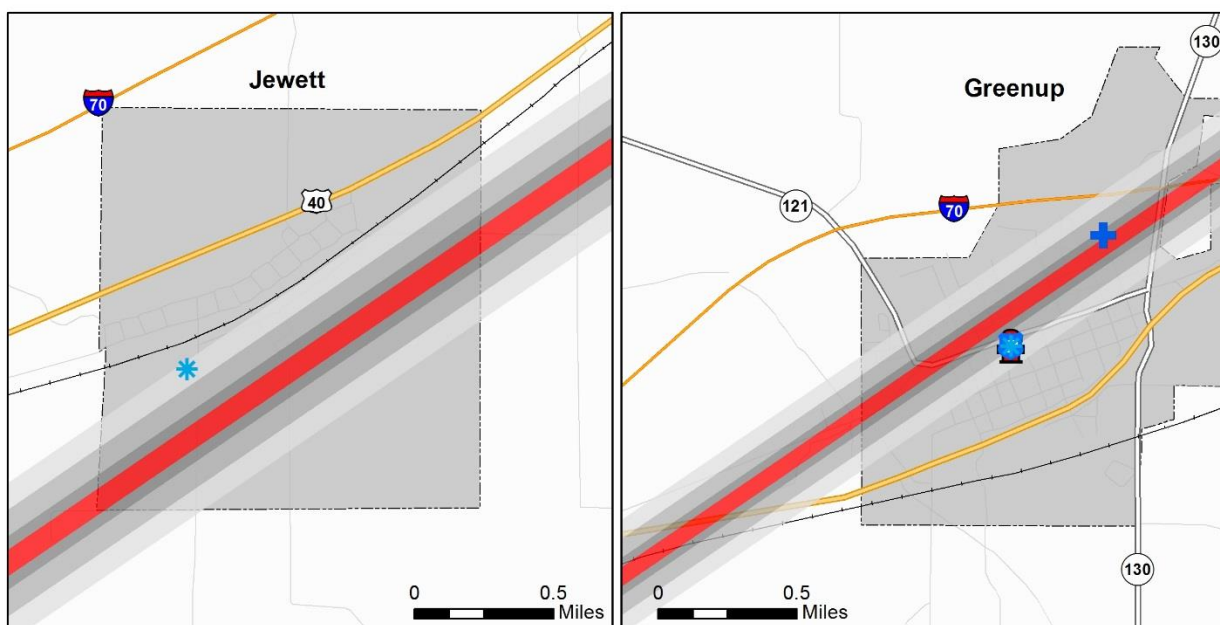
Essential Facilities Damage

There are five essential facility located within 900 feet of the EF4 tornado path. The affected facilities are identified in Table 4-17, and their geographic locations are shown in Figure 4-10.

Table 4-17. Essential Facilities Affected by the Jewett and Greenup EF4 Tornado

Essential Facility	Facility Name
Police	Greenup Police Department
Medical	Cumberland Rehab and Health Clinic
Fire	Greenup Fire Department
Government	Greenup Village Hall
	Woodbury Township Hall

Figure 4-10. Essential Facilities Affected by the Jewett and Greenup EF4 Tornado



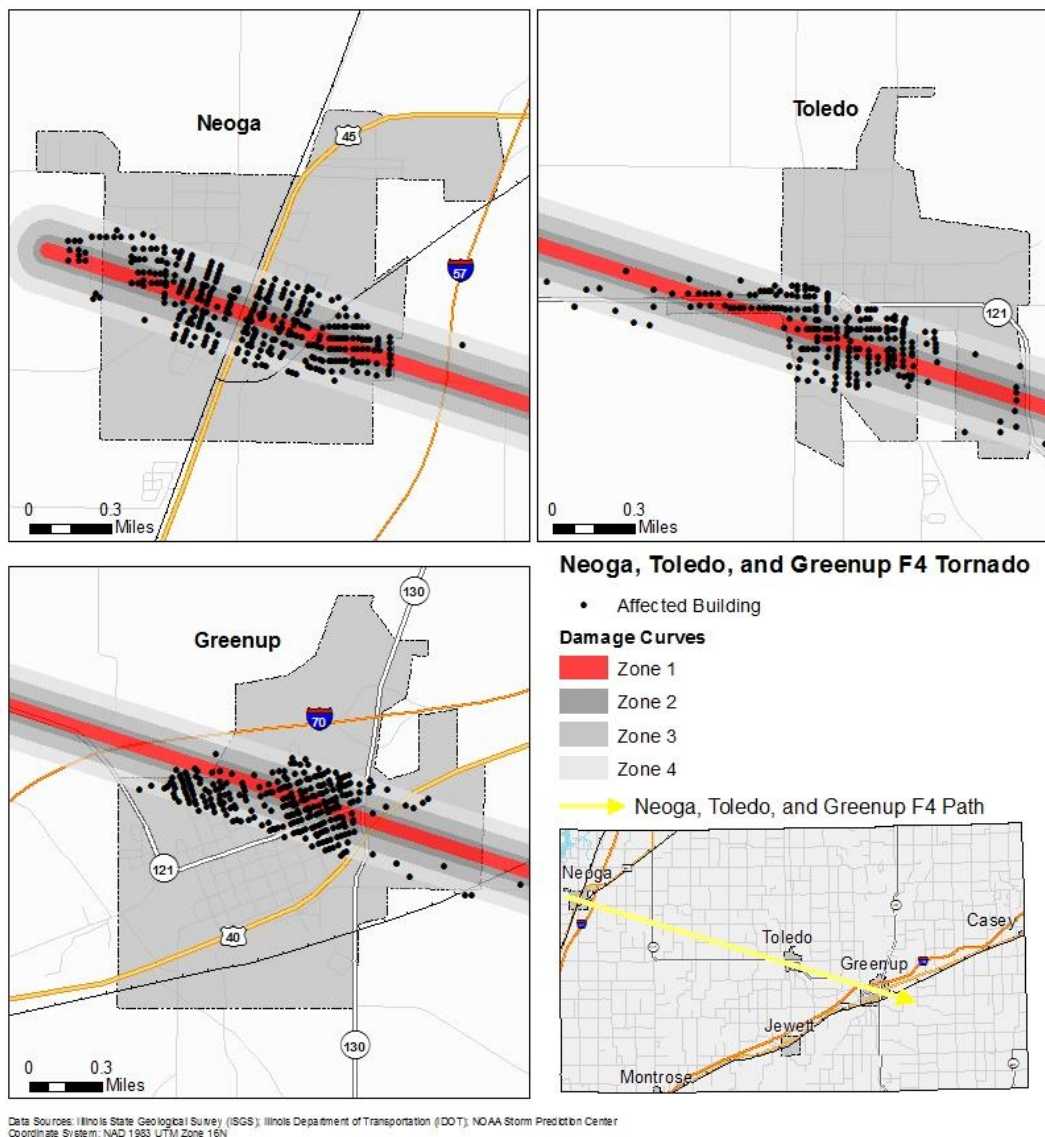
Modeled Impacts of the Neoga, Toledo and Greenup EF4 Tornado

The GIS analysis estimates that the modeled EF4 tornado would damage 793 buildings, which is approximately 14% of the total buildings in Cumberland County. The estimated building losses are approximately \$32,500,000. The building losses are an estimate of building replacement costs multiplied by the damage percent. Table 4-18 and Figures 4-11 show the results of the EF4 tornado analysis.

Table 4-18. Estimated Building Loss by Occupancy Type

Occupancy	Zone 1	Zone 2	Zone 3	Zone 4
Residential	\$9,699,245	\$6,819,608	\$4,547,745	\$1,065,049
Agriculture	\$33,262	\$2,505	\$1,726	\$28,667
Commercial	\$2,116,063	\$1,413,174	\$1,272,270	\$152,158
Industrial	\$64,469	\$0	\$5,306,739	\$0
Total:	\$11,913,038	\$8,235,287	\$11,128,480	\$1,245,873

Figure 4-11. Building Inventory Affected by the Neoga, Toledo and Greenup EF4 Tornado



Essential Facilities Damage

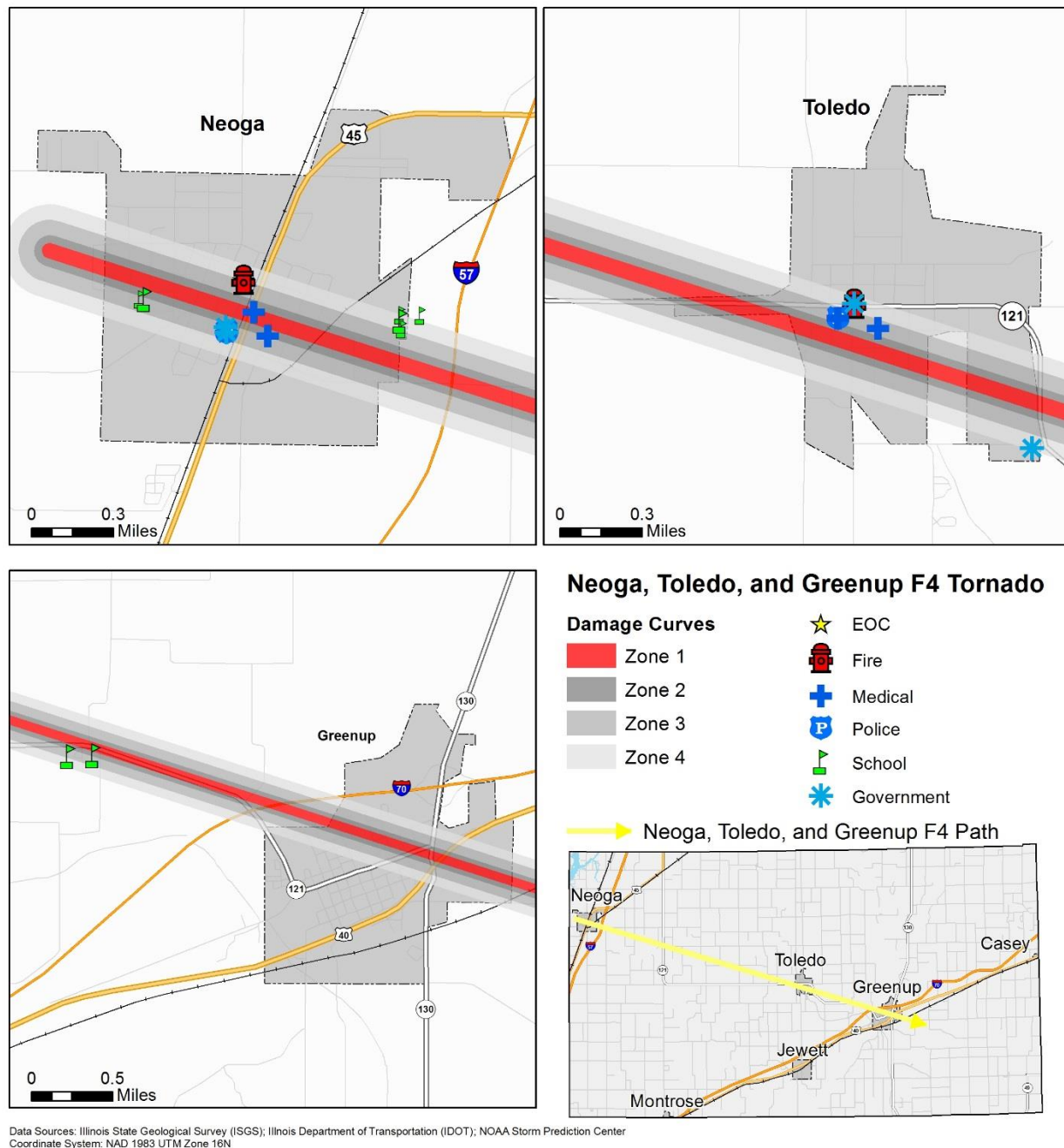
There are sixteen essential facility located within 900 feet of the EF4 tornado path. The affected facilities are identified in Table 4-19, and their geographic locations are shown in Figure 4-12.

Table 4-19. Essential Facilities Affected by the Neoga, Toledo and Greenup EF4 Tornado

Essential Facility	Facility Name
Fire	Neoga Fire Protection District*
	Toledo Fire Protection District
Police	Cumberland County Sheriff
	Neoga Police Department
Medical	Neoga Clinic
	Marshall Clinic
	SBL Toledo Clinic
	Cumberland County Health Department
School	Neoga Junior Senior High School
	Neoga Elementary School
	Cumberland Middle / High School
	Cumberland Elementary School
Government	Cumberland County Office / Annex
	Cumberland County Highway Office
	Toledo Village Hall
	Neoga Village Hall*

*EOC facility

Figure 4-12. Essential Facilities Affected by the Neoga, Toledo and Greenup EF4 Tornado



Vulnerability to Future Assets/Infrastructure for Tornado Hazard

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

Suggestions for Community Development Trends

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

4.3.3 Thunderstorm Hazard

Hazard Definition

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

Hail 0.75 inches or greater in diameter

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

Frequent and dangerous lightning

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

Wind speeds greater than or equal to 58 miles per hour

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

Previous Occurrences of Thunderstorm Hazards

The National Climatic Data Center (NCDC) database reported twenty-six hailstorms in Cumberland County since 1950. The NCDC database did not reflect any loss of life, injuries, or damage due to hailstorms. Additional details of individual hazard events are on the NCDC website.

The NCDC database did not report any lightning events in Cumberland County.

The NCDC database reported sixty-one thunderstorm and wind storms in Cumberland County. Table 4-20 identifies selected NCDC-recorded storms that caused major damage, death, or injury in Cumberland County.

Table 4-20. Selected NCDC-Recorded Thunderstorm and Wind Storms that Caused Major, Death, or Injury in Cumberland County

Location or County*	Date	Deaths	Injuries	Property Damage
Neoga	6/12/2010	0	0	\$2,000
Neoga	7/8/2009	0	0	\$3,000
Greenup	10/26/2010	0	0	\$5,000
Toledo	6/4/2008	0	0	\$8,000
Neoga	8/4/2009	0	0	\$15,000
Jewett	8/19/2009	0	0	\$15,000
Toledo	6/21/2011	0	0	\$15,000
Neoga	8/4/2009	0	0	\$18,000
Neoga	2/5/2008	0	0	\$20,000
Neoga	8/24/2007	0	0	\$25,000
Neoga	6/21/2011	0	0	\$25,000
Neoga	4/5/2010	0	0	\$30,000
Neoga	6/12/2010	0	0	\$30,000
Neoga	5/7/2009	0	0	\$40,000
Greenup	6/6/2008	0	0	\$50,000
Toledo	8/16/2012	0	0	\$50,000
Neoga	6/18/2009	0	0	\$60,000
Central Illinois	9/14/2008	0	0	\$4,000
Central Illinois	4/30/1997	0	1	\$38,000
Central Illinois	11/10/1998	0	1	\$60,000
Central Illinois	3/25/1996	1	0	\$0
Total:		1	2	\$513,000

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

Geographic Location of Thunderstorm Hazard

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

Hazard Extent for Thunderstorm Hazard

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

Risk Identification for Thunderstorm Hazard

Based on historical information, the occurrence of future high winds, hail, and lightning is highly likely. The County should expect high winds, hail, and lightning of widely varying magnitudes in the future. According to the Cumberland County Planning Team's assessment, severe thunderstorms are ranked as the number two hazard.

Risk Priority Index

$$\begin{array}{rclcl} \text{Probability} & \times & \text{Magnitude} & = & \text{RPI} \\ 4 & \times & 4 & = & 16 \end{array}$$

Vulnerability Analysis for Thunderstorm Hazard

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

Critical Facilities

All critical facilities are vulnerable to severe thunderstorms. A critical facility will encounter many of the same impacts as any other building within the jurisdiction. These impacts include structural failure, damaging debris (trees or limbs), roofs blown off or windows broken by hail or high winds, fires caused by lightning, and loss of building functionality (e.g., a damaged police station cannot serve the community). Table 4-7 lists the types and number of critical facilities for the entire county and Appendix F displays a large format map of the locations of all critical facilities within the county.

Building Inventory

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

Infrastructure

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

Potential Dollar Losses from Thunderstorm Hazard

According to the NDCD, Cumberland County has incurred approximately \$0.5 million in damages relating to thunderstorms, including hail, lightning, and high winds since 1950. NDCD records are estimates of damage compiled by the National Weather Service from various local, state, and federal sources. However, these estimates are often preliminary in nature and may not match the final assessment of economic and property losses related to a given weather event. As a result, the potential dollar losses for a future event cannot be reliably constrained; however, based on average property damage in the past decade, SIU estimates that Cumberland County incurs property damages of approximately \$8,000 per year related to severe thunderstorms.

Vulnerability to Future Assets/Infrastructure for Thunderstorm Hazard

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

Suggestions for Community Development Trends

Local officials should enhance severe storm preparedness if they sponsor a wide range of programs and initiatives to address the overall safety of county residents. It is suggested that the county should build new structures with more sturdy construction, and harden existing structures to lessen the potential

impacts of severe weather. This is particularly import where the future economic expansion is expected to take place near Neoga, Greenup and Toledo. Additional warning sirens can warn the community of approaching storms to ensure the safety of Cumberland County residents and minimizing property damage.

4.3.4 Flooding Hazard

Hazard Definition for Flooding

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

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

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

Previous Occurrences of Flooding

The NCDC database reported twenty-three flooding events in Cumberland County. The most significant flood events occurred in October 2000. A stationary boundary just south of the area provided a focus for widespread thunderstorms producing heavy rainfall. Radar estimates and surface reports indicated anywhere from 2 to over 6 inches of rain falling during the evening and overnight hours across the area. North of Greenup, in Union township, a road around a bridge was washed out, causing over \$90,000 in damage. In Sumpter Township, the flood water scoured a hole along a culvert and under a roadway, which caved in when a truck passed over it. There were no injuries with this as well and no evacuations were needed. Table 4-21 identifies NCDC-recorded flooding events that caused damage, death, or injury in Cumberland County.

Table 4-21. NCDC-recorded Flooding Events that caused Death, Damage or Injury in Cumberland County

Location or County*	Date	Deaths	Injuries	Property Damage
Toledo	06/06/2008	0	0	\$40,000

Location or County*	Date	Deaths	Injuries	Property Damage
Cumberland County	10/04/2000	0	0	\$300,000
Neoga	07/30/2011	0	0	\$0
Cumberland County	05/07/2002	0	0	\$0
Lake Mattoon	05/06/2008	0	0	\$100,000
Cumberland County	05/12/2002	0	1	\$0
Total:		0	1	\$440,000

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

The Illinois Emergency Management Agency and Illinois Department of Natural Resources was contacted to determine the location of repetitive loss structures in Cumberland County. Records indicate that there are no repetitive loss structures within the county. FEMA defines a repetitive loss structure as a structure covered by a contract of flood insurance issued under the NFIP that has suffered flood loss damage on two or more occasions during a 10-year period that ends on the date of the second loss, in which the cost to repair the flood damage is $\geq 25\%$ of the market value of the structure at the time of each flood loss.

Geographic Location of Flooding

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

The primary sources of river flooding in Cumberland County is Embarras River and its tributaries. On June 10, 2008, Cumberland County was one of six counties (Clark, Coles, Crawford, Cumberland, Jasper, and Lawrence) in southeastern Illinois that was declared a state disaster area due to flooding. Heavy rains in May and June caused levees along the Embarras and Wabash rivers to fail (Reference 14). The Embarras River flood of record at Ste. Marie, Illinois occurred on June 8, 2008 with a flood stage of 28.01 feet. In Cumberland County, the most severe flooding occurred in Greenup and Neoga.

Hazard Extent for Flooding

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

Vulnerability Analysis for Flooding

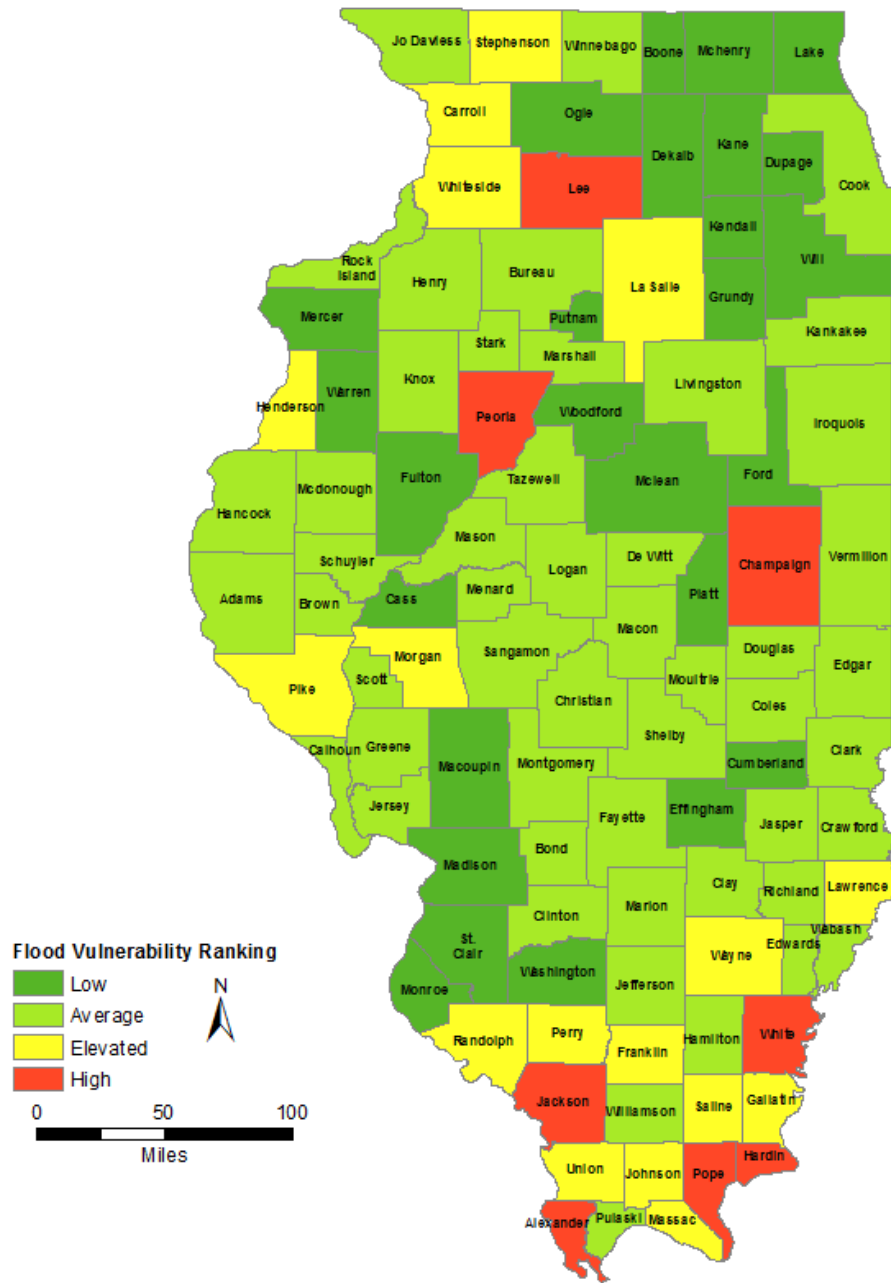
The 2013 Illinois Hazard Mitigation Plan analyzed a variety potential natural hazards including vulnerability to flooding. A Flood Vulnerability Index (FVI) was calculated for all counties and jurisdictions in Illinois. FVI combines Hazus-based estimates of flood exposure and loss with the widely utilized Social Vulnerability Index (SoVI). The highest vulnerability scores and vulnerability ratings were generally in rural counties and communities located along Illinois's large rivers (i.e., Mississippi, Green, Illinois, Kaskaskia, Rock and Ohio Rivers). Figure 4-13 displays the Flood Vulnerability Ratings for the 102 Counties in Illinois. The vulnerability ratings are categorically representations (low, average, elevated, or high) of the flood vulnerability index. Cumberland County has an Average Flood Vulnerability Rating and ranks 88 out of the

102 Counties in Illinois in terms of loss estimation according to Hazus-MH for floods. Table 4-22 lists the jurisdictional Flood Vulnerability Ratings for Cumberland County.

Table 4-22. Jurisdictional Flood Vulnerability Ranking for Cumberland County

Jurisdiction	State Ranking	Flood Vulnerability Rating
Greenup	507	Average
Jewett	557	Average
Neoga	580	Average

Figure 4-13. County Flood Vulnerability Rating for Illinois



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

Risk Identification for Flood Hazard

Based on historical information and the Flood Vulnerability Rating, future occurrence of flooding in Cumberland County is likely. According to the Risk Priority Index (RPI) and County input, flooding is ranked as the number three hazard.

<u>Risk Priority Index</u>				
Probability	x	Magnitude	=	RPI
4	x	4	=	16

Critical Facilities

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

Building Inventory

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

Infrastructure

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

Hazus-MH Flood Analysis

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

According to this analysis, there are 79 buildings located in the Cumberland County 100-year floodplain. The estimated damage to these structures is \$863,533. It should be noted that the results should be interpreted as degrees of loss rather than exact number of buildings exposed to flooding. Figure 4-14

depicts the building inventory within the 100-year floodplain and Table 4-24 shows the loss estimates by occupancy class.

Figure 4-14. Building Inventory Located within the 100-year Floodplain in Cumberland County

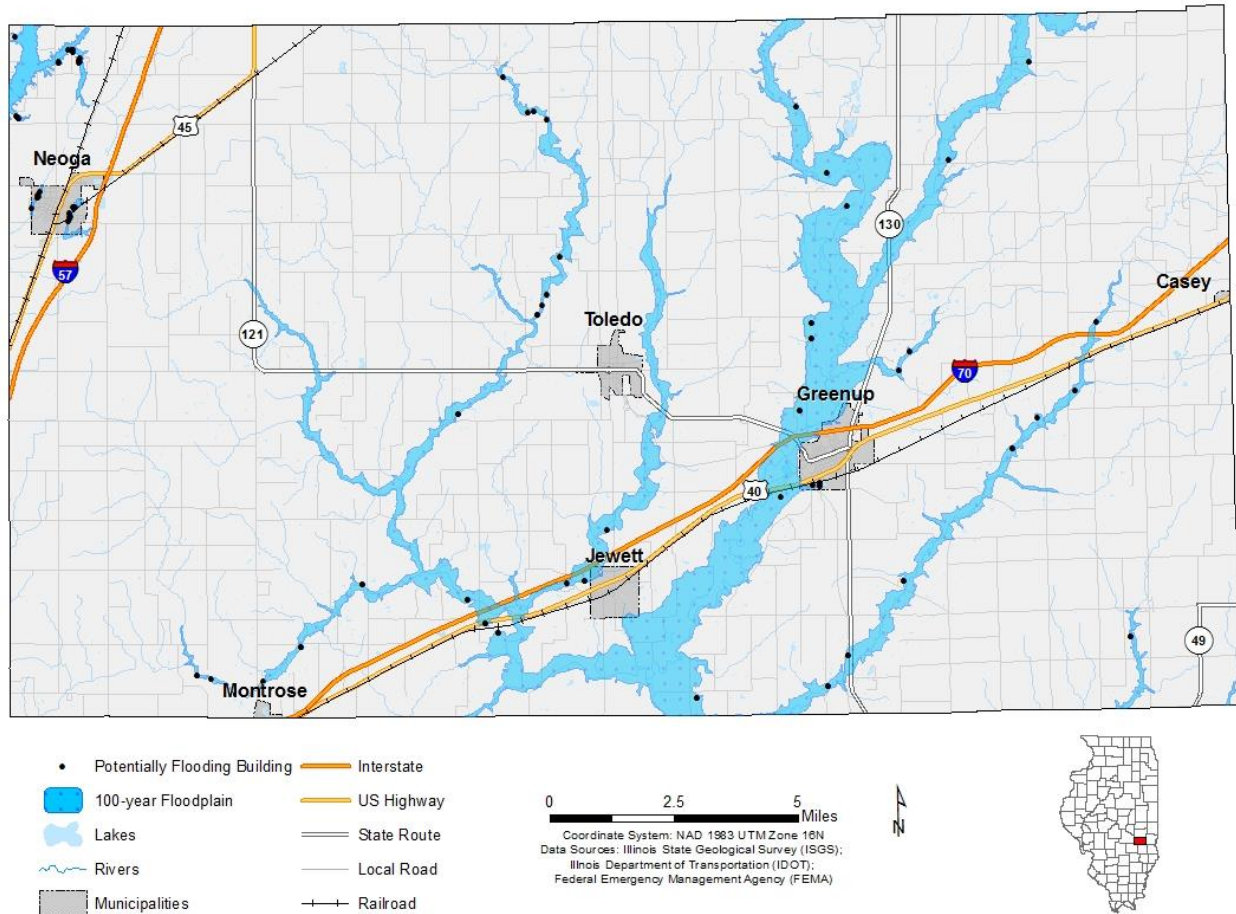


Table 4-23. Estimated Flood Losses within the 100-year Floodplain

Occupancy Class	Number of Structures	Estimated Building Related Losses
Residential	52	\$724,608
Commercial	1	\$9,687
Industrial	0	\$0
Agricultural	26	\$129,238
Total:	79	\$863,533

Essential Facilities Damage

The analysis identified zero essential facilities that are subject to flooding.

Vulnerability Analysis to Future Assets/Infrastructure

Flooding may affect nearly any location within the county; there for all buildings and infrastructure are vulnerable. Table 4-8 includes the building exposure for Cumberland County. All essential facilities in the county are at risk. Appendix E include a list of the critical facilities in Cumberland County and Appendix F displays a large format map of the locations of all critical facilities within the county. Currently, the

municipal planning commission reviews new developments for compliance with the local flood zoning ordinance. At this time no new construction is planned with the 100-year floodplain.

Suggestions for Community Development Trends

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

4.3.5 Winter Storm Hazard

Hazard Definition of Winter Storm Hazard

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

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

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

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

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

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

Previous Occurrences of Winter Storm Hazard

The NCDC database reported twenty winter storm and extreme cold events for Cumberland County since 1950. The most recent reported event occurred in February of 2011. Roads became snow-covered and

hazardous on February 5th, resulting in a traffic accident involving two semi-trailers on I-70 between Casey and Greenup. A section of I-70 for several hours. One of the trucks was carrying a small amount of hazardous materials, which prompted Illinois State troopers to close the interstate for several hours. No hazardous materials were spilled and no injuries were reported. Table 4-24 identifies NCDC-recorded winter storm events that caused damage, death, or injury in Cumberland County.

Table 4-24. NCDC-Recorded Winter Storms that Caused Damage, Death, or Injury in Cumberland County

Location or County*	Date	Deaths	Injuries	Property Damage
Cumberland County	11/13/1997	0	1	0
Cumberland County	01/18/1996	0	2	\$0
Cumberland County	01/02/1996	0	4	\$0
Cumberland County	01/08/1997	0	6	\$0
Cumberland County	01/26/1997	0	9	\$0
Cumberland County	12/08/1995	1	0	\$0
Cumberland County	12/18/1995	1	0	\$0
Cumberland County	03/19/1996	1	0	\$0
Cumberland County	01/01/1999	1	1	\$0
Cumberland County	12/13/2000	1	1	\$0
Cumberland County	01/15/1997	1	7	\$0
Cumberland County	03/11/2000	1	9	\$0
Cumberland County	02/02/1996	2	0	\$0
Total:		9	40	\$0

Geographic Location of Winter Storm Hazard

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

Hazard Extent of Winter Storm Hazard

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

Risk Identification of Winter Storm Hazard

Based on historical information, the probability of future winter storms in Cumberland County is likely. The county should expect winter storms with varying magnitudes to occur in the future. Winter storms ranked as the number four hazard according to the Cumberland County Planning Team's risk assessment.

<u>Risk Priority Index</u>				
Probability	x	Magnitude	=	RPI
4	x	2	=	8

Vulnerability Analysis of Winter Storm Hazard

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

Critical Facilities

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

Building Inventory

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

Infrastructure

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

Potential Dollar Losses from Winter Storm Hazard

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

Vulnerability to Future Assets/Infrastructure for Winter Storm Hazard

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

Suggestions for Community Development Trends

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

4.3.6 Drought and Extreme Heat Hazard

Hazard Definition for Drought and Extreme Heat Hazard

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

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

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

Heat Wave

Prolonged period of excessive heat often combined with excessive humidity.

Heat Index

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

Heat Cramps

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

Heat Exhaustion

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

Heat and Sun Stroke

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

Previous Occurrences for Drought and Extreme Heat

The NCDC database reported six drought/heat wave events in Cumberland County since 1950. The most recent reported event occurred in 2007. Severe drought conditions developed across much of southeast Illinois during September 2007. The drought conditions expanded during October 2007. While precipitation levels were below normal for much of the year, the combination of extended precipitation deficits and unseasonably hot conditions in August and much of September started to impact crop health. The drought conditions eased by late October when 2 to 4 inches of rainfall fell across the drought region. Table 4-25 identifies NCDC-recorded drought/heat wave events that caused damage, death, or injury in Cumberland County.

Table 4-25. NCDC-recorded Extreme Heat Events that caused Death, Crop Damage or Injury in Cumberland County

Location or County*	Date	Deaths	Injuries	Crop Damage
Southeast Illinois	10/25/2007	0	0	\$0
Central Illinois	06/28/1998	1	0	\$0
Central Illinois	07/31/1999	1	0	\$0
Central Illinois	07/25/2005	1	0	\$0
Central Illinois	07/27/1997	2	0	\$0
Central Illinois	07/26/1999	4	0	\$0
Total:		9	0	\$0

Geographic Location for Drought and Extreme Heat

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

Hazard Extent for Drought and Extreme Heat

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

Risk Identification for Drought and/or Extreme Heat

Based on historical information, the occurrence of future droughts and/or prolonged extreme heat is highly likely. The County should expect future droughts and/or prolonged extreme heat magnitudes in the future. According to the Cumberland County Planning Team's assessment, drought and/or extreme heat are ranked as the number five hazard.

<u>Risk Priority Index</u>				
Probability	x	Magnitude	=	RPI
4	x	2	=	8

Vulnerability Analysis for Drought and Extreme Heat

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

Critical Facilities

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

Building Inventory

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

Infrastructure

During a drought, the types of potentially impacted infrastructure include roadways, utility lines/pipes, railroads, and bridges. The risk to these structures is primarily associated with fire, which could result from hot, dry conditions. Since the county's entire infrastructure is vulnerable, damage to any infrastructure is possible. The impacts to these items include: impassable roadways; broken or failed utility lines (e.g., loss of power or gas to community); or impassable railways. Bridges could become impassable, causing risk to motorists.

Potential Dollar Losses from Drought and Extreme Heat

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

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

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

Suggestion of Community Development Trends

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

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

4.3.7 Earthquake Hazard

Hazard Definition

An earthquake is the shaking of the earth caused by the energy released when large blocks of rock slip past each other in the earth’s crust. Most earthquakes occur at tectonic plate boundaries; however, some earthquakes occur in the middle of plates, for example the New Madrid Seismic Zone or the Wabash Valley Fault System. Both of these seismic areas have a geologic history of strong quakes, and an earthquake from either seismic area could possibly affect Illinois counties. There may be other, currently unidentified faults in the Midwest also capable of producing strong earthquakes.

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

Earthquakes are usually measured by two criteria: intensity and magnitude (M). Earthquake intensity qualitatively measures the strength of shaking produced by an earthquake at a certain location and is

determined from effects on people, structures, and the natural environment. Earthquake magnitude quantitatively measures the energy released at the earthquake's subsurface source in the crust, or epicenter. Table 4-26 provides a comparison of magnitude and intensity, and Table 4-27 provides qualitative descriptions of intensity, for a sense of what a given magnitude might feel like.

Table 4-26. Comparison of Earthquake Magnitude and Intensity

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

Table 4-27. Abbreviated Modified Mercalli Intensity Scale

Mercalli Intensity	Description
I	Not felt except by a very few under especially favorable conditions.
II	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motorcars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

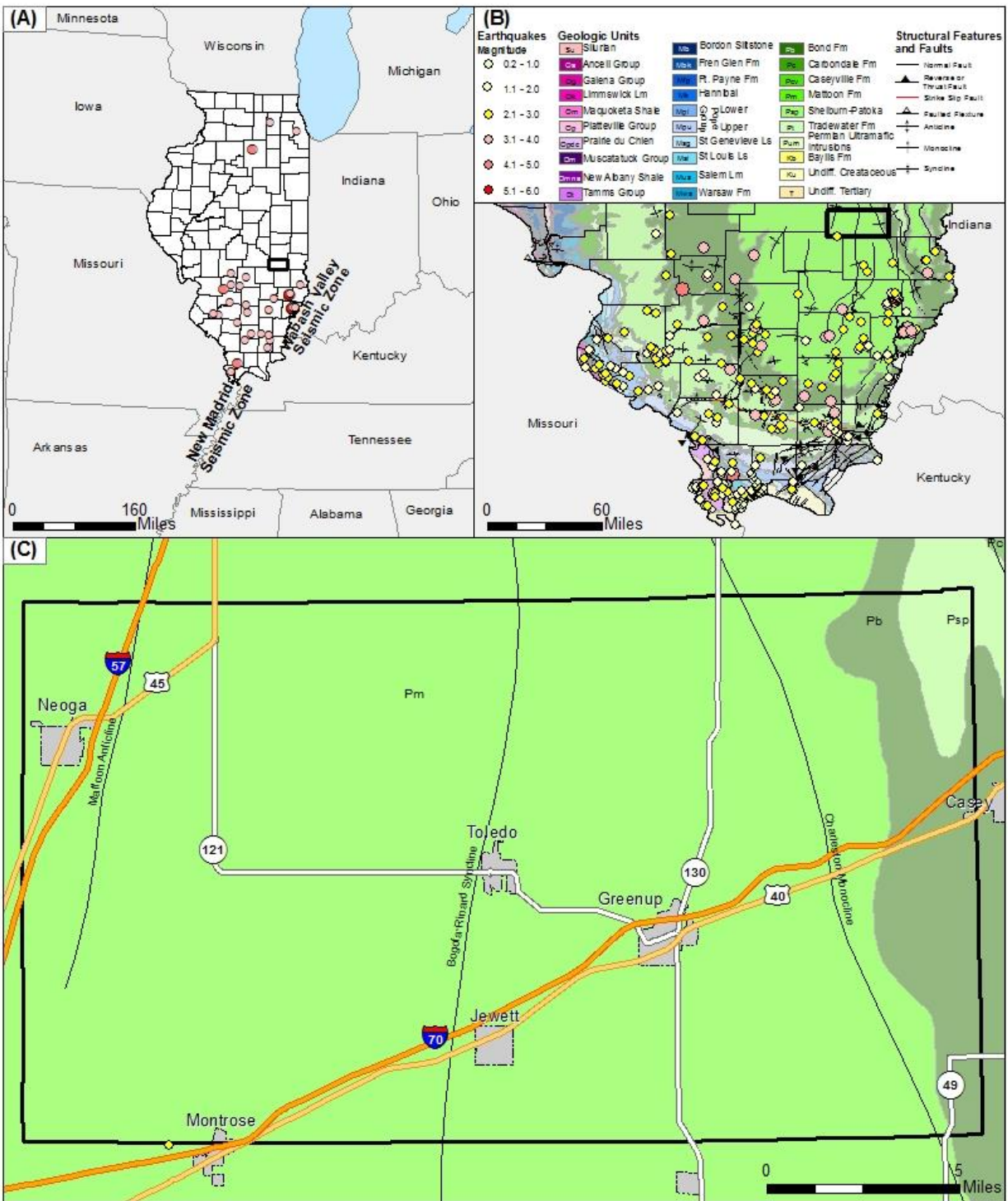
Previous Occurrences for Earthquakes

Historically, the most significant seismic activity in Illinois is associated with New Madrid Seismic Zone. The New Madrid Seismic Zone produced three large earthquakes in the central U.S. with magnitudes estimated between 7.0 and 7.7 on December 16, 1811, January 23, 1812, and February 7, 1812. These earthquakes caused violent ground cracking and volcano-like eruptions of sediment (sand blows) over an area >10,500 km², and uplifted a 50 km by 23 km zone (the Lake County uplift). The shaking was felt over

a total area of over 10 million km² (the largest felt area of any historic earthquake). The United States Geological Survey (USGS) and the Center for Earthquake Research and Information (CERI) at the University of Memphis estimate the probability of a repeat of the 1811-1812 type earthquakes (M7.5-8.0) is 7%-10% over the next 50 years (USGS Fact Sheet 2006-3125).

Earthquakes measured in Illinois typically vary in magnitude from very low microseismic events of M=1-3 to larger events up to M=5.4. Figure 4-15 depicts the following: (A) location of notable earthquakes in Illinois region; (B) generalized geologic bedrock map with earthquake epicenters and geologic structures; (C) geologic and earthquake epicenter map of Cumberland County. The most recent earthquake in Illinois—as of the date of this report—was a M2.3 event in February 2014, approximately 6 miles NNW of Mound City in Pulaski County. The last earthquake in Illinois to cause minor damage occurred on April 18, 2008 near Mt. Carmel, IL and measured 5.2 in magnitude. Earthquakes resulting in more serious damage have occurred about every 70 to 90 years and are historically concentrated in southern Illinois.

Figure 4-15. Notable Earthquakes in Illinois with Geologic and Earthquake Epicenters in Cumberland County

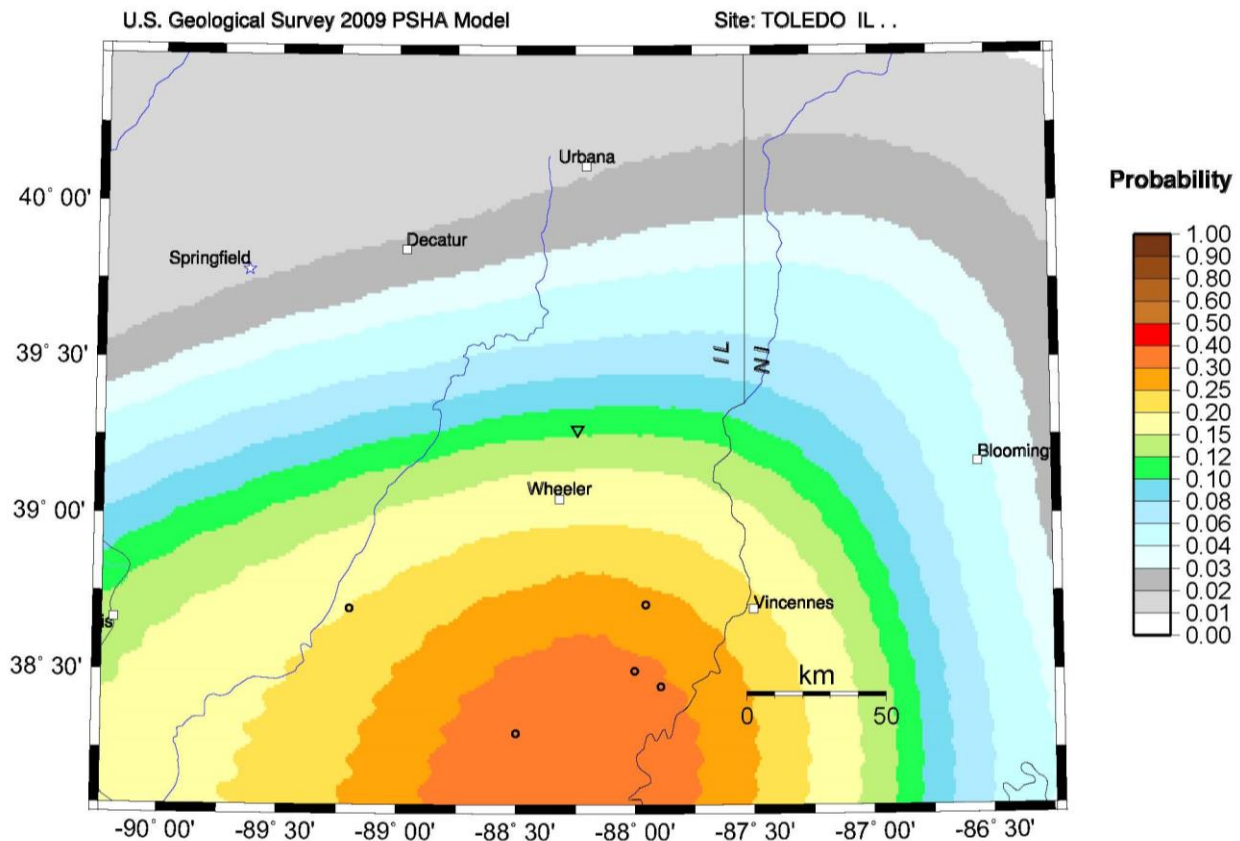


Data Sources: Illinois Geological Survey, U.S. Geological Survey, Center for Earthquake Research and Information at University of Memphis

Geographic Location for Earthquake Hazard

There are no earthquake epicenters recorded in Cumberland County. In 1977, a M2.9 occurred in Effingham County near the border of Cumberland County. The two most significant zones of seismic activity in Illinois are the New Madrid Seismic Zone and the Wabash Valley Fault System. Return periods for large earthquakes within the New Madrid System are estimated to be ~500–1000 years; moderate quakes between magnitude 5.5 and 6.0 can recur within approximately 150 years or less. The Wabash Valley Fault System extends nearly the entire length of southern Illinois and has the potential to generate an earthquake of sufficient strength to cause damage between St. Louis, MO and Indianapolis, IN. While large earthquakes ($>M7.0$) experienced during the New Madrid Events of 1811 and 1812 are unlikely in Cumberland County, moderate earthquakes ($\leq 6.0M$) in or in the vicinity of Cumberland County are possible. The USGS estimates the probability of a moderate M5.5 earthquake occurring in Cumberland County within the next 500-years at approximately 12% (see Figure 4-16).

Figure 4-16. Probability of M5.5 Earthquake occurring in Cumberland County within the next 500 years



Hazard Extent for Earthquake Hazard

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

Risk Identification for Earthquake Hazard

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

<u>Risk Priority Index</u>				
Probability	x	Magnitude	=	RPI
2	x	4	=	8

Vulnerability Analysis for Earthquake Hazard

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

Critical Facilities

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

Building Inventory

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

Infrastructure

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

Hazus-MH Earthquake Analyses

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

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

The earthquake hazard modeling scenarios performed:

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

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

Results for M5.5 Earthquake Scenario

The results of the M5.5 probabilistic earthquake scenario are depicted in Tables 4-28, 4-29, and Figure 4-17. Hazus-MH estimates that approximately 181 buildings will be at least moderately damaged. This is over 3% of the total number of buildings in the Cumberland County. It is estimated that one building would be damaged beyond repair.

The total building related losses are approximately \$5 million dollars. It is estimated that 19% of the losses are related to the business interruption of the region. By far, the largest loss is sustained by the residential occupancies which make up over 64% of the total loss.

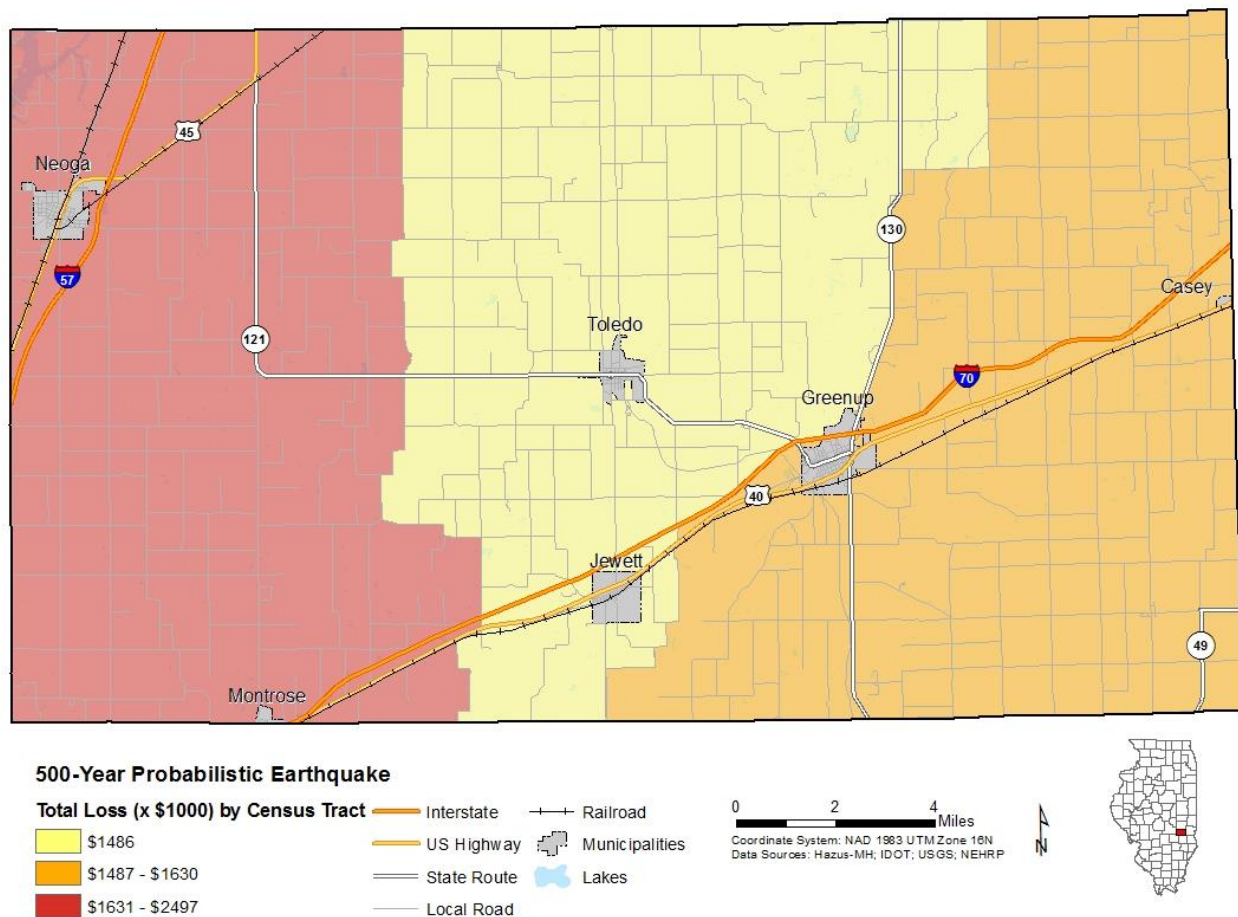
Table 4-28. M5.5 Earthquake Damage Estimates by Building Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	115	1.89	11	2.12	5	3.25	1	4.57	0	2.99
Commercial	178	2.92	16	3.20	7	4.21	1	5.68	0	4.37
Educational	8	0.13	1	0.14	0	0.20	0	0.24	0	0.33
Government	10	0.16	1	0.16	0	0.20	0	0.22	0	0.29
Industrial	46	0.76	4	0.84	2	1.22	0	1.65	0	1.00
Other Residential	2,153	35.31	200	39.30	74	45.72	7	37.86	0	29.80
Religion	22	0.36	2	0.40	1	0.53	0	0.73	0	0.72
Single Family	3,565	58.47	274	53.84	72	44.67	10	49.05	1	60.50
Total:	6,097		509		161		19		1	

Table 4-29. M5.5 Earthquake Estimates of Building Economic Losses (in Millions of Dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Other	Total
Income Losses	Wage	\$0.00	\$0.07	\$0.97	\$0.03	\$0.08	\$1.15
	Capital-Related	\$0.00	\$0.03	\$0.77	\$0.02	\$0.03	\$0.85
	Rental	\$0.30	\$0.19	\$0.44	\$0.02	\$0.04	\$0.99
	Relocation	\$1.12	\$0.22	\$0.74	\$0.10	\$0.38	\$2.56
	Subtotal:	\$1.42	\$0.51	\$2.92	\$0.17	\$0.53	\$5.55
Capital Stock Losses	Structural	\$2.47	\$0.56	\$1.06	\$0.32	\$0.64	\$5.05
	Non-Structural	\$7.60	\$1.88	\$2.61	\$0.85	\$1.22	\$14.16
	Content	\$2.46	\$0.47	\$1.46	\$0.58	\$0.68	\$5.65
	Inventory	\$0.00	\$0.00	\$0.03	\$0.08	\$0.02	\$0.13
	Subtotal:	\$12.53	\$2.91	\$5.16	\$1.83	\$2.56	\$24.99
	Total:	\$13.95	\$3.42	\$8.08	\$2.00	\$3.09	\$30.54

Figure 4-17. Cumberland County M5.5 Earthquake Building Economic Losses



Results for M7.7 New Madrid Earthquake

The results of the M7.7 New Madrid earthquake scenario are depicted in Tables 4-30, 4-31, and Figure 4-18. Hazus-MH estimates that approximately three buildings will be at least moderately damaged. It is estimated that zero buildings would be damaged beyond repair.

The total building related losses are approximately \$0.56 million dollars. It is estimated that 4% of the losses are related to the business interruption of the region. By far, the largest loss is sustained by the residential occupancies which make up over 54% of the total loss.

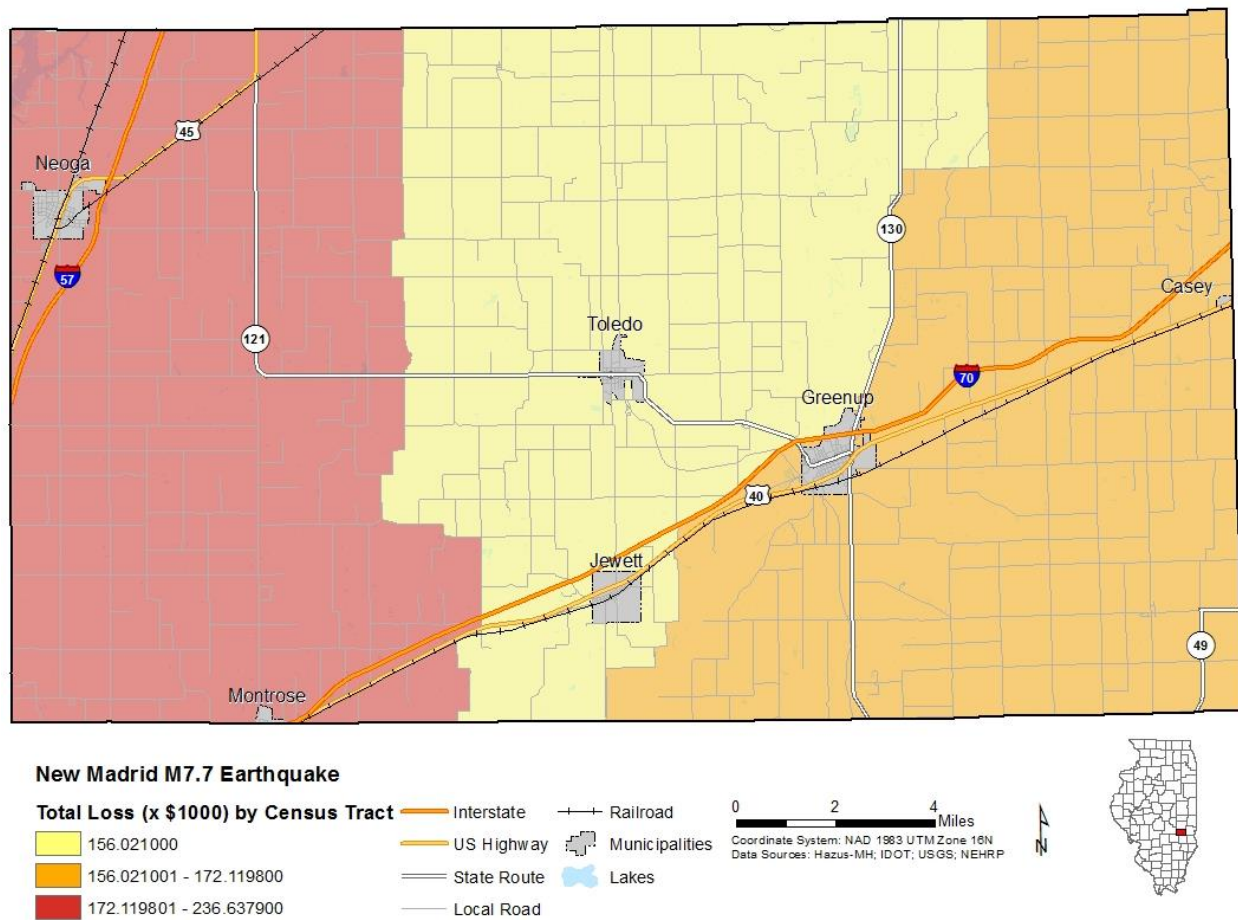
Table 4-30. New Madrid M7.7 Earthquake Damage Estimates by Building Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	130	1.94	1	2.66	0	4.43	0	4.65	0	0.00
Commercial	200	2.97	2	3.73	0	5.84	0	6.09	0	0.00
Educational	9	0.13	0	0.17	0	0.20	0	0.30	0	0.00
Government	11	0.16	0	0.17	0	0.20	0	0.27	0	0.00
Industrial	52	0.78	1	1.00	0	1.75	0	1.63	0	0.00
Other Residential	2,406	35.75	27	48.66	2	49.62	0	27.48	0	0.00
Religion	25	0.37	0	0.49	0	0.66	0	0.86	0	0.00
Single Family	3,896	57.90	24	43.11	1	37.30	0	58.72	0	0.00
Total:	6,729		55		3		0		0	

Table 4-31. New Madrid M7.7 Earthquake Estimates of Building Economic Losses (in Millions of Dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Other	Total
Income Losses	Wage	0.00	0.00	0.00	0.00	0.00	0.00
	Capital-Related	0.00	0.00	0.00	0.00	0.00	0.00
	Rental	0.00	0.00	0.00	0.00	0.00	0.00
	Relocation	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal:	0.00	0.00	0.00	0.00	0.00	0.00
Capital Stock Losses	Structural	0.02	0.00	0.00	0.00	0.01	0.03
	Non-Structural	0.14	0.04	0.05	0.03	0.05	0.31
	Content	0.08	0.01	0.04	0.02	0.04	0.19
	Inventory	0.00	0.00	0.00	0.01	0.00	0.01
	Subtotal:	0.24	0.05	0.09	0.06	0.10	0.54
	Total:	\$0.24	\$0.05	\$0.09	\$0.06	\$0.10	\$0.56

Figure 4-18. New Madrid M7.7 Earthquake Building Economic Losses



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

The results of the Wabash Valley M7.1 earthquake scenario are depicted in Tables 4-32, 4-33, and Figure 4-19. Hazus-MH estimates that approximately 145 buildings will be at least moderately damaged. This is over 2% of the buildings in the county.

The building related losses are approximately \$19 million dollars. It is estimated that 4% of the losses are related to the business interruption of the region. By far, the largest loss is sustained by the residential occupancies which make up over 53% of the total loss.

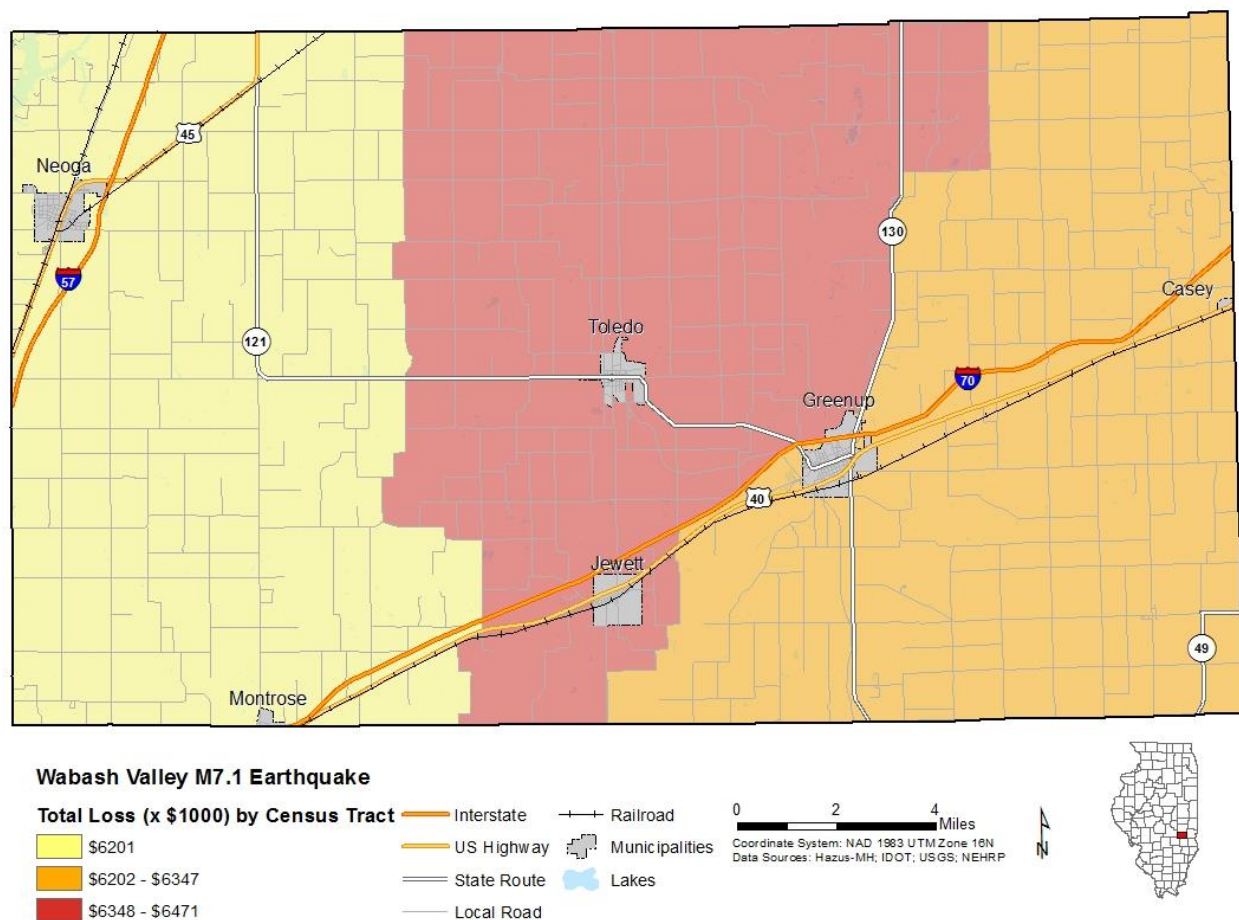
Table 4-32. Wabash Valley 7.1 Magnitude Earthquake Damage Estimates by Building Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	106	1.87	20	2.09	6	3.95	0	5.77	0	2.60
Commercial	165	2.92	29	2.99	7	5.00	0	7.22	0	3.98
Educational	7	0.13	1	0.14	0	0.21	0	0.27	0	0.31
Government	9	0.16	1	0.14	0	0.21	0	0.27	0	0.26
Industrial	43	0.76	8	0.78	2	1.46	0	2.12	0	0.80
Other Residential	1,967	34.72	399	40.81	68	47.67	1	34.27	0	29.06
Religion	20	0.35	4	0.41	1	0.61	0	0.86	0	0.74
Single Family	3,348	59.08	514	52.64	58	40.90	2	49.22	0	62.26
Total:	5,665		976		142		3		0	

Table 4-33. Wabash 7.1 Magnitude Earthquake Estimates of Building Economic Losses (in Millions of Dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Other	Total
Income Losses	Wage	\$0.00	\$0.01	\$0.08	\$0.01	\$0.02	\$0.12
	Capital-Related	\$0.00	\$0.00	\$0.06	\$0.01	\$0.01	\$0.08
	Rental	\$0.07	\$0.03	\$0.06	\$0.00	\$0.01	\$0.17
	Relocation	\$0.22	\$0.06	\$0.08	\$0.01	\$0.07	\$0.44
	Subtotal:	\$0.29	\$0.10	\$0.28	\$0.03	\$0.11	\$0.81
Capital Stock Losses	Structural	\$0.51	\$0.09	\$0.11	\$0.04	\$0.19	\$0.94
	Non-Structural	\$5.71	\$1.05	\$1.23	\$0.73	\$1.17	\$9.89
	Content	\$3.86	\$0.46	\$1.06	\$0.61	\$1.09	\$7.08
	Inventory	\$0.00	\$0.00	\$0.04	\$0.16	\$0.10	\$0.30
	Subtotal:	\$10.08	\$1.60	\$2.44	\$1.54	\$2.55	\$18.21
	Total:	\$10.37	\$1.70	\$2.72	\$1.57	\$2.66	\$19.02

Figure 4-19. Wabash Valley M7.1 Scenario Building Economic Losses



Vulnerability to Future Assets/Infrastructure for Earthquake Hazard

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

Suggestions for Community Development Trends

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

4.3.8 Hazardous Material Storage and Transportation Hazard

Hazard Definition

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

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

Previous Occurrences of Hazardous Materials Storage and Transportation Hazard

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

The Illinois Emergency Management Agency maintains a comprehensive Hazardous Materials Incident Report Database for the State of Illinois. The database contains information on all Hazardous Materials Reports since 1987 but does not include an assessment of economic and property losses in terms of dollars of damage. The database reported 163 incidents in Cumberland County as of February 2015. The most recent event occurred in March 2012 in Greenup at Southern Central FS, Inc. A tank containing Anhydrous Ammonia gas ruptured releasing 2000-1000 gallon into the atmosphere.

Industries regulated by The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) are required to report incidents which meet or exceed established reporting criteria. The data for reported incidents are available on the PHMSA website via the U.S. Department of Transportation Hazmat Intelligence Portal. The database reported 14,695 incidents for the State of Illinois. As of February 2015, no incidents were reported for Cumberland County.

Geographic Location of Hazardous Materials Storage and Transportation Hazard

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

Hazard Extent of Hazardous Materials Storage and Transportation Hazard

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

Risk Identification of Hazardous Materials Storage and Transportation Hazard

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

<u>Risk Priority Index</u>				
Probability	x	Magnitude	=	RPI
3	x	2	=	6

Vulnerability Analysis for Hazardous Materials Storage and Transportation Hazard

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

Critical Facilities

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

Building Inventory

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

Infrastructure

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

ALOHA Hazardous Chemical Release Analysis

The U.S. Environmental Protection Agency's ALOHA (Areal Locations of Hazardous Atmospheres) model was used to assess: ammonia release at the Neoga Crop Production Plant located north of Neoga; ammonia release at the Helena Plant located north of Greenup; and propane spill at the junction of I-70 and IL-130. ALOHA is a computer program designed for response to chemical accidents, as well as emergency planning and training. The Cumberland County planning team chose the Crop Production Plant and Helena Plant scenarios because bulk chemicals are stored at these facilities within a relatively densely populated area;

the planning team chose the I-70 and IL-130 (propane) scenario because of significant rail and truck traffic along major transportation routes within a relatively densely populated area.

Ammonia is a clear colorless gas with a strong odor. Ammonia is shipped as a liquid under its own vapor pressure. The density of liquid ammonia is 6 lb/gal. Contact with the unconfined liquid can cause frostbite. Gas is generally regarded as nonflammable but does burn within certain vapor concentration limits and with strong ignition. Fire hazard increases in the presence of oil or other combustible materials. Although gas is lighter than air, vapors from a leak initially hug the ground. Prolonged exposure of containers to fire or heat may cause violent rupturing and rocketing. Long-term inhalation of low concentrations of the vapors or short-term inhalation of high concentrations have adverse health effects. Used as a fertilizer, as a refrigerant, and in the manufacture of other chemicals (NOAA Reactivity, 2007).

Propane is a colorless gas with a faint petroleum-like odor. It is shipped as a liquefied gas under its vapor pressure. It may be stented for transportation. Contact with the unconfined liquid can cause frostbite by evaporative cooling. Propane is easily ignited. The vapors are heavier than air and a flame can flash back to the source of leak very easily. The leak may be either a liquid or vapor leak. The vapors can asphyxiate by the displacement of air. Under prolonged exposure to fire or heat the containers may rupture violently and rocket.

For the Neoga Crop Production Plant (ammonia) scenario SIU assumed average atmospheric and climatic conditions for the fall season with a breeze from the northeast. For the Greenup Helena Plant (ammonia) and I-70 and IL-130 (propane) scenarios, SIU assumed average atmospheric and climatic conditions for the spring season with a breeze from the north-east. SIU considered seasonal conditions among analyses upon the request of the planning team. Figures 4-20 depicts the plume origins of the modeled hazardous chemical releases in Cumberland County.

Figure 4-20. ALOHA Modeled Hazardous Chemical Plume Origins in Cumberland County



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

AEGL-1: the airborne concentration, expressed as parts per million or milligrams per cubic meter (ppm or mg/m³) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.

AEGL-2: the airborne concentration (expressed as ppm or mg/m³) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.

AEGL-3: the airborne concentration (expressed as ppm or mg/m³) of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

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

Analysis Parameters of the Neoga Crop Production Plant Ammonia Scenario

The ALOHA atmospheric modeling parameters for the ammonia release, depicted in Figure 4-21, were based upon a northeasterly speed of 7 miles per hour. The temperature was 55°F with 75% humidity and a cloud cover of five-tenths skies. SIU used average weather conditions reported by NOAA for wind direction, wind speed, and temperature to simulate fall conditions. The source of the chemical spill is a horizontal, cylindrical-shaped tank. The diameter of the tank was set to 8 feet and the length set to 33 feet (12,408 gallons). At the time of its release, it was estimated that the tank was 75% full. The ammonia in this tank is in its liquid state. This release was based on a leak from a 2.5-inch-diameter hole, 12 inches above the bottom of the tank. Figure 4-21 shows the plume modeling parameters in greater detail.

Figure 4-21. ALOHA Modeling Parameters for the Neoga Crop Production Plant Ammonia Release

SITE DATA:
 Location: NEOGA CROP PRODUCTION PLANT, ILLINOIS
 Building Air Exchanges Per Hour: 0.49 (sheltered single storied)
 Time: May 8, 2014 1033 hours CDT (using computer's clock)

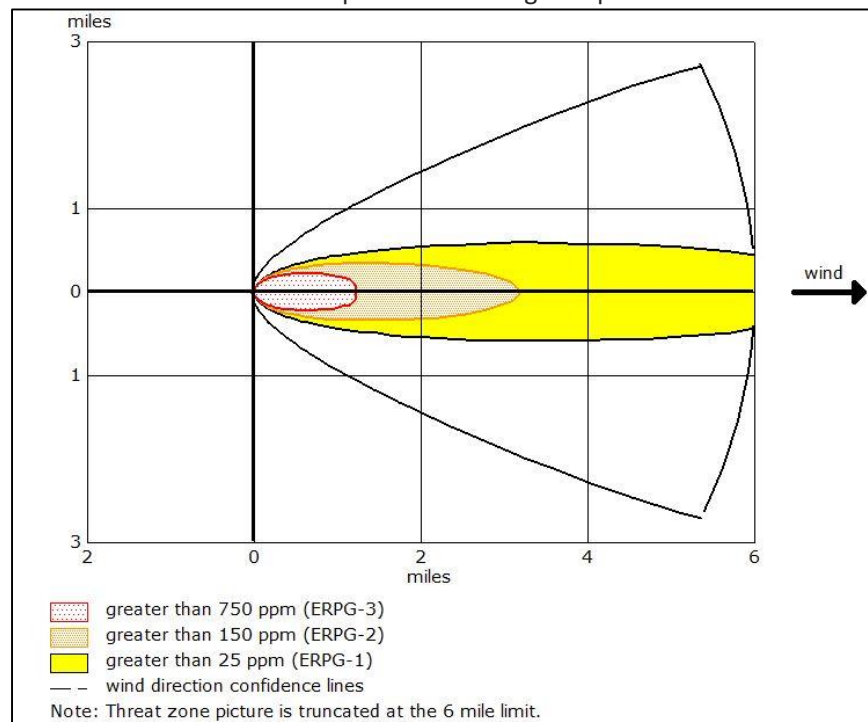
CHEMICAL DATA:
 Chemical Name: AMMONIA Molecular Weight: 17.03 g/mol
 AEGL-1 (60 min): 30 ppm AEGL-2 (60 min): 160 ppm AEGL-3 (60 min): 1100 ppm
 IDLH: 300 ppm LEL: 150000 ppm UEL: 280000 ppm
 Ambient Boiling Point: -29.0° F
 Vapor Pressure at Ambient Temperature: greater than 1 atm
 Ambient Saturation Concentration: 1,000,000 ppm or 100.0%

ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)
 Wind: 7 miles/hour from NE at 10 meters
 Ground Roughness: open country Cloud Cover: 5 tenths
 Air Temperature: 55° F Stability Class: C
 No Inversion Height Relative Humidity: 75%

SOURCE STRENGTH:
 Leak from hole in horizontal cylindrical tank
 Flammable chemical escaping from tank (not burning)
 Tank Diameter: 8 feet Tank Length: 33 feet
 Tank Volume: 12,400 gallons
 Tank contains liquid Internal Temperature: 55° F
 Chemical Mass in Tank: 24.1 tons Tank is 75% full
 Circular Opening Diameter: 2.5 inches
 Opening is 12 inches from tank bottom
 Release Duration: 11 minutes
 Max Average Sustained Release Rate: 6,820 pounds/min
 (averaged over a minute or more)
 Total Amount Released: 44,665 pounds
 Note: The chemical escaped as a mixture of gas and aerosol (two phase flow).

Using the parameters in Figure 4-21, approximately 44,665 pounds of material would be released. The image in Figure 4-22 depicts the plume footprint generated by ALOHA. As the substance moves away from the source, the level of substance concentration decreases. Each color-coded area depicts a level of concentration measured in parts per million.

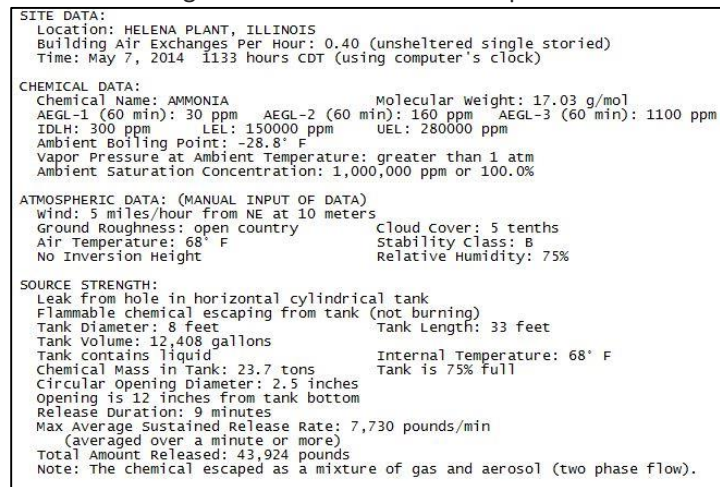
Figure 4-22. ALOHA Generate Plume Footprint of the Neoga Crop Production Plant Ammonia Release



Analysis Parameters of the Greenup Helena Plant Ammonia Scenario

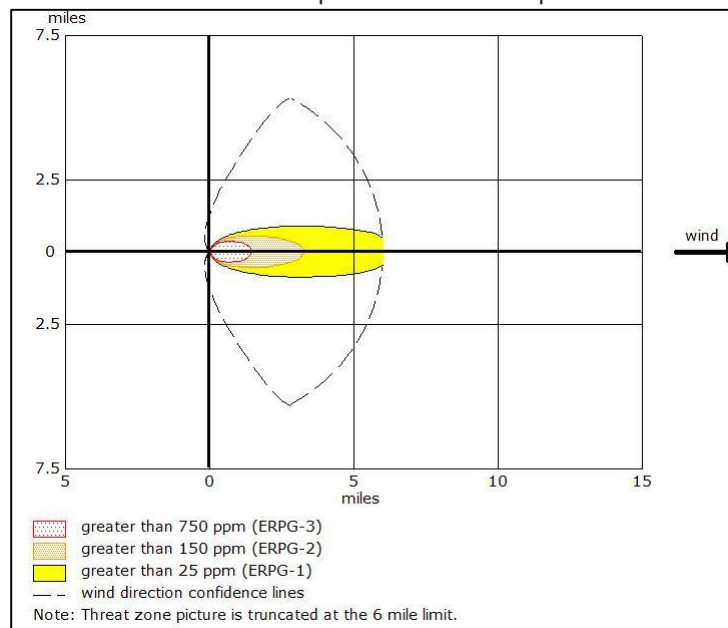
The ALOHA atmospheric modeling parameters for the ammonia release, depicted in Figure 4-23, were based upon a northeasterly speed of 5 miles per hour. The temperature was 68°F with 75% humidity and a cloud cover of five-tenths skies. SIU used average weather conditions reported by NOAA for wind direction, wind speed, and temperature to simulate spring conditions. The source of the chemical spill is a horizontal, cylindrical-shaped tank. The diameter of the tank was set to 8 feet and the length set to 33 feet (12,408 gallons). At the time of its release, it was estimated that the tank was 75% full. The ammonia in this tank is in its liquid state. This release was based on a leak from a 2.5-inch-diameter hole, 12 inches above the bottom of the tank. Figure 4-23 shows the plume modeling parameters in greater detail.

Figure 4-23. ALOHA Modeling Parameters for the Greenup Helena Plan Ammonia Release



Using the parameters in Figure 4-23, approximately 43,924 pounds of material would be released. The image in Figure 4-24 depicts the plume footprint generated by ALOHA. As the substance moves away from the source, the level of substance concentration decreases. Each color-coded area depicts a level of concentration measured in parts per million.

Figure 4-24. ALOHA Generate Plume Footprint of the Greenup Helena Plan Ammonia Release



Analysis Parameters of the I-70 and IL-130 Propane Scenario

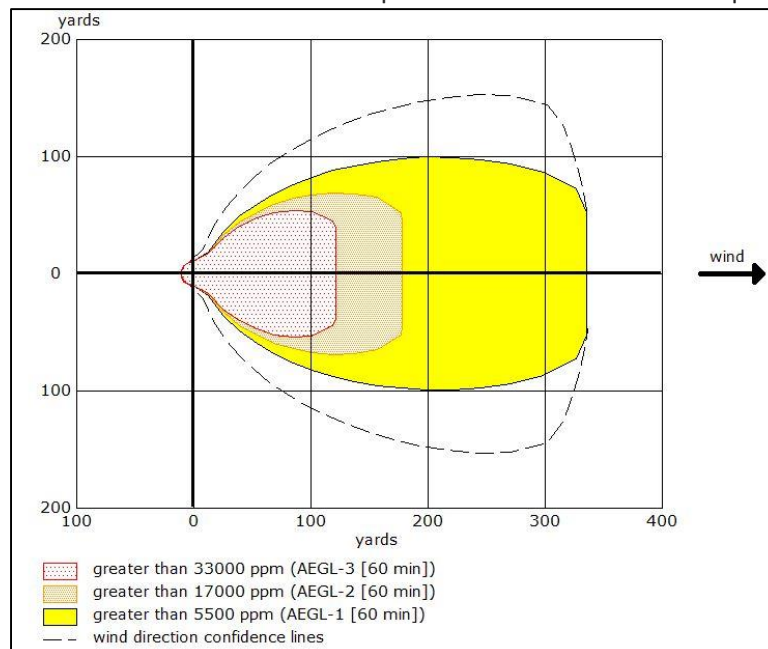
The ALOHA atmospheric modeling parameters for the propane release, depicted in Figure 4-25, were based upon a north-northeasterly speed of 10 miles per hour. The temperature was 56°F with 75% humidity and a cloud cover of five-tenths skies. SIU used average weather conditions reported by NOAA for wind direction, wind speed, and temperature to simulate spring conditions. The source of the chemical spill is a horizontal, cylindrical-shaped tank. The diameter of the tank was set to 8 feet and the length set to 33 feet (12,408 gallons). At the time of its release, it was estimated that the tank was 75% full. The propane in this tank is in its liquid state. Figure 4-25 shows the plume modeling parameters in greater detail.

Figure 4-25. ALOHA Modeling Parameters for the Propane Release at I-70 and IL-130

SITE DATA:	
Location: I-70 & IL-130, ILLINOIS	
Building Air Exchanges Per Hour: 0.64 (sheltered single storied)	
Time: May 8, 2014 0945 hours CDT (using computer's clock)	
CHEMICAL DATA:	
Chemical Name: PROPANE	Molecular Weight: 44.10 g/mol
AEGL-1 (60 min): 5500 ppm	AEGL-2 (60 min): 17000 ppm
AEGL-3 (60 min): 33000 ppm	IDLH: 2100 ppm
LEL: 21000 ppm	UEL: 95000 ppm
Ambient Boiling Point: -44.6° F	
Vapor Pressure at Ambient Temperature: greater than 1 atm	
Ambient Saturation Concentration: 1,000,000 ppm or 100.0%	
ATMOSPHERIC DATA: (MANUAL INPUT OF DATA)	
Wind: 10 miles/hour from NNE at 10 meters	Cloud Cover: 5 tenths
Ground Roughness: open country	Stability Class: C
Air Temperature: 54° F	Relative Humidity: 75%
No Inversion Height	
SOURCE STRENGTH:	
Leak from hole in horizontal cylindrical tank	
Flammable chemical escaping from tank (not burning)	
Tank Diameter: 8 feet	Tank Length: 33 feet
Tank volume: 12,408 gallons	
Tank contains liquid	Internal Temperature: 54° F
Chemical Mass in Tank: 20.0 tons	Tank is 75% full
Circular opening diameter: 2.5 inches	
opening is 12 inches from tank bottom	
Release Duration: 12 minutes	
Max Average Sustained Release Rate: 6,180 pounds/min	
(averaged over a minute or more)	
Total Amount Released: 39,733 pounds	
Note: The chemical escaped as a mixture of gas and aerosol (two phase flow).	

Using the parameters in Figure 4-25, approximately 39,733 pounds of material would be released. The image in Figure 4-26 depicts the plume footprint generated by ALOHA. As the substance moves away from the source, the level of substance concentration decreases. Each color-coded area depicts a level of concentration measured in parts per million.

Figure 4-26. ALOHA Generate Plume Footprint of the I-70 and IL-130 Propane Release



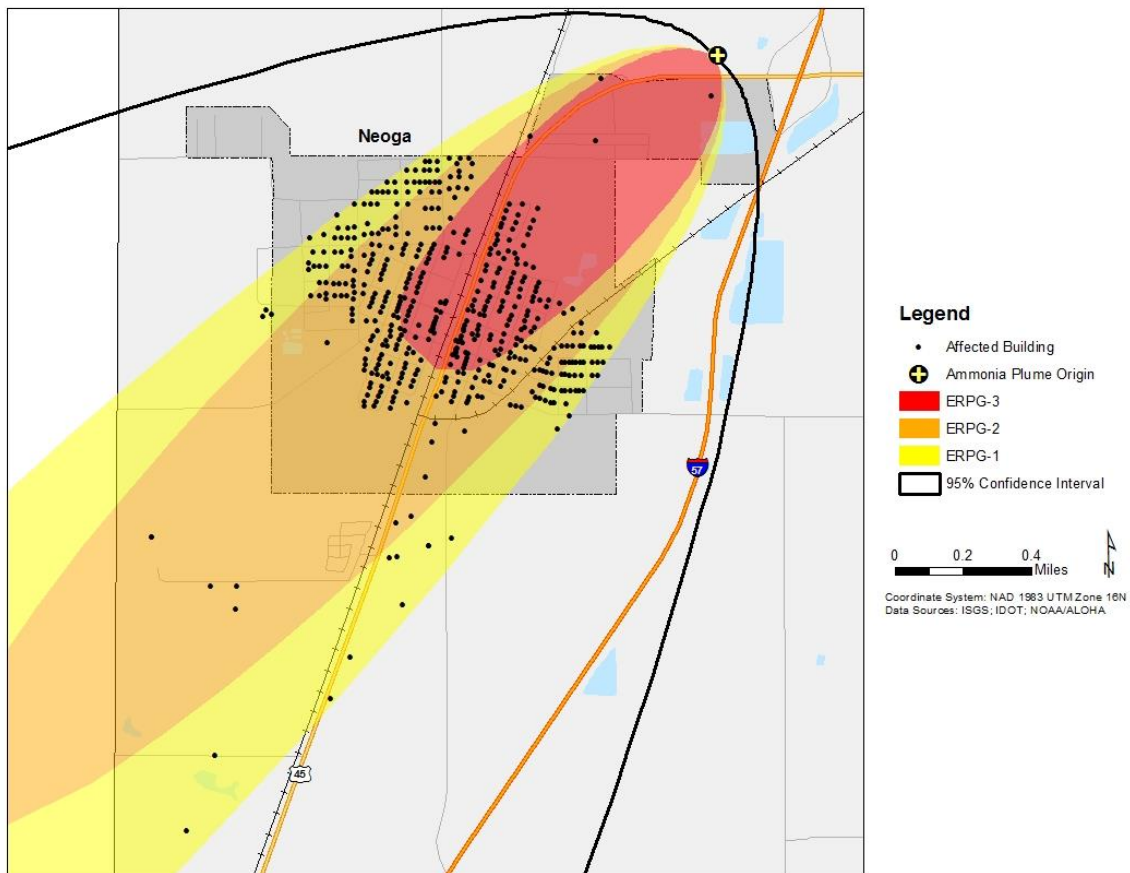
Results for the Neoga Crop Production Plant Ammonia Scenario

An estimate of property exposed to the ammonia spill was calculated by using the building inventory and intersecting these data with each of the AEGL levels. The Cumberland County assessment and parcel data was utilized for this analysis. There are 493 buildings within the ammonia plume. It should be noted that the results should be interpreted as potential degrees of loss rather than exact number of buildings damaged to the ammonia release. Table 4-34 lists the total amount of building exposure to each AEGL zone. Figure 4-27 depicts the ammonia spill footprint and location of the buildings exposed. The GIS overlay analysis estimates that the full replacement cost of the buildings exposed to the ammonia plume is approximately \$40 million.

Table 4-34. Estimated Building Exposure as a Result of the Crop Production Plant Ammonia Release

Occupancy	Building Exposure			Number of Buildings		
	AEGL 1	AEGL 2	AEGL 3	AEGL 1	AEGL 2	AEGL3
Residential	97	208	121	\$6,939,154	\$12,040,397	\$7,853,464
Commercial	1	17	41	\$127,999	\$7,108,346	\$3,601,706
Industrial	0	1	1	\$0	\$1,071,407	\$764,765
Agricultural	4	2	0	\$67,069	\$29,096	\$0
Total:	102	228	163	\$7,134,222	\$20,249,246	\$12,219,934

Figure 4-27. ALOHA Plume Footprint and Buildings Exposed to the Crop Production Plant Ammonia Release

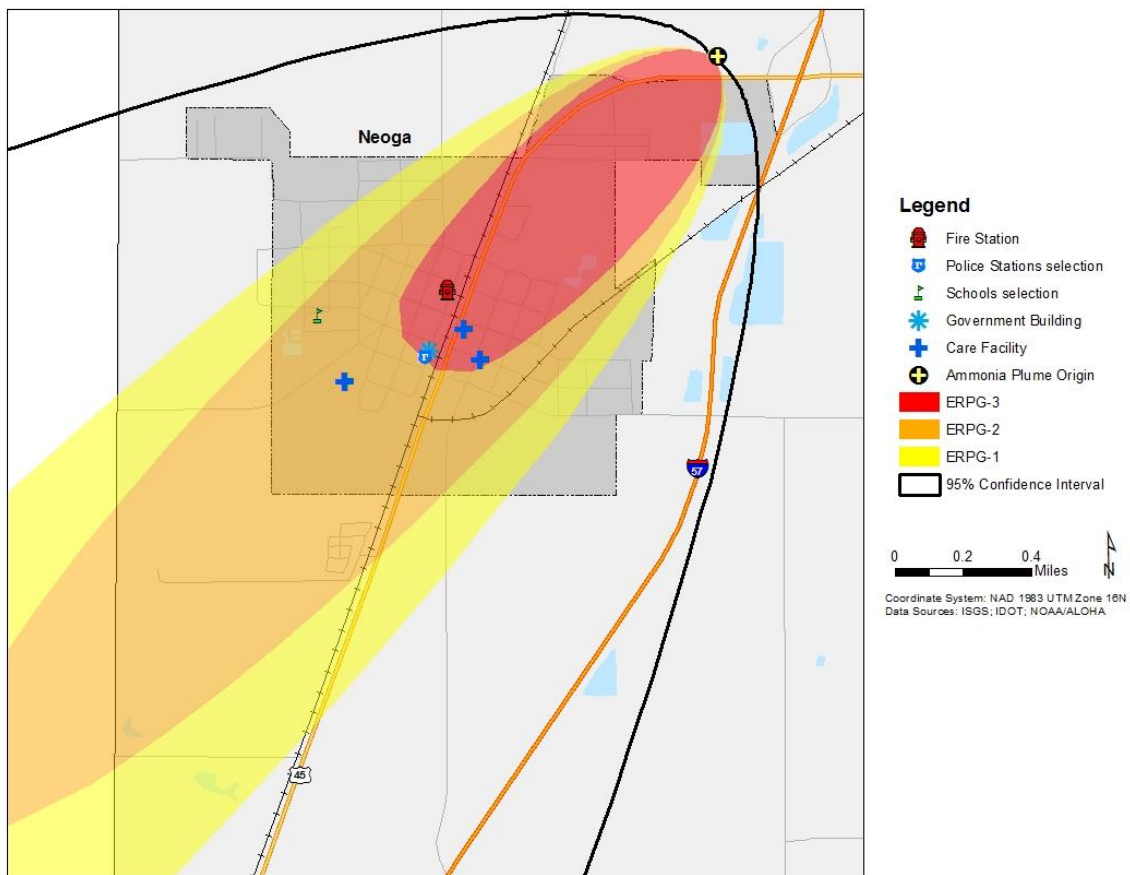


There are seven essential facilities within the limits of the Neoga Crop Production Plant ammonia scenario. Table 4-35 and Figure 4-28 identifies the affected facilities.

Table 4-35. Essential Facilities within the Neoga Crop Production Plant Ammonia Plume Footprint

Essential Facility	Facility Name
Fire / EOC	Neoga Fire Department
Police	Neoga Police Department
School	Neoga Elementary School
Government / EOC	Neoga Village Hall
Medical	Heartland Christian Village
	Neoga Clinic
	Marshall Clinic

Figure 4-28. Map of Essential Facilities within the Neoga Crop Production Plant Ammonia Plume Footprint



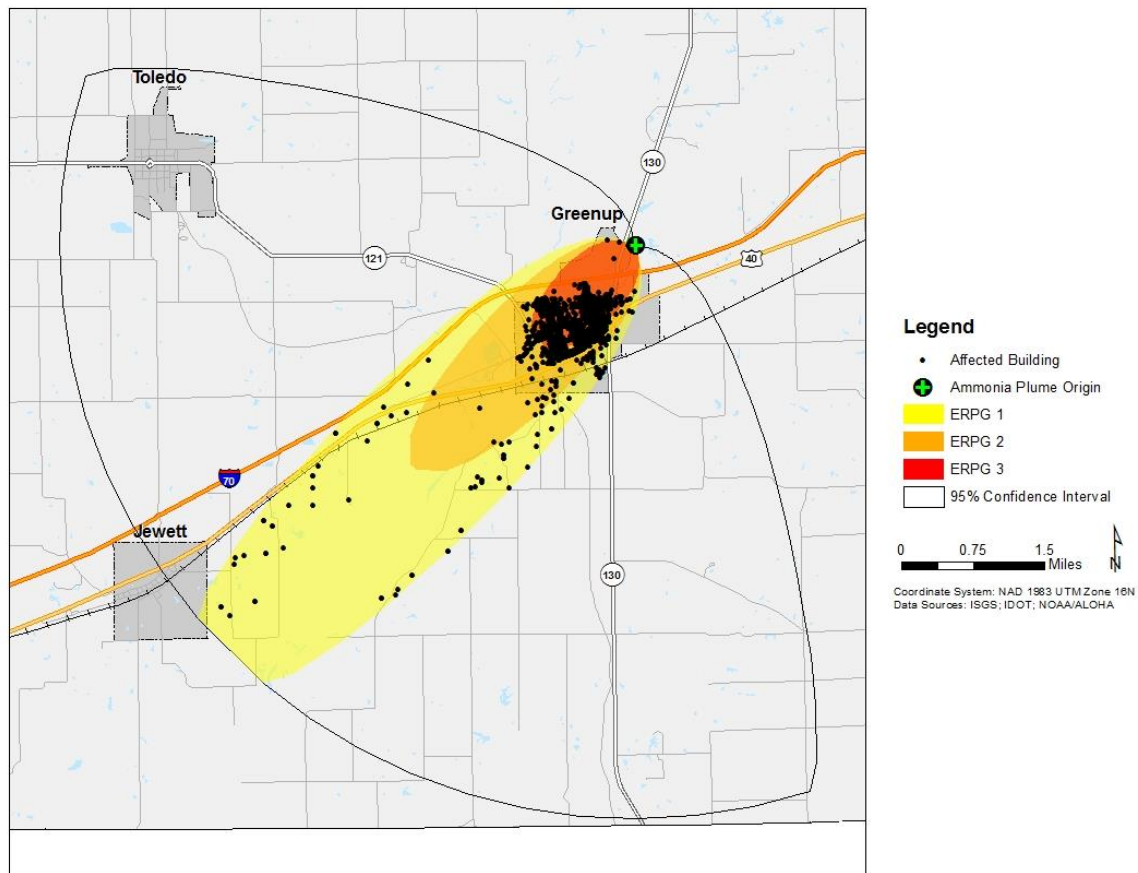
Results for the Greenup Helena Plant Ammonia Scenario

An estimate of property exposed to the ammonia spill was calculated by using the building inventory and intersecting these data with each of the AEGL levels. The Cumberland County assessment and parcel data was utilized for this analysis. There are 775 buildings within the ammonia plume. It should be noted that the results should be interpreted as potential degrees of loss rather than exact number of buildings damaged to the ammonia release. Table 4-36 lists the total amount of building exposure to each AEGL zone. Figure 4-29 depicts the ammonia spill footprint and location of the buildings exposed. The GIS overlay analysis estimates that the full replacement cost of the buildings exposed to the ammonia plume is approximately \$46 million.

Table 4-36. Estimated Building Exposure as a Result of the Greenup Helena Plant Ammonia Release

Occupancy	Building Exposure			Number of Buildings		
	AEGL 1	AEGL 2	AEGL 3	AEGL 1	AEGL 2	AEGL3
Residential	64	184	407	\$5,604,470	\$9,537,917	\$20,824,716
Commercial	1	15	82	\$104,332	\$2,151,735	\$8,365,165
Industrial	0	0	0	\$0	\$0	\$0
Agricultural	18	4	0	\$300,696	\$5,866	\$0
Total:	83	203	489	\$6,009,498	\$11,695,518	\$29,189,881

Figure 4-29. ALOHA Plume Footprint and Buildings Exposed to the Greenup Helena Plant Ammonia Release

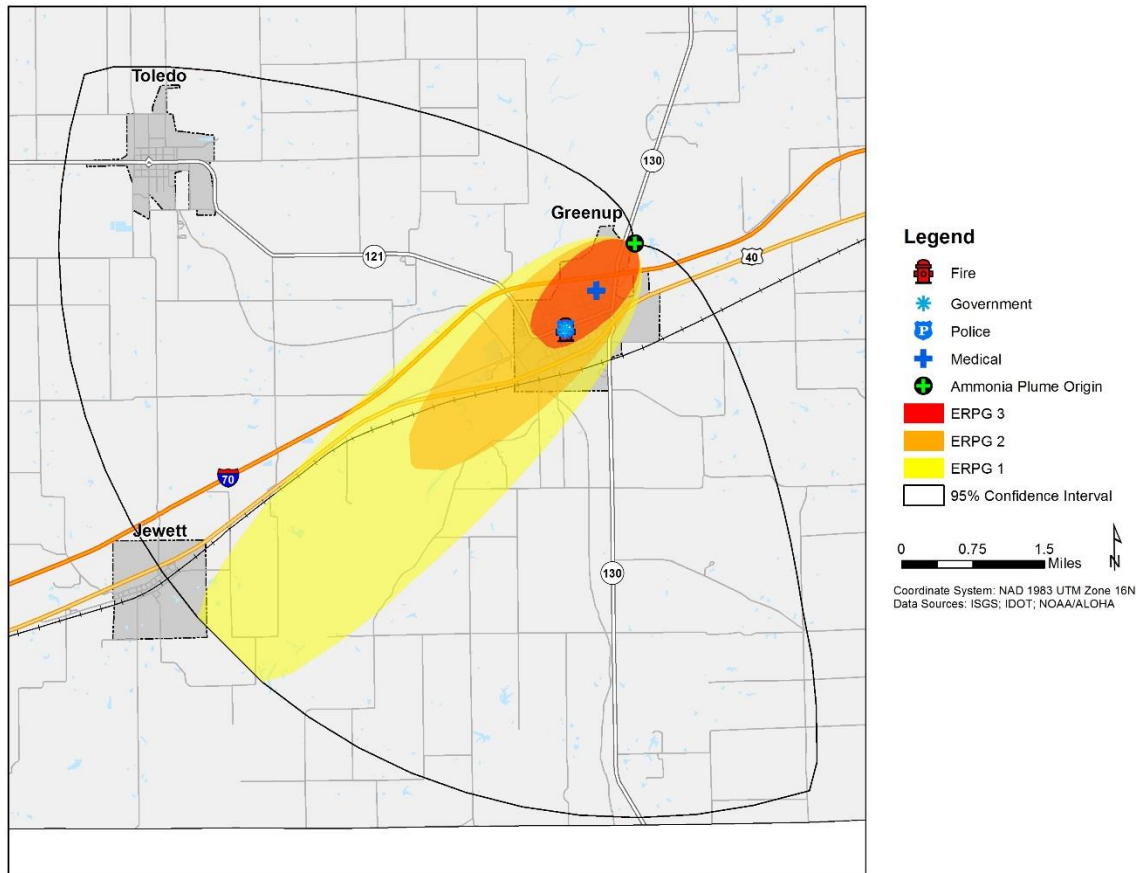


There are four essential facilities within the limits of the Greenup Helena Plant ammonia scenario. Table 4-37 and Figure 4-30 identifies the affected facilities.

Table 4-37. Essential Facilities within the Greenup Helena Plant Ammonia Plume Footprint

Essential Facility	Facility Name
Fire	Greenup Fire Department
Police	Greenup Police Department
Government	Greenup Village Hall
Medical	Cumberland Rehab and Health Care Center

Figure 4-30. Map of Essential Facilities within the Greenup Helena Plant Ammonia Plume Footprint



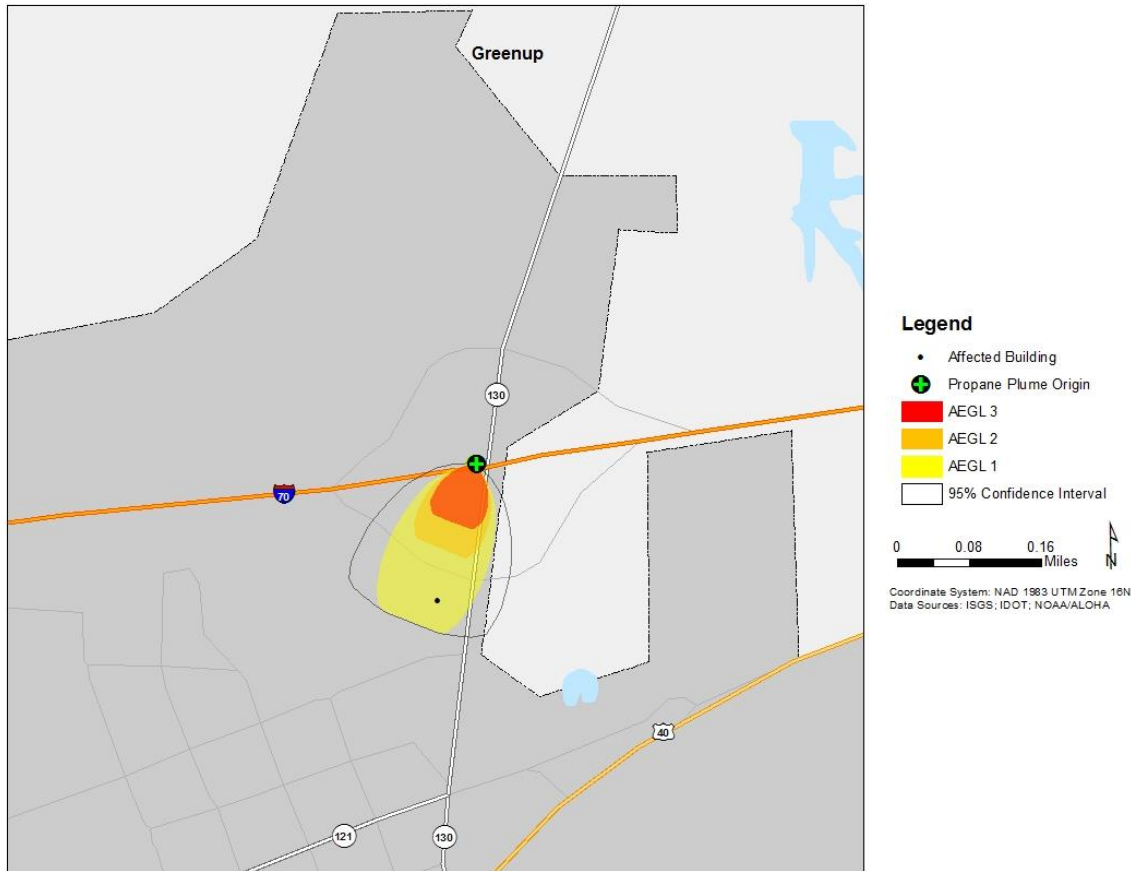
Results for the I-70 and IL-130 Propane Scenario

An estimate of property exposed to the propane spill was calculated by using the building inventory and intersecting these data with each of the AEGL levels. The Cumberland County assessment and parcel data was utilized for this analysis. There is one building within the propane plume. It should be noted that the results should be interpreted as potential degrees of loss rather than exact number of buildings damaged to the propane release. Table 4-38 lists the total amount of building exposure to each AEGL zone. Figure 4-31 depicts the propane spill footprint and location of the buildings exposed. The GIS overlay analysis estimates that the full replacement cost of the buildings exposed to the propane plume is approximately \$260,000. There are no essential facilities within the limits of the I-70 and IL-130 propane scenario.

Table 4-38. Estimated Building Exposure as a Result of the I-70 and IL-130 Propane Release

Occupancy	Building Exposure			Number of Buildings		
	AEGL 1	AEGL 2	AEGL 3	AEGL 1	AEGL 2	AEGL3
Residential	0	0	0	\$0	\$0	\$0
Commercial	1	0	0	\$257,227	\$0	\$0
Industrial	0	0	0	\$0	\$0	\$0
Agricultural	0	0	0	\$0	\$0	\$0
Total:	1	0	0	\$257,227	\$0	\$0

Figure 4-31. ALOHA Plume Footprint and Buildings Exposed to the I-70 and IL-130 Propane Release



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

Cumberland County is expected to see future economic expansion within the limits of Neoga, Greenup and Toledo. These areas are particularly vulnerable to chemical releases because of transportation of hazardous materials along Interstates 70 and 57.

Suggestion for Community Development Trends

Because the hazardous material hazard events may occur anywhere within the county, future development is susceptible to the hazard. The major transportation routes and the industries located in Cumberland County pose a threat of dangerous chemicals and hazardous materials release. Regional particularly vulnerable areas are within the incorporated limits of Neoga, Greenup and Toledo within close proximity to transportation corridors such as I-57 and I-70.

4.3.9 Wildfire Hazard

Hazard Definition

A wildfire is any fire involving vegetative fuels that occurs in the wildland or urban-wildland interface areas. Wildfires are characterized in terms of the cause of ignition, their physical properties such as speed of propagation, the combustible material present, and the effect of weather on the fire. A wildfire differs from other fires by its extensive size, the speed at which it can spread out from its original source, its potential to change direction unexpectedly, and its ability to jump gaps such as roads, rivers and fire breaks. The spread of wildfires varies based on the flammable material present and can be generally characterized by their fuels as follows:

- Ground - subterranean roots, duff and other buried organic matter
- Crawling or surface - low-lying vegetation such as leaf and timber litter, debris, grass, and low-lying shrubbery
- Ladder –low-level vegetation and tree canopies, such as small trees, downed logs, and vines
- Crown, canopy, or aerial –suspended material at the canopy level, such as tall trees, vines, and mosses

According to the United State Department of Agriculture over the last 10 years, nationwide there have been an average of 75,000 fires per year and an average of 7.2 million acres burned. While sometimes caused by lightning, nine out of ten wildfires are human-caused. The Forest Service and its partners suppress more than 98 percent of wildfires on initial attack, keeping unwanted fires small and costs down.

In the Midwest, particularly in Illinois, the tallgrass prairie ecosystems depends on periodic fires to maintain the habitats which make up the ecosystem. Fire in tall grass prairies acts to burn aboveground biomass, killing woody plants, allowing sunlight to reach the soil, and changing the soil pH and nutrient availability. Growth of native species such as big bluestem, little bluestem, and Indian grass all increase significantly following a fire. When fire is removed from a prairie ecosystem, woody shrubs and trees eventually replace grasses and forbs. Controlled burns/prescribed fires is one of the most effective tools in preventing the outbreak and spread of wildfires and doing so safely reduces the amount of fuel for fires.

The Shawnee National Forest, located in the Ozarks and Shawnee Hills of Southern Illinois consists of approximately 280,000 acres of federally managed lands. The National Forest spans nine counties: Pope, Jackson Union, Hardin, Alexander, Saline, Gallatin, Johnson, and Massac. Unlike many of the western national forests, the Shawnee National Forest does not have large contiguous blocks of forested lands. Much of the Shawnee land base consists of small tracts of land intermingled with state and privately owned lands. Wildland fires often burn on multiple ownerships and in multiple jurisdictions with Forest firefighters working alongside many of the local fire departments in southern Illinois when fighting wildfires. Wildland fires typically occur in the fall, winter and spring months during “leaf-off” but can occur anytime during periods of drought. The Forest Service conducts prescribed burns on 5,000 to 10,000 acres of Shawnee National Forest annually to restore and improve the quality of forested and non-forested habitats by maintaining and/or increasing biodiversity and maintain the oak-dominated ecosystem.

Previous Occurrences of Wildfire

Federal Fire Occurrence Website is an official Department of the Interior Website provided by the United States Geological Survey and maintains over 677,000 fire records collected by Federal land management agencies for wildfires that occurred from 1980 to 2013 in the United States.

The Federal Fire Occurrence Website database reported 965 wildland fires in Illinois since 1980. The Federal Fire Occurrence Website reported zero wildland fires for Cumberland County. Table 4-39 identifies recorded wildfires that claimed over 400 acres in the State of Illinois. Additional details of individual hazard events are on the Federal Fire Occurrence website.

Table 4-39. Recorded Wildland Fires that claimed over 400 acres in the State of Illinois

Location (County)	Start Date	Control Date	Out Date	Cause	Total Number of Acres Burned at Time of Fire Control
Mercer	3/23/2003	3/25/2003	N/A	Human	1,200
Mercer	3/9/2000	3/9/2000	N/A	Human	832
Mercer	4/12/2003	4/15/2003	N/A	Human	820
Mercer	3/26/2003	3/27/2003	N/A	Human	630
Jackson	11/8/2010	11/8/2010	11/25/2010	Human	409

Geographic Location for Wildfire

Wildland Fires are limited to forested areas and tallgrass prairie ecosystems located in the county.

Hazard Extent for Wildfire

The extent of the fire hazard varies both in terms of the extent of the fire and the type of material being ignited.

Risk Identification for Wildfire

Based on historical information of Cumberland County, the occurrence of future wildfire that is a hazard to homes and infrastructures is low. According to the Cumberland County Planning Team's assessment, wildfire is ranked as the number eight hazard.

<u>Risk Priority Index</u>				
Probability	x	Magnitude	=	RPI
3	x	1	=	3

Vulnerability Analysis for Wildfire

A wildfire is any fire involving vegetative fuels that occurs in the wildland or urban-wildland interface areas. This study excludes structure fires, vehicle fires, trash or rubbish fires, and outside gas or vapor combustion. Although wildland fires have ability to jump gaps such as roads, rivers and fire breaks this plan only considers the wildland-urban interface as vulnerable. To accommodate this risk, only buildings located within the wildland-urban interface portion of the county are considered as vulnerable. Tables 4-7 and 4-8 display the existing buildings and critical infrastructure in Cumberland County.

Critical Facilities

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

Building Inventory

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

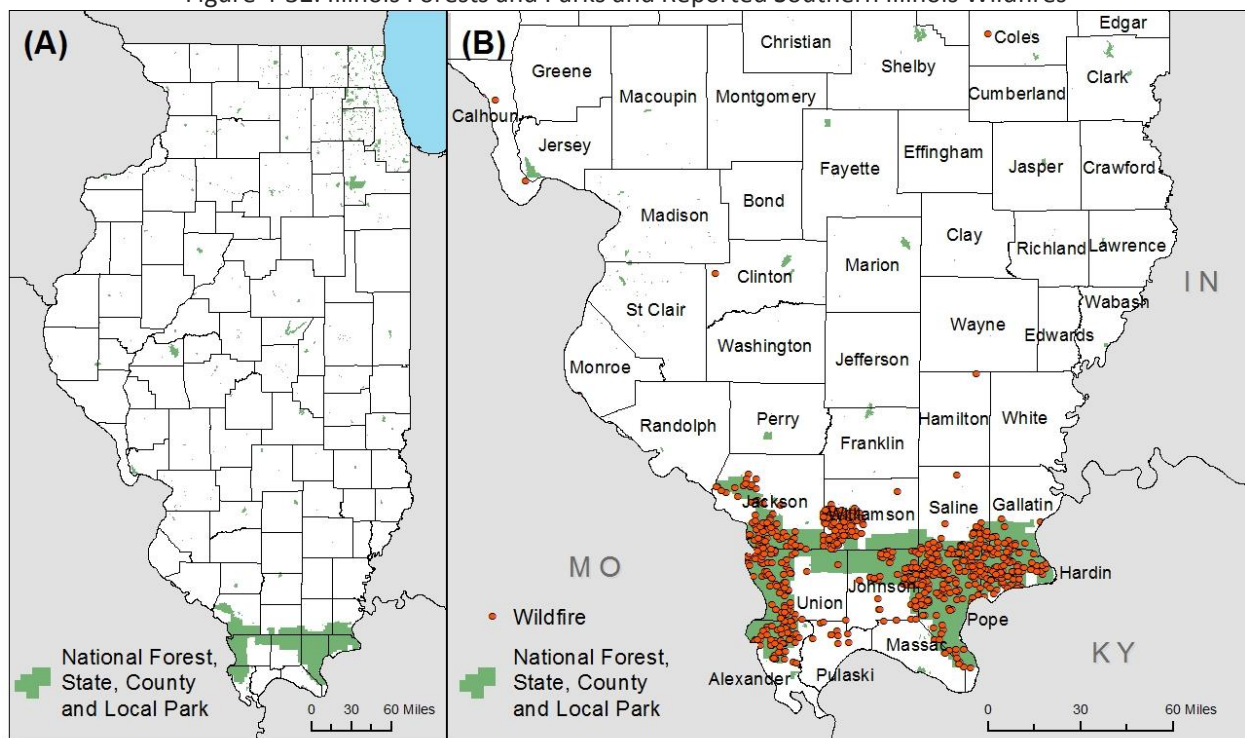
Infrastructure

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

GIS-based Analysis of Wildfire

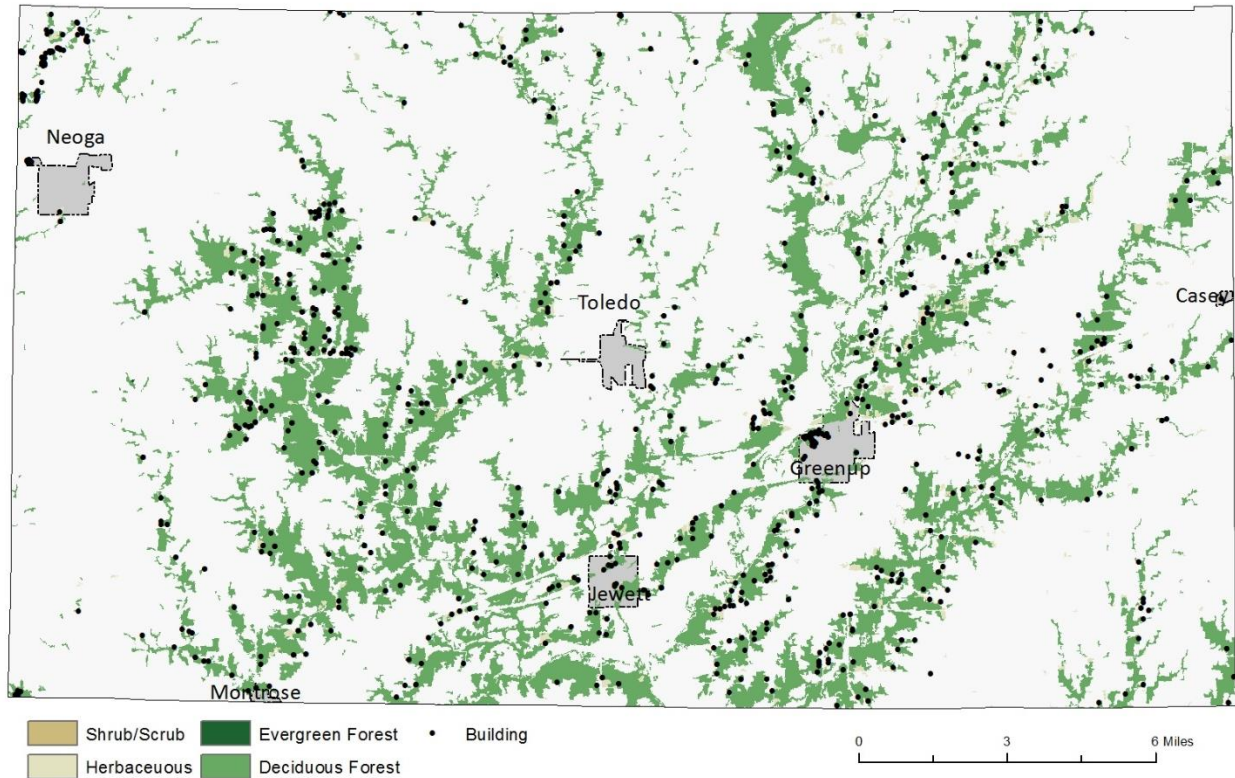
This section provides an overview of the wildfire hazards in Illinois in general and a discussion of the potential subsidence risk for Cumberland County. Wildland fires in Illinois occur in forested or prairieland areas and are associated with either human or natural causes (such as lightening). Figure 4-32(A) displays the distribution of National Forests, State, County and Local parks within Illinois. Southern Illinois is home to the 280,000 acres of federally managed Shawnee National Forest (see Figure 4-32(B)). Between 1980 and 2013, Department of the Interior revealed the occurrence of 856 wildland fires within and near the Shawnee National Forest. These fires range in size from >1 to 409 acres. However, most (75%) of these fires are less than 10 acres in size. These fires generally occur near roads, railroad, campgrounds, and the urban wildland interface.

Figure 4-32. Illinois Forests and Parks and Reported Southern Illinois Wildfires



The wildland-urban interface areas of Cumberland County are particularly vulnerable to wildland fires. Areas at risk for wildfire in Cumberland County can be determined from detailed mapping of land cover (Figure 4-33). Analysis of the 2011 National Land Cover Database revealed that 170 km² out of Cumberland County's total 898 km² (19%) falls within the wildland-urban interface. This analysis revealed that 892 out of 5,709 (16%) of the buildings in the county are located above within the wildland-urban interface.

Figure 4-33. Cumberland County Building Inventory Located within the Wildland-Urban Interface



Vulnerability to Future Assets/Infrastructure for Wildfire

Cumberland County has a well-established network of fire departments with equipment capacities and mutual aid agreements that enable an effective response in the event of wildfires. However, Cumberland County fire services and private land owners to reduce fuel loads and developed the necessary wildland urban interface buffers to limit potential property damage from such fires.

Suggestions of Community Development Trends

New development may occur within the wildland-urban interface potentially increasing the risk of property damage due to wildland fire. Planned construction in these areas should be reviewed so proper protective measures are taken to minimize the wildland risk to these properties.

4.3.10 Dam and Levee Failure

Hazard Definition for Dam and Levee Failure

Dams are structures that retain or detain water behind a large barrier. When full or partially full, the difference in elevation between the water above the dam and below creates large amounts of potential

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

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

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

Previous Occurrences of Dam and Levee Failure

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

Geographic Location of Dams and Levees in Cumberland County

A review of the US Army Corps of Engineers National Levee Database records did not reveal any levee systems within or within close proximity to Cumberland County.

The U.S. Army Corps of Engineers maintains the National Inventory of Dams (NID) which identified six dams in Cumberland County. According to NID records, one dams in Cumberland County is classified as high hazard and two dams have Emergency Action Plans (EAP). Table 4-40 list of the dams located in Cumberland County and their respective classification level.

Table 4-40. Cumberland County Dam Inventory

Dam Name	Stream/River	Hazard Rating	EAP
Diepholz Pond Dam	Tributary to Embarass River	H	N
Ettlebrick Lake Dam	Range Creek	S	N
Lake Charleston Dam	Tributary to Embarass River	S	Y
Lake Louis Dam	Bear Creek	L	N
Mill Creek Structure Dam	East Mill Creek	S	Y
Montrose City Lake Dam	Spring Point Creek	L	N

Hazard Extent for Dam and Levee Failure

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

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

Risk Identification for Dam and Levee Failure

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

<u>Risk Priority Index</u>				
Probability	x	Magnitude	=	RPI
2	x	1	=	2

Vulnerability Analysis for Dam and Levee Failure

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

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

Critical Facilities

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

Building Inventory

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

Infrastructure

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

Hazus-MH Flood Analysis

See section 4.3.4 Flooding Hazard for the results of the Hazus-MH Flood Analysis.

Vulnerability to Future Assets/Infrastructure for Dam and Levee Failure

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

Suggestions for Community Development Trends

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

Section 5. Mitigation Strategies

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

5.1 Existing Hazard Mitigation Policies, Programs and Resources

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

5.1.1 Successful Mitigation Projects

To be successful, mitigation must be a recurrent process that is continually striving to lessen the impact of natural hazards within the county. Cumberland County has made great strides to improve its ability to mitigate against future hazards. The following are projects that have been successfully completed prior to the development of the Cumberland County 2015 Multi-Hazard Mitigation Plan.

FEMA Flood Insurance Study Revision

In 2009 Cumberland County, the Village of Greenup and the City of Neoga underwent updates to the 1996 Floodplain maps and Flood Insurance Study. The previous maps and reports for Cumberland County were community-based. The project, which consisted of a conversion to the countywide format, included delineation of Special Flood Hazard Areas in the Village of Jewett. The project was completed in February 2011.

IKE Disaster Recovery Grants

After the 2008 flooding, the Federal Government declared Cumberland County and 40 other counties in the State of Illinois disaster areas. During the Ike event that moved through Illinois in September of 2008, major flooding took place causing \$367,000 to infrastructure in Cumberland County. The Federal Government funded planning projects that would help eliminate such disasters in the future and Cumberland County was awarded a grant in the amount of \$150,000 to develop a comprehensive plan. Neoga was awarded \$488,251 to construct a storm water detention facility combined with channel improvements.

Community Development Assistance Program

Community Development Assistance Program (CDAP) grants are awarded to units of local government with populations of 50,000 or less that are not located within one of the six large urban counties that receive funds directly from the U.S. Department of Housing and Urban Development. The CDAP is a grant program that assists Illinois communities by providing grants to local governments to help them in financing economic development projects, public facilities and housing rehabilitation. Since 2006,

Cumberland County has received twenty-one CDAP grants totaling \$287,251. A majority of the projects were to improve water, sanitary and storm-sewer systems.

Illinois Home Weatherization Assistance Program

The Illinois Home Weatherization Assistance Program (IHWAP) is designed to help low income residents save fuel and money, while increasing the comfort of their homes. Funding is provided through the U.S. Department of Energy. Since 2008, Cumberland County has received twenty-two IHWAP grants totaling \$74,000,735.

Low Income Home Energy Assistance Program

The Low Income Home Energy Assistance Program (LIHEAP) is designed to help eligible low-income households pay for winter energy services. Since 2008, Cumberland County has received seventeen LIHEAP grants totaling \$2,845,015.

Emergency Solutions Grant

The Illinois Emergency Solutions Grant (ESG) program provides funding to: (1) engage homeless individuals and families living on the street; (2) improve the number and quality of emergency shelters for homeless individuals and families; (3) help operate these shelters; (4) provide essential services to shelter residents, (5) rapidly re-house homeless individuals and families, and (6) prevent families and individuals from becoming homeless. Since 2012, Cumberland County has received three ESG grants totaling \$83,734 to aid in shelter/services in Cumberland County, including prevention and administration.

Illinois Preparedness and Emergency Response Learning Center

Illinois Preparedness and Emergency Response Learning Center (IPERLC) mini-grant provides support to Illinois organizations in their preparedness and emergency response activities, and will offer individual grants of up to \$4,500. A wide variety of projects were eligible for funding, include providing training activities, running exercises, developing response plans, and conducting needs assessments. The Cumberland County Health Department received the IPERLC mini-grant in 2012.

5.1.2 National Flood Insurance Program

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

NFIP Status

In Cumberland County, four out of the six incorporated communities participate in the NFIP. Table 5-1 includes a summary of information for Cumberland County participation in the NFIP. The Village of Jewett was mapped with a flood risk but was sanctioned in February 4, 2012. Sanctioned communities do not qualify for flood-related Federal disaster assistance for acquisition, construction, or reconstruction purposes in Special Flood Hazard Areas. This may have serious consequences for the community's real estate market and economic viability, as each federally regulated lender must notify the purchaser or lessee that Federal disaster assistance is not available for that property in the event of a flood. Toledo does not have an identified flood hazard boundary; therefore, this community does not participate in the

NIFP. Cumberland County will continue to provide information to its non-participating jurisdictions regarding the benefits of the National Flood Insurance Program.

Two communities, Casey and Montrose, have an effective FIRM and participate in the NFIP. However, these communities are mapped as Non-Special Flood Hazard Areas (NSFHA). NSFHA areas have a moderate-to-low risk flood zone and is not in any immediate danger from flooding caused by overflowing rivers or hard rains. However, it's important to note that structures within a NSFHA are still at risk. In fact, nearly 1 in 4 NFIP flood claims occur in these moderate- to low-risk areas.

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

Community	Participate in the NFIP	Initial Flood Hazard Boundary Map Identified	Initial FIRM Identified	Current Effective FIRM Date
Cumberland County	Y	02/23/1979	07/18/1985	02/04/2011
Casey	Y	06/04/1976	11/04/1988	NSFHA
Greenup	Y	03/28/1975	08/04/1988	02/04/2011
Jewett	N	-	02/04/2011	02/04/2011
Montrose	Y	06/11/1976	02/04/2011	NSFHA
Neoga	Y	11/29/1974	08/05/0975	02/04/2011 (M)
Toledo	N	-	-	-

NFIP status and information are documented in the Community Status Book Report updated on 03/03/2015.

NSFHA – No Special Flood Hazard Area

(M) – No Elevation Determined – All Zone A, C and X

Flood Insurance Policy and Claim Statistics

As of December 2014, eleven households paid flood insurance, insuring \$1,455,700 in property value. The total premiums collected for the policies amounted to \$6,989. Since the establishment of the NFIP in 1978, five flood insurance claims were filed in Cumberland County, totaling in \$17,807 in payments. Table 5-2 summarizes the claims since 1978.

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

Community	Total Losses	Closed Losses	Open Losses	CWOP Losses	Payments
Cumberland County	5	3	0	2	\$17,807.12

*NFIP policy and claim statistics since 1978 until the most recently updated date of 12/31/2014. Closed Losses refer to losses that are paid; open losses are losses that are not paid in full; CWOP losses are losses that are closed without payment; and total losses refers to all losses submitted regardless of status. Lastly, total payments refer to the total amount paid on losses.

Repetitive Lose Structures

Cumberland County has no repetitive loss structures. FEMA defines a repetitive loss structure as a structure covered by a contract of flood insurance issued under the NFIP that has suffered flood loss damage on two or more occasions during a 10-year period that ends on the date of the second loss, in which the cost to repair the flood damage is $\geq 25\%$ of the market value of the structure at the time of each flood loss. Currently there are over 122,000 Repetitive Loss properties nationwide.

Community Rating System Status

Cumberland County and its incorporated areas do not participate in the NFIP'S Community Rating System (CRS). The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions

meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance. More than 1,200 communities from all 50 states participate in the CRS. Although joining the CRS is free, completing CRS activities and maintain a CRS rating will require a degree of commitment from the community, including dedicating staff. Joining the CRS could be one way Cumberland County or its incorporated communities improve their existing floodplain management policies and further reduce the flood hazard risk.

5.1.3 Jurisdiction Ordinances

Hazard Mitigation related ordinances, such as zoning, burning, or building codes, have the potential to reduce the risk from known hazards. These types of regulations provide many effective ways to address resiliency to known hazards. Table 5-3 list Cumberland County's current ordinances that directly pertain, or can pertain, to hazard mitigation. It is important to evaluate the local building codes and ordinances to determine if they have the ability to reduce potential damages caused by future hazards. The Cumberland County Planning Team worked to identify gaps in the current list of ordinances and suggested changes/additions in Section 5.3.

Table 5-3: Cumberland County's Jurisdiction Ordinances

Community	Zoning	Storm water Mgmt	Flood	Subdivision Control	Burning	Seismic	Erosion Mgmt	Land Use Plan	Building Codes
Cumberland County	-	-	2/4/11	9/8/70	-	-	-	-	-
Casey	1991	6/1/09	6/1/09	1999	10/5/09	-	-	-	9/9/09
Greenup	9/1/92	-	2/4/11	-	-	-	-	-	-
Jewett	-	-	-	-	-	-	-	-	-
Montrose	-	-	2/4/11	-	-	-	-	-	-
Neoga	10/4/99	12/7/99	11/15/10	3/7/88	6/16/86	-	11/15/10	5/20/02	4/6/98
Toledo	-	-	-	10/5/98	9/12/00	-	-	-	-

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

5.1.4 Fire Insurance Ratings

By classifying communities' ability to suppress fires, the Insurance Service Office (ISO) Public Protection Classification Program helps communities evaluate their public fire-protection services. The program provides a countrywide standard that helps fire departments in planning and budgeting for facilities, equipment, and training. Information is collected on municipal fire-protection efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data using a Fire

Suppression Rating Schedule. Rating are assigned from 1 to 10 where Class 1 generally represents superior property fire protection, and Class 10 indicates that the area's fire-suppression program doesn't meet ISO's minimum criteria. There are three Fire Protection Districts servicing Cumberland County. Table 5-4 displays each Fire Protection District's insurance rating and total number of employees.

Table 5-4: Cumberland County Fire Departments, Insurance Ratings, and Number of Employees/Volunteers

Fire Department	Fire Insurance Rating	Number of Employees
Greenup Fire Protection District	7/10	15
Neoga Fire Protection District	6/64	30
Toledo Fire Protection District	7/7X	32

5.2 Mitigation Goals

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

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

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

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

Objective: Minimize the amount of infrastructure exposed to hazards.

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

Objective: Improve emergency sheltering in Cumberland County.

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

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

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

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

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

Objective: Raise public awareness on hazard mitigation.

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

5.3 Multi-Jurisdictional Mitigation Strategies

After reviewing the Risk Assessment, the Mitigation Planning Team was presented with the task of individually listing potential mitigation activities using the FEMA STAPLEE evaluation criteria (see table 5-5). FEMA uses their evaluation criteria STAPLEE (stands for social, technical, administrative, political, legal, economic and environmental) to assess the developed mitigation strategies. Evaluating possible natural hazard mitigation activities provides decision-makers with an understanding of the potential benefits and

costs of an activity, as well as a basis upon which to compare alternative projects. The Planning Team brought their mitigation ideas to Meeting 3.

Table 5-5. FEMA's STAPLEE Evaluation Criteria

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

Table 5-6 contains a comprehensive range of specific mitigation actions and projects for each jurisdiction, with an emphasis on new and existing buildings and infrastructure. At least two identifiable mitigation action items have been addressed for each hazard listed in the risk assessment. Each of the incorporated communities within and including Cumberland County was invited to participate in brainstorming sessions in which goals, objectives, and strategies were discussed and prioritized. Each participant in these sessions was armed with possible mitigation goals and strategies provided by FEMA, as well as information about mitigation projects discussed in neighboring communities and counties.

All potential strategies and goals that arose through this process are included in Table 5-6. The mitigation strategies are arranged by hazard they directly address. In some cases, certain mitigation strategies can address all hazards. If provided by the jurisdiction, each mitigation strategy contains specific details pertaining to the implementation, responsible and/or organizing agency, and potential funding source. Potential funding sources are identified by Federal, State, Local, or Private. A code is assigned to each mitigations strategy for ease of reference when reviewing the prioritization of each mitigations strategies in Section 5.4.

Table 5-6: Cumberland County's Multi-Jurisdictional Mitigation Strategies

Code	Mitigation Strategy	Details	Jurisdictions Involved	Funding Source*	Responsible Organization or Agency
ALL HAZARDS					
AH-1	Harden and Retrofit Critical Facilities	Better protect county buildings and critical facilities from wind and earthquake damages	All Jurisdictions	F, S, L	TBD
AH-2	Install Back-up Generators	Install generators on existing and new critical facilities	All Jurisdictions	F, S, L	TBD
AH-3	Relocate Existing Utility Lines	Move above ground utilities underground	County, Greenup	F, S, L, or P	TBD
AH-4	Public Awareness & Education	Educate the public on safety procedures and potential dangers	All Jurisdictions	L	County EMA
AH-5	Maintain Comprehensive Plan	Maintain and update the 2014 Cumberland County comprehensive plan	County	F, L	TBD
AH-6	Build Heating/Cooling Shelters	Provide safety during power outages	All Jurisdictions	F, S, L	TBD
AH-7	Develop Mutual Aid Agreements	Lend assistance across jurisdiction boundaries	County, Greenup, Jewett	L	TBD
AH-8	Develop Vulnerable Population List	Plan a better response to vulnerable residents	All Jurisdictions	L	TBD
AH-9	Disaster Plans and Kits	Develop school and family disaster plans and kits	All Jurisdictions	L	TBD
AH-10	First Responder Training	Train community to be first responder during emergency	County, Greenup, Neoga	L	TBD
AH-11	Alternate EOC	Have an alternate EOC in place in case primary one is damaged and cannot be used	County, Jewett	L	County EMA
AH-12	Distribute Weather Radios	Distribute weather radios to those in high risk areas	County, Jewett	F, L	TBD
AH-13	Active Tree Management	Remove and Trim trees that cause potential harm to utilities and structures	County, Greenup, Toledo, Jewett	L, P	TBD
AH-14	Publicize Safe Rooms and Shelters	Notify public of safe room and shelter locations	All Jurisdictions	L	TBD
AH-15	Enhanced Communication Systems	Work to enhance 911, Emergency Alert, and Radio/Broadcast systems	All Jurisdictions	F, S, L	County EMA
AH-16	Local Emergency Planning Committee	Have regular meetings to discuss emergency planning throughout the county	County, Greenup, Jewett, Neoga, Toledo	L	TBD
AH-17	Education Materials	Develop web-based and paper materials to educate public	All Jurisdictions	L	TBD
AH-18	Procure Back-up Water Supply	Have back-up water supply in case of emergency	Greenup	L	TBD
AH-19	Install/Repair Emergency Sirens	Repair and install emergency sirens where needed	County, Greenup, Jewett, Neoga, Toledo	F, S, L	County EMA
TORNADO / SEVERE THUNDERSTORMS					
TS-1	Anchoring Manufactured Housing	Lessens impacts of high winds on structures	County, Jewett, Toledo	F, S, L	TBD
TS-2	Improve Ordinances	Improve to exceed minimum standards	County, Greenup	F, S, L	TBD
TS-3	Install Saferoom	Require saferooms installed in new public buildings	All Jurisdictions	F, S, L	TBD
FLOODING					
FL-1	Dam/Levee Failure Plan	Have a plan in place in case of dam/levee failure	County, Jewett	L	TBD
FL-2	Culvert Replacement	Replace damaged culverts to direct flood water	County, Jewett, Neoga, Toledo	F, S, L	TBD

Code	Mitigation Strategy	Details	Jurisdictions Involved	Funding Source*	Responsible Organization or Agency
FL-3	Elevate Roads	Elevate roads above the base flood elevation	County, Jewett	F, S, L	TBD
FL-4	Install Pumping Stations	Have pumping stations to remove water faster	County	F, S, L	County
FL-5	Clear Drainage Ditches	Keep drainage ditches clear to move water more efficiently	Neoga	L	Neoga
FL-6	Participate in NFIP	Actively maintain NFIP status; Join NFIP (Jewett)	County, Greenup, Jewett, Neoga	L	County /City/ Village Board
FL-7	Update Floodplain Ordinances	Update and improve floodplain ordinances to exceed Federal standards	County, Greenup, Jewett	L	County / Village Board
FL-8	Property Acquisition	Buyout properties in the floodplain	County	F, S	County EMA
FL-9	Watershed/Floodplain Structure Analysis	ID Floodplain structures and complete a watershed analysis. Included in comprehensive plan.	County, Jewett	F, S, L	County EMA
WINTER STORMS					
WS-1	Install Snow Fence	Minimize the amount of infrastructure exposed	County	L	Highway Dept.
HAZARDOUS MATERIALS RELEASE					
H-1	Develop/Update Emergency Plan	Have a plan in place in case of hazmat release	County, Greenup, Jewett, Neoga, Toledo	L	County EMA
H-2	Develop Alternative Traffic Routes	Have alternate routes in case of hazmat release	County, Greenup, Jewett, Neoga, Toledo	L	County EMA
H-3	Hazmat Removal and Disposal Procedure	Create or update a procedure for removal and disposal of a hazmat release	County, Greenup, Jewett, Toledo	L	County EMA
H-4	Hazmat Commodity Flow Study	Create or update a list of all hazardous materials transported through the county/city and routes taken	County, Greenup, Jewett	F, S, L	County EMA
DROUGHT / EXTREME HEAT					
DH-1	Burn Ordinance	Update and improve burning ordinance	County, Jewett, Toledo	L	County / Village Board
DH-2	Audit Water Loss/Reuse	Audit water usage to reduce unnecessary water waste in case of drought	County, Greenup, Jewett	L	TBD
FIRE					
F-1	Maintain Right of Way Access	Keep roads open for public evacuations and to get emergency equipment into area	County, Greenup, Jewett, Neoga, Toledo	L	TBD
F-2	Establish Fire/Landslide/Erosion Vegetation Management Techniques	Develop management techniques for removing vegetation that will not cause risk of erosion and landslide	Greenup	L	TBD
F-3	Burn Ordinance	Update and improve fire/burning ordinance	County, Jewett, Toledo	L	County / Village Board
F-4	Ensure a reliable water source	Retrofit water supply systems or have active maintenance	County, Greenup, Jewett, Neoga, Toledo	F, S, L	TBD

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

5.4 Prioritization of Multi-Jurisdictional Mitigation Strategies

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

Table 5-7 displays the priority ranking for each mitigation strategy. Each code refers to a specific mitigations strategy listed in Table 5-6. For each participating jurisdiction a rating (high, medium, or low) was assessed for each mitigation item. The ranking is the result of the STAPLEE evaluation and the timeframe the community is interested in completing the strategy: H - High 1-3 years; M - Medium 3-5 years; and L - Low 5+years.

Table 5-7. Prioritization of the Cumberland County Mitigation Strategies

Code	Hazard	Priority Ranking						
		Cumberland County	Greenup	Jewett	Neoga	Toledo	Cumberland CUSD 77	Neoga CUSD 3
AH-1	Earthquake, Severe Storms, Tornado	H	H	H	H	H	H	H
AH-2	All Hazards	H	H	H	H	H	H	H
AH-3	All Hazards	L	M	-	-	-	M	-
AH-4	All Hazards	H	H	M	M	M	H	H
AH-5	All Hazards	M	-	-	-	-	-	-
AH-6	Extreme Heat, Winter Storms	H	H	H	H	H	H	H
AH-7	All Hazards	M	H	L	-	-	-	-
AH-8	All Hazards	M	H	L	M	M	H	M
AH-9	All Hazards	H	H	M	L	-	-	-
AH-10	All Hazards	H	H	-	L	-	-	-
AH-11	All Hazards	H	-	L	-	-	-	-
AH-12	All Hazards	M	-	L	-	-	-	-
AH-13	All Hazards	H	H	H	-	H	-	-
AH-14	All Hazards	H	H	L	H	H	H	H
AH-15	All Hazards	M	H	M	M	M	M	M
AH-16	All Hazards	M	H	H	-	M	-	-
AH-17	All Hazards	H	H	H	H	H	H	H
AH-18	All Hazards	-	H	-	-	-	-	-
AH-19	All Hazards	H	H	H	H	H	H	H
TS-1	Severe Storm / Tornado	M	-	L	-	M	-	-
TS-2	Severe Storm / Tornado	L	H	-	-	-	-	-
TS-3	Severe Storm / Tornado	H	H	H	H	H	H	H
FL-1	Flooding	H	-	L	-	-	-	-
FL-2	Flooding	H	-	L	M	M	-	-
FL-3	Flooding	M	-	H	-	-	-	-
FL-4	Flooding	H	-	-	-	-	-	-
FL-5	Flooding	-	-	-	L	-	-	-
FL-6	Flooding	H	H	M	H	-	-	-
FL-7	Flooding	H	H	L	-	-	-	-
FL-8	Flooding	M	-	-	-	-	-	-
FL-9	Flooding	H	-	H	-	-	-	-
WS-1	Winter Storm	L	-	-	-	-	-	-
H-1	Hazmat	M	H	H	M	M	-	-
H-2	Hazmat	L	H	H	M	M	-	-
H-3	Hazmat	M	H	H	-	L	-	-
H-4	Hazmat	M	H	H	-	-	-	-
DH-1	Drought / Extreme Heat	M	-	H	-	M	-	-
DH-2	Drought / Extreme Heat	L	H	M	-	-	-	-
EQ-1	Earthquake	H	H	L	L	M	-	-
F-1	Fire	H	H	H		H	-	-
F-2	Fire	-	H	-	-	-	-	-
F-3	Fire	H	-	H	-	M	-	-
F-4	Fire	H	H	H	M	M	-	-

*Ranking based on STAPLEE evaluation and estimated timeframe: H – High (1-2 years), M – Medium (3-5 years), and L – Low (5+ years)

Section 6. Plan Implementation and Maintenance

6.1 Implementation through Existing Programs

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

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

6.2 Monitoring, Evaluation, and Updating the MHMP

Throughout the five-year planning cycle, the Cumberland County Emergency Management Agency will reconvene the Planning Team to monitor, evaluate, and update the plan on an annual basis. Additionally, a meeting will be held in 2020 to address the five-year update of this plan. Members of the planning committee are readily available to engage in email correspondence between annual meetings. If the need for a special meeting, due to new developments or the occurrence of a declared disaster in the county, the team will meet to update mitigation strategies. Depending on grant opportunities and fiscal resources, mitigation projects may be implemented independently by individual communities or through local partnerships.

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

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

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

Definitions

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

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

Acronyms

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

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

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

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

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

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

G GIS – Geographic Information System

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

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

M MHMP – Multi-Hazard Mitigation Plan

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

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

R RPI – Risk Priority Index

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

U USGS – United States Geological Survey

Appendices

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Appendix A. Meeting Minutes

Cumberland County Multi-Hazard Mitigation Planning Meetings

Assembly of the Cumberland County Planning Team Meeting 1
Plan Directors: Southern Illinois University Carbondale

Meeting Date: 12/13/2013

Meeting Time: 1:00 pm

Place: First Neighbor Bank Corp, Toledo, Illinois

Planning Team/Attendance: 24

Introduction to the Multi-Hazard Mitigation Planning Process

The meeting is called to order.

Narrative: A power-point presentation was given by Amanda Dampitz. Beth Ellison was introduced and is there to help answer any questions at the end of the presentation. Amanda explained that this project is in response to the Disaster Mitigation Act of 2000. The project is funded by a grant awarded by FEMA. A twenty-five percent match will be required from the county to fund this project. The county match will be met by sweat equity and other county expenses. The sweat equity will be an accumulation of time spent at the meetings, on research assignments, surveys, along with the time spent reviewing and producing the planning document.

Amanda divided the planning project into five to six meetings. At the 1st meeting, the planning team will review critical facility maps. The planning team will be asked to research and verify the location of all critical facilities within the county. Amanda stated that public participation is very important throughout the planning process. She explained that all of the meetings are open to the public but there will be a particular effort made to invite the public to the 3rd meeting. At that meeting, SIU will present historic accounts of natural disasters that have affected this area. At the 2nd meeting the discussion will focus on natural disasters that are relevant to this area. These hazards will be given a probability rating and ranked by their occurrence and potential level of risk. SIU will research these hazards and present them to the planning team. The 3rd meeting is publicized in order to encourage public participation. SIU will produce a risk assessment in draft form (each planning team member will get a copy) as well as present strategies and projects that FEMA and other counties have undertaken for the planning team to review. The 4th meeting consists of a brain storming session focused on disasters that were analyzed in the risk assessment report. The Planning Team will list strategies and projects that could be implemented to mitigate the potential hazards that threaten the county. FEMA requires that for every identified hazard, a strategy to mitigate the loss and damage must be in place. The strategies may range from educational awareness to hardening a building or building a levee. After the 4th meeting the plan will be in its final draft form. At the 5th meeting the planning team will need to review the plan prior to sending it to IEMA. IEMA will review the plan and will make recommendation to it as they see fit, then it is submitted to FEMA for review and approval. Once

the plan has been submitted to FEMA, local governments are eligible to apply for grants to mitigate these established hazards. After FEMA approves the plan, it is sent back to the Planning Team. At the 6th meeting the Planning Team will present the Multi-Hazard Mitigation Plan to the County Board for adoption. Incorporated communities must either adopt the county plan or prepare its own plan, in order to access mitigation assistance from FEMA. The communities are encouraged to participate and contribute to development of the plan. Once the County Board has adopted the plan, each incorporated community will have the opportunity to adopt the plan as well.

Amanda then assigned research homework arranged by categories to individual planning team members to locate missing or incorrect critical facilities.

Lastly, Amanda Dampitz and Beth Ellison fielded any questions from the planning team about the process of mitigation planning.

Meeting was adjourned.

Multi-Hazard Mitigation Planning Meeting Attendance

Meeting 1 - Cumberland County (12/13/2013)

Please print clearly

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Cumberland Co 9-14	DANNA DUNNICK	DD	Assistant Manager	dunn@hmo.net 217-849-3336
Toledo PD	Chris Thies	CT	Chief / Toledo PD	wiedorh@hmo.net 217-849-3336
Cumb. Co. Supervisor of Assessments	Lois Dryden	YKD	Supervisor of Assessments	cedar@hmo.net 217-849-3336
GREENUP	DAN SCALES	DS	Supervisor of Assessments	cedar@hmo.net 217-849-3336
Cumberland Co. Supervisor of Assessments	Howard Henderson	H	Supervisor of Assessments	cedar@hmo.net 217-849-3336
Toledo Fire Dist.	Steve Layton	SL	Supervisor of Assessments	cedar@hmo.net 217-849-3336
Cottswold Township	Denny Thornton	DT	Chief / Cottswold Twp	cedar@hmo.net 217-849-3336
Trippage of Toledo	Chuck Layton	CL	Chief / Trippage of Toledo	cedar@hmo.net 217-849-3336
CUSD 77	Roddy Butler	RB	Admin	cedar@hmo.net 217-849-3336

Cumberland Co Board Ron Blake RES Board Member
 6 Lack Bruce 100 217-849-3336
 @ hmo.net

Page 1

Multi-Hazard Mitigation Planning Meeting Attendance

Meeting 1 - Cumberland County (12/13/2013)

Please print clearly

Jurisdiction Name	Print Name	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Cumberland Co 9-14	DANNA DUNNICK	DD	Assistant Manager	dunn@hmo.net 217-849-3336
Toledo PD	Chris Thies	CT	Chief / Toledo PD	wiedorh@hmo.net 217-849-3336
Cumb. Co. Supervisor of Assessments	Lois Dryden	YKD	Supervisor of Assessments	cedar@hmo.net 217-849-3336
GREENUP	DAN SCALES	DS	Supervisor of Assessments	cedar@hmo.net 217-849-3336
Cumberland Co. Supervisor of Assessments	Howard Henderson	H	Supervisor of Assessments	cedar@hmo.net 217-849-3336
Toledo Fire Dist.	Steve Layton	SL	Supervisor of Assessments	cedar@hmo.net 217-849-3336
Cottswold Township	Denny Thornton	DT	Chief / Cottswold Twp	cedar@hmo.net 217-849-3336
Trippage of Toledo	Chuck Layton	CL	Chief / Trippage of Toledo	cedar@hmo.net 217-849-3336
CUSD 77	Roddy Butler	RB	Admin	cedar@hmo.net 217-849-3336

Cumberland Co Board Ron Blake RES Board Member
 6 Lack Bruce 100 217-849-3336
 @ hmo.net

Page 1

Cumberland County Multi-Hazard Mitigation Planning Meetings

Assembly of the Cumberland County Planning Team Meeting 2
Plan Directors: Southern Illinois University Carbondale

Meeting Date: 02/27/2014

Meeting Time: 10:00 am

Place: Toledo Village Hall, 160 Courthouse Sq, Toledo, Illinois

Planning Team/Attendance: 11

Historical Hazards, their Probability, and Hazard Ranking

The meeting is called to order.

Amanda Dampitz began the meeting by re-introducing the objectives of the multi-hazard mitigation plan (MHMP) document. The MHMP document is mandated as a result of the "Disaster Mitigation Act of 2000". Amanda stated that the objective of the meeting was to prioritize a list of disasters that are relevant to Cumberland County.

Amanda Dampitz provided the planning team with a handout to direct the focus of the meeting discussion. As Amanda began to conduct the prioritizing process, she described the risk assessment ranking that FEMA has established, the risk priority index (RPI).

The Planning Team was then asked to assess and rank the hazards that could potentially befall Cumberland County using the RPI. The identified hazards for Cumberland County were ranked as followed:

- #1: Tornadoes
- #2: Severe Thunderstorms (including wind and hail)
- #3: Flooding
- #4: Winter Storms
- #5: Heat/Drought
- #6: Earthquakes
- #7: Hazmat (including chemical explosion, tank leak, transportation accident)
- #8: Fire
- #9: Dam/Levee Failure
- #10: Subsidence

Amanda then asked the planning team to identify flood, earthquake, tornado, or hazmat release scenarios they wished SIU to model for the risk assessment in the MHMP. These scenarios include:

- Tornado: Historical 1977 Lake Mattoon F3 Scenario
- Tornado: F4 Scenario through Neoga, Toledo, Greenup
- Tornado: F4 Scenario through Jewett and Greenup
- Hazmat: transportation accident on I-70 and IL-130 (propane)
- Hazmat: building leak at Crop Production Plant north of Neoga (ammonia)
- Hazmat: building leak at Helena Plant north of Greenup (ammonia)
- Earthquake: Deterministic 5.5M, epicenter between Toledo, Greenup, and Jewett
- Earthquake: 5.0M, 100-year probability, epicenter between Toledo, Greenup, and Jewett
- Earthquake: 5.5M, 500-year probability, epicenter between Toledo, Greenup, and Jewett
- Earthquake: Wabash Valley Scenario – 7.1M
- Earthquake: New Madrid Scenario – 7.7M
- Flood – 100 year flood

The planning team delivered the historical hazards and critical facilities binder to SIU. The planning team agreed to complete any missing information pertaining to user defined facilities and historical hazards by the next meeting. The county produced a disk with parcel and assessor's data to be incorporated into the modeling. A representative of the County Health Department agreed to send over a copy of their plan (technology/cyber security).

A date for meeting 3, the public meeting, was temporarily set for the end of April. The county will advertise for the meeting and provide documentation to incorporate into the plan's appendix.

Amanda agreed to calculate the in-kind match for the county and report to Joe within a week. Amanda will also send over a template press release for the county to consider using when advertising for the next meeting.

Meeting was adjourned.

Multi-Hazard Mitigation Planning Meeting Attendance

Jurisdiction Name	Last, First (Print Name)	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Crooked Creek	Henderson, Howard		Highway Commissioner	hankhdsen@gmail.com 217-932-5790
Cumberland Co.	Holkenbrink, Floyd		Cumberland Co. Board Chairman	217-844-3666
Cumberland Co.	Howard, Beverly		Cumberland County / Deputy Clerk	bhoward@cumberlandco.org 217-849-2631
Cumberland Co.	Jackson, Chris	C	Health Dept. / Environmentalist	cj@cumberlandhealth.org 217-849-3211
Toledo	Layton, Chuck	C.L.	Toledo / Utilities	ToledoFireman29@yahoo.com 217-273-8087 toledounithires@ncshi.com 217-849-3336
Toledo Fire Dist.	Layton, Steve			steviejill.layton@gmail.com 217-849-3663
Greencup	Moyes, Ben		Greencup / Firefighter & EMT	bemanyes25@gmail.com 217-549-6478
Neoga	Morrison, Jeff		Neoga / Building Inspector	jeffmorrison9471@gmail.com 217-273-1198
Cumberland Co.	Ozler, Stephen F.		Cumberland County / Sheriff	cumbcooshertiff@live.com 217-849-2571
Greencup	Scales, Dan	TE	Greencup / Clerk	217-923-3401
Toledo	Thies, Chris		Toledo Police / Chief	toledopolillinois@gmail.com 217-849-3336

Meeting 2

Page 2

Multi-Hazard Mitigation Planning Meeting Attendance

Meeting 1 - Cumberland County (02/27/2014)

Jurisdiction Name	Last, First (Print Name)	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Cumberland Co.	Black, Michelle		Health Depart. / Staff Nurse	mblm@cumberlandhealth.org 217-849-3211
Cumberland Co.	Black, Ron		Cumberland Co. Board Member	blackronne100@hotmail.com 217-849-2760
Cumberland Co.	Bland, Ben A.		Cumberland County / Engineer	cbhooy@mediacomb.net 217-849-3441
CUSD #77	Boutler, Todd	TB	CUSD #77 / Admin	tboutler@cumberland.k12.il.us 217-849-3827
Neoga CUSD #3	Castle, Charles (Chuck)		Superintendent of Schools	ccastle@neogacUSD3.net 217-895-2201
Toledo	Chamber, Billie		Toledo Democrat / Owner	Tdnews@cell2.net 217-849-2000
Cumberland Co.	Dryden, Lois	KL	Supervisor of Assessments	ccand18@cumberlandco.org 217-849-3831
Cumberland Co.	Fehrenbacher, Joe		Cumberland County EMA	cumberlandcounty.ema@outlook.com 217-663-0242
Toledo	Fletcher, Mike		Toledo / Village President	mayorlinker@gmail.com
Cumberland Co.	Flood, JoEllen	EF	Cumberland County / Treasurer	treasurer@cumberlandco.org 217-849-2321

Meeting 2

Page 1

Multi-Hazard Mitigation Planning Meeting Attendance

Jurisdiction Name	Last, First (Print Name)	Initial	Job Title/Company	Contact Information (e-mail address and/or phone number)
Neoga	Thomas, Robert		Neoga / Emergency Coordinator	ambthomas@ccu.edu 217-254-3905
Cottonwood	Thornion, Denny		Reed Commissioner	217-273-7272
Cumberland Co.	Whitaker, Donna	ADD	Cumberland Co. / 911 Coordinator & Coroner	cumb911@rrt.net 217-849-2065
Cumberland Co. Health Dept.	Drator Sheri		Administrator Cumberland Co. Health Dept.	stude Cumberland health.org 217-844-3211 217-838-5211
Idaho	MooreT Skye		Civilian First Fire Chief	Chester Truck & Trailer 217-663-7289
Neoga	Baker, Alan		Asst Fire Chief	adbrneoga20@hotmail.com 217-354-7046
Cumberland Co. Emergency	Patte, Conder	✓	Asst Coordinator	greeneup ambulance 217-354-7046

Meeting 2

Page 3

Cumberland County Multi-Hazard Mitigation Planning Meetings

Assembly of the Cumberland County Planning Team Meeting 3
Plan Directors: Southern Illinois University Carbondale

Meeting Date: 05/22/2014

Meeting Time: 6:00 pm

Place: Toledo Village Hall, 160 Courthouse Sq, Toledo, Illinois

Planning Team/Attendance: 24

Public Meeting and the County Risk Assessment

The meeting is called to order.

Steve Sherwood began the meeting by introducing himself as the new Cumberland County EMA Coordinator. He explained the change in personnel and briefly touched on the objectives of the multi-hazard mitigation plan (MHMP). Steve then turned over the meeting to Amanda Damptz, project manager for Cumberland County's MHMP and staff researcher at SIU Carbondale.

Amanda Damptz started the PowerPoint with an overview of the planning process and the roles of SIU and Cumberland County. She went on to explain the topics and objectives of the current meeting. Amanda first presented the public with newspaper clippings of historical hazards the Cumberland County Planning Team prepared for the purpose of this meeting. The hazards included the 2008 Countywide Flood, Tornadoes (1977; 1984; 2003), Wind Damage (2009; 2014), and Winter Storms. Next, Amanda presented the hazards the Cumberland County Planning Team ranked using the RPI during the previous meeting. She also presented the historical data that the Planning Team used to inform the hazard ranking process. Next, the results from the flood, earthquake, tornado, or hazmat release scenarios were presented to the public. Finally, Amanda defined mitigation as the act of avoidance and preparedness. At the next meeting Amanda will work with the planning team to come up with at least two mitigation strategies for each hazard the planning team selected.

Amanda then asked the audience for questions or comments. After some discussion about the specifics of each scenario, the plan and how it would affect the community and its residents, she thanked those who came and closed the presentation.

Meeting was adjourned.

After the meeting, a draft of the Cumberland County Multi-Hazard Mitigation Plan was given to each of the planning team members for review. Amanda explained the contents of the plan and asked the planning team to review the contents and submit any corrections.

Meeting 3 - Cumberland County (May 22, 2014)

Multi-Hazard Mitigation Planning Meeting Attendance

24 total

Please print clearly

Name and Contact Information (email or phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Roundtrip Mitigation to attend this meeting
Baker, Alan abaker@siuemail.com 217-254-7016		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Asst. Fire Chief Amb. Coordinator	Neoga	
Black, Michelle mblm@cumberlandhaz.org 217-849-3211		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Health Depart. / Staff Nurse	Cumberland Co.	
Black, Ron blackron100@hotmail.com 217-849-2760		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Board Member	Cumberland Co.	
Bland, Ben A. sebhoo@medicomb.net 217-849-3441	BR	☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Engineer	Cumberland Co.	5
Butler, Todd tbutler@cumberlandhaz.org 217-849-3827		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	CUSD #77 / Admin	CUSD #77	
Carrle, Charles (Chuck) scarrle@siuemail.com 217-895-5201		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Superintendent of Schools	Neoga CUSD #3	

Meeting 3 - May 22, 2014

Page 1

Multi-Hazard Mitigation Planning Meeting Attendance

Name and Contact Information (email or phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Roundtrip Mileage to attend this meeting
Henderson, Howard hwhenderson@gmail.com 217-932-3790		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Highway Commissioner	Crooked Creek	
Holkerink, Floyd 217-844-3666		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Board Chairman	Cumberland Co.	
Howard, Beverly bhoward@cumberlandco.org 217-849-2631		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Deputy Clerk	Cumberland Co.	
Jackson, Chris cjd@cumberlandco.org 217-849-3211	S	☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Health Dept. / Environmentalist	Cumberland Co.	32
Layton, Chuck Tolodofremm29@yahoo.com 217-273-8087 tolodofremm@netsc.com 217-849-3336	d, L.	☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Utilities	Toledo	
Layton, Steve stevejllayton@gmail.com 217-849-3653		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen		Toledo Fire Dist.	
Mays, Ben bmays254@msn.com 217-549-6478		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Firefighter & EMT	Greensburg	

Meeting 3 - May 22, 2014

Page 3

Multi-Hazard Mitigation Planning Meeting Attendance

Name and Contact Information (email or phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Roundtrip Mileage to attend this meeting
Chamber, Billie Tidewss@clt.net 217-849-2000		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Owner	Toledo Democrat	
Corder, Paul greengrass@hines@villageofgreennp.com		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Amb. Coordinator	Greensburg	
Drooz, Sheri shd@cumberlandco.org 217-849-3211 (x223) 217-232-3211	SR	☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Administrator	Cumberland Co. Health Dept.	
Dryden, Lois scenol18@cumberlandco.org 217-849-3831		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Supervisor of Assessments	Cumberland Co.	
Fehrenbacher, Joe cumberlandcountyem@outlook.com 217-661-0242		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Cumberland County EMA	Cumberland Co.	
Frieder, Mike maysornhief@gmail.com	MF	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Village President	Toledo	35
Flood, Infilien treasurer@cumberlandco.org 217-849-2321		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Treasurer	Cumberland Co.	

Meeting 3 - May 22, 2014

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② Multi-Hazard Mitigation Planning Meeting Attendance

Name and Contact Information (email or phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Roundtrip Mileage to attend this meeting
Whitaker, Dana swhitack@ncmail.net 217-849-3065	ADW	☐ As a Public Employee ☐ As a Private Employee ☒ As an Interested Citizen	911 Coordinator & Creator	Cumberland Co.	
McElroy, Sandy	SM	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Chief Deputy/Assessing Supervisor of Assessing Office	Cumberland Co	18
St. John, Brenda	BS	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Secretary Supervisor of Assessing Office	Cumberland Co.	.5
Shinnod, Steve	SS	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Coordinator	Cumberland Co. CHA	.5
SAAROD L EITCH	SL	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	FILED EMS	11	.5
Jay, Luke	JD	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	F.K. EMS	11	.5
Steve Gentry 217-819-2691	SG	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Tolko Fire	11	.5

Meeting 3 - May 22, 2014

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Multi-Hazard Mitigation Planning Meeting Attendance

Name and Contact Information (email or phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Roundtrip Mileage to attend this meeting
Monroe, Shane smonrock@ncmail.com 217-865-7789		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Civilian from Toledo		
Morrison, Jeff jefmorrison571@gmail.com 217-273-1198		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Building Inspector	Neoga	
Ozier, Stephen F. suoibosher1@gmail.com 217-849-2571	SO	☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Sheriff	Cumberland Co.	14
Seales, Dan 217-923-3401		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Clerk	Gretnap	
Thies, Chris tolsedollins@gmail.com 217-849-3336		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Toledo Police / Chief	Toledo	
Thomas, Robert amthomas@cu.edu 217-254-3905	BT	☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Emergency Coordinator	Neoga	
Thornion, Denny 217-273-2722		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Road Commissioner	Cottonwood	

Meeting 3 - May 22, 2014

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Name and Contact Information (email or phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Roundtrip Mileage to attend this meeting
Matthew McFarley	MM	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Police and	Trumb Police	.5
Michael Carlen	MC	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Fire Chief	Greenville Fire Dept	16
Shirley Sherwood	SS	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	EMSA	SEALC	40
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			

Meeting 3 - May 22, 2014

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Name and Contact Information (email or phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Roundtrip Mileage to attend this meeting
Wynne Oakley	WO	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Fire Dept.		.5
Toy Sutherland	TS	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	County Clerk		18
Paula Rowe	PR	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Greenville Amb		5
DEREK SMITH	DS	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	TOLEDO FIRE DEPT	TOLEDO	.5
Johnny Weaver	JW	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Greenville Fire Dept Greenville Ambulance		10.0
Tom Washburn	TW	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Police Fire	Greenville	.5
Kathy Wike	KW	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Deputy Sheriff	TOLEDO	

Meeting 3 - May 22, 2014

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Cumberland County Multi-Hazard Mitigation Planning Meetings

Assembly of the Cumberland County Planning Team Meeting 3 Redo
Plan Directors: Southern Illinois University Carbondale

Meeting Date: 09/15/2014

Meeting Time: 6:00 pm

Place: Toledo Village Hall, 160 Courthouse Sq Toledo, Illinois

Planning Team/Attendance: 30

Public Meeting and the County Risk Assessment

The meeting is called to order.

Steve Sherwood began the meeting by introducing himself as the Cumberland County EMA Coordinator. He explained the purpose of the meeting today was to redo the Public Meeting due to low attendance. Steve then turned over the meeting to Amanda Damptz, project manager for Cumberland County's MHMP and staff researcher at SIU Carbondale.

Amanda Damptz started the PowerPoint with an overview of the planning process and the roles of SIU and Cumberland County. She went on to explain the topics and objectives of the current meeting. Amanda first presented the public with newspaper clippings of historical hazards the Cumberland County Planning Team prepared for the purpose of this meeting. The hazards included the 2008 Countywide Flood, Tornadoes (1977; 1984; 2003), Wind Damage (2009; 2014), and Winter Storms. Next, Amanda presented the hazards the Cumberland County Planning Team ranked using the RPI during the previous meeting. She also presented the historical data that the Planning Team used to inform the hazard ranking process. Next, the results from the flood, earthquake, tornado, or hazmat release scenarios were presented to the public. Finally, Amanda defined mitigation as the act of avoidance and preparedness. At the next meeting Amanda will work with the planning team to come up with at least two mitigation strategies for each hazard the planning team selected.

Amanda then asked the audience for questions or comments. After some discussion about the specifics of each scenario, the plan and how it would affect the community and its residents, she thanked those who came and closed the presentation.

Meeting was adjourned.

Meeting 3 Redo (9/15/2014)

NAME	JOB TITLE	ROUND TRIP MILEAGE
Bill Cline	GREENUP CHIEF OF POLICE	10 miles
Sandy McElroy	CC Assessment Office	14 "
Burke St. John	cc assessment Office	1 mile
Jim E. Dryden	Supervisor of Assessments	14 mile
Cindy Harley	CCHD HR Manager	1 mile
Shere Drotar	Cumberland Co. Health Dept. Administrator	2 miles
Jeff Curry	ISSI field staff Insurance	7 mile
Dan O'Connell	Emer Telecare Ambulance	75 miles
Chuck Sambley	Village Jewett	10 miles
Chad Smith	Village of Toledo/Toledo Park	1 mile
Queth Williams	Clerk Village Jewett	10 miles
Ashley B. Koach	Public Sup of Assessment	1 mile
Anna W. W. W.	911	1 mile
STEVE SKOWSKI	ROCK NITROGEN	4 mi
Alan Baker	Neoga Amb Coordinator	32 miles
Dr. J. J. J.	Cummb. City Clerk	18 "
Ben Bland	County Engineer	5 "
Mike Fletcher	Village of Toledo President	1 mile
SERENY SMITH	TOLEDO FIRE LT.	1 mile
Jessie Flood	County Treasurer	10 miles
Rita Corder	Greenup ambulance	5 miles
Shane Maxwell	Toledo Police SGT.	1 mile
Ron Black	Cumberland Co Board	5 mile
Dennis Shupe	Circuit Clerk	4 mile
Lloyd Holkenbrink	County Board	30 mile

Name	Job Title	Round trip Mileage
Emily McGinnis	Village Trustee Jewett	10 miles
Jonathan Borden	STATE'S ATTORNEY	20 FEET
Steve Byer	Sheriff	12 mi
Chris Jackson	Combs. Health Dept	30 miles
Brian Jackson	Student	30 miles

Cumberland County Multi-Hazard Mitigation Planning Meetings

Assembly of the Cumberland County Planning Team Meeting 4
Plan Directors: Southern Illinois University Carbondale

Meeting Date: 11/17/2014

Meeting Time: 6:00 pm

Place: Toledo Village Hall, 160 Courthouse Sq, Toledo, Illinois

Planning Team/Attendance: 18

Developing Mitigation Strategies

The meeting is called to order.

Amanda Dampitz began by explaining that the meeting would cover mitigation strategies that the planning team believed would prevent or eliminate the loss of life and property. She explained that the planning team should not make any reservations in the form of money or resources when developing this list. Amanda directed the planning team to be specific about the location or focus area of a strategy whenever possible. The planning team listed at least two new or current on-going mitigation strategies for each hazard addressed in the plan. The planning team then prioritized mitigation actions. A rating of high, medium, or low was assessed for each mitigation item.

Amanda thanked everyone for attending the meeting and stated that if the planning team members needed extra mitigation strategy handbooks that they were available upon request.

Meeting was adjourned.

Meeting 4 - Cumberland County (November 17, 2014)

Multi-Hazard Mitigation Planning Meeting Attendance

Please print clearly

Name and Contact Information (Email or Phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Remaining Minutes to attend this meeting
Baker, Alan abaker@ccmcc.com 217-225-9042	AB	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Acting Per-Child Abuse Coordinator	Illinois	31
Baker, Michelle mbaker@ccmcc.com 217-225-9042		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Health Inquiry / Staff Nurse	Carbondale Co.	
Baker, Ben bbaker@ccmcc.com 217-225-9042		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Board Member	Carbondale Co.	
Baker, Ben bbaker@ccmcc.com 217-225-9042	RB	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Engineer	Carbondale Co.	11
Baker, Todd tbaker@ccmcc.com 217-225-9042	TB	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	CTSD #77 / Admin	CTSD #77	
Baker, Ian ibaker@ccmcc.com 217-225-9042	IB	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	State Attorney	Carbondale Co.	2
Baker, Michael mbaker@ccmcc.com 217-225-9042	MB	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Fire Chief	Carbondale Co.	16
Baker, Michael mbaker@ccmcc.com 217-225-9042	MB	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Superintendent of Schools	Illinois (CTSD #9)	28
Baker, Michael mbaker@ccmcc.com 217-225-9042	MB	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Owner	Toledo, Missouri	
Baker, Michael mbaker@ccmcc.com 217-225-9042	MB	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Auto Coordinator	Group	10

Meeting 4 - November 17, 2014

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Source and contact information (email or phone)	Source initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Reason for Attending this event in relation to meeting
Isadora Ellis isad@earthlink.net 212-686-2371		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Health Dept./ Environmentalist	Cumtack Co.	
Larry Oros larry@earthlink.net 212-227-1887 212-686-2371		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Builder	Tecote	
John R. Bue jrbue@earthlink.net 212-686-2353	dl	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	PA&S Inc	Tecote Inc. Bldg	
Frank Ward		☐ As a Public Employee ☒ As a Private Employee ☐ As an Interested Citizen		Cumtack Co.	
Larry Clark		☐ As a Public Employee ☒ As a Private Employee ☐ As an Interested Citizen		Village of Mount	
Walter Bue wbu@earthlink.net 212-686-2353		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Freightcar & B&T	Gwenay	
Macrina McGowan		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Producers	Tecote Refuse	
Melvin S. Sack		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Chief, Tempco Services of Automation	Cumtack Co.	
McGowan, Brian		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Tecote	Village of Mount	
McGowan, Brian		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Clerk	Village of Mount	
Henry S. Shaw hshaw@earthlink.net 212-686-2789	scw	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Chester from Teko	refuse Village of Teko	1

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Name and contact information (print or phone)	Year	Your Reason for Attending (check only ONE box)	Job Title	Employer	Reason for volunteering
Craig, David		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	BAT	Toddle Amusement	
Cover, Jeff		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	RPI Trail Staff		
Dierker, Stuart 20 Redwood Road, Santa Cruz 95712-1201 (657) _____		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Administrator	Conchita's Co. Health Dept.	
Dyball, Dale 8500 E. Elgin Road, San Jose 95121-4503 (408) _____		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Supervisor of Assessments	Cambridge Co.	
Fisher, Andrew, Jr. 2000 Alameda Ave., San Francisco 94106-1000 (415) _____		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Construction Camp BKA	Connerland Co.	
Flucke, Mike 2500 Sycamore Street, San Jose 95128-4200 (408) _____		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Village President	Heldt	
Frost, Brian 22222 Central Expressway, Fremont 94555-2222 (415) _____		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Treasurer	Conchita's Co.	
Galen, Doug 217 Oak St., San Jose 95131-4601 (408) _____		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Toddle Pres	Conchita's Co.	
Hartman, Howard 10000 N. First Street, San Jose 95131-7900 (408) _____		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Majors Commitment	Conchita's Co.	
Hutchings, Joyce 217 Oak St., San Jose 95131-4606 (408) _____		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Board Chairman	Conchita's Co.	
Jones, George 20000 Granddunes Rd., 27494-5001 (919) _____		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Doggy Clerk	Conchita's Co.	

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Cumberland County Multi-Hazard Mitigation Planning Meetings

Assembly of the Cumberland County Planning Team Meeting 5

Meeting Date: 3/16/2015**Meeting Time:** 6:00 pm**Place:** Toledo Village Hall, 160 Courthouse Sq, Toledo, Illinois**Planning Team/Attendance:** 20**MHMP Draft Review**

The meeting is called to order.

Steve Sherwood from Cumberland County EMA thanked everyone for attending and participating in the building of the Mitigation Plan for Cumberland County. The purpose of the meeting was explained and noted the time spend building this plan has been 2 years in the making.

The draft of the plan and the correction form was given to all in attendance and asked to read plan and make needed corrections on the correction forms provided. The plan was looked over and a few questions were asked.

Barb told participants they were allowed to take the draft of the plan and return corrections to Barb by Monday, March 30, 2015. SIU will submit the plan and crosswalk by April 2, 2015. FEMA will review plan which is expected to take 1.5 to 2 months. Adoption will be placed on the County Board Meeting Agenda in May or June. Participating jurisdictions will adopt the plan following the county's formal adoption.

Meeting was adjourned.

Meeting 5 - Cumberland County (March 16, 2015)*Please print clearly***Multi-Hazard Mitigation Planning Meeting Attendance**

Name and Contact Information (Print or Printout)	Year Enrolled	Year Present for Attendance (Check one box)	Job Title	Employer	Remarks to meeting
Baker, Alan albaker@tdpsd.com 317-254-7015		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Asst. Fire Chief Asst. Coordinator	None	
Todd Bond		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	County Board Member	Cumberland Co.	
Blak, Michelle mblak@tdpsd.com 317-449-2171		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Health Report / Staff Nurse	Cumberland Co.	
Brink, Steve brinkst@tdpsd.com 317-449-2700		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	County Board Member	Cumberland Co.	
Brink, Ben A. abrink@tdpsd.com 317-449-4441		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Engineer	Cumberland Co.	
Brink, David dbrink@tdpsd.com 317-449-3127		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	CIUSD 277 / Admin	CIUSD 277	
Brink, Douglas dbrink@tdpsd.com 317-449-3127		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	State Attorney	Cumberland Co.	
Calk, Michael		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Fire Chief	Lawrence Fire Protection Dist.	
Calk, Graham (Coach) gcal@tdpsd.com 317-449-2201		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Superintendent of Schools	Meigs CIUSD #1	
Chadwick, Bill bchadwick@tdpsd.com 317-449-2592		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Owner	Toledo Township	

Meeting 5 - March 16, 2015

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Multi-Hazard Mitigation Planning Meeting Attendance

Name and Contact Information (email or phone)	Yours Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Reminded to attend this meeting
Holbrook, Nigel 317-444-3368		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Camp Board Chairman	Cumberland Co.	
Isenard, Jerry 336-663-6232/336-663-6233		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Deputy Clerk	Cumberland Co.	
Jackson, Tim 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Health Dept. / Environmental	Cumberland Co.	
Kenner, Lisa 317-448-3211	AK	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Supervisor of Assessment	Cumberland Co.	
Larson, Chad 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	1st Lt.	Tetonia	
Levin, Steve 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen		Shubel Fire Dept.	
Levin, Steve 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	EMS Param	Cumberland Co.	
Levin, Steve 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen		Village of Jewell	
Lumpkin, Chuck		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen		Cumberland County	
Matt, Bob		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Cumy Board Vice Chairman	Cumberland County	
Matt, Bob 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Fire Chief & EMT	Greenup	
McCook, Kimberly		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Paralegal	Tucker Police	

Meeting 5 - March 16, 2015

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Multi-Hazard Mitigation Planning Meeting Attendance

Name and Contact Information (email or phone)	Yours Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Reminded to attend this meeting
Camp, Roy 317-448-3211	RC	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Camp Board Member	Cumberland Co.	
Camp, Roy 317-448-3211	RC	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Auto Conductor	Greenup	6
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	EMT	Tucker Ambulance	
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	ESD Field Staff		
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Administrative	Cumberland Co. Health Dept.	1
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Supervisor of Assessment	Cumberland Co.	
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Cumberland County PMA	Cumberland Co.	
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Village President	Tetonia	
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Treasurer	Cumberland Co.	
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Tetonia Fire	Cumberland Co.	
Camp, Roy 317-448-3211		☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Highway Commissioner	Cumberland Co.	

Meeting 5 - March 16, 2015

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Multi-Hazard Mitigation Planning Meeting Attendance

Name and Contact Information (email or phone)	Your Initials	Your Reason for Attending (check only ONE box)	Job Title	Employer	Reason for Meeting to attend this meeting
Wanda Thomas wanda.thomas@delaware.gov 219-949-0005	WTH	☒ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	DEP, Fire 911 Coordinator & Trainer Deputy Sheriff	Cumberland Co. Cumberland Co. Tulaco Police	1
Shonda Nelson		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	Circuit Clerk	Cumberland Co.	
Cindy Stanley		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen	HR Manager	Cumberland Co.	1
Wanda Thomas	WTH	☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			
		☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen ☐ As a Public Employee ☐ As a Private Employee ☐ As an Interested Citizen			

Meeting 5 - March 16, 2015

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Appendix B. Press Release and Newspaper Articles

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Cumberland County Historical and Genealogical Society Meets

The Cumberland County Historical and Genealogical Society met May 1 at the Military Museum. Our president Krista Scott called the meeting to order and led the Pledge of Allegiance.

The secretary report was approved by a motion by Lottie Shook and seconded by Kathy Scott. The treasurer report was approved by a motion by Dixie Howard and seconded by Marilyn Scott.

Linda Mathaly and Jerry Brown reported that there had been several visitors from all across the US and Canada recently to the museum. The buildings will now be open tomorrow Thursday, Friday, Saturday 11 a.m. to 3 p.m. and on Sunday from 1 p.m. until 3 p.m. to accommodate visitors.

Lottie Shook reported that Weber Brothers had worked on the water lines at the Johnson Building and the Depot. The Depot had an electric damage and the repairs were made to the Johnson Building.

Lottie Shook reported on the Military Museum. The repairs will be made soon and Randy McElroy has been contacted concerning the brickwork on the tower.

A new spending policy was proposed and approved unanimously. No purchase over \$50 shall be made excluding supplies, scheduled maintenance, or utilities until it has been brought to the membership for approval.

Krista Scott reported on the upcoming fundraiser, Jeepin Through Cumberland County History. Things are moving along smoothly. The tickets for the 50/50 raffle were handed out to the membership.

Linda Mathaly reported that Jeff Winnett had offered to display his antique sulky plow at the museum site. This was generally agreed that at this time we would not be able to do this.

Krista Scott suggested we have a unit in the Neoga Days Parade and this will be finalized at the next meeting.

The meeting was adjourned and Margaret Niccum gave a presentation on 70's entertainment. This was very funny and many chuckles were heard.

Those attending were: John Thomas, Marilee Compton, Louise Oakley, Margaret Niccum, Elise Short, Lottie Shook, Marilyn Scott, Dixie Howard, Jerry Brown, Tip Garlin, Chuck Carver, Roger and Sue Grooms, Kathy Scott, Krista Scott, and Linda Mathaly.

Prayer Vigil For Life

St. Albans Catholic Church, 1912 E. 1000th Avenue, Dieterich, will host the May 19th prayer vigil for life. Father Joseph Cates, OFM, Pastor, will be celebrant and homilist for the 6:30 p.m. Holy Sacrifice of the Mass. Praying the Scriptural Rosary will begin at 6 p.m.

The 7:30 business meeting will be conducted in the Parish Center next to the church. A special guest for the evening will be Jill Schultz of St. Anthony Parish, Effingham. Jill will share her personal experience with SMALL VICTORIES and how this organization helped change her life forever. Small Victories is a not for profit organization which works tirelessly to save the unborn outside one of the largest abortion clinics in the Midwest. Over the last 21 years, Small Victories has saved over 4600 babies! Come see how one person's actions make a difference between life and death.

A library of pro-life literature, books, letter/bumper stickers, book marks, jewelry will be made available. Current pro-family legislation will be addressed. Refreshments will be served and everyone is urged to join in a prayer to return respect for all life.

Gospel Sing

The Mountbents will be bringing the gospel in song on Sunday, May 18 at 7:00 p.m. at the New Hope Christian Church. The church is located 3 miles south of Greencamp on Route 130 then 3 miles west on county road 200N and 1.5 miles south on county road 1450 W.

Come enjoy an evening of gospel music. Everyone is welcome. Host Pastor is Roger James 217-923-5588.

Toledo Village Board Meets

The Toledo Village Board met in regular session at 7:00 p.m. on Monday, May 5, 2014 in the Village Hall. Present were President Mike Fletcher, Clerk Joyce Cummins, Treasurer Terese Owen, Superintendent of Utilities Doug Morgan, Chief of Police Chris Thies and Trustees Sherry Devell, MaRanda McClain, Johnny St. John, Keith Tins, Jessi Bradley and John Beck.

Devell made a motion to approve the April 7, 2014 Meeting Minutes. Bradley seconded it, and it was approved. Devell made a motion to approve the March 2014 Bills Payable. St. John seconded it, and it was approved.

Police Chief Chris Thies informed the Board that the Police Department has been awarded a \$400.00 grant from the

Manhattan Pipeline. He would like to use the money to get the Thoe up and going. St. John made the motion, McClain seconded it, and it was approved. Thies also informed the Board about trainings, and a new part time police officer.

Superintendent Morgan reported that they are getting ready for the festival. There was also a discussion about the barricade up where the new sidewalk is. Morgan stated that he is open to suggestions about the issue.

Trustee Tins asked about what is going to be done about the building on the corner of the festival lot. President Fletcher stated that they are going to quadron off the side, front and back of the building.

Treasurer Owen stated that she has three bills that she would like to pay in the middle of the month: 1. for the LOCES service in the amount of \$2,688.00; 2. for the Water Testing Program in the amount of \$3,375.46; and 3. for carpet cleaning in the amount of \$529.00. Beck made the motion to approve the bills. Tins seconded it, and it was approved.

Owen also informed the Board that County Clerk, Joy Sutherland called and invited them to the Public Meeting with the County and Coles County Regional Planning about the Comprehensive Planning Grant on Tuesday evening from 6:30 to 8:30 p.m.

Clerk Cummins asked the Board to amend the Gas Service Ordinance so that the water increase and gas increase happens at the same time, instead of two separate times during the year. Tins made the motion, Devell seconded it, and it was approved.

The Board went into closed session at 7:28 p.m. They reconvened at 7:50 p.m.

Beck made a motion to appoint Chris Thies as Police Chief, since he has completed his probationary period, with a pay increase of \$3,000/year; to appoint Terese Owen as Village Treasurer; to appoint Joyce Cummins as Village Clerk; to appoint Tracey Willenborg as Village Attorney; and to appoint Roger Charleson as Village Engineer. Bradley seconded the motion, and it was approved.

The Board discussed the Ordinance. Cummins informed the Board that they did not have to amend their current ordinance since Ron Boveer will have to go by the state guidelines. Beck made a motion to hire Ron Boveer for the cat nuisance problem. Devell seconded it, and it was approved.

President Fletcher informed the Board that Fire Chief Chuck Layton reported that the Fire Department has been given an ISO of "7".

Trustee St. John brought up

discussion about a culvert-kind problem. Superintendent Morgan will look at it.

The meeting adjourned at 7:55 p.m.

Public Meeting On Cumberland County Multi-Hazard Mitigation Plan

The Cumberland County Multi-Hazard Mitigation Steering Committee will host a public information and strategy planning session at 6:00 p.m. on May 22, 2014 at the Toledo Village Hall, 160 Courthouse Square, Toledo, Illinois. Through a grant, Cumberland County EMA has formed an alliance with Southern Illinois University Carbondale (SIU) to identify potential natural hazards and to produce a mitigation plan to address the issues. The ongoing efforts of the partnership will result in a Multi-Hazard Mitigation Plan (MHMP) for the county to submit to the Federal Emergency Management Agency for approval.

The Federal Emergency Management Agency (FEMA) now requires each unit of government in the United States to have a FEMA-approved MHMP, so completion of the Cumberland County plan is critical. The MHMP's will serve as a framework for developing hazard mitigation projects that will reduce the negative impact of future disasters on the communities and unincorporated areas of the county. Examples of projects that have been completed by some communities include storm shelters, warning sirens, flood walls, and fire protection enhancements.

The planning team has identified the following hazards: tornadoes, severe thunderstorms, flooding, winter storms, heat/drought, earth quakes, harvest, fire, dam/levee failure, and sabotage. The planning team then selected hazards for SIU to model with Hazus-MH, a GIS-based risk mitigation tool developed by FEMA. Hazus MH is capable of predicting the probable impacts of specific disasters in terms of financial, human life, and safety impacts, as well as various others.

Once the plan is completed, the planning team will submit it to FEMA for approval. The planning team will also work to develop funding for any mitigation services that are identified.

The public is invited to attend the May 22, 2014 meeting and the planning team is interested in receiving public input on the plan.

For more information about the Multi-Hazard (Pro-Disaster) Mitigation Plan, please see <https://www.state.il.us/online/planning.htm>.

University Extension Investing In Families Title Development: Brain Health Series

Brain Health is an interactive three-part series designed to better understand our brains as we mature. It's checked full of

tips and strategies to improve and maintain brain function. Participants are encouraged to attend all three sessions, in case of conflicts, handouts are served and will be mailed at the conclusion of the series. Sessions will be held in Arthur and Toledo.

Participants must pre-register by calling their local Extension Office. Arthur at 543-3755 and Toledo at 849-3931. There is a \$5 fee that can be paid the day of the workshop and covers all these costs.

Session 1: Building a Better Memory: Aging and memory loss hand in hand! Not necessarily, we can do things to improve our memories. Learn some strategies and techniques for improving your memory.

Session 2: FIT WITS: Keeping your wits fit is more than doing crossword puzzles and word searches! Research shows that brain health is directly related to body health! People often think more about keeping their bodies and/or heart fit, but we shouldn't forget about our brains!

Session 3: Head Strong: Exercise Strategies to Enhance Memory and Thinking: Are you headstrong about keeping your head strong? Challenging the brain, especially as you grow older can be beneficial. Many of us enjoy working on puzzles and games that require us to think and stretch our minds. Come join us as we get together to explore several exercise strategies to challenge our brain.

Program locations and dates, each session is from 10:00 to 11:30 a.m.

Arthur 122 S. Walnut Street

- Session 1: June 16
- Session 2: June 23
- Session 3: June 30

Toledo 160 Courthouse Square

- Session 1: July 1
- Session 2: July 8
- Session 3: July 15

Please call 543-3755 or contact Cheri Huchman at cheri@illinois.edu with any questions.

Jesse White's Vehicle Renewal Sticker Receipt Legislation Approved By House Committee

Illinois people to drive provided they have proof of recently purchased vehicle renewal sticker

Legislation proposed by Illinois Secretary of State Jesse White to allow a printed receipt from the Secretary of State to serve temporarily as the vehicle renewal sticker was approved by the House Transportation, Vehicles and Safety Committee.

Senate Bill 2802 would allow motorists to drive without an up-to-date vehicle renewal sticker affixed to their license plate provided they have a receipt from the Secretary of State that proves they purchased a sticker online before expiration, but have not yet received the registration sticker. The receipt is valid for not more than 30 days from the expiration of the previous registration's sticker date.

"This is another consumer friendly initiative that encourages online transactions with my office," said White. "Our Driver Services facilities have many customers come in to buy their stickers a day or two before they are set to expire. This bill will allow such customers to make the same purchase online, and then use the receipt as proof of up-to-date registration compliance."

Last year, more than

150,000 customers purchased vehicle renewal registration stickers during the last two days in May. The vast majority of customers visited a facility to conduct these transactions, just over 6,300 people purchased their renewal stickers online.

White's office has continually worked to provide more services online to further improve customer convenience. Over the last seven years, internet transactions have increased by more than 300 percent in the Secretary of State's office.

Senate Bill 2802, which was sponsored by state Sen. Patricia Vint (D-Chicago) and state Rep. Arthur Turner (D-Chicago), now goes to the full House of Representatives for consideration. The measure passed the State Senate unanimously on March 4.

Neoga City Council Meets

The Neoga City Council met in regular session on Monday, April 28, 2014 at 7:00 p.m. Present were Mayor Wayne Medley; Clerk Brenda Evans; Treasurer Diane Forer; and Commissioners Marty Horke, Larry Landley, Ronnie Groves, and Tony Kepp. Also present from the Cumberland County Board were Floyd Holkenbrink and Todd Beal.

The first business was a discussion on the Intergovernmental Agreement with Cumberland County Animal Control. Clerk Evans explained to the Council about a dog bite the city encountered. After some discussion the Council agreed to sign the agreement, but will keep their own animal control because of costs.

Next the Council agreed to sponsor a Peace Corps Fellow, who will start in September for an 11 month program at a cost of \$5,000.00, plus office space and equipment.

The Council approved a R/L Loan to the Neoga IGA in the amount of \$150,000.00.

The Council held a discussion about the Railroad Communication Tower. The Railroad wants the tower along the railroad at 6th Street, but the Council has requested the tower be moved south less than 1/2 mile. The City Attorney Glenn Berden is handling this situation.

The Council awarded the IBE Grant to Klein Excavating out of Peoria at a cost of \$182,607.61. This project is for the drainage ditch on the east side of Neoga.

In other business, the Council agreed:

- *to donate \$750.00 to Peace Meal. They also agreed if Neoga Township donates more, the Village Council will match what they donate.
- *to pay the bills in the amount of \$102,568.22.
- *to donate \$750.00 for flowers for the downtown project.
- *heard a presentation from Bernards Securities, Inc. on refinancing their bonds.
- *to still accept bids for the city-wide clean up to be held May 17th on the west side and May 24th on the east side.

The meeting adjourned at 8:32 p.m.

Thank you for all that you do.



National Nurses Week

Sarah Bush Lincoln

Trusted Compassionate Care

CUSTOMER APPRECIATION DAY

MAY 20TH 9AM - 3PM

Hot Dogs & Drinks - Current Customers 20% OFF (10¢ off bottle-filled FREE)*

SWITCH TO US AND GET \$100 IN CREDIT

offer expires 10/31/14

EASTERN ILLINOIS PROPANE

607 WEST STATE ST
CHARLESTON, IL 61920
217-345-3993

*\$10 in credit toward propane purchases. Offer applies to all propane purchases made on or after 5/20/14.

Meeting today to address public hazards in Cumberland County

TOLEDO (JG-TC) — A public meeting scheduled for today will be a chance for Cumberland County residents to tell officials about potential hazards in the county.

The county's Hazardous Mitigation Planning Committee will conduct the meeting that's scheduled to begin at 6 p.m. and take place in the Toledo Village Hall, according to a news release.

The release said the meeting will be to verify known hazards in the county and to identify any missed hazards the committee might need to address. It said the committee has been working for the project for the last few months and would appreciate any input from county residents.

The release said anyone with questions can call Steve Sherwood, the county's Emergency Management Agency coordinator, at 217-849-4040.

Humboldt sets mosquito spraying

HUMBOLDT (JG-TC) — Aerial spraying for mosquito



In this Aug. 20 photo, Jennifer is ordering of the playground that will

Playground 5-month

JERMAINE PIGEE

The (Sterling) Daily Gazette

MILLEDGEVILLE (AP) — Adam Drinkall wishes he could watch his daughter, Ivy Faith, play with her two sisters, Lili, 8, and June, 5.

"You take those things for granted," he said, holding back tears.

Ivy Faith was just 5 months old when she died last July of sudden infant death syndrome.

In her memory, the Drinkall family raised \$60,000 in about

Appendix C. Adopting Resolutions

Resolution # _____

ADOPTING THE CUMBERLAND COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, Cumberland County recognizes the threat that natural hazards pose to people and property;
and

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

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for
mitigation projects; and

WHEREAS, Cumberland County participated jointly in the planning process with the other local units of
government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that Cumberland County hereby adopts the Cumberland County
Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Cumberland County Emergency Management Agency will submit on
behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois
Department of Homeland Security and the Federal Emergency Management Agency for final review and
approval.

ADOPTED THIS _____ Day of _____, 2015.

County Board Chairman

County Board Vice Chairman

County Board Member

County Board Member

County Board Member

County Board Member

Attested by: County Clerk

Resolution # _____

ADOPTING THE CUMBERLAND COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the Village of Toledo recognizes the threat that natural hazards pose to people and property;
and

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

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for
mitigation projects; and

WHEREAS, the Village of Toledo participated jointly in the planning process with the other local units of
government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Toledo hereby adopts the Cumberland County
Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Cumberland County Emergency Management Agency will submit on
behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois
Department of Homeland Security and the Federal Emergency Management Agency for final review and
approval.

ADOPTED THIS _____ Day of _____, 2015.

Village President

Village Council Member

Village Council Member

Village Council Member

Village Council Member

Attested by: Village Clerk

Resolution # _____

ADOPTING THE CUMBERLAND COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the Village of Greenup recognizes the threat that natural hazards pose to people and property;
and

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

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for
mitigation projects; and

WHEREAS, the Village of Greenup participated jointly in the planning process with the other local units of
government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Greenup hereby adopts the Cumberland County
Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Cumberland County Emergency Management Agency will submit on
behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois
Department of Homeland Security and the Federal Emergency Management Agency for final review and
approval.

ADOPTED THIS _____ Day of _____, 2015.

Village President

Village Council Member

Village Council Member

Village Council Member

Village Council Member

Attested by: Village Clerk

Resolution # _____

ADOPTING THE CUMBERLAND COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the Village of Jewett recognizes the threat that natural hazards pose to people and property;
and

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

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for
mitigation projects; and

WHEREAS, the Village of Jewett participated jointly in the planning process with the other local units of
government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the Village of Jewett hereby adopts the Cumberland County
Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Cumberland County Emergency Management Agency will submit on
behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois
Department of Homeland Security and the Federal Emergency Management Agency for final review and
approval.

ADOPTED THIS _____ Day of _____, 2015.

Village President

Village Council Member

Village Council Member

Village Council Member

Village Council Member

Attested by: Village Clerk

Resolution # _____

ADOPTING THE CUMBERLAND COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, the City of Neoga recognizes the threat that natural hazards pose to people and property; and

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

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, the City of Neoga participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that the City of Neoga hereby adopts the Cumberland County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Cumberland County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2015.

City President

City Council Member

City Council Member

City Council Member

City Council Member

Attested by: Village Clerk

Resolution # _____

ADOPTING THE CUMBERLAND COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, Cumberland CUSD #77 recognizes the threat that natural hazards pose to people and property; and

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

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, Cumberland CUSD #77 participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that Cumberland CUSD #77 hereby adopts the Cumberland County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Cumberland County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2015.

School Board President

School Board Vice President

School Board Member

School Board Member

School Board Member

Attested by: School Board Clerk

Resolution # _____

ADOPTING THE CUMBERLAND COUNTY MULTI-HAZARD MITIGATION PLAN

WHEREAS, Neoga CUSD #3 recognizes the threat that natural hazards pose to people and property; and

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

WHEREAS, an adopted multi-hazard mitigation plan is required as a condition of future grant funding for mitigation projects; and

WHEREAS, Neoga CUSD #3 participated jointly in the planning process with the other local units of government within the County to prepare a Multi-Hazard Mitigation Plan;

NOW, THEREFORE, BE IT RESOLVED, that Neoga CUSD #3 hereby adopts the Cumberland County Multi-Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED that the Cumberland County Emergency Management Agency will submit on behalf of the participating municipalities the adopted Multi-Hazard Mitigation Plan to the Illinois Department of Homeland Security and the Federal Emergency Management Agency for final review and approval.

ADOPTED THIS _____ Day of _____, 2015.

School Board President

School Board Vice President

School Board Member

School Board Member

School Board Member

Attested by: School Board Clerk

Appendix D. Historical Hazards

See Attached Newspaper Clippings

Appendix E. List of Critical Facilities

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

Emergency Operations Centers

Name	Address	City	Comments
Neoga Village Hall	533 Chestnut Ave	Neoga	
Neoga Fire Protection District	757 Chestnut St.	Neoga	Neoga Ambulance

Fire Stations

Name	Address	City	Comments
Greenup Fire Protection District	115 Cumberland St.	Greenup	Greenup Ambulance
Neoga Fire Protection District	757 Chestnut St.	Neoga	Neoga Ambulance
Toledo Fire Protection District	160 Courthouse Square	Toledo	

Police Stations

Name	Address	City	Comments
Cumberland County Sheriff	166 Courthouse Sq	Toledo	
Greenup Police Department	115 W Cumberland St	Greenup	
Neoga Police Department	533 S Chestnut Ave	Neoga	
Toledo Police Department	160 Courthouse Sq	Toledo	

Medical Care Facilities

Name	Address	City	Comments
Cumberland Rehab and Health Care Center	300 N Marietta St	Greenup	Nursing Care
Heartland Christian Village	101 Trowbridge Rd	Neoga	Nursing Care; 71 Beds
Neoga Clinic	650 Oak St	Neoga	Sarah Bush Lincoln Health System; Minor Emergency
Marshall Clinic	223 E 6th St	Neoga	
SBL Toledo Clinic	168 Courthouse Sq.	Toledo	Sarah Bush Lincoln Health System; Minor Emergency
Cumberland County Health Department	200 S. Indiana St	Toledo	

Schools

Name	Address	City	Comments
Neoga Junior Senior High School	710 E 7th Street	Neoga	389 Students
Neoga Elementary School	641 West 6th Street	Neoga	252 Students
Neoga Middle School	790 E 7th Street	Neoga	186 Students
Cumberland Middle/High School	1496 IL RT 121	Toledo	591 Students
Cumberland Elementary School	1496 IL RT 121	Toledo	461 Students

Government Facilities

Name	Address	City	Comments
Cumberland County Office/Annex	140 Courthouse Sq	Toledo	
Cumberland County Highway Office	800 E Industrial Drive	Toledo	
Jewett Village Hall	2 N 12th Ave	Jewett	
Toledo Village Hall	160 Courthouse Sq	Toledo	
Neoga Village Hall	533 Chestnut Ave	Neoga	
Greenup Village Hall	115 E. Cumberland St.	Greenup	
Cottonwood Township Building	1200 CO RD 1200E	Toledo	
Crooked Creek Township Building	112 N Pine St	Hazel Dell	
Greenup Township Building	208 IL RTE 130	Greenup	
Spring Point Township Building	426 CO RD 500E	Sigel	
Sumptner Township Building	635 CO RD 1200E	Toledo	
Union Township Building	2091 CO RD 1100N	Greenup	
Woodbury Township Building	108 S 13th St	Jewett	

Historical/Commerce Facilities

Name	Address	City	Comments
Jackson Truss Covered Bridge	1528 Cumberland Rd	Greenup	Historical
Cumberland County Historical Museum	211 W Cumberland St	Greenup	Historical
Military Museum	101 N Mill St	Greenup	Historical
Cumberland County Fairgrounds	1562 Cumberland Rd	Greenup	Historical
Cumberland County Historical and Genealogical Society	213 W Cumberland St	Greenup	Historical
Historic Greenup Depot	213 W Cumberland St	Greenup	Historical
Jewett Depot	254 CR 1125 E	Jewett	Historical
Cumberland County Courthouse	1 Courthouse Sq	Toledo	Historical
Thornton Ward Estate	1387 U.S Route 40	Toledo	Historical
Toledo Depot (Kiwanis Building)	101 Maryland St	Toledo	Historical
Bergbower Chiropractic	100 W Cumberland St	Greenup	Historical / Commerce
Designs Unlimited	102 W Cumberland St	Greenup	Historical / Commerce
Simply for You Botique	104 W Cumberland St	Greenup	Historical / Commerce
Greenup Mason Lodge	110 W Cumberland St	Greenup	Historical / Commerce
American Legion	112 W Cumberland St	Greenup	Historical / Commerce
Visual Effects	116 W Cumberland St	Greenup	Historical / Commerce
Saathoff's Restaurant	120 W Cumberland St	Greenup	Historical / Commerce
Village Mercantile	101 W Cumberland St	Greenup	Historical / Commerce
Buy a Farm Auction Co	105 W Cumberland St	Greenup	Historical / Commerce
Cumberland Collections	107 W Cumberland St	Greenup	Historical / Commerce
D & D Flower Shop	109 W Cumberland St	Greenup	Historical / Commerce
Chances R Sports Bar	113 W Cumberland St	Greenup	Historical / Commerce
Pank's Pizza	121 W Cumberland St	Greenup	Historical / Commerce
Candy Kitchen	123 W Cumberland St	Greenup	Historical / Commerce
POWER TUMBLING	100 E Cumberland St	Greenup	Historical / Commerce
Dentist	102 E Cumberland St	Greenup	Historical / Commerce
Greenup Archery	106 E Cumberland St	Greenup	Historical / Commerce
Cumberland Internet Inc.	110 E Cumberland St	Greenup	Historical / Commerce
Garage Funk	112 E Cumberland St	Greenup	Historical / Commerce
Antiques & Collectables	114 E Cumberland St	Greenup	Historical / Commerce
Kemper Enterprises	122 E Cumberland St	Greenup	Historical / Commerce
Creative Journey Inc.	124 E Cumberland St	Greenup	Historical / Commerce
Grandma's Place	107 S Kentucky St	Greenup	Historical / Commerce
Webb's Tax Service	109 S Kentucky St	Greenup	Historical / Commerce
Cumberland County Military Museum	202 W Cumberland St	Greenup	Historical / Commerce
Reese's Body Shop & Towing	204 W Cumberland St	Greenup	Historical / Commerce
Greenup Auction House	215 W Cumberland St	Greenup	Historical / Commerce
Cameo Vineyards	400 Mill Rd	Greenup	Tourism
Grissom Lost Creek Orchards and Farm Market	680 IL Rt. 130	Greenup	Tourism

Churches

Name	Address	City	Comments
Toledo Christian Church	501 S Maryland St	Toledo	
Toledo United Methodist Church	213 E Madison St	Toledo	
Christ the King Catholic Church	110 E Lincoln Dr	Greenup	
Greenup United Methodist Church	201 N Kentucky St	Greenup	
Jewett Community Church Fellowship Center	806 Adams St	Jewett	
United Presbyterian Church	704 Locust Ave	Neoga	
United Presbyterian Church	704 Locust Ave	Neoga	
St. Mary of Assumption Catholic Church	690 N. Walnut Ave	Neoga	
Neoga Grace United Methodist Church	752 walnut Ave	Neoga	
Neoga Full Gospel Fellowship	669 Chesunt Ave	Neoga	
Home Missionary Church	500 Walnut Avenue	Neoga	
First Christian Church of Neoga	190 East 6th St.	Neoga	
Faith Southern Baptist Church	770 Grove Street	Neoga	

Pipelines

Name	Location	City	Comments
Ameren Line	North-South; Mattoon by Neoga along I-57 to Sigel	Mattoon	Natural Gas
Buckeye Partners LP	Southwestern third of County; Runs Northeast-East	Hartford	Jet Fuel; Gasoline; Diesel
NuStar Energy L.P.	CO RD 800E to CO RD 2300 E	Lerna	Anhydrous Ammonia
Marathon Pipe Line, LLC	South Central Portion of County	Martinsville	Oil and Gasoline
Trunkline Gas Co	Western Portion of County; Runs North-South	Tuscola	Natural Gas

Sirens & Towers

Owner	Address	City	Comments
Village of Greenup	12Th and Delaware	Greenup	Siren
Village of Jewett	Adams St. and 9th	Jewett	Siren
Village of Neoga	8th and Park St	Neoga	Siren
Village of Neoga	7th and Chestnut St	Neoga	Siren
Village of Neoga	9th and Grove St	Neoga	Siren
Village of Greenup	1496 IL RT 121	Greenup	Siren
City of Mattoon	Shorts Drive	Mattoon	Siren
Village of Toledo	140 Courthouse Sq.	Toledo	Siren
254 CR 1300 N		Neoga	Cell Tower - Tan Tower
410 CR 1800 E		Greenup	Cell Tower - Tan Tower/Building
917 CR 200 E		Neoga	Cell Tower - Tan Shed
128 CR 800 E		Montrose	Cell Tower - Tan Tower
2379 CR 200 N		Hazel Dell	Cell Tower - Water/Cell Tower
490 CR 550 N		Neoga	Cell Tower - Gated Cell Tower W/W
2025 CR 750 N		Greenup	Cell Tower

Water Facilities

Name	Address	City	Comments
Greenup Sewage Treatment Plant	898 Cumberland Rd	Greenup	
Montrose Sewage Treatment Plant	North FA Route 160	Montrose	
Neoga Sewage Treatment Plant	702 W 5th Street	Neoga	
Toledo Sewage Treatment Plant	702 W 5th Street	Toledo	
Jewett Potable Water Facility	Cumberland Road	Jewett	
Diepholz Pond Dam	Tributary to Embarrass River		Owner - Mr. Morry Diepholz
Ettlebrick Lake Dam	Range Creek		Owner - Ettlebrick Shoe Company
Lake Charleston Dam	Tributary to Embarrass River		
Lake Louis Dam	Bear Creek		Owner - Skeff Distributing Company
Mill Creek Structure Dam	East Mill Creek		
Montrose City Lake Dam	Spring Point Creek		Owner - Village Of Montrose

Appendix F. Critical Facilities Map

See Attached Large Format Map of Critical Facilities.