

Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update

Kendall County, Illinois



Participants:

Kendall County	Oswego Community Unit School District #308
Bristol-Kendall Fire Protection District	Oswego Fire Protection District
Kendall Township	Oswego Township
Lisbon, Village of	Oswegoland Park District
Lisbon Consolidated Community School District #90	Parkview Christian Academy
Lisbon-Seward Fire Protection District	Plano, City of
Montgomery, Village of	Plano Community Unit School District #88
Newark, Village of	Plattville, Village of
Newark Community High School District #18	Sandwich Community Fire Protection District
Newark Fire Protection District	St. Mary Catholic School
Oswego, Village of	Yorkville, United City of

March 2024



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

Cover photographs from left to right:

- *June 12, 2013 thunderstorm with damaging winds four miles northeast of Plano – Photograph from the Chicago NWS Weather Forecast Office June 12th, 2013: Severe Weather Event*
 - *April 17 & 18, 2013 riverine and flash flooding – Photograph courtesy of the Kendall County Sheriff's Office*
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KENDALL COUNTY MULTI-JURISDICTIONAL ALL HAZARDS MITIGATION PLAN

KENDALL COUNTY, ILLINOIS

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Researched and written for the Kendall County Multi-Jurisdictional
Multi-Hazard Mitigation Planning Committee
by American Environmental Corporation



1.0 INTRODUCTION

Each year natural hazards (i.e., severe thunderstorms, tornadoes, severe winter storms, flooding, etc.) cause damage to property and threaten the lives and health of the residents of Kendall County. Since 1973, Kendall County has been included in seven major federally-declared disasters and six emergency declarations. **Figure I-1** identifies each federal declaration including its declaration number, the year the disaster was declared, type of declaration, and the natural hazard that triggered the declaration. Since 2010, the County has been included in nine state disaster proclamations. **Figure I-2** identifies the year the proclamation was issued and the type of natural hazard that triggered the declaration. The natural hazard(s) recognized as contributing to the declaration for Kendall County is identified in bold.

Figure I-1 Federal Emergency & Major Disaster Declarations: Kendall County			
Declaration #	Year	Declaration Type	Natural Hazard(s) Covered by Declaration
373	1973	Major	severe storms; flooding
438	1974	Major	severe storms; flooding
3068	1979	Emergency	blizzards; snowstorms
878	1990	Major	tornadoes
1129	1996	Major	severe storms; flooding
3134	1999	Emergency	winter storm
3161	2000	Emergency	winter snowstorm
3230	2005	Emergency	hurricane Katrina evacuation
3269	2006	Emergency	snow
1800	2008	Major	severe storms; flooding
4116	2013	Major	severe storms; straight-line winds; flooding
3435	2020	Emergency	COVID-19
4489	2020	Major	COVID-19 pandemic

Figure I-2 State Disaster Proclamations: Kendall County	
Year	Hazard(s) Covered by Declaration
2011	winter weather
2011	high wind; tornadoes; torrential rain
2013	severe storms; straight-line winds; heavy rainfall; flooding
2014	heavy snowfall; frigid temperatures
2019	winter storm (frigid temperatures)
2020	COVID-19
2021	winter storms
2022	winter storms
2022	Monkeypox

In the last 10 years alone (2013 – 2022), there have been 48 thunderstorms with damaging winds, 41 extreme cold events, 30 excessive heat events, 29 severe winter storms, 25 riverine flood events, 20 flash flood events, 10 severe storms with hail one inch in diameter or greater, 6 tornadoes, 2 verified heavy rain events, and 1 lightning strike with verified damages in the County.

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

What is hazard mitigation planning?

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

Why update an all mitigation plan?

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

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

How is this plan different from other emergency plans?

An all hazards mitigation plan is aimed at identifying projects and activities that can be conducted prior to a natural or man-made disaster, unlike other emergency plans which provide direction on how to respond to a disaster after it occurs. This is the first time that Kendall County has updated its hazard mitigation plan since the original plan was prepared in 2011. This update describes in detail the actions that can be taken to help reduce or eliminate damages caused by specific types of natural and man-made hazards.

1.1 PARTICIPATING JURISDICTIONS

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

While all of the municipalities within the County were invited and encouraged to participate in the Plan update, Millbrook and Millington chose not to engage in the process and therefore are not included as participating jurisdictions in the Plan update. Small portions of Aurora, Joliet, Minooka, Plainfield, and Sandwich are located in Kendall County. Minooka participated in the 2020 update of the Grundy County Hazard Mitigation Plan. Joliet and Plainfield participated in the 2021 update of the Will County Hazard Mitigation Plan while Sandwich participated in the 2021 update of the DeKalb County Hazard Mitigation Plan. Aurora is participating in the 2023

update of the Kane County Hazard Mitigation Plan. Therefore, the risk and/or vulnerability of these municipalities are not discussed in this Plan.

Figure I-3
Participating Jurisdictions Represented in the Plan

❖ Bristol-Kendall Fire Protection District	❖ Oswego Community Unit School District #308
❖ Kendall County	❖ Oswego Fire Protection District
❖ Kendall Township	❖ Oswego Township
❖ Lisbon, Village of	❖ Oswegoland Park District
❖ Lisbon Consolidated Community School District #90	❖ Parkview Christian Academy
❖ Lisbon-Seward Fire Protection District	❖ Plano, City of
❖ Montgomery, Village of	❖ Plano Community Unit School District #88
❖ Newark, Village of	❖ Plattville, Village of
❖ Newark Community High School District #18	❖ Sandwich Community Fire Protection District
❖ Newark Fire Protection District	❖ St. Mary Catholic School
❖ Oswego, Village of	❖ Yorkville, United City of

1.2 COUNTY PROFILE

Kendall County is located in northeastern Illinois and covers approximately 322 square miles. Located at the end of this section, **Figure I-4** provides a location map of the County and the participating municipalities while **Figures I-5** and **I-6** identify the boundaries of the census tracts located in the County. **Figures I-7, I-8, I-9, and I-10** identify the boundaries of the townships, schools, fire protection districts, and park district.

The County is bounded to the north by Kane County, to the northeast by DuPage County, to the east by Will County, to the south by Grundy County, and to the west by LaSalle and DeKalb Counties. The United City of Yorkville is the county seat.

The northern two-thirds of Kendall County is situated in the Bloomington Ridged Plain subsection of the Till Plains section of the Central Lowland Province while the southern one-third is located in the Kankakee Till Plain subsection of the Till Plains section of the Central Lowland Province. The topography is nearly level to gently sloping and has a relatively low relief on the glacial lake plains and more rolling topography along the major stream valleys and on glacial moraines. The numerous glacial moraines in the area tend to form elongated ridges tending from northwest to southeast. Soils classified as prime farmland comprise approximately 78% of the total acreage in Kendall County. The northern and western portions of the County are drained by the Fox watershed while the southern and most of the east portion of the County are encompassed but the Illinois River Valley watershed. A small portion of Kendall County along its eastern border with Will County is drained by the Des Plaines watershed.

According to the Multi-Resolution Land Characteristics (MRLC) Consortium, in 2021 approximately 84.8% of the County's land cover was vegetation, including developed open spaces, cultivated crop land, pasture/hay, grassland, and deciduous/evergreen/mixed forest while 13.3%

of the County's land cover was considered developed with 6.3% impervious surfaces. Between 2011 and 2021 approximately 3.2 square miles or approximately 1% of the land cover in the County changed with 0.55 square miles of development and 0.79 square miles of impervious surfaces gained. **Figure I-11** illustrates the changes by land cover type.

Figure I-11 Kendall County Land Cover Data: 2011 to 2021						
Land Cover Categories	Area 2011	Area Lost	Area Gained	Area 2021	Net Change	Percent Change
Developed, High Intensity	4.07	0.00	0.43	4.50	0.43	10.50%
Developed, Medium Intensity	12.30	-0.03	0.97	13.23	0.93	7.60%
Developed, Low Intensity	25.41	-0.51	0.36	25.25	-0.16	-0.63%
Developed, Open Space	16.43	-0.82	0.16	15.78	-0.65	-3.98%
Cultivated Crops	230.64	-0.99	0.16	229.81	-0.84	-0.36%
Pasture/Hay	9.05	-0.16	0.29	9.18	0.13	1.44%
Grassland	2.36	-0.12	0.11	2.35	-0.01	-0.57%
Deciduous Forest	16.09	-0.09	0.08	16.08	-0.02	-0.10%
Evergreen Forest	0.08	0.00	0.00	0.07	0.00	-2.77%
Mixed Forest	0.21	0.00	0.01	0.22	0.01	5.21%
Scrub/Shrub	0.07	-0.04	0.02	0.06	-0.02	-20.47%
Woody Wetland	1.97	-0.01	0.03	2.00	0.02	1.14%
Emergent Herbaceous Wetland	0.32	-0.04	0.17	0.45	0.13	39.18%
Barren Land	0.75	-0.16	0.34	0.93	0.18	23.68%
Open Water	2.50	-0.24	0.11	2.37	-0.13	-5.21%
Perennial Snow/Ice	0.00	0.00	0.00	0.00	0.00	0.00%
*All numbers expressed in square miles						

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

Kendall County has traditionally been known for its fertile farmland. According to the 2017 Census of Agriculture, there were 313 farms in Kendall County occupying almost 67% (137,899 acres) of the total land area in the County. The major crops include corn, soybeans, vegetables, melons, potatoes, sweet potatoes, nursery, greenhouse, floriculture, and sod. Major livestock includes cattle and calves, poultry, and horses and ponies. The County ranks 8th in the State for nursey, greenhouse, floriculture and sod, 11th in the State for vegetables, and 71st in the State for grains (corn and soybeans). In terms of livestock, the County ranks 38th for poultry and eggs and 76th for horses and ponies. Kendall County ranks 66th in crop cash receipts and 78th in livestock cash receipts.

The largest employment sectors in Kendall County are health care and social assistance, manufacturing, retail trade, and educational services according to the Illinois Department of Commerce and Economic Opportunity. According to the Kendall County Economic Development Department, major employers in the County include Oswego CUSD #308, Yorkville CUSD #115, Walmart, Performance Food, Menards, Wrigley, Kendall County, Hormann LLC, Plano CUSD #88, United City of Yorkville, Fox Valley Molding, and Radiac Abrasives. According to U.S. Cluster Mapping the top traded economic cluster in Kendall County is distribution and electronic commerce.

Figure I-12, located at the end of this section, provides demographic and socio-economic data for the County and participating townships and municipalities. One of the seven participating

municipalities meets the definition of an Economically Disadvantaged Rural Community (EDRC) while neither of the townships meet the definition. FEMA defines an EDRC as a community of 3,000 or fewer individuals whose residents have an average per capita annual income not exceeding 80 percent of the U.S. per capita income based on best available data.

Figure I-13, also located at the end of this section, provides additional demographic information by census tract with the U.S. Council on Environmental Quality Climate and Economic Justice Screening Tool (CEJST) and the CDC/ATSDR Social Vulnerability Index (SVI) and overall level of vulnerability. CEJST is a geospatial mapping tool that identifies census tracts across the nation where communities are faced with significant burdens, which are grouped into eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. Communities are considered disadvantaged if they are in census tracts that meet the thresholds for at least one of these categories. In Kendall County, none of the participating jurisdictions are considered disadvantaged.

The SVI is a database that uses U.S. Census Bureau American Community Survey data to rank census tracts and counties on 16 social factors within four themes: Socioeconomic Status, Household Characteristics, Racial & Ethnic Minority Status, and Housing Type & Transportation. The goal of the SVI is to help emergency response planners and public health officials identify, map, and plan support for communities that will most likely need support before, during, and after a public health emergency.

The rankings generated by the SVI describe a county's or census tract's relative vulnerability among all other U.S. counties and census tracts. The SVI data used in this document is based on 2020 census tract information. Rankings are based on percentiles ranging from 0 to 1, with higher values indicating greater vulnerability. Each ranking is assigned to one of four levels of vulnerability: Low (0 – 0.2499), Low to Medium (0.2500 – 0.4999), Medium to High (0.5000 – 0.7499), and High (0.7500 – 1). A community with an SVI of 0.6000 or greater is considered an underserved and/or disadvantaged community. In Kendall County, none of the participating jurisdictions that meet this definition.

Figures I-14, I-15, and I-16 provides basic demographic information about the size and populations served by the participating school districts, fire protection districts, and park district.

1.3 LAND USE AND DEVELOPMENT TRENDS

Population growth and economic development are two major factors that trigger changes in land use. Between 2010 and 2020 the population of Kendall County increased by 14.9% from 114,736 to 131,869. This is a continuation of a larger trend. U.S. Census Bureau records indicates that between 1900 and 2010, the population of Kendall County increased by 1000% from 11,467 to 114,736. Between 2010 and 2020, four of the seven participating municipalities experienced population increases: Yorkville by 27.3%, Oswego by 13.9%, Montgomery by 9.9%, and Plano by 9.1%. During the same time period, the remaining three participating municipalities experienced modest populations decreases: Lisbon by 4.9%, Newark by 1.9%, and Plattville by 9.1%.

Figure I-14 Demographic Data by Participating School District					
Participating District	Number of Schools in District	Estimated Population Served	Area Served (Sq. Miles) (2020)	Communities / Unincorp. Areas Served in the County	Census Tracts Falling with the District
Lisbon Consolidated Community School District #90	1	500	40.5	Lisbon, Newark	7.03
Newark Community High School District #18	1	3,000	101	Lisbon, Millbrook, Newark, Norway	6.02, 7.03
Oswego Community Unit School District #308	23	17,500	68.8	Aurora, Montgomery, Oswego, Plainfield	1.03, 1.04, 1.05, 1.06, 1.07, 1.08, 2.01, 2.02, 3.01, 3.02, 4.03, 4.04, 7.02
Parkview Christian Academy	2	n/a	n/a	Non-boundaried school	1.03, 1.04, 1.05, 1.06, 1.07, 1.08, 2.01, 2.02, 3.01, 3.02, 4.01, 4.02, 4.03, 4.04, 5.01, 5.02, 6.01, 6.02, 7.01, 7.02, 7.03
Plano Community Unit School District #88	5	12,000	30.9	Plano	4.01, 5.01, 5.02, 6.02
St. Mary Catholic School	1	n/a	n/a	Non-boundaried school	1.03, 1.04, 1.05, 1.06, 1.07, 1.08, 2.01, 2.02, 3.01, 3.02, 4.01, 4.02, 4.03, 4.04, 5.01, 5.02, 6.01, 6.02, 7.01, 7.02, 7.03

Source: Capability Assessment Worksheets – School Districts.

Figure I-15 Demographic Data by Participating Fire Protection District					
Participating District	Number of Fire Stations	Estimated Population Served	Area Served (Sq. Miles) (2020)	Communities / Unincorp. Areas Served in the County	Census Tracts Falling with the District
Bristol-Kendall FPD	3	34,000	77	Bristol, Montgomery, Yorkville	1.08, 4.01, 4.02, 4.03, 4.04, 5.01, 6.01, 6.02, 7.02, 7.03
Lisbon-Seward FPD	2	3,000	62	Joliet, Lisbon, Plattville	7.02, 7.03
Newark FPD	1	3,500	64	Helmar, Millington, Newark	6.02, 7.03
Oswego FPD	4	75,000	52	Boulder Hill, Montgomery, Oswego, Plainfield, Yorkville	1.03, 1.04, 1.05, 1.06, 1.07, 1.08, 2.01, 2.02, 3.01, 3.02, 4.02, 4.03, 4.04, 6.02, 7.02
Sandwich Community FPD	1	10,000	69.5	Lake Holliday, Sandwich	5.01, 5.02, 6.02

Source: Capability Assessment Worksheets – Fire Protection Districts.

Figure I-16
Demographic Data by Participating Park District

Participating District	Estimated Population Served	Area Served (Acres)	Communities / Unincorp. Areas Served in the County	Census Tracts Falling with the District
Oswegoland Park District	65,000	24,300	Aurora, Montgomery, Oswego, Plainfield, Yorkville	1.03, 1.04, 1.05, 1.06, 1.07, 1.08, 2.01, 2.02, 3.01, 3.02, 4.03, 7.02

Source: Capability Assessment Worksheets – Park Districts.

Land use in Kendall County is primarily agricultural. As discussed in the previous section, approximately 67% of the land within the County is used for farming practices. Agriculture is and will continue to be an important industry within the County.

According to the Kendall County Planning, Building, and Zoning Director, there has been no large-scale development in unincorporated Kendall County since the original Plan. In terms of small residential development (i.e., new home subdivisions, multi-family use housing, etc.) in unincorporated Kendall County, it occurred prior to the development of original Plan in 2011 and there have been no additional developments in the unincorporated areas.

According to County and municipal officials, changes in development since the original Plan have primarily been contained to Montgomery, Oswego, Plano, and Yorkville. According to the Montgomery Economic Development Manager, there are two sites along Orchard Road that are or will soon be developed. Karis has broken ground on a 500,000 square foot building for Ravago, a Belgium-based plastics resin distributor. Ravago is anticipating a future 300,000 square foot expansion to this building with room to build an additional 300,000 square foot building as needed. There are an additional 100 acres north of the Ravago project for additional industrial tenants. Meanwhile, another site for potential development is a 112-acre property immediately adjacent to Montgomery on the west. The Village anticipates this property will be annexed for commercial or industrial uses in the next five years.

According to the Oswego Director of Public Works, residential growth has been booming in the Village. Between 1990 and 2020, the population grew from 3,900 to 34,600. Local officials are planning for a projected population of 60,000 by 2050. At this time, the development of approximately 5,000 residential units is moving forward. Much of this development has converted open space and agricultural land into single-family homes and town homes along Wolf's Crossing Road on the east side of the Village. Properties north and south of this 2.5 mile-long corridor of Wolf's Crossing Road will be built out over the next few years. Another area of residential growth is occurring along Orchard Road on the west side of Oswego. Development includes not only single-family and town homes, it also includes restaurants, a golf dome, and a cricket pitch. The cricket pitch will be opened in the fall of 2024, with locker rooms and ultimately a stadium that would seat 24,000 planned by 2028.

Oswego has four business parks – the 300-acre Kendall Point Business Center, the 130-acre Stonehill Business Park, the Highland Business Center, and Farmington Lakes Office Campus – that provide commercial and light industrial development. These business parks have been built

out over the past several years, with space still available for development in the coming years. There is a new mixed use residential and commercial development, The Reserve at Hudson Crossing, being developed in the downtown along the riverfront. A six-story apartment building with attached parking was completed in 2021 with another planned for construction, likely within the next five years.

According to Plano's Building, Planning, and Zoning Department, over the past few years there has been some smaller residential and commercial development along US Route 34/Walter Payton Memorial Highway in central Plano. Small residential development in the City over the last 10 years has consisted primarily of build outs of existing subdivisions. In particular the Lakewood Springs subdivision, one on the east side of the City north of US Route 34/Walter Payton Memorial Highway, and one in the northwest portion of the City near the intersection of North Center Street and Little Rock Road. A new crossing of the Fox River was opened in 2023 that allows north-south traffic to cross the River on Eldamain Road. As a result, local officials anticipate commercial and industrial development along its portion of Eldamain Road in the next few years.

According to Yorkville's Community Development Director, the City is a largely residential community; however there are designated areas where industrial and manufacturing is permitted. The North Eldamain Corridor is a new industrial development west of the City and north of the Burlington Northern Santa Fe railway. In this development, Bright Farms is constructing an indoor hydroponic lettuce growing facility to be completed in 2024, an industrial data center is planned, and a solar farm is being discussed. In terms of small residential development, 40 subdivisions have been entitled since 2000; however the economic downturn of 2008 brought a significant reduction to all residential development. Since the recession, the City has seen steady growth and build out in many of these subdivisions, primarily on the southeast and northeast edges of the City, but no new subdivisions have been entitled since the original Plan was completed.

There are no other large-scale economic development initiatives underway in the County. Substantial changes in land use (from forested and agricultural land to residential, commercial, and industrial) are not anticipated within the County in the immediate future. No sizeable increases in commercial or industrial developments are expected within the next five years.

**Figure I-4
Location Map**

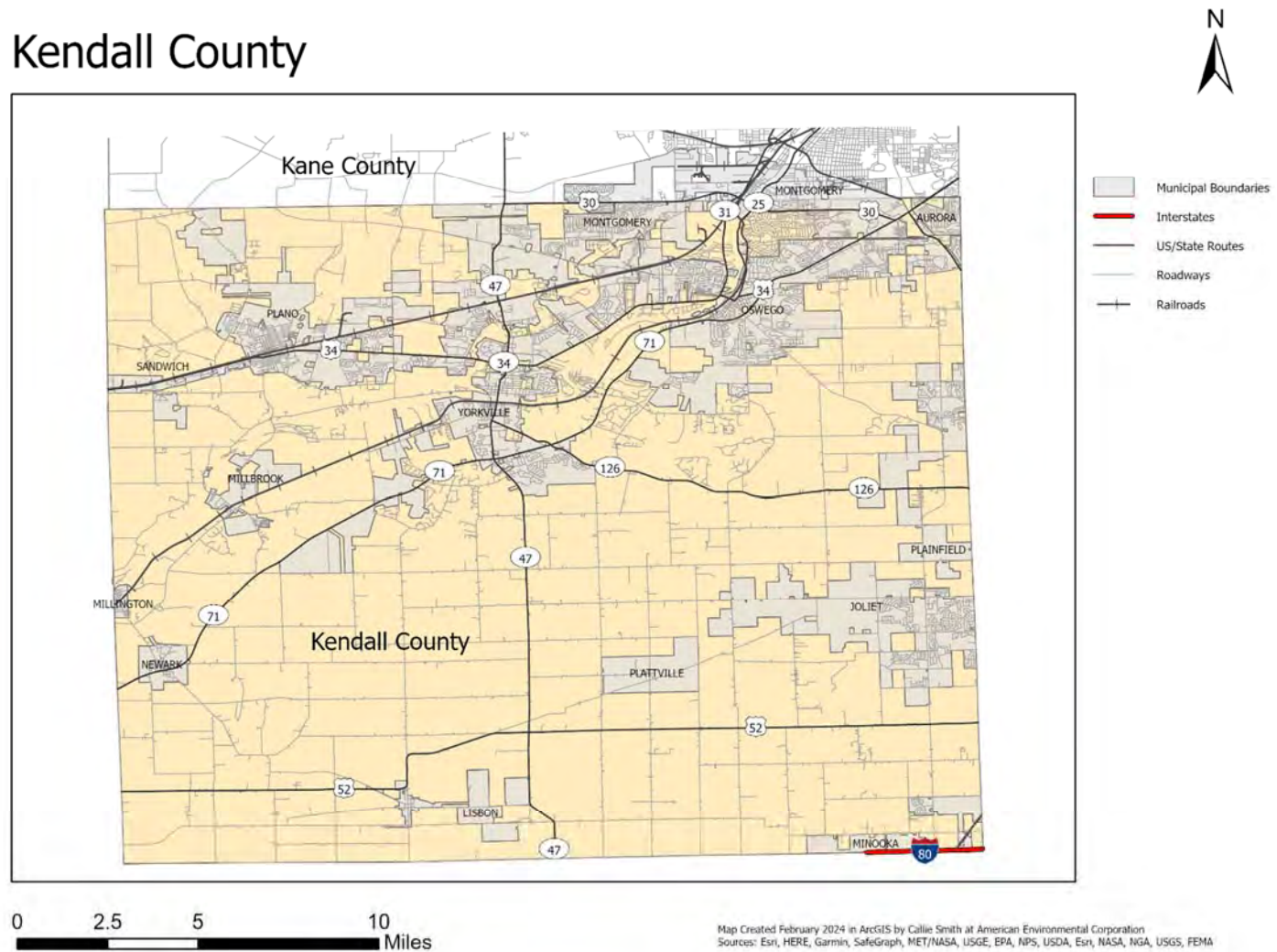


Figure I-5
Kendall County 2020 Census Tract Map

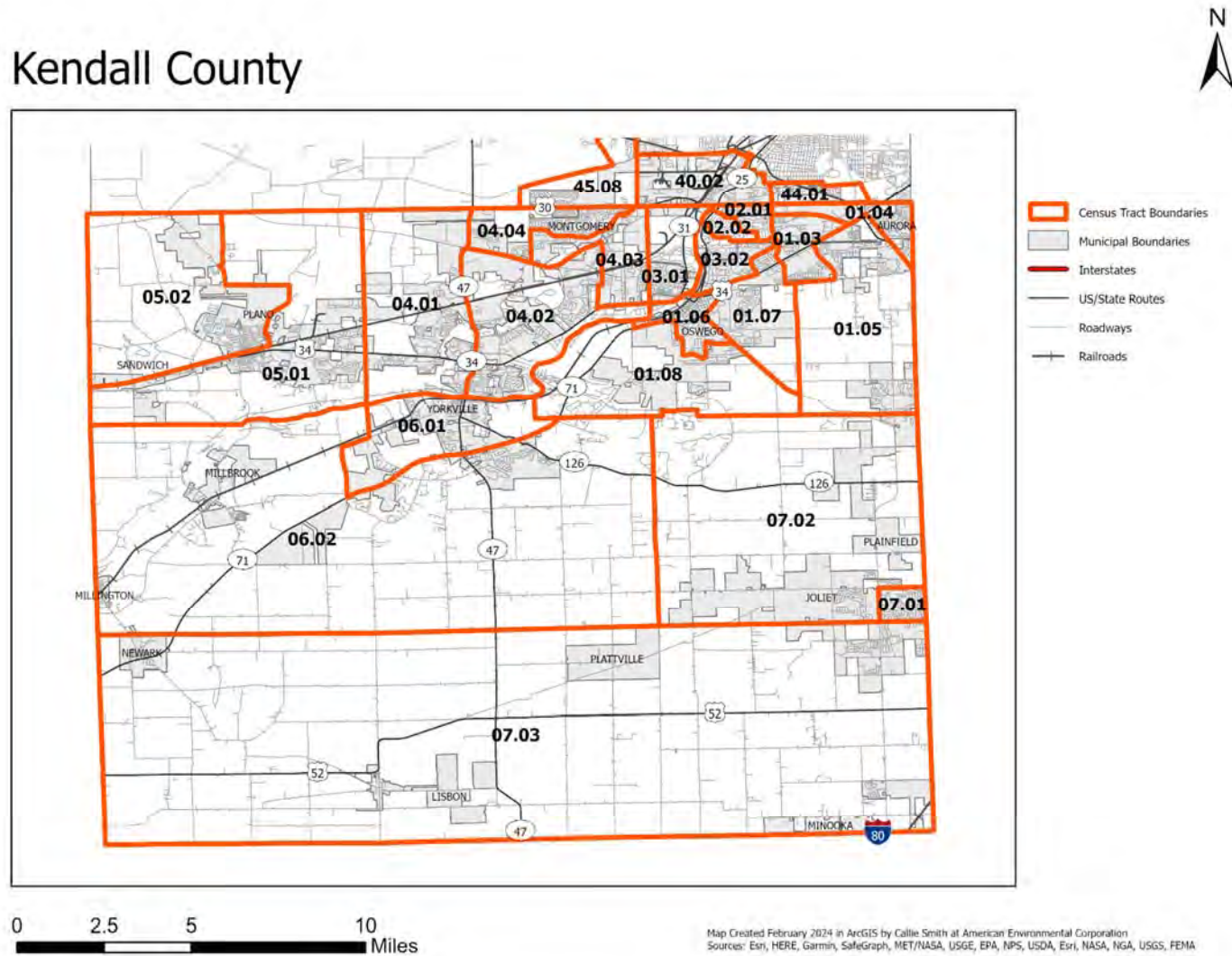


Figure I-6
Montgomery-Oswego-Yorkville 2020 Census Tract Map

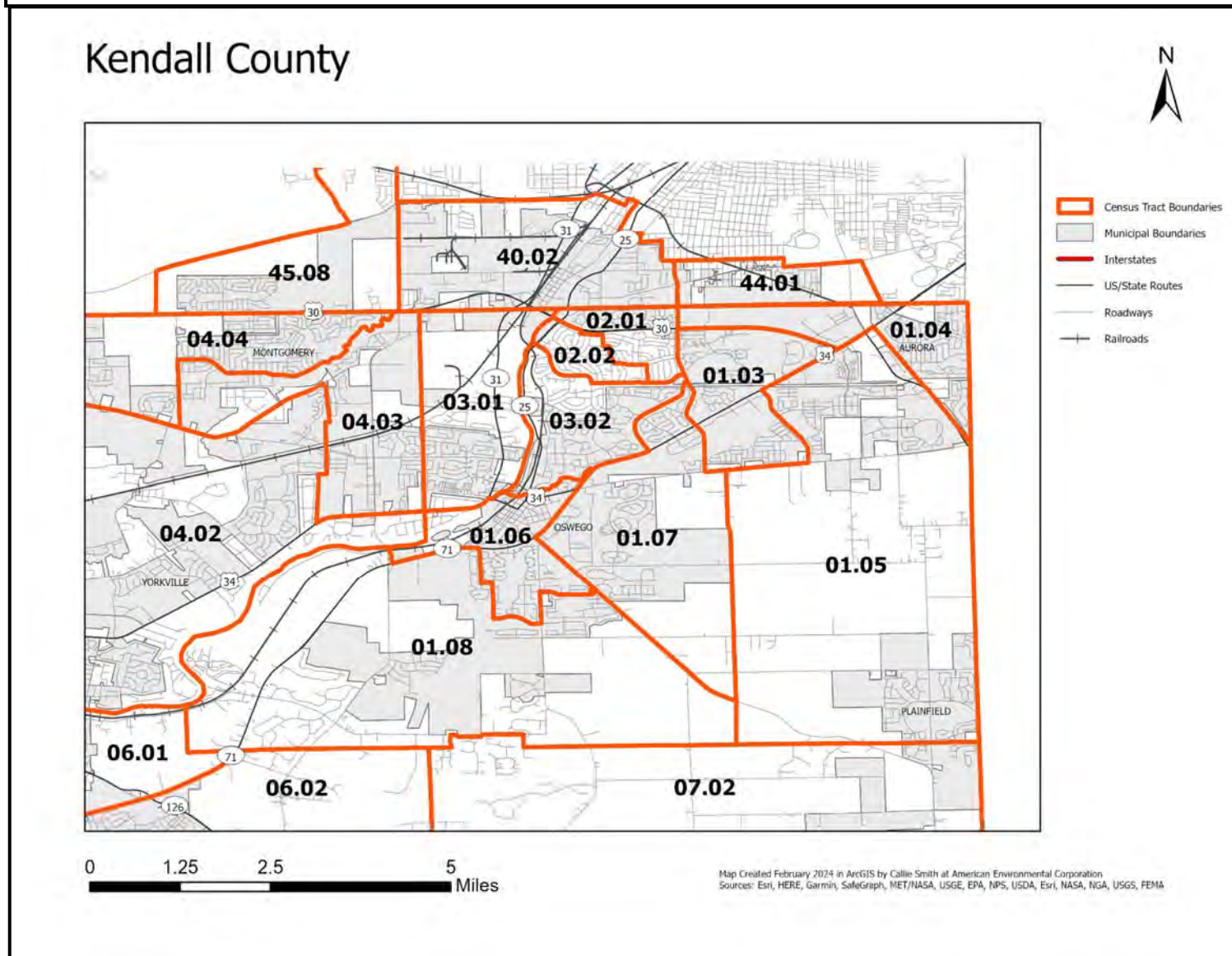


Figure I-7
Township Boundary Map

Kendall County

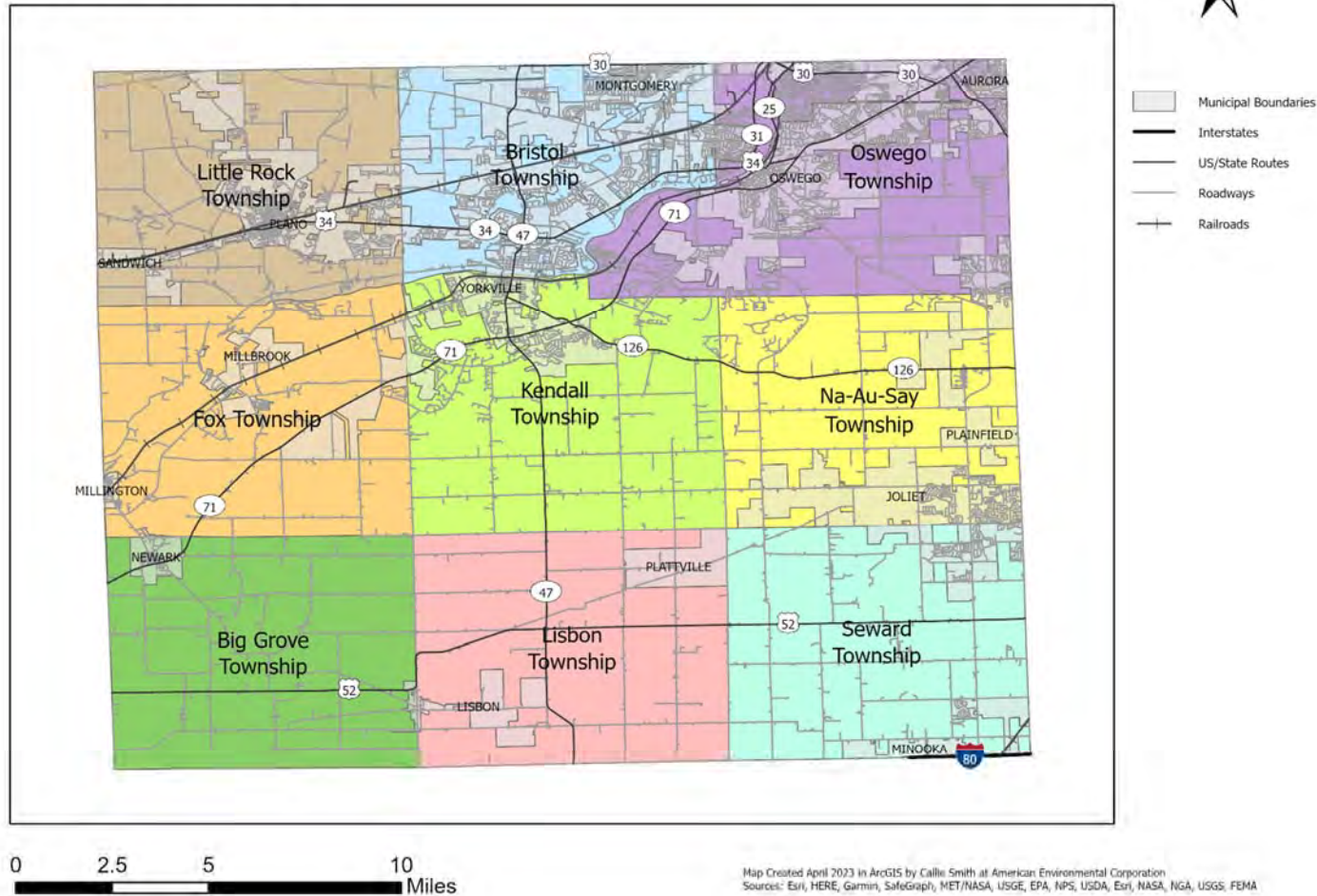


Figure I-8
School District Boundary Map

Kendall County

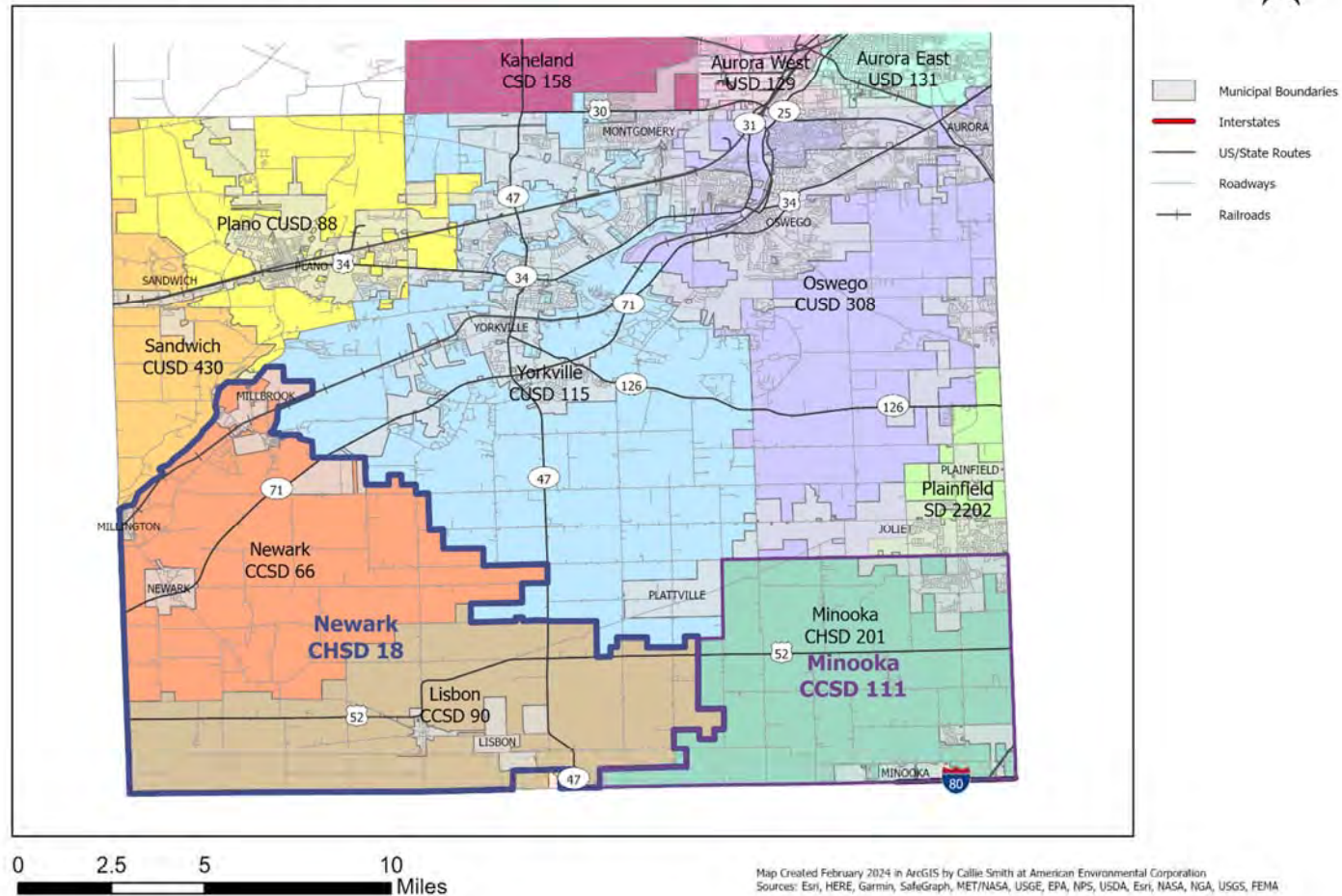
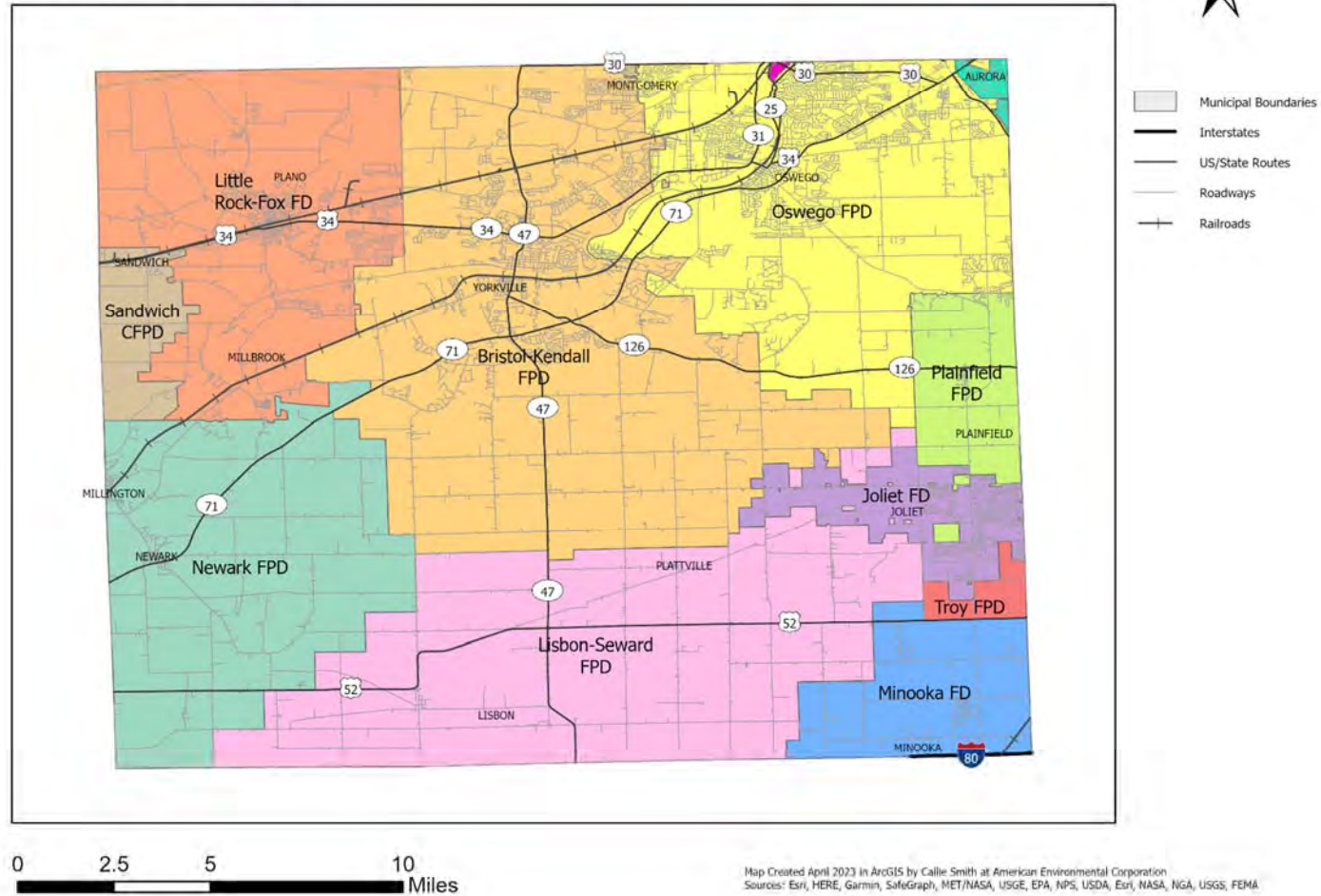


Figure I-9
Fire Protection District Boundary Map

Kendall County



**Figure I-10
Oswegoland Park District Boundary Map**

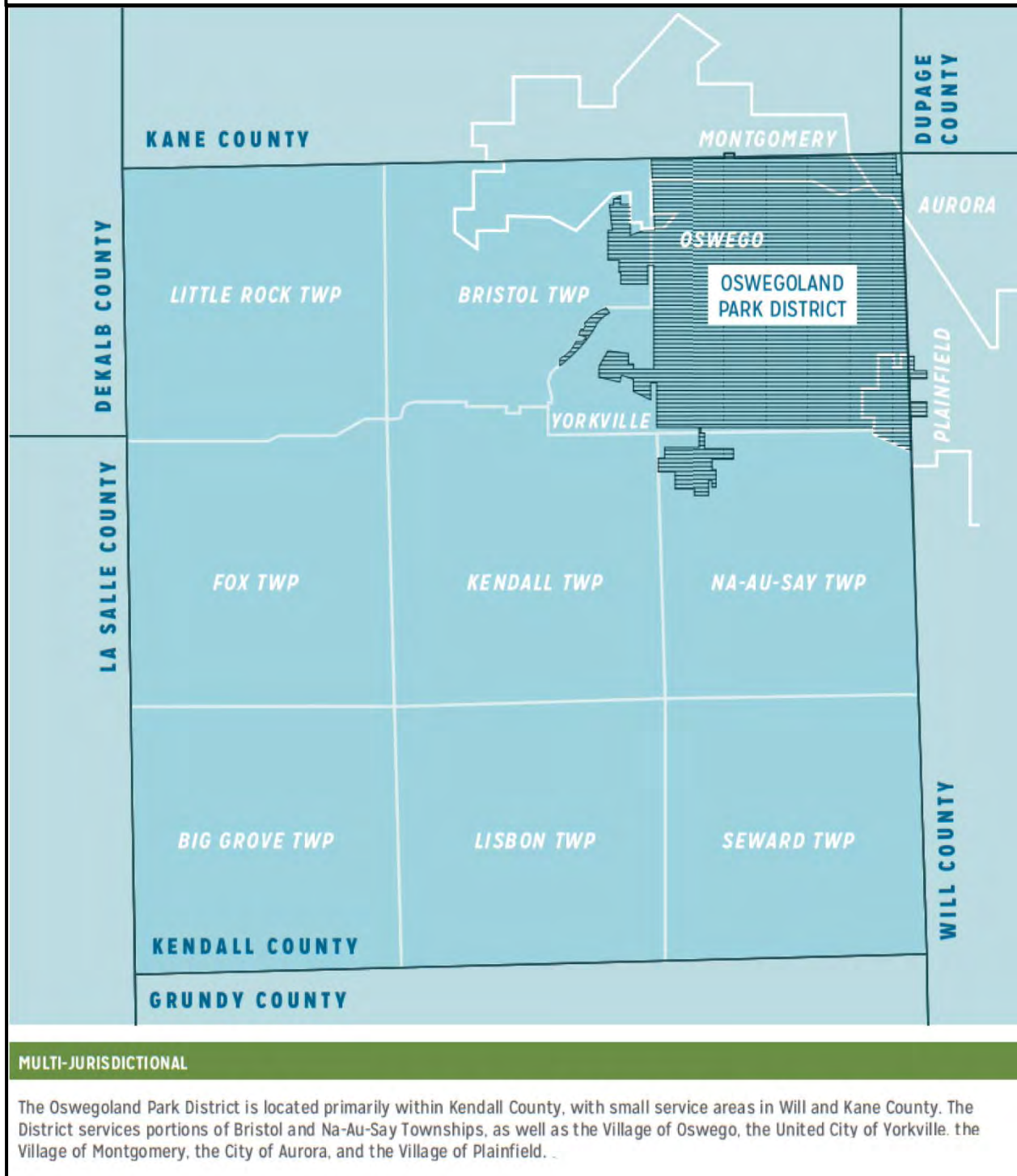


Figure I-12
2017-2021 Demographic Data by Participating Jurisdiction

Participating Jurisdiction	Population (2017-2021)	Projected Population (2030)	Total Area (Sq. Miles) (2020)	Number of Housing Units (2017-2021)	Percent Race								Income			Total Assessed Value of Housing Units (2022)
					White (alone)	Black or African American (alone)	Asian (alone)	Hispanic or Latino (of any race)	American Indian & Alaska Native (alone)	Native Hawaiian & Other Pacific Islander (alone)	Some other Race (alone)	Two or more Races	% of People whose Income is below the Poverty Line	Per Capita Income	EDRC*	
Kendall County (Total)	130,757	158,870	320.238	44,443	76.3%	8.2%	2.9%	20.1%	0.3%	0.0%	4.5%	7.8%	4.4%	\$28,449	NA	\$3,473,354,672
Kendall County (Unincorp.)	32,251	39,185	267.824	17,322	85.0%	5.7%	2.5%	14.3%	0.0%	0.0%	0.9%	6.3%	1.6%	NA	NA	\$700,537,756
Lisbon	273	332	2.117	109	89.7%	1.5%	0.0%	3.7%	0.0%	0.0%	2.2%	6.6%	0.7%	\$29,474	Y	\$5,164,653
Montgomery	20,084	24,402	9.299	6,653	74.9%	3.8%	0.8%	29.1%	0.5%	0.2%	11.1%	8.8%	9.7%	\$31,543	N	\$467,806,567
Newark	1,213	1,474	1.124	443	95.0%	0.7%	0.2%	6.3%	0.0%	0.0%	0.7%	3.4%	9.9%	\$41,331	N	\$20,439,102
Oswego	34,324	41,704	14.888	11,816	74.3%	9.1%	3.3%	17.8%	0.0%	0.0%	2.5%	10.6%	2.2%	\$42,024	N	\$974,852,538
Plano	10,885	13,225	8.979	4,021	76.4%	3.4%	1.2%	23.6%	0.0%	0.0%	9.9%	9.0%	8.4%	\$31,040	N	\$219,229,235
Plattville	192	233	2.259	68	96.4%	0.5%	0.0%	4.7%	0.0%	0.0%	0.0%	3.1%	16.7%	\$35,560	N	\$5,841,124
Yorkville	20,503	24,911	19.997	7,125	78.1%	11.5%	3.5%	17.3%	0.7%	0.0%	2.1%	4.0%	2.7%	\$39,765	N	\$594,475,190
Kendall Township	8,591	10,438	39.073	2,957	79.4%	3.1%	1.6%	16.0%	1.7%	0.0%	2.8%	11.4%	2.7%	\$39,245	N	\$272,347,149
Oswego Township	55,542	67,484	39.911	19,490	73.8%	7.5%	4.2%	19.7%	0.3%	0.0%	4.1%	10.1%	4.2%	\$39,862	N	\$1,516,561,697
Illinois	12,821,813	12,841,250	55,513.18	5,412,995	67.8%	14.1%	5.7%	17.5%	0.3%	0.04%	6.2%	6.2%	11.8%	\$39,571	---	---
US	329,725,481	---	3,533,038	139,647,020	68.2%	12.6%	5.7%	18.4%	0.8%	0.2%	5.6%	5.6%	12.6%	\$37,638	---	---

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

Sources: County Clerks.

Illinois Department Public Health, Population Projections – Illinois, Chicago and Illinois Counties by Age and Sex: July 1, 2015 to July 1, 2030 (2019 Edition).

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

Figure I-13
2017-2021 Demographic Data by Census Tract
(Sheet 1 of 2)

Census Tract (2020)	Incorporated Municipalities and Townships that Fall Within Census Tract	Population (2017-2021)	Total Area (Sq. Miles) (2020)	Number of Housing Units (2017-2021)	Percent Race								Income	CEJST	Social Vulnerability Index	
					White (alone)	Black or African American (alone)	Asian (alone)	Hispanic or Latino (of any race)	American Indian & Alaska Native (alone)	Native Hawaiian & Other Pacific Islander (alone)	Some other Race (alone)	Two or more Races	% of People whose Income is below the Poverty Line	Identified as Dis-Advantaged	Nation-wide Overall SVI Ranking (2020)	Level of Vulnerability
01.03	Montgomery, Oswego, Oswego Township	5,984	2.064	2,219	57.1%	13.8%	4.3%	31.6%	0.0%	0.0%	0.0%	24.7%	1.9%	N	0.2071	Low
01.04	Aurora, Montgomery, Oswego Township	5,983	1.925	2,161	55.1%	17.0%	18.1%	7.3%	0.0%	0.0%	3.5%	6.3%	8.5%	N	0.3317	Low to Medium
01.05	Montgomery, Oswego, Plainfield, Oswego Township	8,473	12.153	2,696	65.1%	7.8%	7.2%	13.3%	0.4%	0.0%	8.9%	10.5%	2.9%	N	0.1197	Low
01.06	Oswego, Oswego Township	4,353	1.660	1,650	84.7%	3.0%	0.0%	23.7%	2.0%	0.0%	0.0%	10.3%	5.8%	N	0.038	Low
01.07	Oswego, Oswego Township	4,273	4.648	1,447	86.7%	7.8%	2.6%	9.7%	0.0%	0.0%	0.0%	2.9%	1.0%	N	0.0773	Low
01.08	Oswego, Oswego Township	5,020	11.372	1,726	86.8%	5.0%	0.0%	8.4%	0.0%	0.0%	0.0%	8.2%	3.2%	N	0.0157	Low
02.01	Montgomery, Oswego Township	4,595	0.795	1,673	79.3%	3.1%	0.7%	30.7%	0.4%	0.0%	10.1%	6.5%	3.4%	N	0.2382	Low
02.02	Montgomery, Oswego Township	3,929	0.531	1,229	66.6%	5.9%	1.7%	30.9%	1.2%	0.0%	15.6%	9.1%	9.4%	N	0.5559	Medium to High
03.01	Montgomery, Oswego, Oswego Township	6,757	2.813	2,417	71.5%	6.9%	2.0%	27.6%	0.0%	0.0%	1.9%	17.7%	5.3%	N	0.3171	Low to Medium
03.02	Oswego, Oswego Township	5,865	1.825	2,227	95.2%	1.3%	0.8%	17.9%	0.1%	0.0%	1.7%	0.9%	1.9%	N	0.1554	Low
04.01	Montgomery, Yorkville, Bristol Township	7,147	11.998	2,291	81.0%	17.5%	0.1%	11.4%	0.0%	0.0%	0.1%	1.3%	4.7%	N	0.208	Low
04.02	Yorkville, Bristol Township	9,290	9.578	3,418	73.7%	14.5%	6.3%	26.1%	0.0%	0.0%	2.2%	3.3%	0.6%	N	0.1074	Low
04.03	Montgomery, Oswego, Yorkville, Bristol Township	5,237	3.583	1,621	67.9%	14.1%	5.0%	17.4%	0.0%	0.0%	7.0%	5.9%	0.5%	N	0.3557	Low to Medium
Kendall County		130,757	320.238	44,443	76.3%	8.2%	2.9%	20.1%	0.3%	0.0%	4.5%	7.8%	4.4%	---	0.1222	Low

Figure I-13
2017-2021 Demographic Data by Census Tract
(Sheet 2 of 2)

Census Tract (2020)	Incorporated Municipalities and Townships that Fall Within Census Tract	Population (2017-2021)	Total Area (Sq. Miles) (2020)	Number of Housing Units (2017-2021)	Percent Race								Income	CEJST	Social Vulnerability Index	
					White (alone)	Black or African American (alone)	Asian (alone)	Hispanic or Latino (of any race)	American Indian & Alaska Native (alone)	Native Hawaiian & Other Pacific Islander (alone)	Some other Race (alone)	Two or more Races	% of People whose Income is below the Poverty Line	Identified as Dis-Advantaged	Nation-wide Overall SVI Ranking (2020)	Level of Vulnerability
04.04	Montgomery, Yorkville, Bristol Township	9,884	3.192	3,033	84.2%	0.0%	0.0%	26.0%	0.0%	0.0%	12.7%	3.2%	4.8%	N	0.1868	Low
05.01	Plano, Sandwich, Little Rock Township	9,040	19.728	3,150	76.3%	4.9%	1.5%	27.2%	0.0%	0.0%	11.4%	5.9%	7.1%	N	0.3791	Low to Medium
05.02	Plano, Sandwich, Little Rock Township	5,005	15.497	1,969	85.5%	0.0%	0.0%	24.1%	0.0%	0.0%	1.1%	13.5%	5.9%	N	0.2833	Low to Medium
06.01	Yorkville, Fox, Township, Kendall Township	4,309	6.992	1,633	89.8%	0.8%	0.2%	12.3%	0.0%	0.0%	4.8%	4.4%	4.5%	N	0.2508	Low to Medium
06.02	Millbrook, Millington, Newark, Yorkville, Fox Township, Kendall Township	5,985	68.249	2,052	77.5%	4.2%	2.2%	14.4%	2.4%	0.0%	0.6%	13.2%	1.2%	N	0.0653	Low
07.01	Joliet, Na-Au-Say Township	5,740	0.998	1,715	73.2%	17.2%	5.8%	18.6%	0.0%	0.0%	0.0%	3.7%	14.5%	N	0.4445	Low to Medium
07.02	Joliet, Plainfield, Oswego Township, Na-Au-Say Township	5,094	33.374	1,482	73.4%	10.5%	0.7%	17.1%	0.0%	0.0%	9.1%	6.2%	4.9%	N	0.0103	Low
07.03	Lisbon, Minooka, Newark, Plattville, Big Grove Township, Lisbon Township, Seward Township	8,794	107.265	2,634	80.0%	10.6%	0.0%	20.1%	0.0%	0.0%	0.2%	9.2%	2.4%	N	0.1018	Low
40.02	Montgomery	5,812	3.996	2,265	70.8%	8.3%	0.0%	31.0%	1.4%	0.0%	9.6%	9.9%	10.9%	N	0.4971	Low to Medium
44.01	Montgomery	2,306	1.195	863	49.3%	0.0%	0.0%	68.5%	0.0%	0.0%	1.9%	48.8%	3.6%	N	0.9077	High
45.08	Montgomery	5,989	3.816	2,043	70.1%	12.4%	4.0%	22.2%	0.0%	0.5%	3.5%	9.6%	15.3%	N	0.0622	Low
Kendall County		130,757	320.238	44,443	76.3%	8.2%	2.9%	20.1%	0.3%	0.0%	4.5%	7.8%	4.4%	---	0.1222	Low

Sources: CDC/ATSDR Social Vulnerability Index.

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

2.0 PLANNING PROCESS

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

Figure PP-1 Description of Planning Process	
Tasks	Description
Task One: Building the Planning Team	The Planning Committee was reformed with broad representation and specific expertise to assist the County and the Consultant in updating the Plan.
Task Two: Outreach Strategy	Early and ongoing public involvement activities were conducted throughout the Plan’s development to ensure the stakeholders and public was given every opportunity to participate and provide input.
Task Three: Risk Assessment	The Consultant identified and profiled the natural and man-made hazards that have impacted the County and conducted vulnerability analyses to evaluate the risk to each participating jurisdiction.
Task Four: Capability Assessment	Participating jurisdictions have a unique set of capabilities and resources available to accomplish hazard mitigation. Capabilities that include planning and regulatory, administrative and technical, financial, and education and outreach were identified and cataloged to determine the existing capabilities of each participant related to hazard and loss reduction/prevention.
Task Five: Mitigation Strategy	After reviewing existing plans and completing the risk assessment, the Consultant assisted the Planning Committee in updating the goals and objectives for the Plan. The participating jurisdictions were then asked to identify mitigation actions that had been started and/or completed since the previous Plan was adopted. In addition, they were asked to identify any new mitigation actions based on the results of the risk assessment. The new mitigation actions were then analyzed, categorized, and prioritized.
Task Six: Plan Maintenance and Update	The method and schedule for monitoring, evaluating, and updating the Plan was reviewed and discussed with the participating jurisdictions. The Plan update will be monitored and evaluated by a Plan Maintenance Subcommittee on an annual basis and updated again in five years.
Task Seven: Review and Adopt the Plan	The draft Plan update summarized the results of Tasks Two through Seven. The Plan was reviewed by the participants and a public forum was held to give the public an additional opportunity to provide input. Comments received were incorporated into the draft Plan update and submitted to the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) and FEMA for review and approval. Comments received from IEMA-OHS and FEMA were incorporated into the final Plan update. The final Plan update was then submitted to the County and participating jurisdictions for adoption.

The Plan update and development was led at the staff level by Roger Bonuchi, the Kendall County Emergency Management Agency (EMA) Director, and Tracy Page, the Kendall County EMA Deputy Director. American Environmental Corp. (AEC) an environmental consulting firm, with experience in hazard mitigation, risk assessment and public involvement, was employed to guide the County and participating jurisdictions through the planning process.

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

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

2.1 MITIGATION ADVISORY COMMITTEE

As previously mentioned, at the start of the planning process, the Kendall County Multi-Jurisdictional All Hazard Mitigation Planning Committee was reformed to update the hazard mitigation plan. The Committee included representatives from each participating jurisdiction, as well as agriculture, cultural resources, education, emergency services, planning, recreation, and social services.

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

**Figure PP-2
Kendall County Planning Committee Member Attendance Record
(Sheet 1 of 2)**

Representing	Name	Title	1/24/2023	4/18/2023	7/11/2023	10/24/2023	2/20/2024
American Environmental Corporation	Bostwick-Campbell, Andrea	EMS Manager	X	X	X	X	X
American Environmental Corporation	Runkle, Ken	Risk Assessor	X		X		
American Environmental Corporation	Smith, Callie	Environmental Analyst		X		X	X
Aurora, City of	Schur, Carolyn	EMA Volunteer					X
Big Grove Township	Richards, Jr., Tom	Highway Commissioner	X				
Bristol Township	Maher-Bartalone, Mary	Assessor	X				
Bristol-Kendall Fire Protection District	Bateman, Jim	Fire Chief	X	X	X		
Edith Farnsworth House	Mehaffey, Scott	Curator	X				
Grundy/Kendall Regional Office of Education	Mehochko, Chris	Regional Superintendent	X	X		X	X
KenCom Public Safety Dispatch	Belmont, Gina	Assistant Director of Operations		X	X		
KenCom Public Safety Dispatch	Bergeron, Lynette	Director	X	X			
Kendall County - Administrator	Burns, Christina	Administrator					X
Kendall County - Administrator	Koepfel, Scott	Administrator	X				
Kendall County - Board	Gengler, Scott	Member			X		
Kendall County - Board	Kellogg, Matt	Chair	X				
Kendall County - Board	Shanley, Brooke	Member	X	X			
Kendall County - EMA	Bonuchi, Roger	Director	X	X	X	X	X
Kendall County - EMA	Page, Tracy	Deputy Director	X		X	X	X
Kendall County - Facilities Management	Polvere, Dan	Director		X			
Kendall County - Forest Preserve District	Guritz, Dave	Executive Director	X				
Kendall County - Forest Preserve District	White, Antoinette	Grounds Division Supervisor	X	X			
Kendall County - GIS Department	Bally, Amanda	GIS Specialist	X				
Kendall County - Health Department	Holt, Julia	Emergency Response Specialist	X	X	X	X	X
Kendall County - Health Department	VanGundy, RaeAnn	Executive Director	X				
Kendall County - Highway Department	Burscheid, John	Assistant County Engineer	X	X			
Kendall County - Information and Communication Technology	Kinsey, Matthew	Director	X	X			
Kendall County - Planning, Building and Zoning	Asselmeier, Matt	Senior Planner / Director	X	X	X	X	
Kendall County - Sheriff's Office	Langston, Jason	Commander	X	X		X	
Kendall County - Sheriff's Office	Page, Tracy	Business / HR Manager	X		X	X	X
Kendall County - Sheriff's Office	Waltmire, Caleb	Deputy Commander	X	X			X
Kendall County - Supervisor of Assessments Office	Nicoletti, Andy	Chief County Assessment Officer	X				
Kendall Township	Gengler, Steve	Supervisor	X		X		X
Kendall Township	Grebner, Steve	Clerk	X	X	X	X	X
Kendall Township	Westphal, Doug	Highway Commissioner	X				
Kendall-Grundy Farm Bureau	Lundh, Victoria	Manager	X				
Lisbon, Village of	Andersen, Debbie	Clerk	X	X	X	X	X
Lisbon, Village of	McIntyre, Jack	Trustee		X	X		
Lisbon, Village of	Morris, James	Trustee	X	X	X	X	X
Lisbon-Seward Fire Protection District	McIntyre, Jack	EMS Coordinator		X	X		
Little Rock-Fox Fire District	Witek, Greg	Fire Chief	X	X			
Montgomery, Village of	Sanders, Armando	Deputy Chief of Police	X				
Montgomery, Village of	Smith, Phil	Chief of Police	X				
Montgomery, Village of	Wolf, Mark	Director of Public Works	X	X	X	X	X
Newark, Village of	Fox, Cliff	Administrator	X	X			
Newark Fire Protection District	Mathre, Jeff	Fire Chief	X	X	X		
Oswego, Village of	Behr, Kerry	Project Engineer	X	X	X	X	
Oswego, Village of	Biggs, Chris	Commander / Deputy Chief	X	X	X	X	
Oswego, Village of	Burgner, Jeff	Police Chief	X				
Oswego, Village of	Hughes, Jennifer	Public Works Director	X				X
Oswego Fire Protection District	Bockrath, Chris	Firefighter					X
Oswego Fire Protection District	Schiradelly, Dan	Assistant Chief	X	X	X	X	X
Oswego Township	DeLong, Rob	Community Resource Officer		X	X		X
Oswegoland Park District	Feldotto, Chad	Director of Parks & Planning	X	X	X		X
Oswegoland Park District	Zielke, Rich	Executive Director	X	X		X	

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

Representing	Name	Title	1/24/2023	4/18/2023	7/11/2023	10/24/2023	2/20/2024
Oswegoland Senior & Community Center	Siedlecki, Judy	Volunteer		X			
Plainfield, Village of	Zigterman, Zach	Police Commander / Deputy Director	X				
Plano, City of	Allison, Norm	Lieutenant of Police / Interim Chief of Police	X	X			X
Plattville, Village of	Bergeron, Lynette	Trustee	X	X			
Sandwich, City of	Penman, Geoff	Administrator	X				X
Sandwich Community Fire Protection District	Morel, Zachary	Deputy Chief	X	X	X		
Seward Township	Cryder, Scott	Highway Commissioner	X				
Yorkville, City of	Dhuse, Eric	Director of Public Works	X				
Yorkville, City of	Jensen, James	Police Chief	X	X	X		

Mission Statement

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

“The mission of the Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee is to prepare a mitigation plan that:

- 1) documents the risks associated with the natural and man-made hazards that impact the County and*
- 2) identifies projects and activities that mitigate the risk to people, structures, facilities, and systems that provide support to the County, its residents and economy, as well as community lifelines that enable the continuous operation of critical government and business functions.”*

Planning Committee Meetings

The Planning Committee met four times between January 2023 and February 2024. **Figure PP-2** identifies the representatives by jurisdiction present at each meeting. **Appendices A** and **B** contain copies of the attendance sheets and meeting minutes for each meeting. The purpose of each meeting, including the topics discussed, is provided below.

First Planning Committee Meeting – January 24, 2023

The purpose of this meeting was to explain the planning process to the Planning Committee members and give them a brief overview of the planning process including what mitigation is, what a hazards mitigation plan is and why the Plan needs to be updated. A discussion regarding the hazards to be included in the Plan update was conducted and an electronic survey was sent out following the meeting asking Planning Committee members whether dam failures should be included in the Plan update. Based on the responses received, the Planning Committee chose not to include dam failures. The Planning Committee did not feel dam failures posed a significant impact on the County and therefore decided not to include them in the update.

Information needed from each participant was discussed and representatives for the County and the participating jurisdictions were asked to complete the forms entitled “Capability Assessment Worksheet,” “Critical Facilities & Infrastructure,” “Identification of Severe Weather Shelters” and “Drinking Water Supply Worksheet” and return them at the next meeting.

Committee members were then asked to identify any recent or historic natural hazard events that have impacted the County and participants. A “Hazard Events Questionnaire” was distributed to solicit information on hazard events. Community participation was also discussed. The County and participating jurisdictions were asked to make information available on the planning process at their offices and in their communities. A “Citizen Questionnaire,” was also distributed electronically to Committee members prior to the meeting for distribution to their constituents to gauge the public’s perception about the hazards that impact the County. Finally, drafts of a mission statement and updated mitigation goals were presented for review.

Second Planning Committee Meeting – April 18, 2023

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

Next, mitigation actions were defined, and examples were discussed. As part of the Plan update, individual mitigation action lists will be created for each participating jurisdiction. Committee members were asked to identify any mitigation projects and activities their jurisdictions had started and/or completed since the original Plan was completed in 2011. Ideas for new potential mitigation projects and activities were presented. Representatives for the County and the participating jurisdictions were asked to complete the forms entitled “Existing Mitigation Project/Activity Status” and “New Hazard Mitigation Projects” and return them at the next meeting.

Third Planning Committee Meeting – July 11, 2023

The purpose of the third Committee meeting was to discuss the vulnerability analysis for select natural hazards and the preliminary results of the RPI exercise. The Committee members then discussed vulnerable community assets and completed the form entitled “Assets Vulnerability Survey” which will be used in the vulnerability analyses.

The concept of community lifelines was also discussed. Community lifelines enable the continuous operation of critical government and business functions essential to human health and safety or economic security. While the concept was developed to support emergency response and planning, FEMA has begun applying it to all phases of emergency management, including mitigation. Community lifelines will be included in most project descriptions to create a clear connection to the concept.

Next, an explanation of what a mitigation action prioritization methodology is and how it fits into the Mitigation Strategy was provided. The Committee reviewed the updated mitigation project prioritization methodology and approved it with no changes. Finally, a discussion on how the mitigation projects and activities identified by the participating jurisdictions will be presented in the Plan update was provided. Participants were encouraged to provide their mitigation project lists prior to the 4th meeting when draft lists will be distributed for review.

Fourth Planning Committee Meeting – October 24, 2023

At the fourth Committee meeting, members reviewed the draft jurisdiction-specific mitigation action tables which identified and prioritized the new and existing mitigation projects and activities provided by the participants. Members were given the opportunity to add additional projects and activities to their tables.

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

Fifth Planning Committee Meeting – February 20, 2024

At this Planning Committee meeting the public was provided an opportunity to ask questions and provide comments on the draft Plan update.

2.2 OUTREACH STRATEGY

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

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

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

Citizen Questionnaire

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

A total of 197 questionnaires were completed and returned to the Committee. Questionnaires were completed by residents in each participating jurisdiction. These responses provide useful

information to decision makers as they determine how best to disseminate information on natural hazards and safeguard the public. Additionally, these responses identify the types of projects and activities the public is most likely to support. The following provides a summary of the results.

- ❖ Respondents felt that severe summer storms were the most frequently encountered natural hazard in Kendall County followed by extreme cold and severe winter storms. However, compiled weather records indicate that flood events, in fact, occur more frequently than severe winter storms or extreme cold.
- ❖ The most effective means of communication identified by respondents to disseminate information about natural hazards were social media and the Internet, followed by the mailings and television. Fact sheets/brochures disseminated via fire departments/law enforcement, as well as radio communications also received some support among respondents.
- ❖ In terms of the most needed mitigation projects and activities, the following categories received the strongest support:
 - maintain power during storms by burying power lines, trimming trees and/or purchasing backup generators (80%);
 - maintain roadway passages during snowstorms and heavy rains (62%);
 - install/maintain sirens and other alert systems (58%);
 - flood or drainage protection (55%); and
 - retrofit critical infrastructure (51%).

FAQ Fact Sheet

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

News Releases/Articles & Web/Social Media Posts

News releases were prepared and submitted to local media outlets and posted to the TCRPC Facebook, Twitter, and web pages prior to each Committee meeting. The releases announced the purpose of the meetings and how the public could become involved in the Plan update’s development. **Appendix E** contains a list of the media outlets that received the news releases while copies of the releases, Facebook, web posts, and any news articles published can be found in **Appendix F**.

Planning Committee Meetings

All of the meetings conducted by the Planning Committee were open to the public and publicized in advance to encourage public participation. At the end of each meeting, time was set aside for public comment. In addition, Committee members were available throughout the planning process to talk with residents and local government officials and were responsible for relaying any concerns and questions voiced by the public to the Committee. Interested individuals from the public who attended the Planning Committee meetings were provided handout materials and encouraged though not required to provide their names and/or sign the attendance sheets. Copies of the attendance sheets are included in **Appendix A**.

Public Forum

The final meeting of the Committee, held on February 20, 2024 was conducted as an open-house public forum. The open-house format was chosen for this forum instead of a hearing to provide greater flexibility for residents who wished to participate. Residents were able to come and go at any time during the forum, reducing conflicts with business, family, and social obligations.

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

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

Public Comment Period

After the public forum, the updated draft Plans were made available for public review and comment through March 5, 2024 at the Kendall County Public Safety Center and on the County's website. A two-page handout summarizing the planning process and a link to a comment survey that could be used to provide feedback on the draft Plan update were also posted on the website. **Appendix H** contains a copy of the online comment survey. Residents were encouraged to submit their comments electronically, by mail or through representatives of the Committee.

Results of Outreach Strategy

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

- *Acquired additional information about natural hazards.* Verifiable hazard event and damage information was obtained from participants that presents a clearer assessment of the extent and magnitude of natural hazards that have impacted each County. This information included details about thunderstorms with damaging winds, lightning strikes, tornadoes, and floods not available from state and federal databases.
- *Obtained critical facilities damage information.* Data collection surveys soliciting information about critical facilities damaged by natural hazards were used to supplement information obtained from government databases. This information was vital to the preparation of the vulnerability analysis.
- *Increased awareness of the impacts associated with natural hazard events within the County.* Understanding how mitigation actions can reduce risk to life and property helped generate **over 100 new mitigation projects and activities** at the local level that had not been previously identified in any other planning process.

2.3 PARTICIPATION OPPORTUNITIES FOR INTERESTED PARTIES

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

Agricultural Community

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

Cultural Resources

The Edith Farnsworth House, a National Historic Landmark owned by the National Trust for Historic Preservation and Landmarks Illinois, was invited to serve on the Committee. While it chose not to be a participating jurisdiction, received all electronic communications including surveys, meeting announcements, and meeting handouts.

Education

Representatives from education were invited to serve on the Committee through the Grundy/Kendall Regional Office of Education. The Regional Superintendent represented the school districts in the County, providing input into the planning process and coordinating with each individual district. Four school districts and two private schools – Lisbon Consolidated Community School District #90, Newark Community High School District #18, Oswego Community Unit School District (CUSD) #308, Plano CUSD #88, Parkview Christian Academy, and St. Mary Catholic School – chose to be included as participating jurisdictions in the Plan update.

Healthcare & Social Service Agencies

Input was sought from the healthcare community and social service agencies. Representatives from the Kendall County Health Department and Oswegoland Senior & Community Center attended the Committee meetings, providing input into the planning process. The Kendall County Health Department assisted in updating the County's portion of the Mitigation Strategy.

Planning

The Kendall County Planning, Building & Zoning Department assisted in the Plan update and served on the Committee, providing input into the planning process as well as the County's portion of the Mitigation Strategy.

Emergency Services

The fire departments/fire protection districts in Kendall County were contacted and invited to participate in the Plan update. Bristol-Kendall Fire Protection District (FPD), Lisbon-Seward FPD, Little Rock-Fox Fire District, Newark FPD, Oswego FPD, and Sandwich Community FPD served on the Committee and provided input into the planning process. The Bristol-Kendall FPD, Lisbon-Seward FPD, Newark FPD, Oswego FPD, and Sandwich Community FPD chose to be included as participating jurisdictions in the Plan update.

Other Government Entities

The townships within Kendall County as well as the Oswegoland Park District were invited to participate in the Plan update. Big Grove Township, Bristol Township, Kendall Township, Oswego Township, Seward Township, and the Oswegoland Park District served on the Committee and provided input into the planning process. Kendall Township, Oswego Township, and the Oswegoland Park District chose to be included as participating jurisdictions in the Plan update.

Neighboring Counties

A memo was sent to EMA/ESDA/OHSEM coordinators in the neighboring counties inviting them to participate in the mitigation planning process. The counties contacted included DeKalb, DuPage, Grundy, Kane, LaSalle, and Will. **Appendix I** contains a copy of the invitation memo.

2.4 IDENTIFICATION OF EXISTING CAPABILITIES

Each participating jurisdiction has a unique set of capabilities and resources available to accomplish hazard mitigation and reduce long-term vulnerabilities to hazard events. In order to identify these existing capabilities and resources, a Capability Assessment was conducted. The Capability Assessment helps determine the ability of the participating jurisdictions to implement the Mitigation Strategy and to identify potential opportunities for establishing or enhancing specific mitigation policies, program, or projects. It is important to try and establish which goals and actions are feasible based on an understanding of the organizational capacity of those entities tasked with their implementation. This assessment is designed to provide a general overview of the key capabilities in place for each participating jurisdiction along with their potential effect of loss reduction.

In order to catalog the existing capabilities of each participant, Capability Assessment Worksheets were distributed to each of the participating jurisdictions at the first Committee meeting on January 24, 2023. The worksheets requested information on four primary types of capabilities: planning and regulatory; administrative and technical; financial; and education and outreach. The following provides a brief description of each capability type.

Planning & Regulatory Capabilities: Planning and regulatory capabilities are based on the implementation of existing plans, policies, codes, ordinances, resolutions, local laws, and programs that prevent or reduce the impacts of hazards and guide and manage growth and development.

Administrative & Technical Capabilities: Administrative and technical capabilities are based on the available staff and personnel resources as well as their related skills and tools that can be used to develop and implement mitigation actions, policies, and programs.

Financial Capabilities: Financial capabilities include those resources a jurisdiction has access to or is eligible to use to implement mitigation actions, policies, and programs.

Education & Outreach Capabilities: Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Figures PP-3 through PP-14 summarize the results of the Capability Assessment by participating jurisdiction type (i.e., county/municipalities, townships, schools, fire protection districts, park districts, etc.) A capability level of “Limited”, “Moderate” or “High” was assigned by capability type to each participating jurisdiction based on the number of available capabilities and resources as well as the jurisdiction’s size/area served. **Figure PP-15** summarizes the individual capability levels by capability type and provides an overall capability ranking for each participant.

This assessment provides a consolidated inventory of existing plans, ordinances, programs, and resources in place. Whenever applicable, these existing capabilities were reviewed and incorporated into the Plan.

Highlights from the Capability Assessment include:

- ❖ The County and all of the municipalities, with the exception of Lisbon and Plattville, have building codes and zoning ordinances in place.
- ❖ The County and all of the municipalities, with the exception of Plattville, have comprehensive/master plans in place.
- ❖ Only the County and Oswego have continuity of operations plans in place.

The County, Montgomery, Newark, Oswego, Plano, Yorkville, Oswego Township, Lisbon CCSD #90, Newark CHSD #18, Oswego CUSD #308, Plano CUSD #88, Bristol-Kendall FPD, Lisbon-Seward FPD, Newark FPD, Oswego FPD, Sandwich Community FPD, and Oswegoland Park District are fortunate to have the resources and abilities to potentially expand on and improve the existing policies and programs identified. Lisbon, Plattville, Kendall Township, Parkview Christian Academy, and St. Mary Catholic School have more limited resources and abilities to expand on and improve the existing policies and programs identified. The lack of legal authority and policies/programs currently in place may hamper these participants’ abilities to expand and strengthen existing policies and programs. Their fiscal and staffing situations are also limited.

Overcoming these limitations will require time and a range of actions including, but not limited to, improved general awareness of natural hazards and the potential benefits that may come from the development of new standards in terms of hazard loss prevention and the identification of resources available to expand and improve existing policies and programs should the opportunity arise.

Based on conversations with Committee members and a review of available planning documents, only Montgomery has explicitly incorporated mitigation strategies into its planning mechanisms. Montgomery completed an update of its comprehensive plan in 2014. The plan includes a chapter devoted to hazard mitigation & sustainability and includes a list of the following twelve action items:

- ❖ *Adopt the latest international series of building codes with additional revisions as needed.* The Village has updated its building codes twice since the update of its comprehensive plan in 2014. In 2023, the Village adopted the 2021 ICC Codes with local amendments.
- ❖ *Improve code enforcement with training for building department staff on the natural hazards aspect of the code.*

- ❖ *Perform facilities audits on critical facilities at risk of exposure to natural hazards (Kane).*
- ❖ *Establish retrofitting incentives for improvements on private property.*
- ❖ *Protect structures in Montgomery's three repetitive loss areas that have been identified in the Plan by acquisition or elevation.*
- ❖ *Implement a formal and regular drainage system maintenance and urban forestry programs.*
- ❖ *Add rain and stream gages to develop monitoring capability for flood predictions.*
- ❖ *Conduct a review of emergency response plans and create additional plans for natural hazards as needed.*
- ❖ *Implement flood control projects per Community Rating System (CRS) criteria where they are most practical including farm drainage and bridge and culvert improvements.*
- ❖ *Improve public outreach and communication and make property protection materials available to the public.*
- ❖ *Conduct stream and ditch maintenance in developed areas.*
- ❖ *Create first responder alert systems.*

Figure PP-16, located at the end of this section, provides information on comprehensive/land use plans, building codes, and zoning ordinances for the County and participating municipalities such as effective date, next scheduled update (if known), and International Code Council I-Code version. The Kendall County Stormwater Management Plan, containing the County's stormwater ordinance, was adopted in 2010 with Oswego and Yorkville choosing to adopt the County's ordinance. No scheduled updates of this Plan are anticipated at this time. Montgomery adopted the 2019 Kane County Stormwater Management Ordinance, which is scheduled to be updated in 2024. Plano adopted a stormwater management ordinance in 2016 but did not indicate when the next scheduled update is anticipated. Lisbon, Newark, and Plattville do not have stormwater plans or ordinances.

2.5 REVIEW & INCORPORATION OF EXISTING PLANS

The existing plans, studies, reports, technical information, and maps that were reviewed and incorporated into the Plan update, where appropriate, can be found in Section 7.0 References and are cited in each appropriate section.

Figure PP-3
County / Municipalities – Planning & Regulatory Capabilities

Capability Type	County/Municipality							
	Kendall County	Lisbon	Montgomery	Newark	Oswego	Plano	Plattville	Yorkville
Plans, Policies, Codes & Ordinances								
Comprehensive/Master Land Use Plan	X	X	X	X	X	X		X
Continuity of Operations Plan	X				X			
Stormwater Management Plan	X		X		X	X		
Transportation Plan	X		X	X	X			X
Economic Development Plan	X			X				
Emergency Operations Plan	X				X	X		X
Disaster Recovery Plan	X				X			
Threat & Hazard Identification Risk Assessment (THIRA) - County Only	X							
Infrastructure Maps - Municipalities Only		X	X	X	X	X		X
Building Codes	X		X	X	X	X		X
Floodplain Ordinance	X	X	X	X	X	X	X	X
Stormwater Ordinance	X		X		X	X		X
Zoning Ordinance	X		X	X	X	X		X
Subdivision Ordinance	X		X	X	X	X		X
Historic Preservation Ordinance	X				X			
Private Sewage Disposal System Ordinance - County Only	X							
Manufactured/Mobile Home Tie Down Ordinance	X		X		X			
Steep Slope Ordinance	X				X			
Mined Areas/Developed Over Mined Areas Ordinance	X							
National Incident Management System (NIMS) Adoption	X							X
National Flood Insurance Program (NFIP) Participation	X	X	X	X	X	X	X	X
Community Rating System (CRS) Participation			X					
Level of Capability	H	L	M	M	H	M	L	M

An "X" indicates that the item is currently in place and being implemented.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-4 County / Municipalities – Administrative & Technical Capabilities								
Capability Type	County/Municipality							
	Kendall County	Lisbon	Montgomery	Newark	Oswego	Plano	Plattville	Yorkville
Administrative & Technical								
Zoning Board	X	X	X	X	X	X		X
Public Utility Board			X					
Planning Commission	X		X	X	X	X		X
Mutual Aid Agreements	X		X		X	X		X
Administrator/Manager	X		X	X	X			X
Building Inspector/Officer	X		X	X	X	X		X
Community/Economic Development Planner	X		X	X	X	X		X
Emergency Manager	X		X	X				
Engineer/Construction Project Manager	X		X		X			X
GIS Coordinator	X							
Grant Administrator/Writer								
Fire Chief - Municipalities Only								
Floodplain Administrator	X		X	X	X	X		
Police Chief - Municipalities Only			X	X	X	X		X
Public Works/Streets Director - Municipalities Only			X	X	X	X		X
Water Superintendent - Municipalities Only			X	X	X	X		X
Zoning Officer/Administrator	X		X	X	X	X		X
Solid Waste Director - County Only	X							
Level of Capability	H	L	H	M	M	M	L	M

An "X" indicates the presence of staff with specified knowledge or skills.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-5 County / Municipalities – Financial / Education & Outreach Capabilities								
Capability Type	County/Municipality							
	Kendall County	Lisbon	Montgomery	Newark	Oswego	Plano	Plattville	Yorkville
Financial								
Roadway/Bridge Improvement Plan - County Only	X							
Capital Improvements Program	X		X		X	X		X
Tax Levies for Special Purposes	X	X	X	X	X	X		X
Motor Fuel Tax	X	X	X	X	X	X	X	X
General Obligation Bonds and/or Special Tax Bonds	X	X	X	X	X	X		X
Utility Fees (Stormwater, Sewer, Water, Gas, or Electric Service)			X	X		X		X
Impact Fees - New Development	X		X	X	X	X		X
Federal Funding Programs (Non-FEMA)	X	X	X	X	X	X		X
Level of Capability	H	L/M	H	H	H	H	L	H
Education & Outreach								
StormReady Certification	X					X		
Natural Disaster/Safety-Related School Programs	X							
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use)	X				X			
Seasonal Outreach	X				X			
Local Citizen Groups/Non-Profit Organizations (Emergency Preparedness, Access & Functional Needs Populations)	X							
Public-Private Partnership Initiatives Addressing Disaster-Related Issues	X				X			
Level of Capability	H	L	L	L	M	L	L	L

An "X" indicates a given resource is locally available for mitigation purposes.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-6 Townships – Planning & Regulatory / Administrative & Technical Capabilities		
Capability Type	Township	
	Kendall Township	Oswego Township
Plans, Policies, Codes & Ordinances		
Comprehensive/Master Land Use Plan		
Stormwater Management Plan	X	
Open Space/Recreational Area Plan		
Building Codes		
Stormwater Ordinance		
Zoning Ordinance		
Subdivision Ordinance		
Private Sewage Disposal System Ordinance		
Manufactured/Mobile Home Tie Down Ordinance		
Steep Slope Ordinance		
Mined Areas/Developed Over Mined Areas Ordinance		
Road Weight Restriction Ordinance	X	X
Nuisance Weed, Grass & Tree Ordinance		X
National Incident Management System (NIMS) Adoption		
Level of Capability	L	L
Administrative & Technical		
Zoning Board		
Public Utility Board		
Planning Commission	X	X
Mutual Aid Agreements	X	X
Assessor	X	X
Clerk	X	X
Collector		
Highway/Road District Commissioner	X	X
Supervisor	X	X
Level of Capability	M	M

An "X" indicates that the item is currently in place and being implemented or the presence of staff with specified knowledge or skills

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

**Figure PP-7
Townships – Financial /
Education & Outreach Capabilities**

Capability Type	Township	
	Kendall Township	Oswego Township
Financial		
Capital Improvements Program		
Roadway/Bridge Improvement Plan		
Tax Levies for Special Purposes	X	X
Motor Fuel Tax	X	X
General Obligation Bonds and/or Special Tax Bonds		X
Utility Fees (Stormwater, Sewer, Water, Gas or Electric Service)		
Impact Fees - New Development		
Federal Funding Programs (Non-FEMA)		X
Level of Capability	L	M
Education & Outreach		
StormReady Certification		
Natural Disaster/Safety-Related School Programs		
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use, Environmental Education, etc.)		
Seasonal Outreach	X	
Local Citizen Groups/Non-Profit Organizations (Emergency Preparedness, Access & Functional Needs Populations)		
Public-Private Partnership Initiatives Addressing Disaster-Related Issues		
Level of Capability	L	L

An "X" indicates a given resource is locally available for mitigation purposes.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-8
Schools – Planning & Regulatory /
Administrative & Technical Capabilities

Capability Type	School District/School					
	Lisbon CCSD #90	Newark CHSD #18	Oswego CUSD #308	Parkview Christian Academy	Plano CUSD #88	St. Mary Catholic School
Plans & Policies						
Comprehensive/Master Facilities Plan			X		X	
Continuity of Operations Plan		X				
Strategic Plan			X	X		X
Emergency/Crisis Response Plan	X	X	X	X	X	X
National Incident Management System (NIMS) Adoption			X			
Level of Capability	L	L	M	L	L	L
Administrative & Technical						
Board of Education	X	X	X	X	X	
Mutual Aid Agreements			X		X	
Superintendent	X	X	X	X	X	X
Principal(s)	X	X	X	X	X	X
Chief Financial Officer/Finance Director		X	X	X		X
Food Services Supervisor	X		X	X		
Grant Writer		X				
Health Care Supervisor		X	X		X	
IT Director/Specialist		X	X	X	X	
Maintenance Manager		X	X	X		
Communications Director		X	X	X		
Operations Manager		X	X		X	
Safety & Security Director		X	X			
Transportation Director		X	X		X	
Level of Capability	L	H	H	M	M	L

An "X" indicates that the item is currently in place and being implemented or the presence of staff with specified knowledge or skills.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-9 Schools – Financial / Education & Outreach Capabilities						
Capability Type	School District/School					
	Lisbon CCSD #90	Newark CHSD #18	Oswego CUSD #308	Parkview Christian Academy	Plano CUSD #88	St. Mary Catholic School
Financial						
Capital Improvements Program		X	X		X	
Tax Levies for Special Purposes	X	X	X		X	
General Obligation Bonds and/or Special Tax Bonds	X	X	X		X	
Federal Funding Programs (Non-FEMA)	X		X		X	
Level of Capability	M	M	H	L	H	L
Education & Outreach						
StormReady Certification	X					
Natural Disaster/Safety-Related School Programs	X					
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use)	X					
Seasonal Outreach						
Public-Private Partnership Initiatives Addressing Disaster-Related Issues	X					
Level of Capability	M	L	L	L	L	L

An "X" indicates a given resource is locally available for mitigation purposes.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-10
Fire Protection Districts – Planning & Regulatory Capabilities

Capability Type	Fire District				
	Bristol-Kendall FPD	Lisbon-Seward FPD	Newark FPD	Oswego FPD	Sandwich Community FPD
Plans, Policies, Codes, Ordinances, Resolutions, & Technical Documents					
Standard Operating Procedures/Guidelines for Structural Fire Fighting (NFPA 1700)	X	X		X	X
Standard Operating Procedures for Operations at Technical Search & Rescue Incidents (NFPA 1670)	X	X		X	X
Pre-Incident Planning (NFPA 1620)	X	X	X	X	X
Fire Prevention Codes	X			X	X
Burn Ordinance				X	
National Incident Management System (NIMS) Adoption		X	X	X	X
Incident Command System (ICS) Adoption		X	X	X	X
Building Inspections	X			X	
Tier II Reports	X	X	X	X	
County Emergency Operations Plan	X	X		X	
Safety Data Sheets	X	X	X	X	
Pipeline Maps	X	X	X	X	X
Hazardous Materials Facilities Maps	X	X		X	X
Water Supply Systems Maps	X	X	X	X	X
Impassable Roads & Bridges Maps	X	X		X	
Evacuation Zones Maps	X	X		X	X
Community & Special Residential Areas Maps (i.e., manufactured home parks, subdivisions, recreational communities)	X	X		X	X
Level of Capability	H	H	M	H	M

An "X" indicates that the item is currently in place and being implemented.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-11 Fire Protection Districts – Administrative & Technical Capabilities					
Capability Type	Fire District				
	Bristol-Kendall FPD	Lisbon-Seward FPD	Newark FPD	Oswego FPD	Sandwich Community FPD
Administrative & Technical					
Board of Trustees	X	X	X	X	X
Board of Fire Commissioners	X			X	
Mutual Aid Box Alarm System (MABAS)	X	X	X	X	X
Mutual Aid Agreements				X	X
Hazardous Materials Response Team				X	
Water Rescue/Dive Team	X			X	X
Technical Rescue Team	X			X	X
Fire Chief	X	X	X	X	X
Deputy Fire Chief	X	X	X	X	X
Administrative Assistant	X	X	X	X	X
Financial/Business Manager	X			X	
Inspector	X			X	X
Public Education Director/Officer	X	X	X	X	X
Telecom Director	X				
Training Coordinator	X		X	X	X
Level of Capability	H	M	M	H	H

An "X" indicates the presence of staff with specified knowledge or skills.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-12 Fire Protection Districts – Financial / Education & Outreach Capabilities					
Capability Type	Fire District				
	Bristol-Kendall FPD	Lisbon-Seward FPD	Newark FPD	Oswego FPD	Sandwich Community FPD
Financial					
Capital Improvements Program	X			X	X
Tax Levies for Special Purposes	X	X		X	
General Obligation Bonds and/or Special Tax Bonds	X	X		X	
Federal Funding Programs (Non-FEMA)	X	X		X	
Level of Capability	H	M	L	H	L
Education & Outreach					
Natural Disaster/Safety-Related School Programs	X	X	X	X	X
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use)	X	X		X	X
Seasonal Outreach		X		X	X
Public-Private Partnership Initiatives Addressing Disaster-Related Issues					X
Level of Capability	M	M	L	M	H

An "X" indicates a given resource is locally available for mitigation purposes.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-13 Park Districts – Planning & Regulatory / Administrative & Technical Capabilities	
Capability Type	Park District
	Oswegoland Park District
Plans & Policies	
Strategic/Framework Plan	X
Comprehensive/Master Plan	X
Trails Plan	X
Land Acquisition Plan	X
Annual Plan	X
Emergency Management/Operations Plan	X
Continuity of Operations Plan	X
Disaster Recovery Plan	X
Inclement Weather Policy	X
General Use Ordinance	X
Budget & Appropriations Ordinance	X
National Incident Management System (NIMS) Adoption	
Level of Capability	H
Administrative & Technical	
Board of Commissioners/Trustees	X
Mutual Aid Agreements	X
Executive Director	X
Superintendent of Recreation	X
Superintendent of Parks	X
Director of Business Services	X
Director of Program Services	X
Director of Golf	X
Chief of Park District Police	
Safety & Training Coordinator	
Recreation Program Manager	X
Level of Capability	H

An "X" indicates that the item is currently in place and being implemented or the presence of staff with specified knowledge or skills.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

Figure PP-14 Park Districts – Financial / Education & Outreach Capabilities	
Capability Type	Park District
	Oswegoland Park District
Financial	
Capital Improvements Program	X
Tax Levies for Special Purposes	X
General Obligation Bonds and/or Special Tax Bonds	X
Endowments/Bequests	X
Federal Funding Programs (Non-FEMA)	X
Level of Capability	H
Education & Outreach	
Natural Disaster/Safety-Related School Programs	
Ongoing Public Education or Information Programs (Fire Safety, Household Preparedness, Responsible Water Use)	
Seasonal Outreach	
Public-Private Partnership Initiatives Addressing Disaster-Related Issues	
Level of Capability	L

An "X" indicates a given resource is locally available for mitigation purposes.

Level of Capacity: "L" = Limited; "M" = Moderate; "H" = High

**Figure PP-15
Capability Rankings by Participating Jurisdiction**

Capability Type	County/Municipality								Township		School District/School						Fire District					Park District
	Kendall County	Lisbon	Montgomery	Newark	Oswego	Plano	Plattville	Yorkville	Kendall Township	Oswego Township	Lisbon CCSD #90	Newark CHSD #18	Oswego CUSD #308	Parkview Christian Academy	Plano CUSD #88	St. Mary Catholic School	Bristol-Kendall FPD	Lisbon-Seward FPD	Newark FPD	Oswego FPD	Sandwich Community FPD	Oswegoland Park District
Planning & Regulatory	H	L	M		H	M	L	M	L	L	L	L	M	L	L	L	H	H	M	H	M	H
Administrative & Technical	H	L	H	M	M	M	L	M	M	M	L	H	H	M	M	L	H	M	M	H	H	H
Financial	H	L/M	H	H	H	H	L	H	L	M	M	M	H	L	H	L	H	M	L	H	L	H
Education & Outreach	H	L	L	L	M	L	L	L	L	L	M	L	L	L	L	L	M	M	L	M	H	L
Overall Capability	H	L	M/H	M	M/H	M	L	M	L	L/M	L/M	M	M/H	L	M	L	H	M/H	M	H	M/H	H

Level of Capacity: "L" = Limited; "M" = Moderate; "H" High

Figure PP-16 Select Planning & Regulatory Capabilities Information by County/Municipality							
Participating Jurisdiction	Comprehensive/Land Use Plan		Building Codes			Zoning Ordinance	
	Effective Date	Scheduled Update (if known)	Effective Date	ICC I-Code Version	Scheduled Update (if known)	Effective Date	Scheduled Update (if known)
Kendall County	2021	2025	2019	2018	2025	2023	as needed
Lisbon	2009	---	---	---	---	---	---
Montgomery	2014	---	2023	2021	---	2021	---
Newark	2008	---	2022	2018	---	2020	---
Oswego	2015	---	2021	2009	2024	2016	2023/2024
Plano	2017	2023/2024	2019	2018	---	2017	---
Plattville	---	---	---	---	---	---	---
Yorkville	2016	2026	2019	2018	---	2014	---

3.0 RISK ASSESSMENT

Risk assessment is the process of evaluating the vulnerability of assets in order to estimate the potential loss of life, personal injury, economic loss, and property damage resulting from natural and man-made hazards. Assets are determined by each participant and can include people; structures (i.e., critical facilities, lifelines, and infrastructure); systems (i.e., networks such as electrical and communications, etc.); and natural, historic, and cultural resources). This section summarizes the results of the risk assessment conducted on the natural and man-made hazards in Kendall County. The information contained in this section was gathered by evaluating local, state, and federal records from the last 20 to 70 years.

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

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

Hazard Selection

One of the responsibilities of the Committee was to review the natural hazards detailed in the previous Plan and decide if additional hazards should be included in the Plan update. Over the course of the first two meetings, the Committee members discussed their experiences with natural and man-made hazard events and reviewed information on various hazards. While not included in the original Plan, the Committee chose to include drought and excessive heat in this Plan update.

The following identifies the hazards included in this Plan update:

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

The Planning Committee chose not to include the following hazards in the Plan: land/mine subsidence, levee failures, landslides, and dam failures. In Illinois land subsidence generally occurs in areas where mining has been conducted. According to ISGS's *ILMINES* mapper, there are no underground mines located within the County. Karst refers to landforms underlain by

limestone that has been dissolved, producing characteristic landscapes such as sinkholes. Mapping prepared by the ISGS shows no karst geologic characteristics present in Kendall County. Information obtained from the U.S. Army Corps of Engineers' National Levee Database indicates there are no public or private levees located in Kendall County. A review of the USGS Landslide Inventory, NASA's Global Landslide Catalog, and the Illinois State Geological Survey's (ISGS) Landslide Inventory of Illinois did not identify any landslide events within the County. Discussions with the Planning Committee did not reveal any recent occurrences of landslides.

A review of the U.S. Army Corps of Engineers' National Inventory of Dams identified seven classified dams located in the County. Of the seven dams, two have a hazard potential classification rating of "Significant" and the remaining five dams have a hazard classification rating of "Low". There are no "High" hazard classified dams within the County. Based on information available from the National Inventory of Dams and a visual inspection, these dams do not have reservoirs with immense storage capacities and are not located in densely populated areas. According to the Stanford University's National Performance of Dams Incident Database, there are no known recorded dam failures associated with these dams and discussions with the Kendall County EMA Director did not identify any major concerns. An electronic survey was sent out asking Planning Committee members whether dam failures should be included in the Plan update. Based on the responses received, the Planning Committee did not feel dam failures posed a significant impact on the County.

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

Risk Priority Index

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

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

The Consultant took the point values assigned to each category and averaged the remaining results and came up with an overall value for each category. The values for each category were then added together to calculate an RPI score for each hazard. A ranking was then assigned to each hazard based on the RPI score. **Figure R-2**, located at the end of this section, provides the hazard rankings for the participating jurisdictions. RPI scores were not generated for Bristol-Kendall Fire Protection District.

Figure R-3 provides a side-by-side comparison of how the hazards ranked between the RPI exercise conducted for the original Plan in 2011 and the exercise conducted for the Plan update for each of the original participants. RPIs were not generated in 2011 for Montgomery, Plattville or any of the special districts. The top hazards for the County in 2011 were thunderstorms with damaging winds, hail and lightning, followed by tornadoes and transportation hazardous materials incidents. In 2023, the top hazards were tornadoes, followed by thunderstorms with damaging winds and severe winter storms.

FEMA's National Risk Index

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

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

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

In order to provide the participating jurisdictions and public with additional information on the natural hazards included in the Plan, **Figure R-4** located at the end of this section, presents the overall NRI scores and ratings for each census tract as well as for the County. 2020 census tract information was used in this version of the NRI. In 2020, there were 21 census tracts in Kendall County and three census tracts that include the portions of the Village of Montgomery in Kane County. Only seven of the 24 census tracts have a Risk Index rating of "Relatively Moderate". The rest of the census tracts have a Risk Index rating of "Relatively Low". One census tract has a Social Vulnerability rating of "Very High", four have a Social Vulnerability rating of "Relatively Moderate", and the remaining census tracts have a Social Vulnerability rating of "Relatively Low" or "Very Low".

Figure R-5, located at the end of this section, provides the NRI scores and ratings by hazard type for each census tract as well as the County. Hazard ratings of "Relatively High" and "Very High"

are highlighted in yellow by census tract. The hazards with the highest relative ratings include tornadoes, extreme cold, tornadoes, excessive heat, and lightning.

Critical Facilities & Infrastructure

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

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

As part of the planning process each participating jurisdiction reviewed and/or completed a questionnaire identifying the critical facilities and infrastructure located within their jurisdiction, both publicly and privately-owned. **Figure R-6**, located at the end of this section, identifies the number of critical facilities and infrastructure located in each participating jurisdiction for select categories. Identifying these assets makes local leaders more aware of the critical facilities and infrastructure located within their jurisdictions and helps them make informed choices on how to better protect these key resources.

While considered a “local government entity” for planning purposes, Kendall Township, Oswego Township, Lisbon Consolidated Community School District (CCSD) #90, Newark Consolidated High School District (CHSD) #18, Oswego Community Unit School District (CUSD) #308, Parkview Christian Academy, Plano CUSD #88, St. Mary Catholic School, Bristol-Kendall Fire Protection District (FPD), Lisbon-Seward FPD, Newark FPD, Oswego FPD, Sandwich Community FPD, and Oswegoland Park District do not have an extensive inventory of critical facilities/infrastructure assets to consider when conducting the risk assessment.

The critical facilities/infrastructure assets for Lisbon CCSD #90, Newark CHSD #18, Parkview Christian Academy, Plano CUSD #88, St. Mary Catholic School, Bristol-Kendall FPD, Lisbon-Seward FPD, and Newark FPD are all located within a participating municipality and are a subset

of these municipalities' critical facilities. As such their risk is considered to be the same or similar to the risk experienced by the municipalities for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.). For those hazards where the risk to the schools or FPDs varies from the risk facing the municipalities, a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

The critical facilities for Oswego Township are located in Boulder Hill, the largest unincorporated subdivision in Kendall County. Boulder Hill is situated between Oswego and Montgomery and therefore its risk is considered to be the same or similar to the risk experienced by these municipalities for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.). For those hazards where the risk to the Township varies from the risk facing the municipalities, a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

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

The critical facilities for Oswegoland Park District are located in Oswego and Boulder Hill. The Park District also has parks and trails located in Oswego, Boulder Hill, Montgomery, Plainfield, Aurora, and unincorporated Kendall County. The risk to critical facilities, parks, and trails in Boulder Hill, Plainfield, and Aurora is considered to be the same or similar to the risk experienced by Oswego and Montgomery for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.). For those hazards where the risk to the Park District varies from the risk facing the municipalities, a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

The critical facilities for Owego FPD are located in Oswego, Montgomery, and Plainfield. As discussed previously, the risk to critical facilities in Plainfield is considered to be the same or similar to the risk experienced by Oswego and Montgomery for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.). For those hazards where the risk to the FPD varies from the risk facing the municipalities, a separate narrative assessment will be provided under the appropriate hazard's vulnerability subsection.

The critical facilities for Oswego CUSD #308 are located in Oswego, Boulder Hill, Montgomery, Plainfield and Aurora, with three of the District's schools located just over the county line in Will County. The risk to the critical facilities in Boulder, Plainfield, and Aurora is considered to be the same or similar to the risk experienced by Oswego and Montgomery for those hazards that either impact the entire planning area or can occur at any location within the planning area (i.e., severe storms, severe winter storms, etc.). For those hazards where the risk to the District varies from the

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

Assets Vulnerability Survey

The participating jurisdictions were also asked to complete an Assets Vulnerability Survey at the third meeting to assist them in creating problem statements summarizing the consequences and/or effects the studied hazards have on their assets. The Survey asked participants to describe their jurisdiction's greatest vulnerabilities to natural hazards and which assets they felt have the greatest vulnerabilities and the hazards they are most vulnerable to. This information is summarized under the appropriate hazard's vulnerability subsection.

Future Conditions

While we cannot predict with certainty what the weather of the future will look like, we can use models to help us make sense of the patterns we have seen in the past and to use that information to predict what events will be more likely to occur going forward.

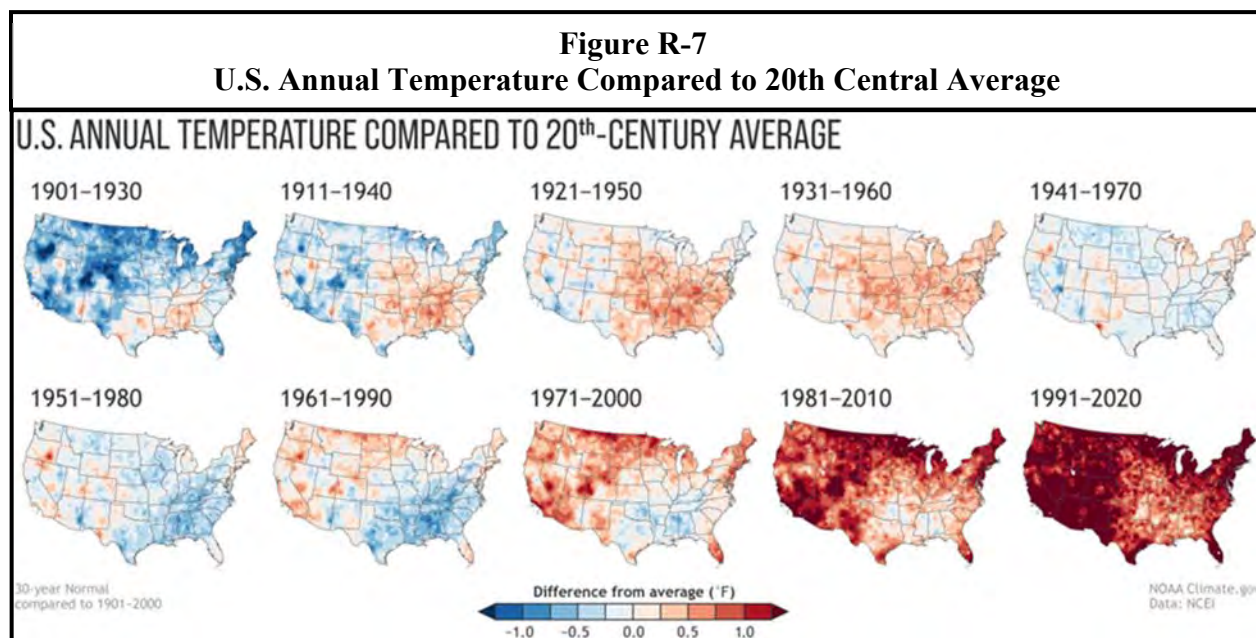
By looking at data from previous weather conditions and taking into account trends in that data that have emerged over time, we can with some degree of accuracy project what weather may look like in the future. It is important to consider that nearer term predictions have the greatest likelihood of accuracy since they require the least extrapolation and guesswork; however, this does not mean that longer term predictions are not plausible or not useful. Often, having a prediction that is even partly right is preferable to having no guide at all. By coming up with best case and worst case scenarios, even if neither is terribly likely, we can gain a better understanding of the range of potential outcomes and a good idea of what the most probable outcomes might look like.

Earth's weather and climate have always been variable. Over time, sea levels have risen and fallen, glaciers have advanced and retreated, and droughts, floods, wildfires, and storms have periodically upended the notion of "normal". In recent years in the U.S., there have been several trends observed in weather patterns that offer us some insight as to what the near future may hold. Broadly, these likely changes can be referred to as "future conditions". They include more general seasonal trends as well as more specific weather pattern trends.

In recent decades we have seen both earlier springs (earlier last frost dates) and later winters (later first frost dates) in the U.S. Taken together, these two changes mean that winters are likely to be shorter and milder, and summers are likely to be longer and hotter across much of the continental U.S. than they were historically. In combination, shorter, milder winters and longer, more intense summers have resulted in an observed increase in average annual temperature.

As with any change that occurs gradually, the difference can be difficult to perceive if the time frame you are looking at is small. Additionally, smaller windows of time are more likely to be skewed by rare occurrences or anomalies. Looking at longer time frames allows us to see the big picture, putting highly unusual years into context by averaging them out with other more typical years. Looking at consecutive 30-year period averages called "Normals" allows us to detect how what is average (or 'normal') has shifted over time.

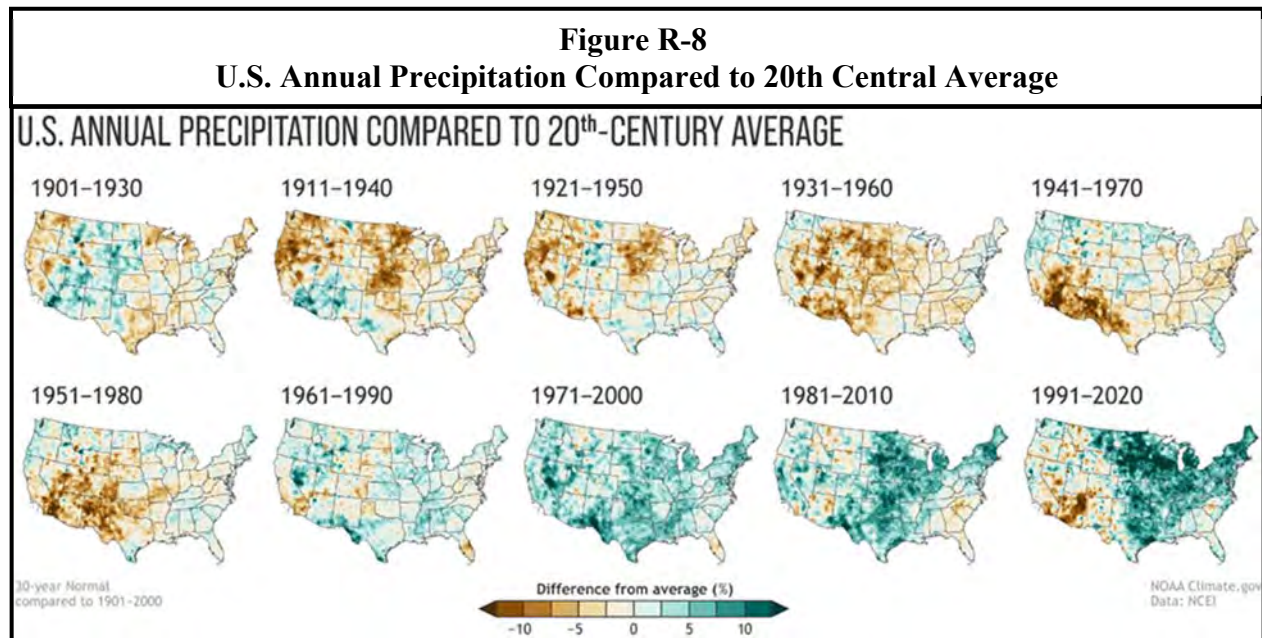
Figure R-7 shows U.S. annual temperature compared to 20th-century averages. By looking at 30 Year Normals for average annual temperature compared to overall 20th century averages, a trend of increasing annual temperature is particularly apparent in the final three 30 year periods. (1971-2000, 1981-2010, 1991-2020). Since these are average annual temperatures, even a small difference corresponds to larger temperature changes recorded within a year.



Also observed have been changes in when, where, and how much precipitation occurs across the U.S. **Figure R-8** shows U.S. annual precipitation compared to 20th-century averages. For some areas of the Country, this has resulted in increases in overall precipitation. The Midwestern U.S. has been on average getting progressively wetter in 30 year rolling averages from the period of 1951-1980 onwards; elsewhere, it has resulted in decreases, such as in much of the Western and Southwestern US, which has been getting drier since the period of 1971-2000 onwards.

Trends also reveal an uptick in the frequency and severity of hazardous weather events. While this is in part due to better record-keeping and a higher number of people and monitoring devices to witness hazardous events in order to report them, this trend is at least in part due to warmer bodies of air that tend to “supercharge” summer storm systems, making them more likely to produce severe weather events.

Specific information on future conditions is summarized under the appropriate hazard’s probability subsection.



**Figure R-1
Risk Priority Index Scoring System**

Category	Factors	Value	Point Value
Hazard Frequency	An event is likely to occur in the next 1 to 3 years.	High	3
	An event is possible in the next 3 to 10 years.	Moderate	2
	An event is unlikely to occur within the next 10 years.	Low	1
Impacts on Life & Health	While fatalities are unlikely, injuries, some requiring hospitalization, may occur during the event.	High	3
	Minor injuries not requiring hospitalization may occur during the event.	Moderate	2
	Injuries or fatalities are unlikely to occur during the event.	Low	1
Impacts on Property & Infrastructure	- Substantial property damage is likely to occur including damage to infrastructure and critical facilities. AND/OR - Loss of access/operations at infrastructure and critical facilities (i.e., road & school closures, loss of power to drinking water/wastewater treatment facilities, municipal buildings, etc.) is anticipated for a period of time (i.e., a day or more).	High	3
	- Some minor property damage is anticipated (i.e., shingles & siding torn off homes, windows broken, etc.) but no significant damage to infrastructure or critical facilities is anticipated. AND/OR - Loss of access/operations to infrastructure and critical facilities is anticipated but only for a short period of time (i.e., up to a couple hours).	Moderate	2
	- Property damage is likely to be negligible and no loss of access/operations is anticipated at any infrastructure/critical facilities during the event.	Low	1

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

Hazard	Hazard Ranking by Participating Jurisdiction									
	Kendall County	Lisbon	Montgomery	Newark	Oswego	Plano	Plattville	Yorkville	Kendall Township	Oswego Township
Drought	13	10	9/10/11/12	12/13/14	12/13/14	13/14	10	4/5/6/7/8	4/5/6/7	10/11/12/13
Earthquakes	14	11/12/13/14	13/14	12/13/14	12/13/14	13/14	11/12/13/14	13/14	14	10/11/12/13
Excessive Heat	4/5	9	1/2/3/4	5/6/7/8/9	6/7/8/9	5/6/7/8	8/9	3	8/9/10/11/1	3/4/5/6
Extreme Cold	6/7/8	7	1/2/3/4	10/11	4/5	3/4	8/9	4/5/6/7/8	8/9/10/11/1	1/2
Floods	6/7/8	4/5/6	1/2/3/4	10/11	10/11	5/6/7/8	1/2	9/10/11/12	13	10/11/12/13
Hail	9	8	13/14	1/2/3/4	12/13/14	9/10	4/5/6/7	4/5/6/7/8	4/5/6/7	3/4/5/6
HazMat - Fixed Facility	12	11/12/13/14	9/10/11/12	5/6/7/8/9	4/5	11/12	11/12/13/14	9/10/11/12	8/9/10/11/1	7/8
HazMat - Transportation	10	11/12/13/14	5/6/7/8	1/2/3/4	2/3	11/12	11/12/13/14	1/2	8/9/10/11/1	10/11/12/13
Heavy Rain	6/7/8	4/5/6	9/10/11/12	5/6/7/8/9	6/7/8/9	5/6/7/8	3	9/10/11/12	2/3	3/4/5/6
Lightning	4/5	3	5/6/7/8	1/2/3/4	10/11	5/6/7/8	1/2	13/14	4/5/6/7	9
Terrorism	11	11/12/13/14	5/6/7/8	12/13/14	6/7/8/9	1/2	11/12/13/14	9/10/11/12	8/9/10/11/1	14
Thunderstorms with Damaging Winds	2	4/5/6	9/10/11/12	5/6/7/8/9	2/3	9/10	4/5/6/7	4/5/6/7/8	1	3/4/5/6
Tornadoes	1	2	5/6/7/8	1/2/3/4	1	1/2	4/5/6/7	1/2	4/5/6/7	7/8
Winter Storms	3	1	1/2/3/4	5/6/7/8/9	6/7/8/9	3/4	4/5/6/7	4/5/6/7/8	2/3	1/2

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

Hazard	Hazard Ranking by Participating Jurisdiction										
	Lisbon CCSD #90	Newark CHSD #18	Oswego CUSD #308	Parkview Christian Academy	Plano CUSD #88	St. Mary Catholic School	Lisbon-Seward FPD	Newark FPD	Oswego FPD	Sandwich Community FPD	Oswegoland Park District
Drought	12/13	12/13	12/13	12/13	12/13	12/13	14	11/12/13	10/11/12	12/13	8/9
Earthquakes	5/6	5/6	5/6	5/6	5/6	5/6	9/10/11	7/8/9/10	14	14	11/12/13/14
Excessive Heat	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	9/10/11	7/8/9/10	3/4	4/5/6/7/8	2/3/4/5
Extreme Cold	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	1/2/3/4/5/6/7/8	3/4/5	5/6/7/8/9	4/5/6/7/8	6/7
Floods	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4	1/2/3/4/5/6/7/8	3/4/5	1	9	2/3/4/5
Hail	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	12	11/12/13	5/6/7/8/9	4/5/6/7/8	8/9
HazMat - Fixed Facility	14	14	14	14	14	14	1/2/3/4/5/6/7/8	11/12/13	13	1/2	11/12/13/14
HazMat - Transportation	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	13	7/8/9/10	10/11/12	12/13	11/12/13/14
Heavy Rain	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	7/8/9/10/11	9/10/11	1/2	5/6/7/8/9	4/5/6/7/8	2/3/4/5
Lightning	5/6	5/6	5/6	5/6	5/6	5/6	1/2/3/4/5/6/7/8	6	10/11/12	10/11	2/3/4/5
Terrorism	12/13	12/13	12/13	12/13	12/13	12/13	1/2/3/4/5/6/7/8	14	3/4	1/2	11/12/13/14
Thunderstorms with Damaging Winds	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4	1/2/3/4/5/6/7/8	1/2	5/6/7/8/9	3	1
Tornadoes	1	1	1	1	1	1	1/2/3/4/5/6/7/8	3/4/5	2	4/5/6/7/8	6/7
Winter Storms	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4	1/2/3/4/5/6/7/8	7/8/9/10	5/6/7/8/9	10/11	10

Figure R-3
Comparison of 2011 & 2023 Risk Priority Index Hazard Rankings by Participating Jurisdiction

Hazard	Hazard Ranking by Participating Jurisdiction											
	Kendall County		Lisbon		Newark		Oswego		Plano		Yorkville	
	2011	2023	2011	2023	2011	2023	2011	2023	2011	2023	2011	2023
Drought	---	13	---	10	---	12/13/14	---	12/13/14	---	13/14	---	4/5/6/7/8
Earthquakes	7	14	7	11/12/13/14	7	12/13/14	7	12/13/14	7	13/14	7	13/14
Excessive Heat	---	4/5	---	9	---	5/6/7/8/9	---	6/7/8/9	---	5/6/7/8	---	3
Extreme Cold	5	6/7/8	4	7	5	10/11	5	4/5	6	3/4	5	4/5/6/7/8
Floods	4	6/7/8	6	4/5/6	4	10/11	4	10/11	2	5/6/7/8	4	9/10/11/12
Hail	1	9	1	8	1	1/2/3/4	1	12/13/14	3	9/10	2	4/5/6/7/8
HazMat Incidents: Fixed Facility	6	12	5	11/12/13/14	6	5/6/7/8/9	6	4/5	5	11/12	6	9/10/11/12
HazMat Incidents: Transportation	3	10	3	11/12/13/14	3	1/2/3/4	3	2/3	4	11/12	3	1/2
Heavy Rain	---	6/7/8	---	4/5/6	---	5/6/7/8/9	---	6/7/8/9	---	5/6/7/8	---	9/10/11/12
Lightning	1	4/5	1	3	1	1/2/3/4	1	10/11	3	5/6/7/8	2	13/14
Terrorism	---	11	---	11/12/13/14	---	12/13/14	---	6/7/8/9	---	1/2	---	9/10/11/12
Thunderstorms w/ Damaging Winds	1	2	1	4/5/6	1	5/6/7/8/9	1	2/3	3	9/10	2	4/5/6/7/8
Tornadoes	2	1	2	2	2	1/2/3/4	2	1	1	1/2	1	1/2
Winter Storms	5	3	4	1	5	5/6/7/8/9	5	6/7/8/9	6	3/4	5	4/5/6/7/8

Figure R-4
National Risk Index Overall Scores/Ratings by Census Tract

Census Tract No.	Participating Jurisdiction* Located in Census Tract	Risk Index Score	Risk Index Rating	Social Vulnerability Score	Social Vulnerability Rating	Community Resilience Score	Community Resilience Rating
01.03	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	60.05	Relatively Low	20.23	Relatively Low	^	^
01.04	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	60.62	Relatively Low	35.74	Relatively Low	^	^
01.05	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	68.19	Relatively Moderate	15.45	Very Low	^	^
01.06	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	41.14	Relatively Low	4.66	Very Low	^	^
01.07	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	47.38	Relatively Low	7.68	Very Low	^	^
01.08	Oswego, Oswego Township, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD, Oswegoland Park District	42.22	Relatively Low	1.94	Very Low	^	^
02.01	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	39.89	Relatively Low	23.52	Relatively Low	^	^
02.02	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	33.19	Relatively Low	52.85	Relatively Moderate	^	^
03.01	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	67.35	Relatively Moderate	36.53	Relatively Low	^	^
03.02	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	53.01	Relatively Low	18.19	Very Low	^	^
04.01	Montgomery, Yorkville, Plano CUSD #88, Bristol-Kendall FPD, Oswego FPD	60.77	Relatively Low	23.61	Relatively Low	^	^
04.02	Yorkville, Bristol-Kendall FPD, Oswego FPD	71.90	Relatively Moderate	14.92	Very Low	^	^
04.03	Montgomery, Oswego, Yorkville, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD, Oswegoland Park District	58.65	Relatively Low	35.88	Relatively Low	^	^
04.04	Montgomery, Yorkville, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD	68.97	Relatively Moderate	21.91	Relatively Low	^	^
05.01	Plano, Sandwich, Plano CUSD #88, Bristol-Kendall FPD, Sandwich Community FPD	76.67	Relatively Moderate	46.24	Relatively Moderate	^	^
05.02	Plano, Plano CUSD #88, Sandwich Community FPD	48.32	Relatively Low	29.34	Relatively Low	^	^
06.01	Yorkville, Kendall Township, Bristol-Kendall FPD	53.10	Relatively Low	26.14	Relatively Low	^	^
06.02	Newark, Yorkville, Kendall Township, Newark CHSD #18, Plano CUSD #88, Bristol-Kendall FPD, Newark FPD, Oswego FPD, Sandwich Community FPD	56.44	Relatively Low	7.60	Very Low	^	^
07.01	---	54.92	Relatively Low	45.45	Relatively Moderate	^	^
07.02	Oswego CUSD #90, Bristol-Kendall FPD, Lisbon-Seward FPD, Oswego FPD, Oswegoland Park District	42.19	Relatively Low	1.05	Very Low	^	^
07.03	Lisbon, Newark, Plattville, Lisbon CCSD #90, Newark CHSD #18, Bristol-Kendall FPD, Lisbon-Seward FPD, Newark FPD	69.34	Relatively Moderate	12.70	Very Low	^	^
40.02	Montgomery	64.23	Relatively Moderate	53.87	Relatively Moderate	^	^
44.01	Montgomery	37.58	Relatively Low	88.98	Very High	^	^
45.08	Montgomery	37.55	Relatively Low	7.29	Very Low	^	^
Kendall County		73.56	Relatively Low	12.22	Very Low	97.68	Relatively High

* Parkview Christian Academy and St. Mary Catholic School are non-boundaried schools and as such serve all census tracts in the County.

^ Community Resilience scores are only available at the county level.

Figure R-5
NRI Hazard Scores/Ratings by Hazard by Census Tract
(Sheet 1 of 3)

Census Tract No.	Participating Jurisdiction* Located in Census Tract	Severe Storms						Severe Winter Storms			
		Hail Score	Hail Rating	Lightning Score	Lightning Rating	Strong Wind Score	Strong Wind Rating	Ice Storm Score	Ice Storm Rating	Winter Weather Score	Winter Weather Rating
01.03	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	57.10	RL	79.81	RH	77.25	RM	60.90	RL	53.55	RL
01.04	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	54.73	RL	84.23	RH	77.26	RM	63.32	RL	56.99	RL
01.05	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	60.55	RL	88.55	RH	82.79	RH	68.02	RL	61.90	RM
01.06	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	46.88	RL	68.36	RM	66.56	RM	48.90	RL	45.62	RL
01.07	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	51.92	RL	70.83	RM	69.74	RM	52.82	RL	47.46	RL
01.08	Oswego, Oswego Township, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD, Oswegoland Park District	50.37	RL	67.95	RM	67.34	RM	49.76	RL	45.98	RL
02.01	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	42.19	VL	74.51	RM	66.90	RM	48.20	RL	47.50	RL
02.02	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	38.22	VL	71.24	RM	62.63	RM	43.06	RL	44.39	RL
03.01	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	60.66	RL	85.78	RH	82.21	RH	66.03	RL	58.69	RL
03.02	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	49.50	RL	81.81	RH	74.42	RM	56.81	RL	53.11	RL
04.01	Montgomery, Yorkville, Plano CUSD #88, Bristol-Kendall FPD, Oswego FPD	57.57	RL	79.75	RH	78.70	RM	61.79	RL	56.01	RL
04.02	Yorkville, Bristol-Kendall FPD, Oswego FPD	61.28	RL	88.70	RH	85.11	RH	68.78	RL	63.38	RM
04.03	Montgomery, Oswego, Yorkville, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD, Oswegoland Park District	52.44	RL	83.22	RH	77.47	RM	60.09	RL	55.89	RL
04.04	Montgomery, Yorkville, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD	56.91	RL	90.45	RH	84.35	RH	67.37	RL	63.84	RM
05.01	Plano, Sandwich, Plano CUSD #88, Bristol-Kendall FPD, Sandwich Community FPD	63.96	RL	91.57	RH	87.91	RH	71.87	RM	67.46	RM
05.02	Plano, Plano CUSD #88, Sandwich Community FPD	51.67	RL	72.63	RM	70.77	RM	52.51	RL	50.13	RL
06.01	Yorkville, Kendall Township, Bristol-Kendall FPD	54.97	RL	72.23	RM	73.51	RM	56.84	RL	50.60	RL
06.02	Newark, Yorkville, Kendall Township, Newark CHSD #18, Plano CUSD #88, Bristol-Kendall FPD, Newark FPD, Oswego FPD, Sandwich Community FPD	63.57	RL	72.87	RM	75.39	RM	58.17	RL	51.81	RL
07.01	---	49.95	RL	83.76	RH	74.12	RM	60.23	RL	55.10	RL
07.02	Oswego CUSD #90, Bristol-Kendall FPD, Lisbon-Seward FPD, Oswego FPD, Oswegoland Park District	54.40	RL	68.39	RM	65.64	RM	50.56	RL	45.93	RL
07.03	Lisbon, Newark, Plattville, Lisbon CCSD #90, Newark CHSD #18, Bristol-Kendall FPD, Lisbon-Seward FPD, Newark FPD	67.85	RL	88.98	RH	82.45	RH	66.65	RL	61.89	RM
40.02	Montgomery	35.30	VL	67.80	RM	63.46	RM	64.47	RL	60.02	RM
44.01	Montgomery	28.61	VL	51.26	RM	48.14	RL	49.37	RL	49.31	RM
45.08	Montgomery	31.23	VL	52.15	RM	50.63	RL	47.68	RL	50.23	RL
Kendall County		36.43	VL	82.59	RM	70.86	RM	54.93	RL	40.85	RL

* Parkview Christian Academy and St. Mary Catholic School are non-boundaried schools and as such serve all census tracts in the County.

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

Figure R-5
NRI Hazard Scores/Ratings by Hazard by Census Tract
(Sheet 2 of 3)

Census Tract No.	Participating Jurisdiction* Located in Census Tract	Riverine Floods		Extreme Cold		Excessive Heat	
		Score	Rating	Score	Rating	Score	Rating
01.03	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	68.31	RL	96.88	RH	77.69	RM
01.04	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	60.18	RL	97.87	RH	81.71	RH
01.05	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	0.00	NR	98.57	RH	85.25	RH
01.06	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	44.18	RL	94.83	RH	71.00	RM
01.07	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	58.13	RL	95.22	RH	72.07	RM
01.08	Oswego, Oswego Township, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD, Oswegoland Park District	49.09	RL	94.94	RH	71.07	RM
02.01	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	27.50	VL	95.84	RH	74.22	RM
02.02	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	35.77	RL	94.99	RH	71.41	RM
03.01	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	51.73	RL	97.96	RH	82.11	RH
03.02	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	49.52	RL	97.25	RH	79.03	RH
04.01	Montgomery, Yorkville, Plano CUSD #88, Bristol-Kendall FPD, Oswego FPD	48.73	RL	97.68	RH	80.73	RH
04.02	Yorkville, Bristol-Kendall FPD, Oswego FPD	62.99	RL	98.73	RH	86.46	RH
04.03	Montgomery, Oswego, Yorkville, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD, Oswegoland Park District	64.85	RL	97.83	RH	81.49	RH
04.04	Montgomery, Yorkville, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD	31.99	VL	98.87	RH	87.52	RH
05.01	Plano, Sandwich, Plano CUSD #88, Bristol-Kendall FPD, Sandwich Community FPD	69.66	RL	99.11	VH	89.36	RH
05.02	Plano, Plano CUSD #88, Sandwich Community FPD	66.22	RL	96.57	RH	76.18	RM
06.01	Yorkville, Kendall Township, Bristol-Kendall FPD	52.90	RL	96.18	RH	75.13	RM
06.02	Newark, Yorkville, Kendall Township, Newark CHSD #18, Plano CUSD #88, Bristol-Kendall FPD, Newark FPD, Oswego FPD, Sandwich Community FPD	68.45	RL	96.69	RH	75.53	RM
07.01	---	37.17	RL	97.64	RH	80.72	RH
07.02	Oswego CUSD #90, Bristol-Kendall FPD, Lisbon-Seward FPD, Oswego FPD, Oswegoland Park District	58.75	RL	94.95	RH	70.48	RM
07.03	Lisbon, Newark, Plattville, Lisbon CCSD #90, Newark CHSD #18, Bristol-Kendall FPD, Lisbon-Seward FPD,	80.91	RM	98.71	RH	85.10	RH
40.02	Montgomery	85.27	RM	84.65	RM	62.36	RM
44.01	Montgomery	78.95	RM	78.92	RM	53.16	RM
45.08	Montgomery	71.91	RM	79.46	RM	53.65	RM
Kendall County		41.65	RL	96.69	VH	87.10	RM

* Parkview Christian Academy and St. Mary Catholic School are non-boundaried schools and as such serve all census tracts in the County.

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

Figure R-5
NRI Hazard Scores/Ratings by Hazard by Census Tract
(Sheet 3 of 3)

Census Tract No.	Participating Jurisdiction* Located in Census Tract	Tornadoes		Drought		Earthquakes	
		Score	Rating	Score	Rating	Score	Rating
01.03	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	94.51	VH	70.37	VL	66.88	RL
01.04	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	94.41	VH	71.17	VL	64.58	RL
01.05	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	97.39	VH	76.94	VL	66.85	RL
01.06	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	83.97	RH	68.61	VL	49.21	VL
01.07	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	88.14	RH	73.72	VL	57.45	RL
01.08	Oswego, Oswego Township, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD, Oswegoland Park District	84.99	RH	76.42	VL	40.93	VL
02.01	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	82.23	RH	0.00	NR	41.64	VL
02.02	Montgomery, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	76.79	RH	0.00	NR	40.30	VL
03.01	Montgomery, Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	97.23	VH	70.83	VL	71.50	RL
03.02	Oswego, Oswego Township, Oswego CUSD #90, Oswego FPD, Oswegoland Park District	90.58	RH	68.27	VL	56.48	RL
04.01	Montgomery, Yorkville, Plano CUSD #88, Bristol-Kendall FPD, Oswego FPD	94.72	VH	79.99	VL	68.45	RL
04.02	Yorkville, Bristol-Kendall FPD, Oswego FPD	98.07	VH	76.68	VL	68.92	RL
04.03	Montgomery, Oswego, Yorkville, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD, Oswegoland Park District	93.13	RH	74.61	VL	60.24	RL
04.04	Montgomery, Yorkville, Oswego CUSD #90, Bristol-Kendall FPD, Oswego FPD	97.32	VH	74.70	VL	63.58	RL
05.01	Plano, Sandwich, Plano CUSD #88, Bristol-Kendall FPD, Sandwich Community FPD	98.81	VH	81.77	RL	72.35	RL
05.02	Plano, Plano CUSD #88, Sandwich Community FPD	86.79	RH	81.60	RL	56.26	RL
06.01	Yorkville, Kendall Township, Bristol-Kendall FPD	91.47	RH	76.87	VL	60.72	RL
06.02	Newark, Yorkville, Kendall Township, Newark CHSD #18, Plano CUSD #88, Bristol-Kendall FPD, Newark FPD, Oswego FPD, Sandwich Community FPD	92.66	RH	85.02	RL	60.13	RL
07.01	---	91.48	RH	68.72	VL	60.82	RL
07.02	Oswego CUSD #90, Bristol-Kendall FPD, Lisbon-Seward FPD, Oswego FPD, Oswegoland Park District	84.05	RH	79.95	VL	53.38	VL
07.03	Lisbon, Newark, Plattville, Lisbon CCSD #90, Newark CHSD #18, Bristol-Kendall FPD, Lisbon-Seward FPD, Newark FPD	96.74	VH	85.43	RL	66.89	RL
40.02	Montgomery	96.92	VH	72.78	VL	70.28	VL
44.01	Montgomery	82.71	RH	73.69	VL	48.72	VL
45.08	Montgomery	84.70	RH	74.43	VL	47.27	VL
Kendall County		92.87	RH	33.25	VL	70.54	RL

* Parkview Christian Academy and St. Mary Catholic School are non-boundaried schools and as such serve all census tracts in the County.

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

Figure R-6
Critical Facilities & Infrastructure by Jurisdiction

Participating Jurisdiction	Critical Facilities				Critical Infrastructure						
	Government ¹	Emergency Protection ²	Medical & Healthcare ³	Schools	Drinking Water ⁴	Wastewater Treatment ⁵	Rail Lines	Bridges	Interstates US/State Routes & Key Roads	Power Plants	Comm. Systems
Kendall County	4	14	1	---	---	---	2	1	7	1	1
Lisbon	1	1	---	1	---	1	---	---	---	---	---
Montgomery	2	15	---	4	7	5	---	3	7	---	---
Newark	3	---	---	---	3	2	---	---	---	---	---
Oswego	2	5	---	7	13	7	2	2	4	---	---
Plano	2	3	---	8	3	4	1	2	1	---	---
Plattville	1	1	---	---	---	---	---	---	---	---	---
Yorkville	5	1	---	7	2	4	2	1	12	---	---
Kendall Township	4	2	---	3	---	---	1	---	6	---	---
Oswego Township	4	---	---	---	---	---	2	2	9	---	---
Lisbon CCSD #90	---	---	---	1	---	---	---	---	---	---	---
Newark CHSD #18	---	---	---	1	---	---	---	---	---	---	---
Oswego CUSD #308	---	---	---	23	---	---	---	---	---	---	---
Parkview Christian Academy	---	---	---	2	---	---	---	---	---	---	---
Plano CUSD #88	---	---	---	6	---	---	---	---	---	---	---
St. Mary Catholic School	---	---	---	1	---	---	---	---	---	---	---
Bristol-Kendall FPD	---	3	---	---	---	---	---	---	---	---	---
Lisbon-Seward FPD	3	2	---	1	---	1	---	2	6	---	---
Newark FPD	3	2	---	2	2	---	1	1	6	---	---
Oswego FPD	7	6	3	20	13	6	2	2	8	---	---
Sandwich Community FPD	2	3	2	7	1	1	1	---	4	---	---
Oswegoland Park District	4	---	---	---	---	---	---	1	---	---	---

¹ Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, libraries, etc.

² Emergency Protection includes: sheriff's department, police, fire, ambulance, emergency operations centers, jail/correctional facilities and evacuation shelters.

³ Medical & Healthcare includes: public health departments, hospitals, urgent/prompt care and medical clinics, nursing homes, skilled nursing facilities, memory care facilities, residential group homes, etc.

⁴ Drinking Water includes: drinking water treatment plants, drinking water wells, and water storage towers/tanks.

⁵ Wastewater Treatment includes: wastewater treatment plants and lift stations.

--- Indicates the jurisdiction does not own/maintain any critical facilities within that category.

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

HAZARD IDENTIFICATION

What is the definition of a severe storm?

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

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

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

What is a thunderstorm?

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

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

Single-cell Thunderstorm

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

Multi-cell Thunderstorm

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

Squall Line

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

Supercell Thunderstorm

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

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

What kinds of damaging winds are produced by a thunderstorm?

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

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

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

Figure SS-1 Wind Speed Conversions			
Knots (kts)	Miles Per Hour (mph)	Knots (kts)	Miles Per Hour (mph)
50 kts	58 mph	60 kts	69 mph
52 kts	60 mph	65 kts	75 mph
55 kts	63 mph	70 kts	81 mph
58 kts	67 mph	80 kts	92 mph

What is hail?

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

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

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

How is the severity of a hail event measured?

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

Figure SS-2 Hail Size Descriptions			
Hail Diameter (inches)	Description	Hail Diameter (inches)	Description
0.25 in.	pea	1.75 in.	golf ball
0.50 in.	marble/mothball	2.50 in.	tennis ball
0.75 in.	penny	2.75 in.	baseball
0.88 in.	nickel	3.00 in.	teacup
1.00 in.	quarter	4.00 in.	grapefruit
1.50 in.	ping pong ball	4.50 in.	softball

Source: NOAA, National Severe Storm Laboratory.

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

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

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

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

What is lightning?

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

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

**Figure SS-3
TORRO Hailstorm Intensity Scale**

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

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

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

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

Are alerts issued for severe storms?

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

- **Watch.** A severe thunderstorm watch is issued when conditions are favorable for the development of severe thunderstorms producing hail greater than one inch in diameter

and/or wind speeds of 58 mph in or near the watch area. Individuals should stay alert for the latest weather information and be prepared to take shelter.

- **Warning.** A severe thunderstorm warning is issued when a severe thunderstorm or a line of severe thunderstorms capable of producing hail greater than one inch in diameter and/or wind speeds of 58 mph is approaching or is occurring. Warnings indicate imminent danger to life and property for those who are in the path of the storm and individuals should seek safe shelter.

HAZARD PROFILE

The following identifies past occurrences of severe storms; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences.

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

Tables 1, 2, 3, and 4 located in **Appendix J**, summarize the previous occurrences as well as the extent or magnitude of severe storm events recorded in Kendall County. Severe storm events are separated into four categories: thunderstorms with damaging winds, hail, lightning, and heavy rain. In Kendall County, severe storms are the most frequently occurring natural hazard.

Thunderstorms with Damaging Winds

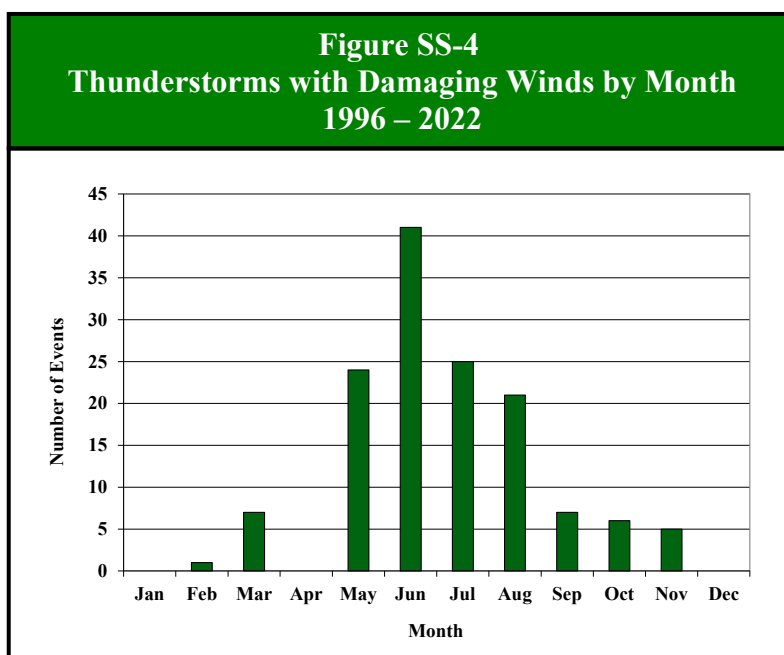
NOAA's Storm Events Database was used to document 137 reported occurrences of thunderstorms with damaging winds in Kendall County between 1996 and 2022. Of the 137 occurrences, 135 had reported wind speeds of 50 knots or greater. There were two occurrences, however, where the wind speed was not recorded. Included in the 127 thunderstorms with damaging wind events is one event that contributed to a major federal disaster declaration in Kendall County.

Severe Storms Fast Facts – Occurrences

Number of recorded Thunderstorms with Damaging Winds (1996 – 2022): **137**
 Number of recorded Severe Hail Events (1996 – 2022): **27**
 Number recorded of Lightning Strike Events (2010 – 2022): **2**
 Number recorded of Heavy Rain Events (2009 – 2022): **3**
 Highest Recorded Wind Speed: **80 knots (June 29, 2012)**
 Largest Hail Recorded: **4.75 inches (June 10, 2015)**
 Most Likely Month for Thunderstorms with Damaging Winds to Occur: **June**
 Most Likely Month for Severe Hail to Occur: **June**
 Number of Federal Emergency & Major Disaster Declarations Related to Severe Storms: **1 (1996)**

The highest wind speed recorded in Kendall County occurred south of Oswego on June 29, 2012 when winds reached 80 knots (92 mph) during a thunderstorm event. Thunderstorms with damaging winds have been recorded in every participating jurisdiction within the County on multiple occasions.

Figure SS-4 charts the reported occurrences of thunderstorms with damaging winds by month. Of the 137 events, 90 (66%) took place in May, June, and July making this the peak period for thunderstorms with damaging winds in Kendall County. Of those 90 events, 41 (46%) occurred during June, making this the peak month for thunderstorms with damaging winds. Of the 137 occurrences, 82% of all thunderstorms with damaging winds occurred during the p.m. hours.



Hail

NOAA's Storm Events Database was used to document 27 reported occurrences of severe storms with hail one (1) inch in diameter or greater in Kendall County between 1996 and 2022. Of the 27 occurrences, 12 produced hailstones 1.50 inches or larger in diameter.

The largest hail stones documented in Kendall County measured 4.75 inches in diameter (larger than a softball) and fell on June 10, 2015 in Minooka. Hail one (1) inch in diameter or greater has been recorded in every participating jurisdiction except Lisbon on at least one occasion. This does not mean that hail one inch in diameter or greater has not fallen in Lisbon, it simply indicates it wasn't recorded.

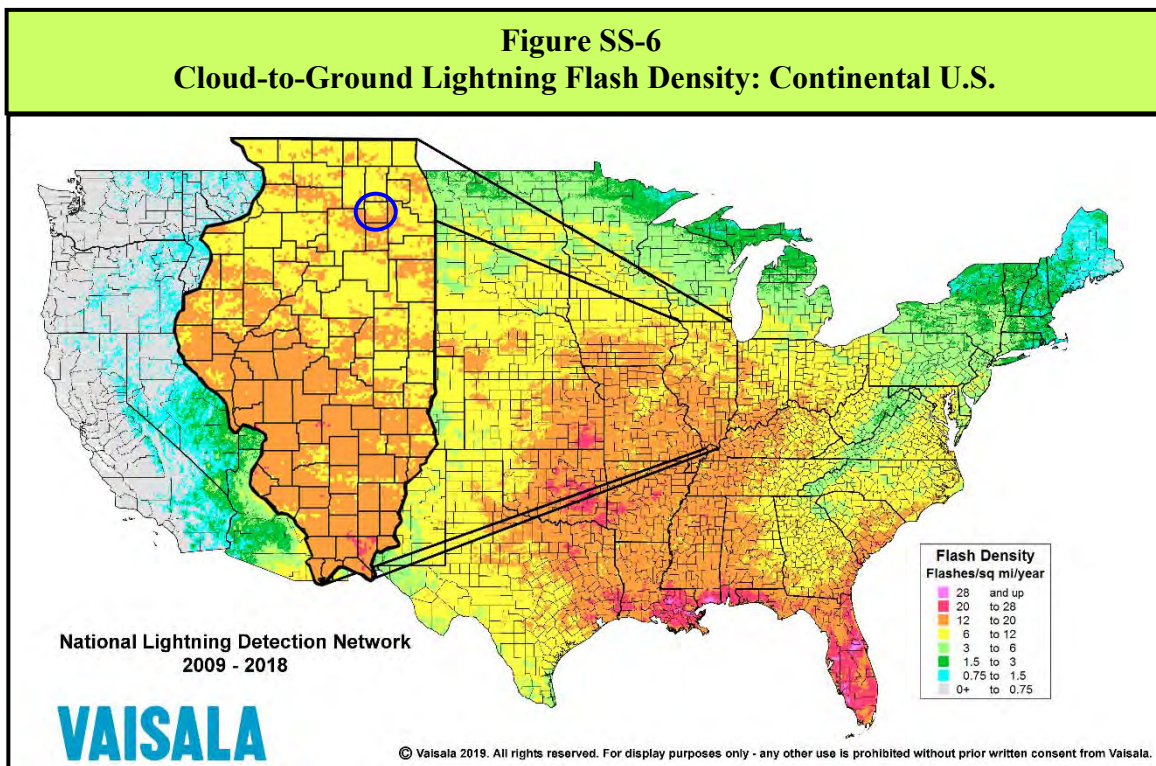
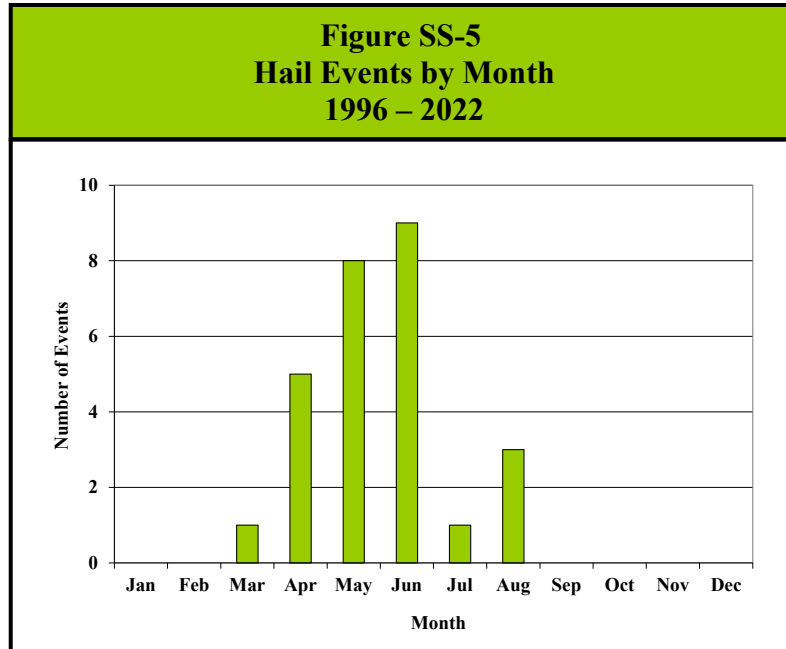
Figure SS-5 charts the reported occurrences of hail by month. Of the 27 occurrences, 22 (82%) took place in April, May, and June making this the peak period for hail in Kendall County. Of these 22 events, nine (41%) occurred during June, making this the peak month for hail events. Twenty-four (89%) of the 27 severe storms with hail occurred during the p.m. hours.

Lightning

While lightning strike events occur regularly across northeastern Illinois, NOAA's Storm Events Database and Committee Member records were only able to identify two occurrences of lightning strikes with verified damages in Kendall County between 2010 and 2022. The data limitations are almost certainly due to the rural nature of a majority of the County and the fact that lightning strikes are rarely reported.

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

Illinois averaged 12.7 cloud-to-ground lightning flashes per square mile from 2009 to 2018, ranking it eighth in the Country for lightning flash density.



Heavy Rain

While heavy rain events occur on a fairly regular basis across northeastern Illinois, NOAA's Storm Events Database was only able to identify three occurrences of heavy rain in Kendall County. This may be due in part to a lack of uniform reporting guidelines for heavy rain events and the rural nature of a majority of the County.

What locations are affected by severe storms?

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

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

Thunderstorms with Damaging Winds

Kendall County has had 137 verified occurrences of thunderstorms with damaging winds between 1996 and 2022. With 137 occurrences over the past 27 years, Kendall County would expect to experience at least five thunderstorms with damaging winds in any given year. There were 21 years over the last 27 years where multiple (three or more) thunderstorms with damaging winds occurred. This indicates that the probability that multiple thunderstorms with damaging winds may occur during any given year within the County is 78%.

Hail

There have been 27 verified occurrences of hail one (1) inch in diameter or greater between 1996 and 2022. With 27 occurrences over the past 27 years, Kendall County would expect to experience at least one severe storm with hail event will in any given year. There were six years over the last 27 years where two or more hail events occurred. This indicates that the probability that more than one severe storm with hail may occur during any given year within the County is 22%.

What is the probability of future severe storm events occurring based on modeled future conditions?

Severe storms are very difficult to forecast in the near-term future, let alone in the long-term future. This owes to the fact that these events arise due to a combination of multiple factors (including pressure fronts, wind speeds, temperatures, and humidity) working together.

What can be predicted with more certainty looking into the future is the likelihood of supercell formation, which occurs with fewer conditions needing to be met, mainly a temperature differential in fronts and a relatively low moisture content. Supercells are strong, longer-lived storm systems characterized by rotation and updrafts that make them capable of producing hazards such as damaging winds, hail, and even tornadoes. While the formation of a supercell does not ensure that severe storm events will follow, supercells increase the probability of these events significantly, making supercell formation a good predictor for the likelihood of these other weather events.

In addition, in the last 120 years total annual precipitation in Illinois has increased by between 12% to 15% across the State. This trend is likely to continue, and as a result, precipitation in Illinois is forecasted to increase in coming decades. In addition to changes in the overall amount of precipitation, changes in precipitation patterns indicate that future events will likely be less frequent, but larger and more severe. The Illinois State Climatologist indicates that since the

beginning of the 20th Century, Illinois has seen a 40% increase in the number of days with extreme precipitation events (rainfall of 2 inches or greater) per year.

Based on existing trends of increasing supercell formation and future projections of precipitation and temperature, supercells are likely to continue to become more common in the future. For a discussion on future projections of temperature, see Section 3.5. Supercell formation today is mostly confined to the Great Plains and the Midwest, but future projections indicate that the geographic range over which supercells may develop is likely to increase as parts of the Country that were previously unfavorable to supercell formation become warmer and dryer. Additionally, if current trends of milder winters persist, supercell season is also likely to lengthen, starting earlier in the year and ending later.

Figure SS-7 contains a series of maps that show how the number of supercell tracks is likely to change in the future. The map at the top labeled a) depicts late 20th Century historical data showing the average number of supercells per year occurring within each grid square on the map. Below, projections for two different late 21st Century future scenarios for supercell frequency are given on the left, a low emission scenario depicted the top left map labeled b) and a high emission scenario depicted in the lower left map labeled d). On the right, the difference between each late 21st Century scenario and the late 20th Century historic baseline is shown, with redder areas showing an increase in supercell tracks per year, and blue areas showing a reduction.

Thunderstorms with Damaging Winds

Damaging winds in severe storms are most often associated with powerful downdrafts, so looking at the changing prevalence of conditions favorable to generating these downdrafts can give us an indicator of how likely damaging thunderstorm winds may be in the future. The formation of powerful storms is typically energized by an influx of warm moist air. As the climate in the Midwest continues to become wetter and warmer, this makes strong thunderstorms with damaging winds a more probable occurrence in the future.

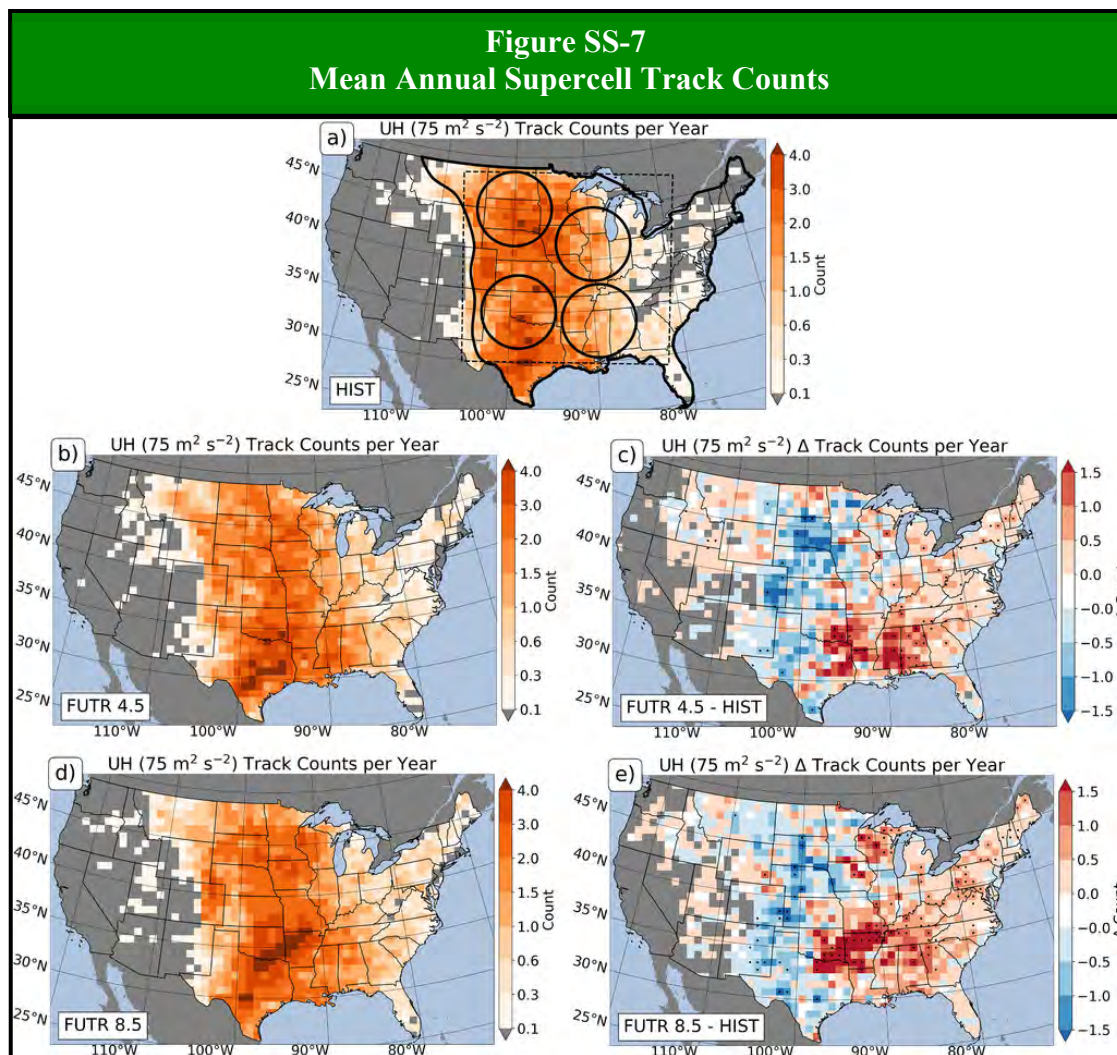
On the other hand, stronger warming occurring at more northerly latitudes is likely to decrease wind shear (a measurement of wind's change in speed and direction along a column of air), which is another important predictor of damaging winds. It is difficult to know which of these trends may be stronger than the other, or whether these two trends may wind up roughly cancelling each other out. The analysis of these trends should be revisited in subsequent planning efforts as more data becomes available.

Hail

Hail forms in storm systems with strong updrafts, so the formation of strong supercell storms is a good predictor of the occurrence of hail. The influx of moist, warm air rising over dryer, cooler air tends to create these updrafts, but for hail to occur, the air above the warm air must be cold enough for hail to form. Hail formation also depends on seasonality since the air above is cooler in spring and warmer in fall.

While a wetter and warmer climate will likely lead to more severe storms with stronger updrafts, it is more difficult to predict whether more hailstorms will result. Less gradual warming in spring may mean there will not be sufficiently cool air aloft for hail to form. When cool enough air is

present for hailstones to form, stronger updrafts and more massive storms could be able to generate larger hailstones on average than those seen today. As these trends play out and more data becomes available regarding any shifts in hail frequency or intensity, it will be important to continually reassess the risk posed by hail in future planning efforts.



Citation: Bulletin of the American Meteorological Society 104, 1; 10.1175/BAMS-D-22-0027.1

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Heavy Rain

Figures SS-8, SS-9, and SS-10 provide tabular and graphical projections for Kendall County, showing estimations for average annual precipitation and number of days with total precipitation greater than 2 inches in the early, mid, and late 21st century with both low and high estimates for each time period. Most likely, the true value will fall between these two estimates. By midcentury, the average annual precipitation in Kendall County is projected to increase by 2 inches per year, while the average number of days with precipitation per year is projected to decrease by 3 to 4 days according to the Climate Mapping for Resilience and Adaptation's Assessment Tool.

The annual number of days with total precipitation greater than 2 inches is not projected to increase significantly. This is confirmed by the Climate Explorer which indicates that in Kendall County the annual counts of intense rainstorms (rainfall of 2 inches or greater in one day) are not projected to increase. This is based on the findings of the 2018 National Climate Assessment and compares projections for the middle third of the century (2035-2064) with average conditions observed from 1961-1990.

Figure SS-8
Average Annual Precipitation Projections Table – Kendall County

Indicator	Modeled History (1976 - 2005)	Early Century (2015 - 2044)		Mid Century (2035 - 2064)		Late Century (2070 - 2099)	
	Min - Max	Lower Emissions Min - Max	Higher Emissions Min - Max	Lower Emissions Min - Max	Higher Emissions Min - Max	Lower Emissions Min - Max	Higher Emissions Min - Max
Precipitation:							
Annual average total precipitation	35" 33 - 36	36" 33 - 40	36" 32 - 40	37" 32 - 41	37" 31 - 42	37" 33 - 42	39" 33 - 44
Days per year with precipitation (wet days)	174 days 170 - 177	172 days 160 - 180	171 days 157 - 181	171 days 160 - 182	170 days 151 - 184	171 days 159 - 182	168 days 132 - 189
Maximum period of consecutive wet days	11 days 10 - 12	11 days 10 - 12	11 days 9 - 13	11 days 10 - 13	11 days 9 - 13	11 days 10 - 13	11 days 9 - 13
Annual days with:							
Annual days with total precipitation > 1 inch	4 days 3 - 4	4 days 3 - 5	4 days 3 - 5	4 days 3 - 6	5 days 4 - 6	5 days 3 - 7	6 days 4 - 8
Annual days with total precipitation > 2 inches	0 days 0 - 0	0 days 0 - 1	0 days 0 - 1	0 days 0 - 1	0 days 0 - 1	0 days 0 - 1	1 days 0 - 1
Annual days with total precipitation > 3 inches	0 days 0 - 0	0 days 0 - 0	0 days 0 - 0	0 days 0 - 0	0 days 0 - 0	0 days 0 - 0	0 days 0 - 0
Annual days that exceed 99th percentile precipitation	5 days 5 - 5	6 days 5 - 7	6 days 6 - 6	6 days 6 - 7	7 days 7 - 7	7 days 7 - 7	8 days 8 - 8
Days with maximum temperature below 32 °F	40 days 36 - 43	29 days 17 - 40	28 days 21 - 37	25 days 14 - 35	22 days 12 - 33	21 days 11 - 33	13 days 3 - 25

N/A = Data Not Available for the selected area

Figure SS-9
Average Annual Precipitation Projections
Graph – Kendall County

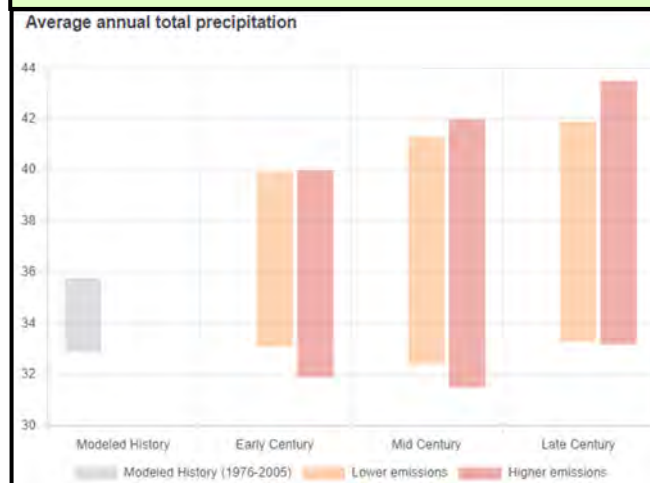
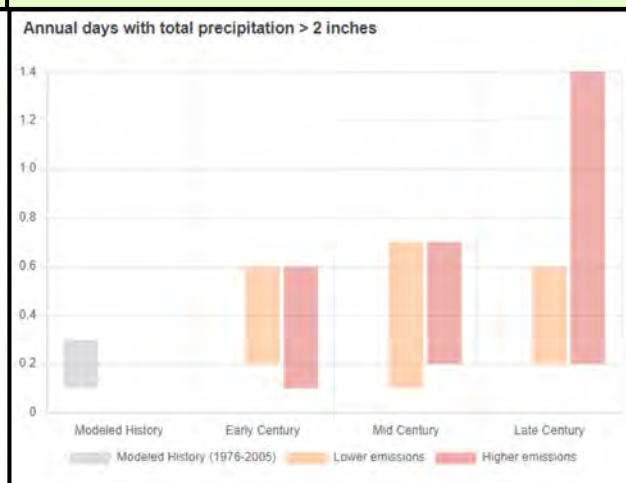


Figure SS-10
Number of Days with Total Precipitation
> 2 Inches Graph – Kendall County



HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from severe storms.

Are the participating jurisdictions vulnerable to severe storms?

Yes. All of Kendall County is vulnerable to the dangers presented by severe storms due to the topography of the region and its location in relation to the movement of weather fronts across north-central Illinois. Since 2013, Kendall County has recorded 48 thunderstorms with damaging winds, 10 severe storms with hail one (1) inch in diameter or greater, two verified heavy rain events and one lightning strike with verified damages.

Figure SS-11 details the number of thunderstorms with damaging winds and hail events that were recorded in or near each participating municipality while **Figure SS-12** details the number of thunderstorms with damaging winds and hail events that were recorded in or near unincorporated areas of Kendall County.

Figure SS-11 Verified Severe Storm Events by Participating Municipality			Figure SS-12 Verified Severe Storm Events in Unincorporated Kendall County		
Participating Municipality	Number of Events		Unincorporated Area	Number of Events	
	Thunderstorm & High Wind	Severe Hail		Thunderstorm & High Wind	Severe Hail
Lisbon ^{1,2,8}	15	2	Boulder Hill ^{3,11,12,14}	20	6
Montgomery ^{3,7,10,12,14}	16	2	Bristol ⁷	13	2
Newark ^{1,2,9}	15	2	Helmar ^{2,9}	2	0
Oswego ^{3,10,12,14}	35	12	Little Rock ⁵	2	0
Plano ^{5,6}	30	1			
Plattville ⁸	24	6			
Yorkville ^{4,7,10,12,13}	36	4			

¹Lisbon CCSD #90

⁴Parkway Christian Academy

⁷Bristol-Kendall FPD

¹⁰Oswego FPD

¹³Kendall Township

²Newark CHSD #18

⁵Plano CUSD #88

⁸Lisbon-Seward FPD

¹¹Sandwich Community FPD

¹⁴Oswego Township

³Oswego CUSD #308

⁶St. Mary Catholic School

⁹Newark FPD

¹²Oswegoland Park District

Of the participating municipalities, Yorkville has had more recorded occurrences of thunderstorms with damaging winds while Oswego has had the greatest number of recorded severe storms with hail events. The differences in the number of recorded events between participating municipalities is likely due to the relative size of the municipalities.

The 2023 Illinois Natural Hazard Mitigation Plan prepared by the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) classifies Kendall County's hazard rating for wind (thunderstorms) and hail as "medium" and lightning as "low". IEMA-OHS's overall hazard rating system has five levels: very low, low, medium, high, and very high.

FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively Moderate" for strong wind (thunderstorms), "Very Low" for hail, and "Relatively Moderate" for lightning. For strong wind, six census tracts are rated "Relatively High", 16 census tracts are rated "Relatively Moderate", and two are "Relatively Low". For hail, all 24 census tracts are rated "Relatively Low" or "Very Low". For lightning, 12 census tracts are rated "Relatively High" and the remaining 12 census tracts are rated "Relatively Moderate". **Table R-5** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

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

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, the following jurisdictions considered specific assets within their jurisdiction vulnerable to severe storms.

Bristol-Kendall Fire Protection District:

- ❖ KenCom handles all 911 calls for the entire County, including the District. If the Dispatch Center was damaged by a severe storm, then the District's ability to receive and respond to emergency calls will be severely diminished until the backup center can be staffed and activated.

Kendall County:

- ❖ Severe storms with damaging winds have the potential to down power lines causing electrical outages. If the permanent emergency backup generators at the Public Safety Center, which includes KenCom, do not function appropriately, then the County's ability to respond to a hazard event are severely diminished, including the ability to dispatch emergency responders until the backup center can be staffed and activated.
- ❖ Severe storms with damaging winds can down trees and utility lines causing debris to block roadways, impacting travel and delaying emergency response times to individuals who need assistance or evacuation.

Kendall Township:

- ❖ If the permanent emergency backup generator at the Township Building doesn't function appropriately during a power outage caused by a thunderstorm with damaging winds, then township staff would be unable to perform required duties in a timely fashion and the Building could not be used as an emergency shelter for District residents.
- ❖ Critical facilities within the District are vulnerable to damage caused by thunderstorms with damaging winds. The roof at Cross Lutheran Church School was damaged by straight-line winds in 2016.

Lisbon:

- ❖ Thunderstorms with damaging winds have the potential to down power lines impacting service to critical facilities/infrastructure, such as Village Hall. Village Hall does not have an emergency backup generator and if power is lost to the building, then it is difficult to get to equipment used to respond to events out of the building.
- ❖ Heavy rain events have flooded roads within the Village impacting travel.
- ❖ If the permanent emergency backup generator at the wastewater treatment plant doesn't function appropriately, then a power outage caused by a thunderstorm with damaging winds could impact service to residents.

Lisbon-Seward Fire Protection District:

- ❖ Roads in the District are frequently obstructed by downed utility lines from thunderstorms with damaging winds which impact travel and delay emergency response times.
- ❖ The two fire stations within the District are staffed by volunteers. Severe storms have the potential to impact the ability of volunteers to reach the fire stations limiting the resources available to respond to emergency calls.
- ❖ Both fire stations are vulnerable to hail damage.
- ❖ Thunderstorms with damaging winds have the potential to down overhead utility lines impacting service to the fire stations and residents.

Montgomery:

- ❖ Thunderstorms with damaging winds have the potential to cause power outages impacting the Village's ability to supply an adequate amount of drinking water to residents since only some of the well sites have been equipped with emergency backup generators.
- ❖ The Village's public works facility does not have an emergency backup generator which could limit service if a power outage is experienced as the result of a thunderstorm with damaging winds.
- ❖ Lightning strikes have the potential to damage critical facilities within the Village. The Police Department has been hit by lightning, which limited access to for officers to the building and damaged valuable communications equipment.

Newark:

- ❖ Both of the Village's well sites have been hit by lightning causing damage to equipment.
- ❖ If the permanent emergency backup generator at each well site doesn't function appropriately, then a power outage caused by a thunderstorm with damaging winds could impact service to residents.
- ❖ Straight-line winds have the potential to damage the Village's elevated water storage tank impacting service to residents.

Newark Fire Protection District:

- ❖ Thunderstorms with damaging winds have the potential to down trees and power lines which impact travel and delay emergency response times.

Oswego:

- ❖ Thunderstorms with damaging winds can down trees and power lines blocking roadways, impacting travel and delaying emergency response times.

Oswego Fire Protection District:

- ❖ Communication systems are vulnerable to damage caused by thunderstorms with damaging winds and lightning strikes. Loss of radio communication with KenCom delays response times, which has occurred on multiple occasions due to severe storms.
- ❖ Thunderstorms with damaging winds have the potential to down trees and power lines blocking roadways, which impact travel and delay emergency response times.

Oswego Township:

- ❖ The Township Building, which also houses a substation of the Kendall County Sheriff's Office, does not have an emergency backup generator and constantly loses power as the result of a thunderstorm with damaging winds. The District has lost critical data and systems have crashed due to these power losses.

- ❖ Heavy rain events cause flooding in the Boulder Hill subdivision due to poor stormwater drainage impacting roadways, which leads to delays in critical response times of emergency responders.

Oswegoland Park District:

- ❖ During extended power outages caused by thunderstorms with damaging winds, our computer server may be compromised depending on duration of outage and longevity of battery backups.
- ❖ Individuals who participate in the District's outdoor programs – baseball, softball, soccer, football, aquatics, golf – are vulnerable to injury from lightning strikes.

Parkview Christian Academy:

- ❖ One the Academy's buildings is listed on the National Register of Historic Places. This asset is vulnerable to straight-line winds and could not be replaced if damaged or destroyed.

Plano:

- ❖ Critical facilities/infrastructure within the City are vulnerable to lightning strikes, especially the Police Department, which is adjacent to an open field.

Plano CUSD #88:

- ❖ Thunderstorms with damaging winds have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the District's five schools.
- ❖ Lightning strikes have the ability damage critical equipment and cause power outages that would adversely impact learning and would require students to be sent home.

Yorkville:

- ❖ City Hall/Police Department are located in one building. If straight-line winds damaged the facility, then it would severely limit the City's ability to respond to the disaster and serve residents.
- ❖ Overhead electrical power lines to critical facilities/infrastructure within the City are vulnerable to damage from thunderstorms with damaging winds.

Kendall Township completed a Roadway Overtopping Survey in which they identified two roads within its township, Ament Road near Cross Lutheran School and Helmar Road east of Ashley Road, where heavy rains can cause overtopping of the roadway that exceeds six inches. In both cases the overtopping occurs at a culvert location and is caused by surface water runoff from a heavy rain event or snow melt, not a specific body of water. The Township Clerk indicated that the roads are marked with appropriate warnings of standing water during events. The culverts have been increased in size and ditch cleaning has been conducted to improve drainage in these areas.

What impacts resulted from the recorded severe storms?

Severe storms as a whole have caused an estimated \$812,000 in recorded property damages. The following provides a breakdown of impacts by category.

Thunderstorms with Damaging Winds

Database and Committee member records indicates that between 1996 and 2022, 22 of the 137 thunderstorms with damaging winds caused \$684,000 in property damages. Property damage information was either unavailable or none was recorded for the remaining 113 reported occurrences.

NOAA's Storm Events Database documented one injury as the result of the June 30, 2004 thunderstorm with damaging wind event. A tree was downed onto a car with a person trapped inside at Plano.

Hail

Data obtained from NOAA's Storm Events Database indicates that between 1996 and 2022, one of the 27 hail events caused \$100,000 in property damages. Property damage information was either unavailable or none was recorded for the remaining 26 events. No injuries or fatalities were reported as a result of any of the recorded hail events.

Lightning

Data obtained from NOAA's Storm Events Database and Committee member records indicate that the two lightning strike events caused \$28,000 in property damages. No injuries or fatalities were reported as a result of either lightning strike event.

Heavy Rain

Damage information was either unavailable or none was recorded, and no injuries or fatalities were reported as a result of any of the heavy rain events.

Severe Storms Fast Facts – Impacts/Risk

Thunderstorms with Damaging Winds Impacts:

- ❖ Total Property Damage (24 events): **\$684,000**
- ❖ Total Crop Damage: **n/a**
- ❖ Injuries (1 event): **1**
- ❖ Fatalities: **n/a**

Severe Hail Impacts:

- ❖ Total Property Damage (1 event): **\$100,000**
- ❖ Total Crop Damage: **n/a**
- ❖ Injuries: **n/a**
- ❖ Fatalities: **n/a**

Lightning Strike Impacts:

- ❖ Total Property Damage (2 events): **\$28,000**
- ❖ Total Crop Damage: **n/a**
- ❖ Injuries: **n/a**
- ❖ Fatalities: **n/a**

Heavy Rain Impacts:

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

Severe Storms Risk/Vulnerability:

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

What other impacts can result from severe storms?

In Kendall County, the greatest risk to health and safety from severe storms is vehicle accidents. Hazardous driving conditions resulting from severe storms (i.e., wet pavement, poor visibility, high winds, etc.) can contribute to accidents that result in injuries and fatalities. Traffic accident data assembled by the Illinois Department of Transportation from 2017 through 2021 indicates that wet road surface conditions were present for 11.5% to 15.4% of all crashes recorded annually in the County.

While other circumstances cause wet road surface conditions (i.e., melting snow, condensation, light showers, etc.), law enforcement officials agree that hazardous driving conditions caused by severe storms add to the number of crashes. **Figure SS-13** provides a breakdown by year of the number of crashes and corresponding injuries and fatalities that occurred when wet road surface conditions were present.

Figure SS-13 Severe Weather Crash Data for Kendall County				
Year	Total # of Crashes	Presence of Wet Road Surface Conditions		
		# of Crashes	# of Injuries	# of Fatalities
2017	1,907	303	106	0
2018	2,102	303	99	1
2019	2,182	336	95	0
2020	1,684	193	17	0
2021	1,940	252	76	3
Total:	9,815	1,387	393	4

Source: Illinois Department of Transportation.

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

For Kendall County the level of risk or vulnerability posed by severe storms to public health and safety is considered to be **low**. This assessment is based on the fact that despite their relative frequency, the number of injuries and fatalities is low. In addition, nearby hospitals in Aurora, Elgin, and Geneva (Kane County), DeKalb and Sandwich (DeKalb County), Mendota and Ottawa (LaSalle County), Morris (Grundy County), and Bolingbrook, Joliet, and New Lenox (Will County) are equipped to provide care to persons injured during a severe storm.

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

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

Infrastructure and critical facilities tend to be just as vulnerable to severe storm damage as buildings. The infrastructure and critical facilities that are the most vulnerable to severe storms are related to power distribution and communications. High winds, lightning and flying and falling debris have the potential to cause damage to communication and power lines; power substations; transformers and poles; and communication antennas and towers.

The damage inflicted by severe storms often leads to disruptions in communication and creates power outages. Depending on the damage, it can take anywhere from several hours to several days to restore service. Power outages and disruptions in communications can impair vital services, particularly when backup power generators are not available. **SS-14**, located at the end of this section, identifies by participating jurisdiction critical facilities and infrastructure for select categories that are supported by backup power generators. Ten of the 22 participating jurisdictions acknowledged the need for emergency backup generators to allow continued operation of critical facilities and infrastructure such as administrative and maintenance buildings, schools, and fire stations.

In addition to affecting power distribution and communications, debris and flooding from severe storms can block state and local roads hampering travel. When transportation is disrupted, emergency and medical services are delayed, rescue efforts are hindered, and government services can be affected.

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

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

Yes and No. While the County, Montgomery, Newark, Oswego, Plano, and Yorkville have building codes in place that will likely help lessen the vulnerability of new buildings and critical facilities to damage from severe storms, Lisbon and Plattville do not. However, infrastructure such as new communication and power lines will continue to be vulnerable to severe storms as long as they are located above ground. High winds, lightning and flying and falling debris can disrupt power and communication. Steps to bury all new lines would eliminate the vulnerability, but this action would be cost prohibitive in most areas.

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

Unlike other natural hazards, such as tornadoes, there are no standard loss estimation models or methodologies for severe storms. With only 27 of the 168 recorded events listing property damage numbers for all categories of severe storms, there is no way to accurately estimate future potential dollar losses. However, according to County officials the total equalized assessed values of all residential, commercial, and industrial buildings in the planning area is \$4,444,350,435. Since all of the structures in the planning area are vulnerable to damage, this total represents the countywide property exposure to severe storm events.

Figure SS-14
Critical Facilities & Infrastructure Supported by Backup Generators by Jurisdiction

Participating Jurisdiction	Government/ Administrative ¹	Emergency Protection ²	Medical & Healthcare ³	Schools	Warming/ Cooling Centers	Drinking Water ⁴	Wastewater Treatment ⁵
Kendall County	2	13	1	---	---	---	---
Lisbon	---	1	---	---	---	---	1
Montgomery	2	5	---	---	---	3	2
Newark	---	---	---	---	---	2	2
Oswego	1	2	---	---	---	---	1
Plano	---	3	---	8	---	3	3
Plattville	---	---	---	---	---	---	---
Yorkville	1	1	---	---	---	1	3
Kendall Township	4	2	---	---	---	---	---
Oswego Township	2	---	---	---	---	---	---
Lisbon CCSD #90	---	---	---	---	---	---	---
Newark CHSD #18	---	---	---	---	---	---	---
Oswego CUSD #308	---	---	---	19	---	---	---
Parkview Christian Academy	---	---	---	---	---	---	---
Plano CUSD #88	---	---	---	---	---	---	---
St. Mary Catholic School	---	---	---	---	---	---	---
Bristol-Kendall FPD	---	3	---	---	---	---	---
Lisbon-Seward FPD	---	2	---	---	---	---	---
Newark FPD	---	2	---	---	---	1	---
Oswego FPD	---	3	1	---	---	---	---
Sandwich Community FPD	1	3	2	7	---	---	---
Oswegoland Park District	---	---	---	---	---	---	---

¹ Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, libraries, etc.

² Emergency Protection includes: sheriff's department, police, fire, ambulance, emergency operations centers, jail/correctional facilities and evacuation shelters.

³ Medical & Healthcare includes: public health departments, hospitals, urgent/prompt care and medical clinics, nursing homes, skilled nursing facilities, memory care facilities, residential group homes, etc.

⁴ Drinking Water includes: drinking water treatment plants, drinking water wells, and water storage towers/tanks.

⁵ Wastewater Treatment includes: wastewater treatment plants and lift stations.

--- Indicates the jurisdiction does not own/maintain any critical facilities within that category.

3.2 FLOODS

HAZARD IDENTIFICATION

What is the definition of a flood?

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

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

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

What types of flooding occur in the County?

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

General Flooding – Riverine Flooding

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

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

General Flooding – Shallow Flooding

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

Flash Floods

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

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

What is a base flood?

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

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

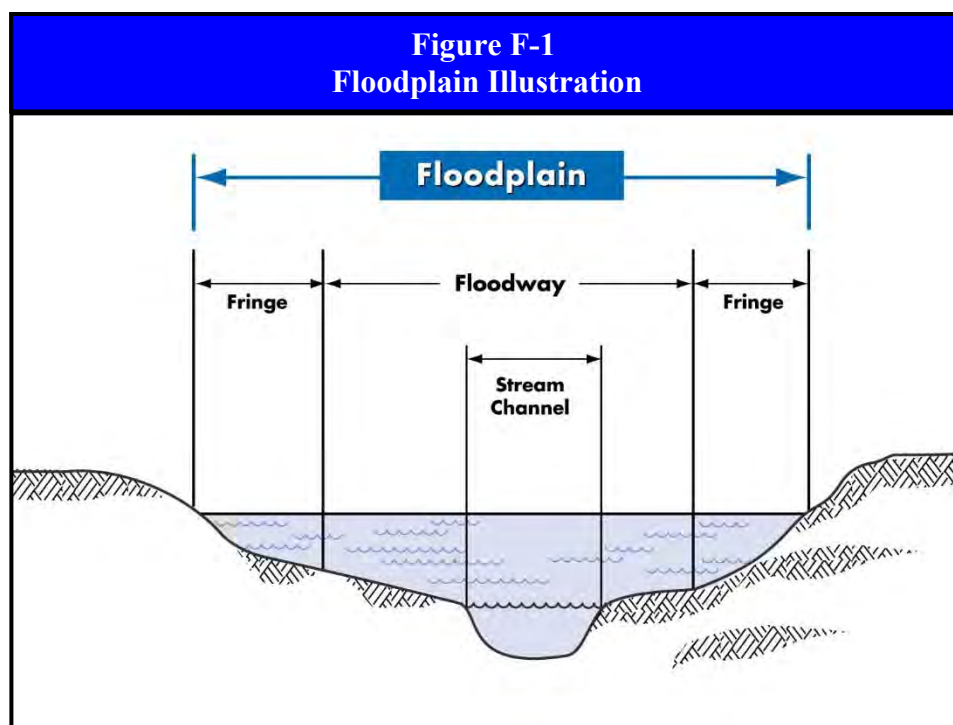
While the base flood is the standard most commonly used for floodplain management and regulatory purposes in the U.S., the 500-year flood is the national standard for protecting critical facilities, such as hospitals and power plants. A 500-year flood has a 1/500 (0.2%) chance of occurring in any given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

What is a floodplain?

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

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

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



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

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

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

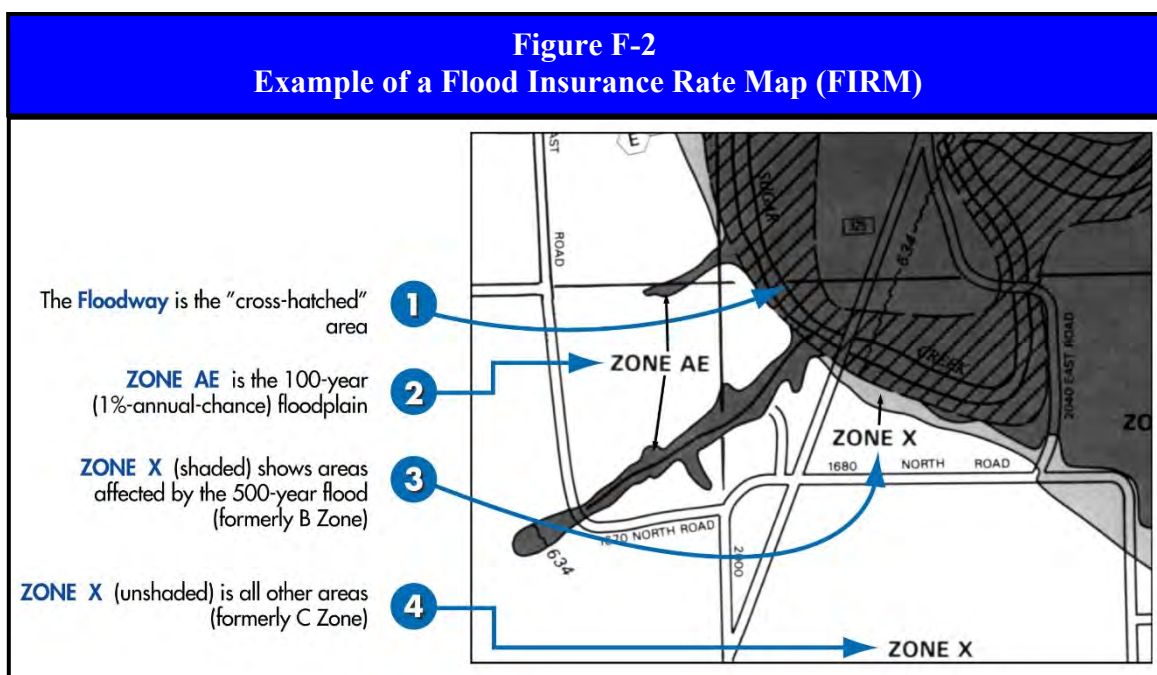
What is a Special Flood Hazard Area?

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

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

What are Flood Insurance Rate Maps?

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



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

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

What are flood zones?

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

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

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

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

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

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

What is a Repetitive Loss Structure or Property?

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

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

What is floodplain management?

Floodplain management is the administration of an overall community program of corrective and preventative measures to reduce flood damage. These measures take a variety of forms and generally include zoning, subdivision or building requirements, special-purpose floodplain ordinances, flood control projects, education, and planning. Where floodplain development is permitted, floodplain management provides a framework that minimizes the risk to life and property from floods by maintaining a floodplain’s natural function. Floodplain management is a key component of the National Flood Insurance Program.

What is the National Flood Insurance Program?

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

- mitigates future flood losses nationwide through community-enforced building and zoning ordinances; and

- provides access to affordable, federally-backed insurance protection against losses from flooding to property owners in participating communities.

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

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

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

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

- Property owners will not be able to purchase NFIP flood insurance policies and existing policies will not be renewed.
- Federal disaster assistance will not be provided to repair or reconstruct insurable buildings located in identified flood hazard areas for presidentially-declared disasters that occur as a result of flooding.
- Federal mortgage insurance and loan guarantees, such as those written by the Federal Housing Administration and the Department of Veteran Affairs, will not be provided for acquisition or construction purposes within an identified flood hazard area. Federally-insured or regulated lending institutions, such as banks and credit unions, are allowed to make conventional loans for insurable buildings in identified flood hazard areas of non-participating communities. However, the lender must notify applicants that the property is in an identified flood hazard area and that it is not eligible for federal disaster assistance.
- Federal grants or loans for development will not be available in identified flood hazard areas under programs administered by federal agencies such as the Environmental Protection Agency, Small Business Administration and the Department of Housing and Urban Development.

What is the NFIP's Community Rating System?

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

Are alerts issued for flooding?

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

- **Flood Watch.** A flood watch is issued when atmospheric and hydrologic conditions are favorable for long duration river flooding or areal flooding (the gradual ponding or buildup of water in low-lying, flood-prone areas as well as small creeks and streams that develops gradually, usually from prolonged and persistent moderate to heavy rainfall).
- **Flash Flood Watch.** A flash flood watch is issued when atmospheric and hydrologic conditions are favorable for short duration flash flooding and/or a dam break is possible.
- **Flood Advisory.** A flood advisory is issued when thunderstorms have produced heavy rainfall that may result in ponding of water on roadways and in low-lying areas, as well as rises in small stream levels but is not expected to pose an immediate threat to life and/or property.
- **Flood Warning.** A flood warning is issued when long duration river flooding or areal flooding (the gradual ponding or buildup of water in low-lying, flood-prone areas as well as small creeks and streams) is occurring or is imminent and may result from excessive rainfall, rapid snow melt, ice jams on rivers or other similar causes.
- **Flash Flood Warning.** A flash flood warning is issued when short duration flash flooding has developed due to excessive rainfall, or a dam break has occurred.

HAZARD PROFILE

The following identifies past occurrences of floods; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences.

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

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

General Floods

NOAA's Storm Events Database, NWS's Advanced Hydrologic Prediction Service, and U.S. Geological Survey (USGS) river gage data were used to document 41 occurrences of general

flooding in Kendall County between 1997 and 2022. Included in the 41 general flood events is one event that contributed to a major federal disaster declaration in Kendall County.

Based on historical gage data, the record setting Fox River flood at Montgomery occurred on April 18, 2013 when the River crested at 15.14 feet. The second and third highest crests at this location occurred in 2008 and 2007 respectively.

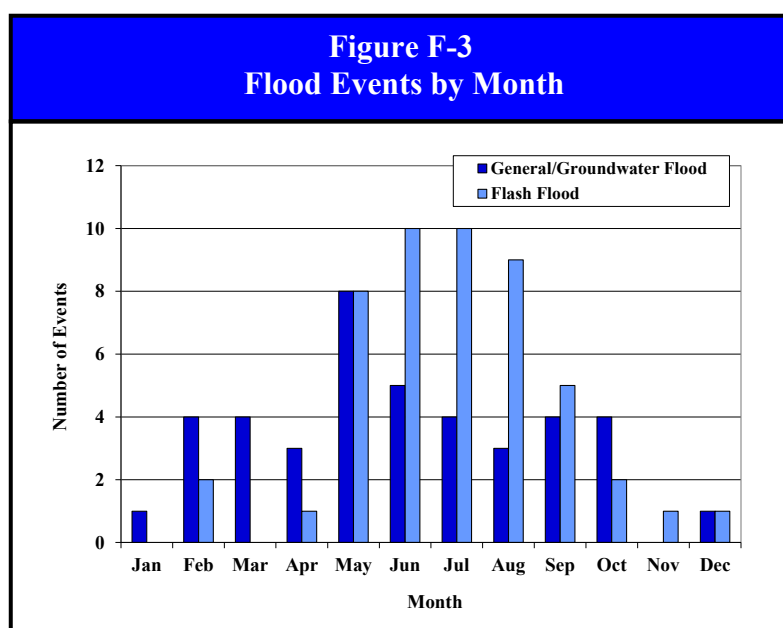
Flash Floods

NOAA's Storm Events Database and Iowa State University's National Weather Service Watch, Warning, and Advisories database were used to document 49 reported occurrences of flash flooding in Kendall County between 1996 and 2022. Included in the 49 flash flood events are four events that contributed to three major federal disaster declarations in Kendall County. One of the declarations, September 2008, also included a general flood event. One of the 49 flash flood events, April 2013, contributed to a state disaster proclamation in Kendall County. This proclamation also coincided with a major federal disaster declaration.

Flood Fast Facts – Occurrences

Number of General Floods Reported (1997 – 2022): **41**
 Number of Flash Floods Reported (1996 – 2022): **49**
 Most Likely Month for General Floods to Occur: **May**
 Most Likely Month for Flash Floods to Occur: **June & July**
 Number of Federal Emergency & Major Disaster Declarations Related to General and Flash Flooding: **5 (1973, 1974, 1996, 2008, 2013)**
 Number of State Disaster Proclamations Related to General and Flash Flooding: **1 (2013)**

Figure F-3 charts the reported occurrences of flooding by month. Of the 41 general flood events, 13 (32%) began in May and June making this the peak period for general flooding. Of those 13 events, 8 (62%) began during May making this the peak month for general flooding. There were four events that spanned two or more months; however, for illustration purposes only the month the event started in is graphed.



In comparison, 29 of the 49 flash flood events (62%) took place June, July, and August making this the peak period for flash floods. Of these 29 events, 10 (34%) occurred in June and 10 (34%) occurred in July, making these the peak months for flash flooding. Of the flash flood events with recorded times, 66% began during the p.m. hours.

What locations are affected by floods?

While specific locations are affected by general flooding, most areas of the County can be impacted by overland and flash flooding because of the topography and seasonally high water table of the area. In Kendall County, approximately 6.0% of the area in the County is designated as being within the base floodplain and susceptible to riverine floods.

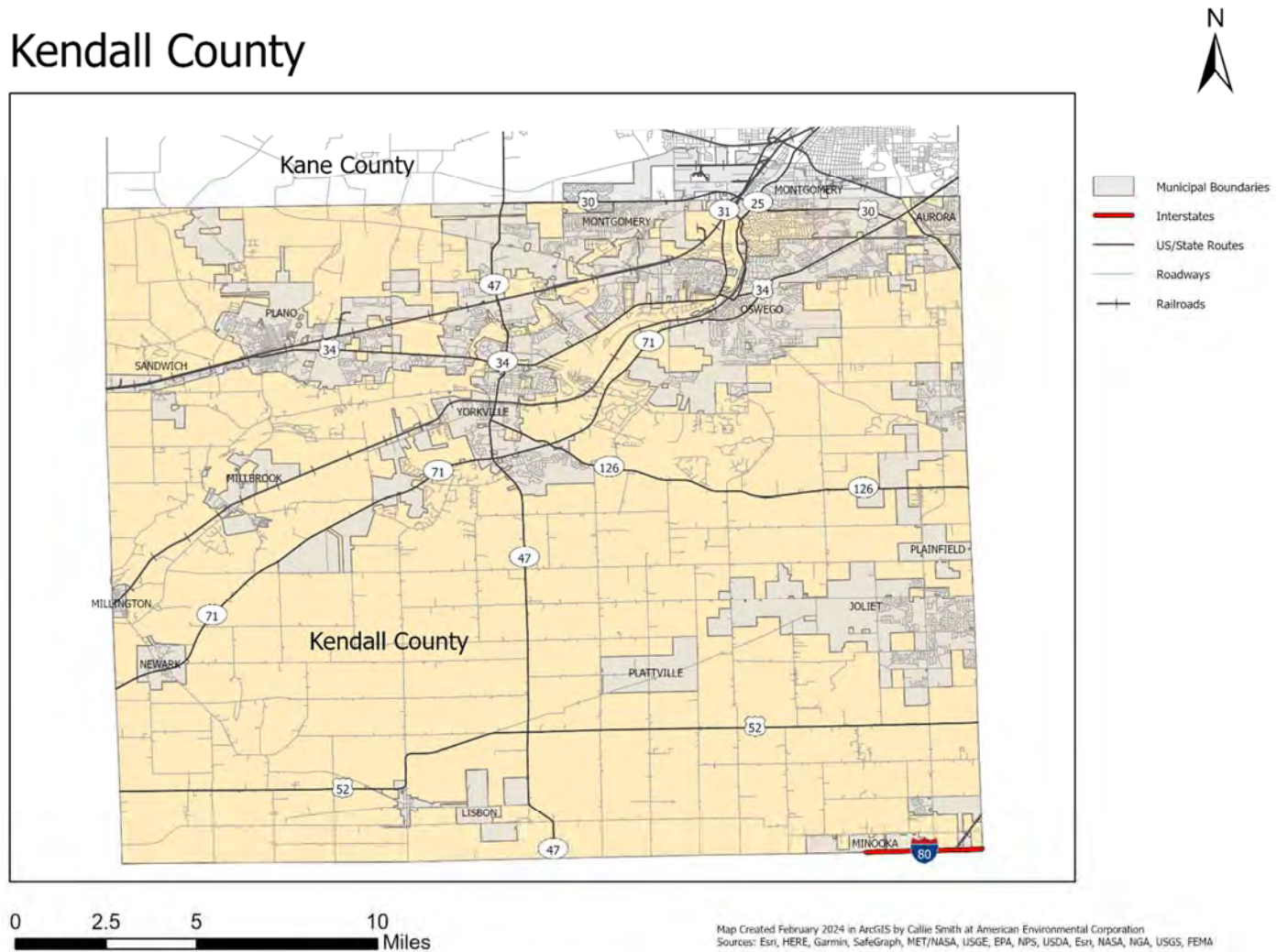
Figure F-4 identifies the floodplains in Kendall County as well as the participating jurisdictions. This map is based on the most current Kendall County DFRIMs that became effective February 4, 2009 and January 8, 2014. While a large portion of the area prone to riverine flooding is in unincorporated portions of the County, Lisbon, Millbrook, Millington, Montgomery, Newark, Oswego, Plano, Plattville, Yorkville are also susceptible to riverine flooding because of their proximity to floodplains. **Appendix K** contains maps identifying the floodplains located in each of the participating municipalities.

Figure F-5 identifies the bodies of water within or immediately adjacent to participating jurisdictions that are known to cause flooding or have the potential to flood. Water bodies with Special Flood Hazard Areas located within a participating jurisdiction (as identified on the DFIRMs) are identified in bold.

Figure F-5 Bodies of Water Subject to Flooding	
Participating Jurisdiction	Water Bodies
Lisbon	unnamed tributary of Saratoga Creek
Montgomery	Blackberry Creek, Fox River, Waubonsie Creek, unnamed tributary Waubonsie Creek
Newark	Clear Creek, unnamed tributary of Clear Creek
Oswego	Fox River, Morgan Creek, unnamed tributary of Waubonsie Creek, Waubonsie Creek
Plano	Big Rock Creek, Little Rock Creek
Plattville	unnamed tributary of West Aux Sable Creek, West Aux Sable Creek
Yorkville	Big Rock Creek, Blackberry Creek, Fox River, Rob Roy Creek
Unincorporated Kendall County	Ackles Run, Aux Sable Creek, Blackberry Creek, Clear Creek, East Aux Sable Creek, Fox River, Hollenback Creek, Knutson Creek, Lisbon Creek, Little Rock Creek, Little Slough Creek, Middle Aux Sable Creek, Morgan Creek, Rob Roy Creek, Roods Creek, Saratoga Creek, unnamed tributary of Aux Sable Creek, unnamed tributary of Clear Creek, unnamed tributary of Saratoga Creek, unnamed tributary of Waubonsie Creek, unnamed tributary of West Aux Sable Creek, Valley Run, Walley Run, Waubonsie Creek, West Aux Sable Creek

Source: FEMA's DFIRMs.

Figure F-4
Floodplain Areas in Kendall County



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

What jurisdictions within the County take part in the NFIP?

Participating Jurisdictions

Kendall County, Lisbon, Montgomery, Newark, Oswego, Plano, Plattville, and Yorkville participate in the NFIP. **Figure F-6 provides information on each NFIP-participating jurisdiction**, including the date each participant joined, the date of their current effective FIRM and the year of their most recently adopted floodplain zoning ordinance.

Figure F-6 NFIP Participating Jurisdictions							
Participating Jurisdictions	Participation (Date)	Current Effective FIRM (Date)	Floodplain Zoning/FIRM Adoption Ordinance (Year)	Adoption of Minimum NFIP Criteria (Yes/No)*	Local Floodplain Management Regulations Implemented & Enforced (Yes/No)	Position Responsible for Implementation of NFIP Commitments/ Requirements	CRS Participation (Entry Date & Class if applicable)
Kendall County	07/19/1982	01/08/2014	2013	Yes	Yes	Planning, Building, & Zoning (PBZ) Department Manager	No
Lisbon	06/11/1982	02/04/2009	2009	Yes	Yes	Village Clerk	No
Montgomery	08/15/1979	01/08/2014	2021	Yes	Yes	Zoning Officer	Yes 05/01/2015 Class 5
Newark	06/01/1982	02/04/2009	2009	Yes	Yes	Village Engineer	No
Oswego	06/01/1982	01/08/2014	2013	Yes	Yes	Building Inspector	No
Plano	09/30/1976	02/04/2009	2016	Yes	Yes	City Engineer	No
Plattville	07/16/2013	01/08/2014	2013	Yes	Yes	County PBZ Manager	No
Yorkville	06/01/1982	01/08/2014	2013	Yes	Yes	City Administrator	No

* In Kendall County, all the NFIP-participating jurisdictions have adopted the State of Illinois model floodplain ordinance. This ordinance goes above and beyond NFIP minimum standards and has much more restrictive floodway regulations. As a result, all of the NFIP-participating jurisdictions are in compliance with NFIP requirements.

Discussions with the individuals responsible for implementation of the NFIP commitments and requirements within their jurisdiction and a review of the participating jurisdictions floodplain ordinances indicates that each monitor flood events and, when applicable, conduct substantial damage determinations for structures within the floodplain using FEMA's Substantial Damage Estimator Tool. For structures that meet the definition of substantial damage (total cost of repairs is 50% or more of the structure's market value before the disaster occurred, regardless of the cause of damage), the owners are notified, and the structure must be brought back into compliance with local floodplain management regulations.

Participating jurisdictions will continue to comply with the NFIP by implementing mitigation projects and activities that enforce this ordinance to reduce future flood risks to new construction

within the SFHA. At this time no new construction is planned within the base floodplain. Continued compliance with NFIP requirements is addressed in the Mitigation Action Tables of the participating jurisdictions found in Section 4.7.

Non-Participating Jurisdictions

Figure F-7 provides information on those incorporated municipalities within the County that chose not to participate in the planning process but take part in the NFIP.

Figure F-7 Non-Participating Jurisdiction NFIP Status				
Participating Jurisdictions	Participation Date	Current Effective FIRM Date	CRS Participation	Most Recently Adopted Floodplain Zoning Ordinance
Millbrook	05/13/2009	02/04/2009	No	2009
Millington	06/01/1982	07/18/2011	No	2011

Sources: FEMA, Community Status Book Report: Illinois.

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

General Floods

Kendall County has had 41 verified occurrences of general flooding between 1997 and 2022. With 41 occurrences over the past 26 years, the County should expect at least one general flood event in any given year. There were 10 years over the past 26 years where two or more general flood events occurred. This indicates that the probability or likelihood that more than one general flood event may occur during any given year within the County is 38%.

Flash Floods

There have been 49 verified flash flood events between 1996 and 2022. With 49 occurrences over the past 27 years, the County should expect at least one flash flood event in any given year. There were 15 years over the past 27 years where two or more flash flood events occurred. This indicates that the probability that more than one flash flood event may occur during any given year within the County is approximately 56%.

What is the probability of future flood events occurring based on modeled future conditions?

In the last 120 years, total annual precipitation in Illinois has increased by between 12% to 15% across the State. This means, according to the Illinois State Climatologist, that we get about an additional 5 inches of yearly rainfall compared to what was expected historically.

This trend is likely to continue, and as a result, precipitation in Illinois is forecasted to increase in coming decades. In addition to changes in the overall amount of precipitation, changes in precipitation patterns indicate that future events will likely be less frequent, but larger and more severe. The Illinois State Climatologist indicates that since the beginning of the 20th Century, Illinois has seen a 40% increase in the number of days with extreme precipitation events (rainfall of 2 inches or greater) per year.

One result of more precipitation overall and an increase in heavy rain events is an increased risk of flooding. In particular, extreme precipitation events are likely to lead to flash floods along rivers and in urban areas, where impermeable surfaces such as buildings, roads, and sidewalks will make

drainage systems more likely to be overwhelmed. Rural areas will face different challenges, most notably those close to rivers and in low-lying areas with little or no drainage capability.

Figures SS-8 and SS-9, located in Section 3.1, provide tabular and graphical projections for Kendall County, showing estimations for average annual precipitation in the early, mid, and late 21st century with both low and high estimates for each time period. Most likely, the true value will fall between these two estimates. By midcentury, the average annual precipitation in Kendall County is projected to increase by 2 inches per year, while the average number of days with precipitation per year is projected to decrease by 3 to 4 days according to the Climate Mapping for Resilience and Adaptation's Assessment Tool.

By midcentury, the annual number of days with total precipitation greater than 1 inch is projected to increase by one day. The annual number of days with total precipitation greater than 2 inches is not projected to increase significantly. This is confirmed by the Climate Explorer, which indicates that in Kendall County the annual counts of intense rainstorms (rainfall of 2 inches or greater in once day) are not projected to increase. This is based on the findings of the 2018 National Climate Assessment and compares projections for the middle third of the century (2035-2064) with average conditions observed from 1961-1990.

Taken together, the projected increase in annual rainfall, the decrease in frequency of rain events, and the negligible threat of intense rain events in Kendall County means that the likelihood of flooding may be slightly higher than it is today.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from floods.

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

Are the participating jurisdictions vulnerable to flooding?

Yes. Kendall County and the participating jurisdictions are vulnerable to the dangers presented by flooding. Precipitation levels and topography are factors that cumulatively make virtually the entire County susceptible to some form of flooding. Flooding occurs along the floodplains of all the rivers, streams, and creeks within the County as well as outside of the floodplains in low-lying areas where drainage problems occur. Since 2013, Kendall County has experienced 25 general flood events and 20 flash flood events.

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

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

For riverine floods, the FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively Low". Four of the 24 census tracts are rated "Relatively Moderate", 17 are rated "Relatively Low", two are rated "Very Low", and one is not rated for riverine floods. **Table R-5** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

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

According to the Multi-Resolution Land Characteristics (MRLC) Consortium, in 2021 approximately 13.3% of the County's land cover was considered developed with 6.3% impervious surfaces. Areas with impervious surface rates approaching or exceeding 12 to 15 percent will likely experience negative impacts to water quality. Between 2011 and 2021 approximately 3.2 square miles or approximately 1% of the land cover in the County changed with 0.55 square miles of development and 0.79 square miles of impervious surfaces gained.

As described in Section 1.3 Land Use and Development Trends, substantial changes in land use (from forested, open, and agricultural land to residential, commercial, and industrial) are not anticipated within the unincorporated County in the immediate future. Substantial increases in residential or commercial/industrial developments are expected in Montgomery, Oswego, Plano, and Yorkville within the next five years; however these development would not be in flood-prone areas and would be governed each jurisdiction's floodplain and stormwater ordinances.

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

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, the following jurisdictions considered specific assets within their jurisdiction vulnerable to flooding.

Kendall County:

- ❖ The Edith Farnsworth House, a National Historic Landmark, is located in the base floodplain of the Fox River and has experienced flooding on multiple occasions over the years.
- ❖ Rural roadways outside of Lisbon flood, impacting travel.
- ❖ The Fox Metro Water Reclamation District's wastewater treatment plant, which serves nearly 300,000 residents in Kendall and Kane Counties, is located in the base floodplain of the Fox River and vulnerable to flooding.
- ❖ Portions of Illinois Route 25 in Oswego near the BNSF/Amtrak railroad tracks flood, impacting travel.

Lisbon:

- ❖ Village Hall is located in a floodplain and has been damaged by flooding.
- ❖ Road within the Village are vulnerable to flooding from heavy rain events.

Lisbon-Seward Fire Protection District:

- ❖ Roads in the District are frequently obstructed by flooding waters which impact travel and delay emergency response times.
- ❖ Both fire stations are located adjacent to base floodplains and have suffered flood damage.

Montgomery:

- ❖ The Village's drinking water wells are located in areas along the Fox River where flooding has occurred.

Newark Fire Protection District:

- ❖ Flooding has overtopped roads in the District and washed out culverts and bridges, which can impact travel for both residents and emergency responders.

Oswego:

- ❖ The Fox Metro Water Reclamation District's wastewater treatment plant, which serves nearly 300,000 residents including Oswego, is located in the base floodplain of the Fox River and vulnerable to flooding.
- ❖ Flooding along the Fox River has caused the evacuation of homes on South Adams Street.

Oswego Fire Protection District:

- ❖ Flooding has delayed call backs for extra manpower impeding emergency response times.

Oswegoland Park District:

- ❖ Our parks near or along the Fox River and Waubonsie Creek are vulnerable to flooding.

Plano:

- ❖ The City's wastewater treatment plant and a portion of the public works facility is located in the base floodplain of Big Rock Creek and vulnerable to flooding.

Kendall Township completed a Roadway Overtopping Survey in which they identified two roads within its township, Ament Road near Cross Lutheran School and Helmar Road east of Ashley Road, where flooding causes overtopping of the roadway that exceeds six inches. In both cases the overtopping occurs at a culvert location and is caused by surface water runoff from a heavy rain event or snow melt, not a specific body of water. The Township Clerk indicated that the roads are marked with appropriate warnings of standing water during events. The culverts have been increased in size and ditch cleaning has been conducted to improve drainage in these areas.

What impacts resulted from the recorded floods?

Floods as a whole have caused a minimum of \$4.1 million in property damages. The following provides a

Flood Fast Facts – Impacts/Risk

General Flood Impacts:

- ❖ Total Property Damage (1 events): **\$92,293**
- ❖ Total Crop Damage: **n/a**
- ❖ Injuries: **n/a**
- ❖ Fatalities: **n/a**

Flash Flood Impacts:

- ❖ Total Property Damage (3 events): **\$4,035,584**
- ❖ Total Crop Damage: **n/a**
- ❖ Injuries: **n/a**
- ❖ Fatalities: **n/a**

Flood Risk/Vulnerability to:

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

breakdown by category. In comparison, the State of Illinois has averaged an estimated \$257 million annually in property damage losses, making flooding the single most financially damaging natural hazard in Illinois.

General Floods

Data obtained from NOAA's Storm Events Database and Committee member records indicates that between 1997 and 2022, one of the 41 general flood events caused \$92,293 in property damages. Damage information was either unavailable or none was recorded for the remaining 40 reported occurrences. No injuries or fatalities were reported as a result of any of the recorded events.

Flash Floods

Data obtained from NOAA's Storm Events Database and Committee member records indicates that between 1996 and 2022, three of the 49 flash flood events caused \$4,035,584 in property damages. Damage information was either unavailable or none was recorded for the remaining 46 reported occurrences. No injuries or fatalities were reported as a result of any of the recorded events.

What other impacts can result from flooding?

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

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

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

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

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

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

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

Are there any repetitive loss structures/properties within Kendall County?

Yes. According to information obtained from IEMA-OHS, there is one repetitive loss structure located in Lisbon, one in Montgomery, one in Yorkville, two in Lisbon, two in Plano, and 14 in unincorporated Kendall County. As described previously, FEMA defines a “repetitive loss structure” as an NFIP-insured structure that has received two or more flood insurance claim payments of more than \$1,000 each within any 10-year period since 1978.

Figure F-8 identifies the repetitive flood loss structures by jurisdiction and provides the total flood insurance claim payments. The exact location and/or address of the insured structures are not included in this Plan to protect the owners’ privacy. According to FEMA, there have been 55 flood insurance claim payments totaling \$1,161,193.79 for the 21 repetitive flood loss structures.

Figure F-8 Repetitive Flood Loss Structures						
Jurisdiction	Structure Type	Number of Structures	Number of Claim Payments	Flood Insurance Claim Payments		Total Flood Insurance Claim Payments
				Structure	Contents	
Lisbon	Single Family	1	2	\$33,885.62	\$0.00	\$33,885.62
Millington	Single Family	2	5	\$156,503.58	27,894.11	\$184,397.69
Montgomery	Single Family	1	2	\$36,220.45	5,334.11	\$41,554.56
Plano	Single Family	2	7	\$19,902.47	\$70,562.00	\$90,464.47
Yorkville	Single Family	1	2	\$16,041.74	\$0.00	\$16,041.74
Unincorp. County	Single Family	14	37	\$687,452.30	\$107,397.41	\$794,849.71
Total:		21	55	\$950,006.16	\$211,187.63	\$1,161,193.79

Source: Illinois Emergency Management Agency and Office of Homeland Security

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

Yes. **Figure F-9** identifies the estimated number of existing structures by participating jurisdiction located within a base floodplain. These counts were prepared by the Consultant using FEMA’s National Flood Hazard Layer and building footprints prepared by the Illinois State Water Survey. **Figure F-10** identifies the estimated number of existing structures by township located within the base floodplain. It should be noted that while the identified structures are located in a floodplain, the actual number impacted may differ during a real flood event.

Aside from key roads, bridges, electrical substations, and buried power and communication lines, the following provides a description of those participating jurisdictions that have specific infrastructure/critical facilities located within a floodplain.

Figure F-9
Existing Buildings, Infrastructure and Critical Facilities Located in a Base Floodplain by Participating Municipalities

Participating Jurisdiction	Residential			Residential Garages	Businesses (Commercial / Industrial)	Miscellaneous (Barns, Sheds, Silos)	Infrastructure/ Critical Facilities
	Houses	Duplexes	Apartment Complexes				
Lisbon ^{1,2,8}	9	---	1	3	---	7	2
Montgomery ^{3,7,10,12}	68	3	3	20	26	25	4
Newark ^{1,2,9}	1	---	---	---	---	---	1
Oswego ^{3,10,12}	14	6	2	---	9	4	5
Plano ^{5,6}	1	---	---	---	---	3	3
Plattville ⁸	8	---	---	5	---	5	---
Yorkville ^{4,7,10,12}	6	3	---	---	---	---	5
Unincorp. Kendall County	134	---	---	---	12	116	7

¹Lisbon CCSD #90

²Newark CHSD #18

³Oswego CUSD #308

⁴Parkway Christian Academy

⁵Plano CUSD #88

⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

Figure F-10
Existing Buildings, Infrastructure and Critical Facilities Located in a Floodplain by Township

Township	Residential			Residential Garages	Businesses (Commercial/ Industrial)	Miscellaneous (Barns, Sheds, Silos)	Infrastructure/ Critical Facilities
	Houses	Duplexes	Apartment Complexes				
Big Grove ^{1,2,8,9}	---	---	---	---	---	---	---
Bristol ^{3,4,5, 7,12}	35	---	---	11	---	3	---
Fox ^{2,5,7,9,10,11}	5	---	---	---	1	14	---
Kendall ^{2,3,4,7,10}	8	---	---	2	---	3	---
Lisbon ^{1,2,7,8}	---	---	---	---	---	5	---
Little Rock ^{5,6,7,11}	56	---	---	5	5	14	---
Na-Au-Say ^{3,10,12}	---	---	---	---	1	7	---
Oswego ^{3,7,10,12}	10	---	---	---	1	6	6
Seward ⁸	19	---	---	7	1	15	---

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⁹Newark FPD

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¹¹Sandwich Community FPD

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Lisbon: The Village Hall is located in the base floodplain of an unnamed tributary of Saratoga Creek.

Lisbon-Seward FPD: Fire Station #1 in Lisbon is located in the base floodplain of an unnamed tributary of Saratoga Creek.

Montgomery: One of the Village's lift stations is located in the Fox River base floodplain while a water tower and communications tower are located in the base floodplain of an unnamed tributary of Waubonsie Creek.

Newark CHSD #18: A portion of the High School is located in the base floodplain of Clear Creek.

Oswego: The Cole Avenue drinking water treatment facility and water tower are located in the base floodplain of Morgan Creek.

Plano: A majority of the City's wastewater treatment plant and two City maintenance garages are located in the base floodplain of Big Rock Creek.

While 6.0% of the land area in Kendall County lies within the base floodplain and is susceptible to riverine flooding, ***almost the entire County is vulnerable to flash flooding***. As a result, ***a majority of the buildings, infrastructure and critical facilities that may be impacted by flooding are located outside of the base floodplain and are not easily identifiable***.

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

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

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

Riverine Flooding

In terms of riverine flooding, the vulnerability of future buildings, infrastructure and critical facilities located within NFIP-participating jurisdictions is low as long as the existing floodplain ordinances are enforced. Enforcement of the floodplain ordinance is the mechanism that ensures that new structures either are not built in flood-prone areas or are elevated or protected to the base flood elevation.

Flash Flooding

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

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

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

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

Assumptions

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

- type of flood event;

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

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

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

Assumption #1

A riverine flood event will impact vulnerable residential structures.

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

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

Assumption #2

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

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

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

This assumption results in the following conditions for each municipality:

- Lisbon: An unnamed tributary of Saratoga Creek would overflow its banks and flood portions of the Village.
- Montgomery: The Fox River, Blackberry Creek, Waubonsie Creek, and an unnamed tributary of Waubonsie Creek would overflow their banks and flood portions of the Village;

- Newark: Clear Creek and an unnamed tributary of Clear Creek would overflow their banks and flood portions of the Village;
- Oswego: The Fox River, Morgan Creek, Waubonsie Creek, and an unnamed tributary of Waubonsie Creek would overflow their banks and flood portions of the Village;
- Plano: Big Rock Creek and Little Rock Creek would overflow their banks and flood portions of the City;
- Plattville: West Aux Sable Creek an unnamed tributary of West Aux Sable Creek would overflow their banks and flood portions of the Village; and
- Yorkville: The Fox River, Big Rock Creek, and Blackberry Creek would overflow their banks and flood portions of the City.

Number of Potentially-Damaged Housing Units.

Since this scenario assumes that all the base floodplains will experience the same degree of flooding, the number of existing residential structures located within the base floodplain(s) can be used to determine the number of potentially-damaged housing units. **Figures F-9 and F-10** identify the total number of existing residential structures located within the base floodplains(s) of each participating jurisdiction. These counts were prepared by the Consultant.

Assumption #3

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

Value of Potentially-Damaged Housing Units.

Now that the number of potentially-damaged housing units has been determined, the monetary value of the units must be calculated. Typically, when damage estimates are prepared after a natural disaster such as a flood, they are based on the market value of the structure. Since it would be impractical to determine the individual market value of each potentially-damaged housing unit, the average market value for a residential structure will be used.

Assumption #4

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

To determine the average market value, the average assessed value must first be calculated. The average assessed value is determined by taking the total assessed value of residential buildings within a jurisdiction and dividing that number by the total number of housing units within the jurisdiction. The average market value is then determined by taking the averaged assessed value and multiplying that number by three (the assessed value of a structure in Kendall County is approximately one-third of the market value). **Figure F-11** provides a sample calculation. The total assessed value is based on 2022 tax assessment information provided by County officials. **Figures F-12 and F-13** provide the average assessed value and average market value for each participating municipality and the townships.

Figure F-11
Sample Calculation of Average Assessed Value & Average Market Value – Plano

Average Assessed Value

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

Plano: \$219,229,235 ÷ 4,021 housing units = \$54,521

Average Market Value

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

Plano: \$54,521 x 3 = \$163,563

Figure F-12
Average Market Value of Housing Units by Participating Municipality

Participating Jurisdiction	Total Assessed Value of Residential Buildings (2022)	Total Housing Units (2017-2021)	Average Assessed Values	Average Market Value (2022)
Lisbon ^{1,2,8}	\$5,164,653	109	\$47,382	\$142,146
Montgomery ^{3,7,10,12}	\$467,806,567	6,653	\$70,316	\$210,948
Newark ^{1,2,9}	\$20,439,102	443	\$46,138	\$138,414
Oswego ^{3,10,12}	\$974,852,538	11,816	\$82,503	\$247,509
Plano ^{5,6}	\$219,229,235	4,021	\$54,521	\$163,563
Plattville ⁸	\$5,841,124	68	\$85,899	\$257,697
Yorkville ^{4,7,10,12}	\$594,475,190	7,125	\$83,435	\$250,305
Lisbon ^{1,2,8}	\$5,164,653	109	\$47,382	\$142,146

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²Newark CHSD #18

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⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

Source: County Clerks' offices.

Damage Scenario. The final decision that must be made to calculate potential dollar losses is to determine the percent damage sustained by the structure and the structure's contents during the flood event. In order to determine the percent damage using FEMA's flood loss estimation tables, assumptions must be made regarding (a) the type of residential structure flooded (i.e., manufactured home, one story home without a basement, one- or two-story home with a basement, etc.) and (b) the flood depth. **Figure F-14.** calculates the percent loss to a structure and its contents for different scenarios based on flood depth and structure type.

Assumption #5

The potentially-damaged housing units are
 one or two-story homes with basements
 and the flood depth is two feet.

Structural Damage = 20%

Content Damage = 30%

Figure F-13
Average Market Value of Housing Units by Township

Participating Jurisdiction	Total Assessed Value of Residential Buildings (2022)	Total Housing Units (2017-2021)	Average Assessed Values	Average Market Value (2022)
Big Grove ^{1,2,8,9}	\$28,508,531	662	\$43,064	\$129,193
Bristol ^{3,4,5, 7,12}	\$842,369,156	10,363	\$81,286	\$243,859
Fox ^{2,5,7,9,10,11}	\$51,965,751	728	\$71,382	\$214,145
Kendall ^{2,3,4,7,10}	\$272,347,149	2,957	\$92,103	\$276,308
Lisbon ^{1,2,7,8}	\$17,351,422	214	\$81,081	\$243,244
Little Rock ^{5,6,7,11}	\$287,600,974	5,119	\$56,183	\$168,549
Na-Au-Say ^{3,10,12}	\$299,414,345	3,152	\$94,992	\$284,976
Oswego ^{3,7,10,12}	\$1,516,561,697	19,490	\$77,812	\$233,437
Seward ⁸	\$157,235,647	1,758	\$89,440	\$268,320

¹Lisbon CCSD #90²Newark CHSD #18³Oswego CUSD #308⁴Parkway Christian Academy⁵Plano CUSD #88⁶St. Mary Catholic School⁷Bristol-Kendall FPD⁸Lisbon-Seward FPD⁹Newark FPD¹⁰Oswego FPD¹¹Sandwich Community FPD¹²Oswegoland Park District

Source: Kendall County Clerk

Figure F-14
FEMA Flood Loss Estimation Tables

Flood Building Loss Estimation Table

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

Flood Content Loss Estimation Table

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

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

For this scenario it is assumed that the potentially-damaged housing units are one or two-story homes with basements and the flood depth is two feet. With these assumptions the expected percent damage sustained by the *structure* is estimated to be 20% and the expected percent damage sustained by the structure's *contents* is estimated to be 30%.

Potential Dollar Losses

Now that all of the decisions/assumptions have been made, the potential dollar losses can be calculated. First the potential dollar losses to the **structure** of the potentially-damaged housing units must be determined. This is done by taking the average market value for a residential structure and multiplying that by the percent damage 20% to get the average structural damage per unit. Next the average structural damage per unit is multiplied by the number of potentially-damaged housing units. **Figure F-15** provides a sample calculation.

Figure F-15 Structure: Potential Dollar Loss Sample Calculation – Plano	
Average Market Value of a Housing Unit with the Jurisdiction x Percent Damage = Average Structural Damage per Housing Unit Plano: \$163,563 x 20% = \$32,712.60 per housing unit	
Average Structural Damage x Number of Potentially-Damaged Housing Units within the Jurisdiction = <i>Structure</i> Potential Dollar Losses (Rounded to the Nearest Dollar) Plano: \$32,712.60 per housing unit x 1 housing unit = \$32,713	

Next the potential dollar losses to the **content** of the potentially-damaged housing units must be determined. Based on FEMA guidance, the value of a residential housing unit's content is approximately 50% of its market value. Therefore, start by taking one-half the average market value for a residential structure and multiply that by the percent damage 30% to get the average content damage per unit. Then take the average content damage per unit and multiply that by the number of potentially-damaged housing units. **Figure F-16** provides a sample calculation.

Figure F-16 Content: Potential Dollar Loss Sample Calculation – Plano	
$\frac{1}{2}$ (Average Market Value of a Housing Unit with the Jurisdiction) x Percent Damage = Average Content Damage per Housing Unit Plano: $\frac{1}{2}$ (\$163,563) x 30% = \$24,534.45 per housing unit	
Average Content Damage per Housing Unit x Number of Potentially-Damaged Housing Units within the Jurisdiction = <i>Content</i> Potential Dollar Losses (Rounded to the Nearest Dollar) Plano: \$24,534.45 per housing unit x 1 housing unit = \$24,534	

Finally, the **total potential dollar losses** may be calculated by adding together the potential dollar losses to the structure and the content. **Figures F-17 and F-18** provide a breakdown of the total potential dollar losses by participating municipality and township.

This assessment illustrates the potential dollar losses that should be considered when participating jurisdictions are deciding which mitigation projects to pursue. Potential dollar losses caused by riverine flooding to vulnerable structures within the participating municipalities would be expected to **range from \$48,445 in Newark to \$5.0 million in Oswego**.

Figure F-17
Estimated Potential Dollar Losses to Potentially-Damaged Housing Units from a
Riverine Flood Event by Participating Municipality

Participating Jurisdiction	Average Market Value (2022)	Potentially-Damaged Housing Units	Potential Dollar Losses		Total Potential Dollar Losses (Rounded to the Nearest Dollar)
			Structure	Content	
Lisbon ^{1,2,8}	\$142,146	9	\$255,863	\$191,897	\$447,760
Montgomery ^{3,7,10,12}	\$210,948	68	\$2,868,893	\$2,151,670	\$5,020,563
Newark ^{1,2,9}	\$138,414	1	\$27,683	\$20,762	\$48,445
Oswego ^{3,10,12}	\$247,509	14	\$693,025	\$519,769	\$1,212,794
Plano ^{5,6}	\$163,563	1	\$32,713	\$24,534	\$57,247
Plattville ⁸	\$257,697	8	\$412,315	\$309,236	\$721,551
Yorkville ^{4,7,10,12}	\$250,305	6	\$300,366	\$225,275	\$525,641

¹Lisbon CCSD #90²Newark CHSD #18³Oswego CUSD #308⁴Parkway Christian Academy⁵Plano CUSD #88⁶St. Mary Catholic School⁷Bristol-Kendall FPD⁸Lisbon-Seward FPD⁹Newark FPD¹⁰Oswego FPD¹¹Sandwich Community FPD¹²Oswegoland Park District

Figure F-18
Estimated Potential Dollar Losses to Potentially-Damaged Structures from a
Riverine Flood Event by Township

Participating Jurisdiction	Average Market Value (2022)	Potentially-Damaged Housing Units	Potential Dollar Losses		Total Potential Dollar Losses (Rounded to the Nearest Dollar)
			Structure	Contents	
Big Grove ^{1,2,8,9}	\$129,193	---	\$ 0	\$ 0	\$ 0
Bristol ^{3,4,5, 7,12}	\$243,859	35	\$1,707,013	\$1,280,260	\$2,987,273
Fox ^{2,5,7,9,10,11}	\$214,145	5	\$214,145	\$160,609	\$374,754
Kendall ^{2,3,4,7,10}	\$276,308	8	\$442,093	\$331,570	\$773,663
Lisbon ^{1,2,7,8}	\$243,244	---	\$ 0	\$ 0	\$ 0
Little Rock ^{5,6,7,11}	\$168,549	56	\$1,887,749	\$1,415,812	\$3,303,561
Na-Au-Say ^{3,10,12}	\$284,976	---	\$ 0	\$ 0	\$ 0
Oswego ^{3,7,10,12}	\$233,437	10	\$466,874	\$350,156	\$817,030
Seward ⁸	\$268,320	19	\$1,019,616	\$764,712	\$1,784,328

¹Lisbon CCSD #90²Newark CHSD #18³Oswego CUSD #308⁴Parkway Christian Academy⁵Plano CUSD #88⁶St. Mary Catholic School⁷Bristol-Kendall FPD⁸Lisbon-Seward FPD⁹Newark FPD¹⁰Oswego FPD¹¹Sandwich Community FPD¹²Oswegoland Park District

For the townships, potential dollar losses caused by riverine flooding to vulnerable structures would be expected to **range from \$374,754 in Fox Township to \$3.3 million in Little Rock Township**. Big Grove Township, Lisbon Township, and Na-Au-Say Township do not have any residential structures considered vulnerable to riverine flooding in this scenario.

Vulnerability of Infrastructure/Critical Facilities

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

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

In terms of specific infrastructure vulnerability, the following are located within a ***base floodplain***:

- ❖ Lisbon: Village Hall;
- ❖ Lisbon-Seward FPD: Fire Station #1 in Lisbon;
- ❖ Montgomery: lift station, water tower, and communications tower;
- ❖ Newark CHSD #18: a portion the High School;
- ❖ Oswego: the Cole Avenue drinking water treatment facility and water tower; and
- ❖ Plano: wastewater treatment plant and two City maintenance garages.

Considerations

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

3.3 SEVERE WINTER STORMS

HAZARD IDENTIFICATION

What is the definition of a severe winter storm?

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

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

What is snow?

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

What is sleet?

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

What is freezing rain?

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

Are alerts issued for severe winter storms?

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

- **Watches.** The following watches are issued when conditions are favorable for hazardous winter weather conditions but are not occurring or imminent.
 - ❖ **Winter Storm Watch.** A winter storm watch is issued when severe winter storm conditions may occur, including heavy snow, significant ice or sleet accumulations, and any of those accompanied by strong winds that may lead to significant visibility reductions.
- **Advisories.** Winter advisories are issued for winter weather events that pose a significant inconvenience, especially to motorists, but should not be life-threatening if caution is exercised. The following advisories will be issued when an event is occurring or imminent.
 - ❖ **Winter Weather Advisory.** Any one of a combination of the following winter weather elements are expected:
 - ☐ 3 to 6 inches of snow;
 - ☐ light sleet accumulations;
 - ☐ light ice accumulations; and/or
 - ☐ localized significant visibility reductions due to snow and/or blowing snow.A winter weather advisory may be issued for less than 3 inches of snow if significant impacts are expected.
- **Warnings.** Winter weather warnings are issued for events that can be life threatening. The following warnings will be issued when an event is occurring, is imminent, or has a high probability of occurring.

The following winter weather warnings are issued when severe winter weather conditions are expected to cause a significant impact to life or property. Individuals are advised to avoid travel and stay indoors.

- ❖ **Blizzard Warning.** A blizzard warning is issued when wind speeds of 35 mph or greater are accompanied by considerable falling or blowing snow that frequently reduces visibility to less than ¼ mile for three hours or more.
- ❖ **Winter Storm Warning.** A winter storm warning is issued when:
 - ☐ snow amounts of 6 inches or more in 12 hours or 8 inches or more in 24 hours are expected; or
 - ☐ heavy sleet accumulations of ½ inch or greater are expected.These conditions may or may not be accompanied by wind or other phenomena. A warning may also be issued if conditions approach blizzard criteria and/or have significant impacts, even if snowfall amounts are not expected to reach the criteria above.
- ❖ **Ice Storm Warning.** An ice storm warning is issued when ice accumulations of ¼ inch or more are expected.

HAZARD PROFILE

The following identifies past occurrences of severe winter storms; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences.

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

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

NOAA's Storm Events Database, Midwestern Regional Climate Center's cli-MATE database, and NWS's COOP data records were used to document 75 reported occurrences of severe winter storms (snow, ice and/or a combination of both) in Kendall County between 1994 and 2022. Of the 75 recorded occurrences there were 54 heavy snowstorms

Severe Winter Storm Fast Facts – Occurrences

Number of Severe Winter Storm Events Reported (1994 -2022): **75**

Maximum 24-Hour Snow Accumulation: **18.1 inches**
(February 1 & 2, 2011)

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

Number of Federal Emergency & Major Disaster Declarations Related to Severe Winter Storms: **4 (1979, 1999, 2000, 2006)**

Number of State Disaster Proclamations Related to Severe Winter Storms: **5 (2011, 2014, 2019, 2021, 2022)**

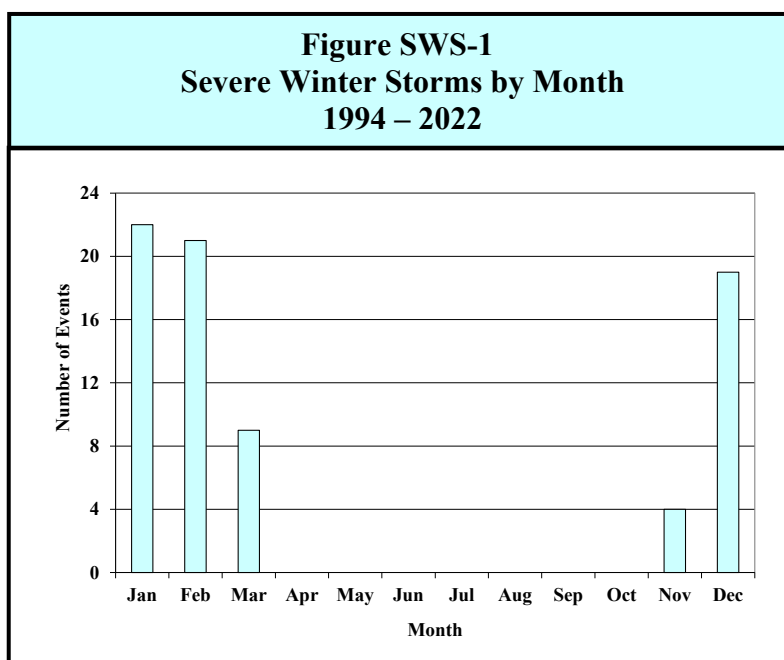
or blizzards; 17 combination events (freezing rain, sleet, ice and/or snow); and 4 ice or sleet storms. Included in the 75 severe winter storms are four events that contributed to three separate federal emergency declarations in Kendall County. Five of the 75 events contributed to five separate state disaster proclamations in Kendall County. None of the federal or state declarations/proclamations coincide.

Figure SWS-1 charts the reported occurrences of severe winter storms by month. Of the 75 events, 62 (83%) took place in in December, January, and February making this the peak period for severe winter storms. Of these 62 events, 22 (35%) occurred during January, making this the peak month for severe winter storms. There were two events that spanned two months; however, for illustration purposes only the month when the event started is graphed. Of the winter storm events with recorded times, 72% began during the p.m. hours.

According to the NWS's COOP data records, the maximum 24-hour snow accumulation in Kendall County is 18.1 inches, which occurred on February 1 and 2, 2011 at the Newark COOP Observation Station.

What locations are affected by severe winter storms?

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



What is the probability of future severe winter storms occurring based on historical data?

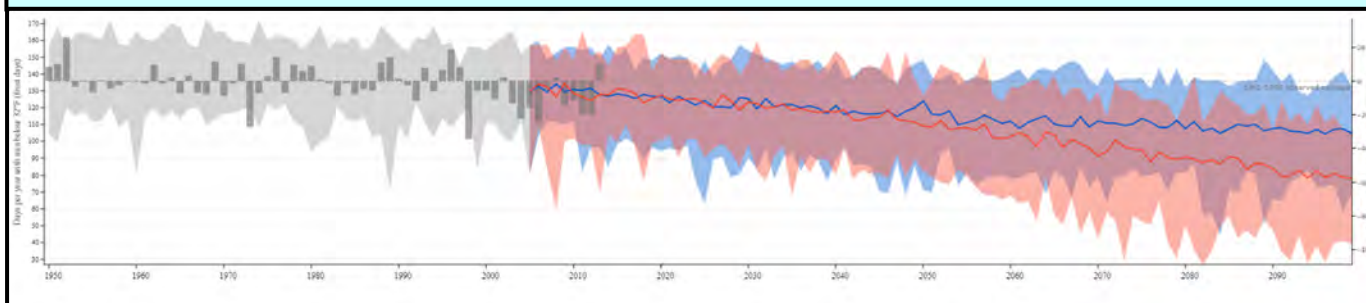
Kendall County has had 75 verified occurrences of severe winter storms between 1994 and 2022. With 75 occurrences over the past 29 years, Kendall County should expect at least two severe winter storms in any given year. There were 18 years over the past 29 years where two or more severe winter storms occurred. This indicates the probability that two or more severe winter storms may occur during any given year within the County is 62%.

What is the probability of future severe winter storms occurring based on modeled future conditions?

The number of days in a year where the temperature falls below 32°F are gradually decreasing in number, meaning that though there will still be winter weather events, there will be fewer days in a given year that could produce them. **Figure SWS-2 and SWS-3** provide tabular and graphical projections for Kendall County showing estimations for the number of days per year with minimum temperatures below 32°F by decade in the early, mid, and late 21st century with both low and high estimates for each time period.

Figure SWS-2							
Number of Days Per Year with Minimum Temperature < 32°F Table – Kendall County							
Indicator	Modeled Time Frame						
	2030s Min - Max	2040s Min - Max	2050s Min - Max	2060s Min - Max	2070s Min - Max	2080s Min - Max	2090s Min - Max
Days with minimum temperature below 32°F							
Lower Emissions	121 days 87 - 147	117 days 83 - 142	115 days 80 - 138	111 days 78 - 142	111 days 78 - 137	108 days 68 - 137	106 days 72 - 135
Higher Emissions	120 days 87 - 147	115 days 84 - 145	107 days 75 - 137	101 days 61 - 132	93 days 48 - 125	88 days 44 - 123	80 days 37 - 113

Figure SWS-3
Number of Days Per Year with Minimum Temperature < 32°F Graph – Kendall County



However, while overall trends of rising temperatures will lead to milder winters on average, this does not mean that severe winter storms will become a thing of the past. Heavy snow events could actually become more common due to rising temperatures. Warmer air is more favorable to the formation of high precipitation clouds, which in winter will increase the likelihood of severe winter storm events when it gets cold enough to snow instead of rain. Snow from these events tends to be warm, wet, and heavy, but will melt relatively quickly in comparison to the finer, dustier snow that falls when temperatures are colder.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from severe winter storms.

Are the participating jurisdictions vulnerable to severe winter storms?

Yes. All of Kendall County, including the participating jurisdictions, is vulnerable to the dangers presented by severe winter storms. Severe winter storms are among the more frequently occurring natural hazards in Illinois. Since 2013, Kendall County has experienced 29 severe winter storms.

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

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

For winter weather and ice storm FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively Low". None of the 24 census tracts are rated higher than "Relatively Moderate" for winter weather and ice storm. **Table R-5** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

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

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, the following jurisdictions considered specific assets within their jurisdiction vulnerable to severe winter storms.

Kendall County:

- ❖ Severe winter storms have the potential to down power lines causing electrical outages. If the permanent emergency backup generators at the Public Safety Center, which includes KenCom, do not function appropriately, then the County's ability to respond to a hazard event is severely diminished, including the ability to dispatch emergency responders until the backup center can be staffed and activated.
- ❖ Severe winter storms can down trees and utility lines causing debris to block roadways, impacting travel and delaying emergency response times to individuals who need assistance or evacuation.

Kendall Township:

- ❖ If the permanent emergency backup generator at the Township Building doesn't function appropriately during a power outage caused by a severe winter storm, then township staff would be unable to perform required duties in a timely fashion and the Building could not be used as an emergency shelter/warming center for District residents.

Lisbon:

- ❖ Severe winter storms have the potential to down power lines impacting service to critical facilities/infrastructure, such as Village Hall. Village Hall does not have an emergency backup generator and if power is lost to the building, then it is difficult to access equipment used to respond to events out of the building.
- ❖ If the permanent emergency backup generator at the wastewater treatment plant doesn't function appropriately, then a power outage caused by a severe winter storm could impact service to residents.

Lisbon-Seward Fire Protection District:

- ❖ Roads in the District are frequently obstructed by utility lines downed by storm winds, which impact travel and delay emergency response times.
- ❖ The two fire stations within the District are staffed by volunteers. Winter storms have the potential to impact the ability of volunteers to reach the fire stations limiting the resources available to respond to emergency calls.
- ❖ Severe winter storms have the potential to down overhead utility lines impacting service to the fire stations and residents.

Montgomery:

- ❖ Severe winter storms have the potential to cause power outages impacting the Village's ability to supply an adequate amount of drinking water to residents since only some of the well sites have been equipped with emergency backup generators.
- ❖ Severe winter storms have downed power lines impacting service to critical facilities as well as residents.
- ❖ The Village's public works facility does not have an emergency backup generator, which could limit service if a power outage is experienced as the result of a severe winter storm.

Newark:

- ❖ If the permanent emergency backup generator at each well site doesn't function appropriately, then a power outage caused by a severe winter storm could impact service to residents.

Newark Fire Protection District:

- ❖ Severe winter storms have the potential to down trees and power lines, which impact travel and delay emergency response times.
- ❖ Blowing and drifting snow from severe winter storms can cause road closures, which impact travel and the ability to respond to emergency situations.

Oswego:

- ❖ Ice storms can down trees and power lines blocking roadways, impacting travel and delaying emergency response times.

Oswego Fire Protection District:

- ❖ Communication systems are vulnerable to damage caused by severe winter storms. Loss of radio communication with KenCom delays response times.

Oswegoland Park District:

- ❖ During extended power outages caused by ice storms, our computer server may be compromised depending on the duration of the outage and the longevity of battery backups.

Plano CUSD #88:

- ❖ Severe winter storms have the potential to down power lines causing a loss of power and impacting critical systems, such as refrigerators/freezers, HVAC, computers and communications, necessary to maintain operations at the District's five schools.
- ❖ Severe winter storms can impact travel making it difficult to ensure students are home safely.

Yorkville:

- ❖ Overhead electrical power lines to critical facilities/infrastructure within the City are vulnerable to damage from ice storms.

What impacts resulted from the recorded severe winter storms?

Damage information was either unavailable or none was recorded for any of the reported occurrences between 1994 and 2022. In addition, no injuries or fatalities were reported as a result of any of the recorded severe winter storm events.

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

Severe Winter Storms & Extreme Cold Events

Fast Facts – Impacts/Risk

Severe Winter Storm (Snow & Ice) Impacts:

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

Severe Winter Storm Risk/Vulnerability:

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

What other impacts can result from severe winter storms?

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

Traffic accident data assembled by the Illinois Department of Transportation from 2017 through 2021 indicates that treacherous road conditions caused by snow/slush and ice were present for 6.4% to 12.7% of all crashes recorded annually in the County. **Figure SWS-4** provides a breakdown by year of the number of crashes and corresponding injuries and fatalities that occurred when treacherous road conditions caused by snow and ice were present.

Figure SWS-4 Severe Winter Weather Crash Data for Kendall County				
Year	Total # of Crashes	Presence of Treacherous Road Conditions caused by Snow/slush and Ice		
		# of Crashes	# of Injuries	# of Fatalities
2017	1,907	122	30	0
2018	2,102	220	52	0
2019	2,182	277	54	0
2020	1,684	147	17	0
2021	1,940	146	33	0
Total:	9,815	912	186	0

Source: Illinois Department of Transportation.

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

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

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

The level of risk or vulnerability posed by severe winter storms to the public health and safety of *socially vulnerable populations* is considered to be *medium*. Socially vulnerable populations such as older adults (those 75 years of age and older) are more susceptible to slips and falls caused by treacherous walking conditions and therefore their risk is elevated. **Figure SWS-5** identifies the percent of socially vulnerable populations by participating municipality, township, and the County based on the U.S. Census Bureau's 2017-2021 American Community Survey data.

Figure SWS-5 Socially Vulnerable Populations by Participating Jurisdictions	
Participating Jurisdiction	% of Population 75 year of age & Older
Lisbon ^{1,2,8}	8.4%
Montgomery ^{3,7,10,12}	2.6%
Newark ^{1,2,9}	5.2%
Oswego ^{3,10,12}	4.3%
Plano ^{5,6}	4.0%
Plattville ⁸	6.3%
Yorkville ^{4,7,10,12}	2.6%
Kendall Township ^{2,3,4,7,10}	5.1%
Oswego Township ^{3,7,10,12}	4.0%
Unincorp. Kendall County	3.7%
Kendall County	3.6%
State of Illinois	6.4%

¹Lisbon CCSD #90

²Newark CHSD #18

³Oswego CUSD #308

⁴Parkway Christian Academy

⁵Plano CUSD #88

⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

Source: U.S. Census Bureau.

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

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

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

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

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

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

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

Yes and No. While the County, Montgomery, Newark, Oswego, Plano, and Yorkville have building codes in place that will likely help lessen the vulnerability of new buildings and critical facilities to damage from severe storms, Lisbon and Plattville do not.

However, infrastructure such as new communication and power lines will continue to be vulnerable to severe winter storms, especially to ice accumulations, as long as they are located above ground. Rural areas of the County have experienced extended periods without power due to severe winter storms. Steps to bury all new lines would eliminate the vulnerability, but this action would be cost prohibitive in most areas. In terms of new roads and bridges, there is very little that can be done to reduce or eliminate their vulnerability to severe winter storms.

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

Unlike other natural hazards, such as tornadoes, there are no standard loss estimation models or methodologies for severe winter storms. Since none of the 75 recorded events listing property damage numbers for severe winter storms, it is difficult to accurately estimate future potential dollar losses. However, according to County officials the total equalized assessed values of all residential, commercial, and industrial buildings in the planning area is \$4,444,350,435. Since all of the structures in the planning area are vulnerable to damage, this total represents the countywide property exposure to severe winter storms.

3.4 EXTREME COLD

HAZARD IDENTIFICATION

What is the definition of extreme cold?

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

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

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

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

What is wind chill?

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

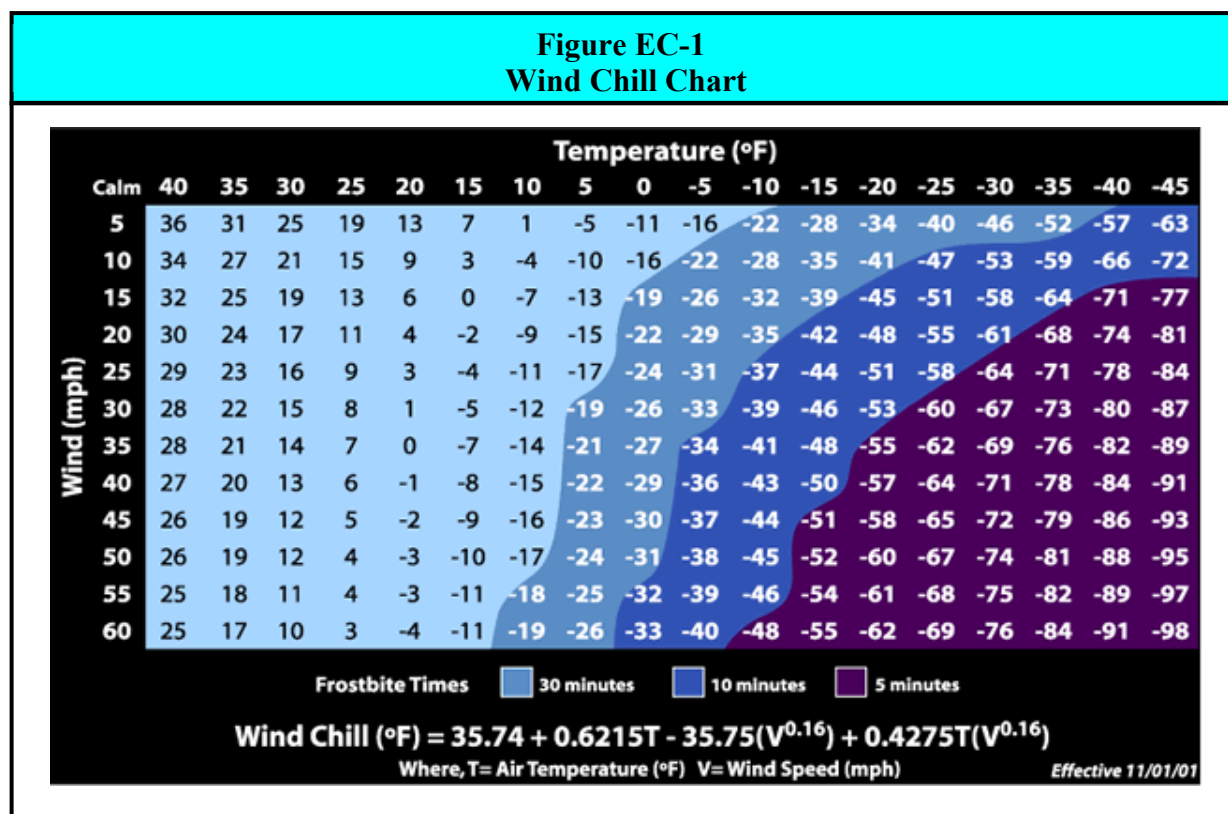
The unit of measurement used to describe the wind chill factor is known as the wind chill temperature. The wind chill temperature is calculated using a formula. **Figure EC-1** identifies the formula and calculates the wind chill temperatures for certain air temperatures and wind speeds.

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

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

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

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



Source: NOAA, National Weather Service.

What cold-related illnesses are associated with extreme cold?

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

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

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

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

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

What is a wind chill alert?

A wind chill alert is an advisory or warning issued by the NWS when the wind chill is expected to have a significant impact on public safety. The expected severity of cold temperatures and wind speed determines the type of alert issued. There are three types of alerts that can be issued for an extreme cold event. The following provides a brief description of each type of alert based on the **wind chill criteria** established by the NWS Weather Forecast Office in Chicago, Illinois. The Lincoln Office is responsible for issuing alerts for Kankakee County.

- ❖ **Wind Chill Watch.** A wind chill watch is issued when widespread wind chill values of around -30°F or colder are possible.
- ❖ **Wind Chill Advisory.** A wind chill advisory is issued when wind chill values of around -20°F or colder are expected.
- ❖ **Wind Chill Warning.** A wind chill warning is issued when wind chill values are expected to be -30°F or below.

HAZARD PROFILE

The following identifies past occurrences of extreme cold events; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences.

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

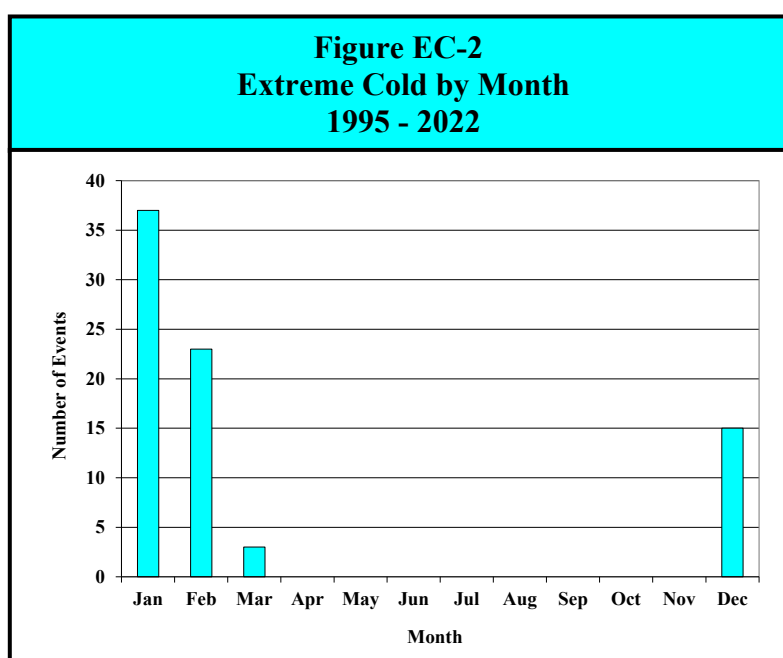
Table 8, located in **Appendix J**, summarize the previous occurrences as well as the extent or magnitude of regional extreme cold events extrapolated for Kendall County. NOAA’s Storm Events Database, Iowa State University’s National Weather Service Watch, Warning, and Advisories database, Midwestern Regional Climate Center’s climate database, and NWS’s COOP Data records were used to extrapolate 78 occurrences of extreme cold in Kendall County between 1995 and 2022. Two of the 78 events contributed to two separate state disaster proclamations in Kendall County.

Extreme Cold Fast Facts – Occurrences

Number of Regional Extreme Cold Events Reported (1995 - 2022): **78**
 Coldest Temperature Extrapolated for the County: **-26°F (December 28, 1924 & January 20, 1985)**
 Most Likely Months for Extreme Cold Events to Occur: **January**
 Number of State Disaster Proclamations Related to Extreme Cold: **2 (2014, 2019)**

According to the Midwestern Regional Climate Center, temperature records were either not kept or are not available from any of the NWS COOP Observation Stations or networks in Kendall County, with the exception of the Observation Station at Oswego and Yorkville which kept temperature records intermittently between 1894 and 1914. As a result, temperature records from the Aurora COOP Observation Station in Kane County and the Morris 1NW COOP Observation Station in Grundy County were used to extrapolate excessive heat events in Kendall County. Based on available records, the coldest recorded temperature at Morris 1NW was -26°F on December 28, 1924 and -26°F at Aurora on January 20, 1985.

Figure EC-2 charts the reported occurrences of extreme cold by month. Thirty-seven of the 78 events (47%) took place in January, making this the peak month for extreme cold events. There were three events that spanned two months; however, for illustration purposes only the month the event started in is graphed.



What locations are affected by extreme cold?

Extreme cold affects the entire County. Extreme cold, like excessive heat and severe winter storms, generally extends across the entire County and affects multiple locations.

Do any of the participating jurisdictions have designated warming centers?

Yes. Eight of the 21 participating municipalities, townships, schools, fire protection districts, and park districts have designated warming centers. A “designated” warming center is identified as any facility that has been *formally* identified by the jurisdiction (through emergency planning, resolution, Memorandum of Agreement, etc.) as a location available for use by residents during severe winter storms and extreme cold events.

Figure EC-3 identifies the location of each warming center by jurisdiction. At this time Lisbon, Plattville, Kendall Township, Oswego Township, Lisbon CCSD #90, Newark CHSD #18, Oswego

CUSD #308, Parkview Christian Academy, Plano CUSD #88, St. Mary Catholic School, Bristol-Kendall FPD, Lisbon-Seward FPD, and Sandwich Community FPD do not have any warming centers designated. In addition, there are no State of Illinois-designated warming centers in Kendall County.

**Figure EC-3
Designated Warming Centers by Participating Jurisdiction**

Name/Address	Name/Address
<i>Montgomery</i>	<i>Plano</i>
Montgomery Village Hall, 200 N. River St.	Fox Valley Family Y.M.C.A., 3875 Eldamain Rd.
Montgomery Police Department, 10 Civic Center Ave.	Plano Police Department, 111 East Main St.
Oswego Public Library District, 1111 Reading Dr.	Plano Community Library, 15 W. North St.
<i>Newark / Newark Fire Protection District</i>	Plano Walmart Supercenter, 6800 West Route 34
Newark FPD Fire House, 101 East Main St.	<i>Yorkville</i>
<i>Oswego / Oswego Fire Protection District</i>	Beecher Community Center, 908 Game Farm Rd.
Oswego Police Department, 3355 Woolley Rd.	Senior Service Associates, 908 Game Farm Rd.
Oswego Public Library District, 32 W. Jefferson St.	Caring Hands Thrift Shop, 1002 S. Bridge St.
Oswego Public Library District, 1111 Reading Dr.	Kendall County Health Department, 811 W. John St.
Oswego Village Hall, 100 Parkers Mill Rd.	Kendall County Public Safety Center, 1102 Cornell Rd.
<i>Oswegoland Park District</i>	Yorkville Public Library, 902 Game Farm Rd.
Civic Center, 5 Ashlawn Ave., Montgomery	Yorkville City Hall, 651 Prairie Pointe Drive
Prairie Point, 313 E. Washington St., Oswego	Kendall County Sheriff's Office, 1102 Cornell Ln.
Boulder Point, 0 Boulder Hill Pass, Montgomery	
South Point, 810 Preston Ln., Oswego	

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

The region, including Kendall County, has experienced 78 verified occurrences of extreme cold between 1995 and 2022. With 78 occurrences over the past 28 years, Kendall County should expect to experience at least two extreme cold events in any given year. It is important to keep in mind that there are almost certainly gaps in the early extreme cold data. More events have almost certainly occurred than are documented in this section, which means that the probability is almost certainly higher than reported.

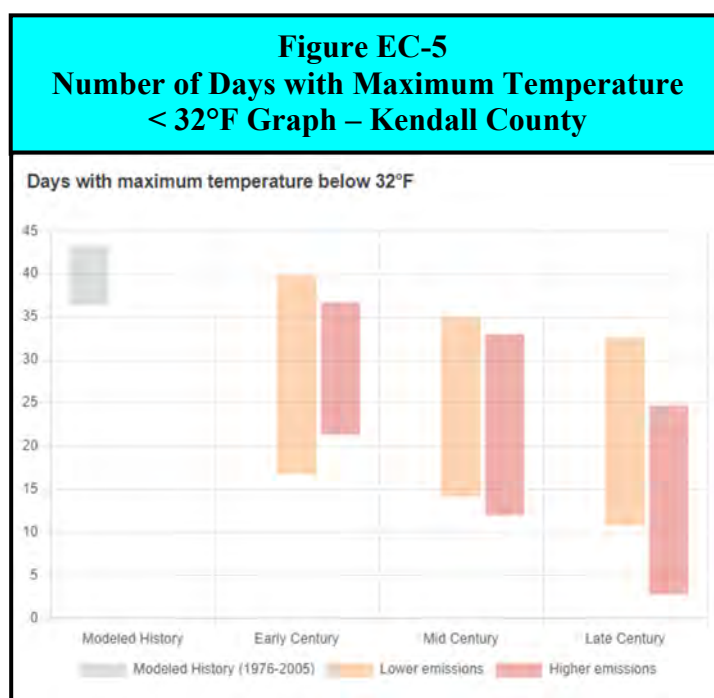
There were 21 years over the last 28 years where multiple (two or more) extreme cold events occurred. This indicates that the probability that multiple extreme cold events may occur during any given year within the County is 75%.

What is the probability of future extreme cold events occurring based on modeled future conditions?

The warming trend observed in Illinois over the past century hasn't just meant increasingly hotter summers; it has meant milder winters. Over the past 120 years, average temperatures in Illinois have increased by 1°F to 2°F according to the Illinois State Climatologist, with the most prominent changes occurring in overnight temperatures and in increased winter and spring temperatures. As a result, extreme cold events are likely to continue to become less common and less intense than they were in the past. The number of days less than 32°F in Illinois are forecasted to decrease in the coming decades. Reductions in extreme cold events could prevent some of the damages associated with them, both in terms of human health costs and economic costs.

Figures EC-4, EC-5, and EC-6 provide tabular and graphical projections for Kendall County, showing estimations for number of days where high temperatures will not exceed 32°F in the early, mid, and late 21st century with both low and high estimates for each time period. Most likely, the true value will fall between these two estimates. By midcentury, the average number of days per year not exceeding 32°F in Kendall County is forecasted to decrease from around 40 today to between 25 and 22 according to the Climate Mapping for Resilience and Adaptation’s Assessment Tool.

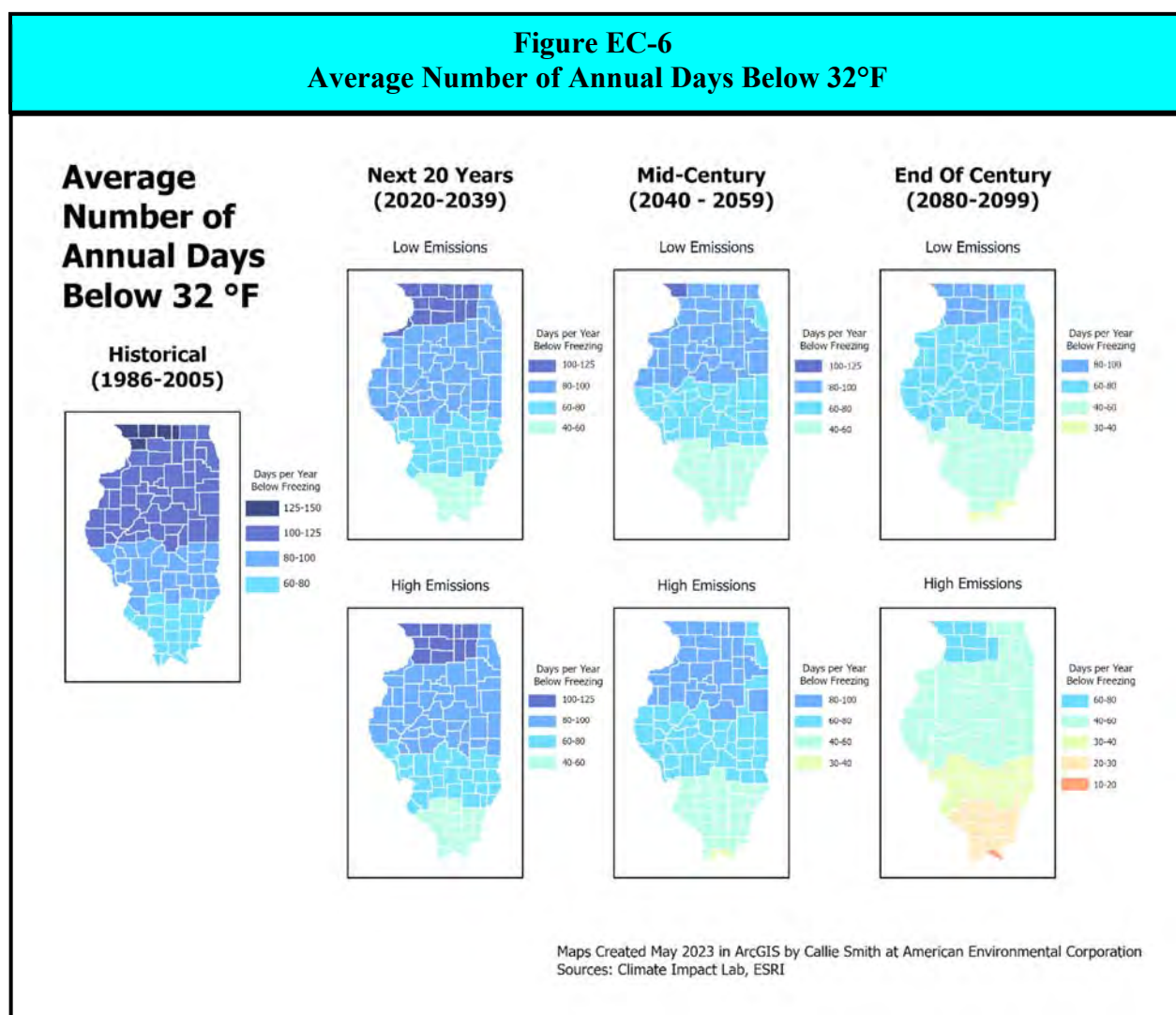
Figure EC-4							
Days with Maximum Temperature < 32°F Projection Table – Kendall County							
Indicator	Modeled History (1976 - 2005)	Early Century (2015 - 2044)		Mid Century (2035 - 2064)		Late Century (2070 - 2099)	
		Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max
Annual days with:							
Days with maximum temperature below 32 °F	40 days 36 - 43	29 days 17 - 40	28 days 21 - 37	25 days 14 - 35	22 days 12 - 33	21 days 11 - 33	13 days 3 - 25
N/A = Data Not Available for the selected area							



By contrast, projections from Great Lakes Integrated Sciences + Assessments indicate that there is likely to be a change of 2 to 5 days in the number of days per year where temperatures will fall below 20° F by midcentury in Kendall County.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from extreme cold.



Are the participating jurisdictions vulnerable to extreme cold?

Yes. All of Kendall County, including the participating jurisdictions, is vulnerable to the dangers presented by extreme cold. Since 2013, Kendall County has experienced 41 extreme cold events.

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

For extreme cold, FEMA's National Risk Index (NRI) rates the County as a whole as "Very High". One of the 24 census tracts is rated "Very High", 20 census tracts are rated "Relatively High", and three are rated "Relatively Moderate". **Table R-5** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

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

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, the following jurisdictions considered specific assets within their jurisdiction vulnerable to extreme cold.

Kendall County:

Individuals in the County are vulnerable to excessive heat and its impacts, especially the elderly, unhoused, and sensitive populations.

Oswego:

While individuals are vulnerable to extreme cold and its impacts, the Village provides warming centers for residents' use.

What impacts resulted from the recorded extreme cold events?

Damage information was either unavailable or none was recorded, and no injuries or fatalities were reported as a result of any of the extreme cold events. This does not mean that injuries or fatalities didn't occur; it simply means that extreme cold was not identified as the primary cause. In comparison, the State of Illinois averages 18 cold-related fatalities annually according to the Illinois State Water Survey's Climate Atlas of Illinois.

What other impacts can result from extreme cold events?

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

Extreme Cold Fast Facts – Impacts/Risk

Extreme Cold Impacts:

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

Extreme Cold Risk/Vulnerability:

- ❖ Public Health & Safety – General Population: ***Low to Medium***
- ❖ Public Health & Safety – Socially Vulnerable Populations: ***Medium***
- ❖ Buildings/Infrastructure/Critical Facilities: ***Low***

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

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

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

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

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

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

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

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

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

Unlike other natural hazards, such as tornadoes, there are no standard loss estimation models or methodologies for extreme cold events. With none of the recorded events listing property damage figures, there is no way to accurately estimate future potential dollar losses from extreme cold. However, according to the County officials the total equalized assessed values of all residential, commercial, and industrial buildings in the planning area is \$4,444,350,435. Since all of the structures in the planning area are vulnerable to damage, this total represents the countywide property exposure to extreme cold.

3.5 EXCESSIVE HEAT

HAZARD IDENTIFICATION

What is the definition of excessive heat?

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

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

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

Excessive heat is a leading cause of weather-related fatalities in the U.S. According to the Centers for Disease Control and Prevention, a total of 7,415 people died from heat-related illnesses between 1999 and 2010, an average of 618 fatalities a year.

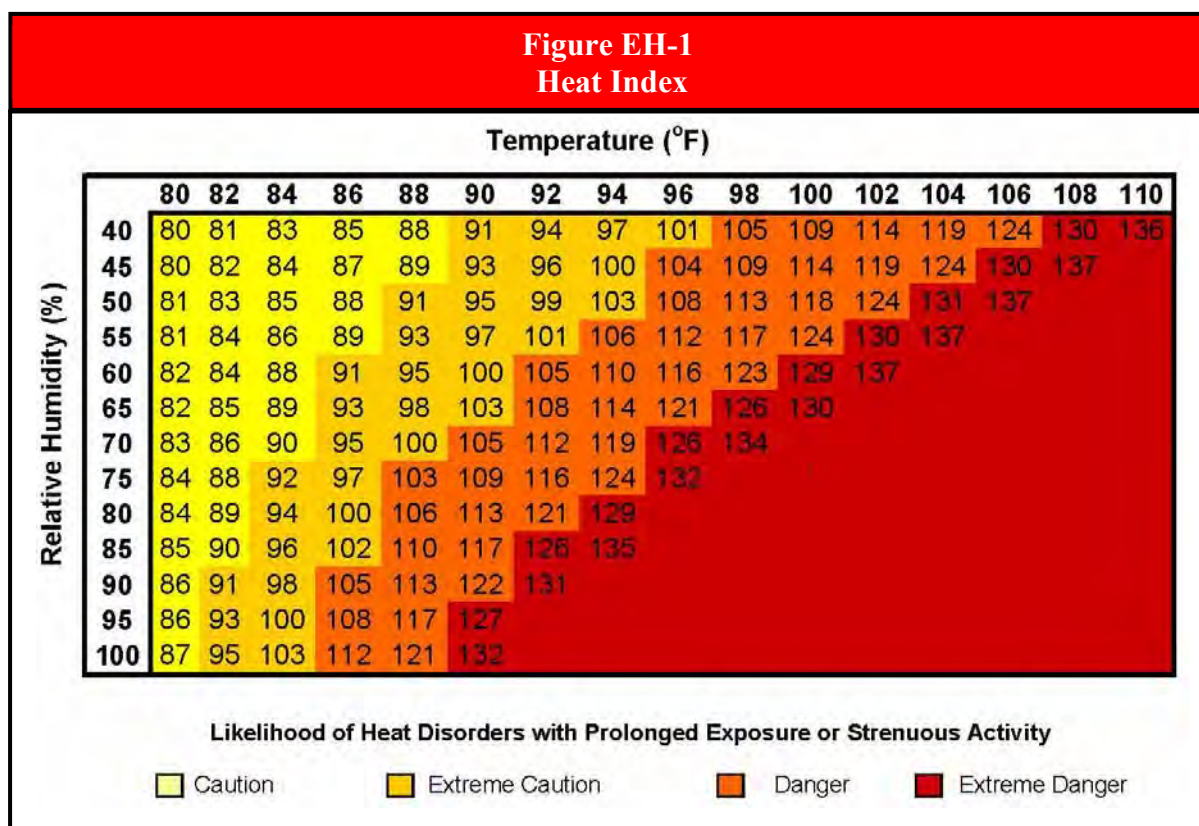
What is the Heat Index?

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

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

What are heat disorders?

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



Source: NOAA, National Weather Service.

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

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

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

Figure EH-2 Relationship between Heat Index and Heat Disorders	
Heat Index (°F)	Heat Disorders
80°F – 90°F	Fatigue is possible with prolonged exposure and/or physical activity
90°F – 105°F	Heat cramps, heat exhaustion and heat stroke possible with prolonged exposure and/or physical activity
105°F – 130°F	Heat cramps, heat exhaustion and heat stroke likely; heat stroke possible with prolonged exposure and/or physical activity
130°F or Higher	Heat stroke highly likely with continued exposure

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

What is an excessive heat alert?

An excessive heat alert is an advisory or warning issued by the NWS when the Heat Index is expected to have a significant impact on public safety. The expected severity of the heat determines the type of alert issued. There are four types of alerts that can be issued for an extreme heat event. The following provides a brief description of each type of alert based on the *excessive heat advisory/warning criteria* established by NWS Weather Forecast Office in Chicago, Illinois. The Chicago Office is responsible for issuing alerts for Kendall County.

- **Watch.** An excessive heat watch is issued when conditions are favorable for the maximum heat index to potentially reach 110°F or greater and the minimum heat index is to remain at or above 75°F for at least 48 hours.
- **Advisory.** An excessive heat advisory is issued when the maximum heat index is exceeding or expected to exceed 105°F for an event that is occurring or imminent.
- **Warning.** An excessive heat warning is issued where the maximum heat index is expected to reach 110°F or greater and the minimum heat index is expected to remain at or above 75°F for at least 48 hours for an event that is occurring or imminent.

HAZARD PROFILE

The following identifies past occurrences of excessive heat, details the severity or extent of each event (if known); identifies the locations potentially affected and estimates the likelihood of future occurrences.

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

Table 9, located in **Appendix J**, summarizes the previous occurrences as well as the extent or magnitude of regional excessive heat events extrapolated for Kendall County. NOAA's Storm Events Database, Iowa State University's National Weather Service Watch, Warning, and

Advisories database, Midwestern Regional Climate Center's cli-MATE database, and NWS's COOP Data records were used to extrapolate 77 occurrences of excessive heat in Kendall County between 1995 and 2022.

Excessive Heat Fast Facts – Occurrences

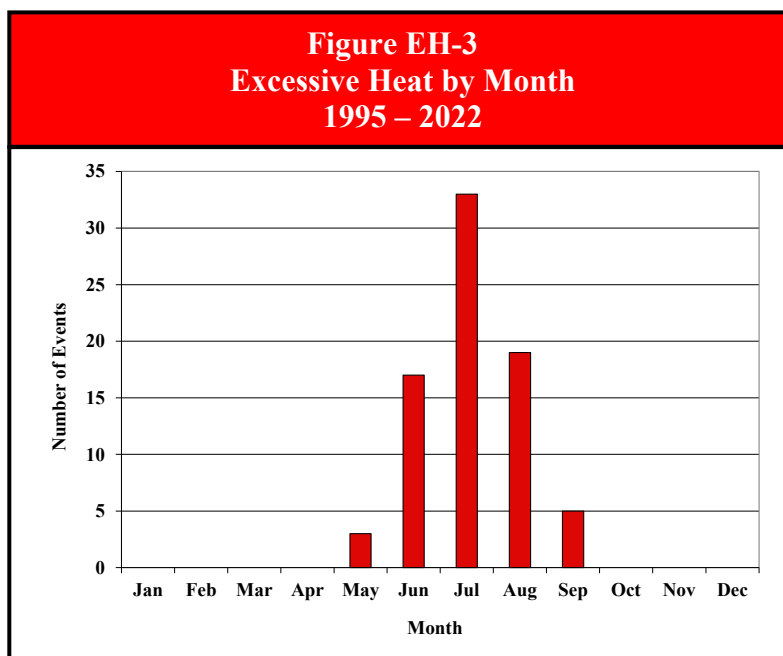
Number of Regional Excessive Heat Events Reported (1995 – 2022): **77**

Hottest Temperature Extrapolated for the County: **111°F (July 14, 1936)**

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

According to the Midwestern Regional Climate Center, temperature records were either not kept or are not available from any of the NWS COOP Observation Stations or networks in Kendall County, with the exception of the Observation Station at Oswego and Yorkville which kept temperature records intermittently between 1894 and 1914. As a result, temperature records from the Aurora COOP Observation Station in Kane County and the Morris 1NW COOP Observation Station in Grundy County were used to extrapolate excessive heat events in Kendall County. Based on available records, the hottest recorded temperature at both Observation Stations was 111°F and occurred on July 14, 1936.

Figure EH-3 charts the reported occurrences of excessive heat by month for the region. Thirty-three of the 77 events (43%) began in July making this the peak month for excessive heat events in Kendall County. There were four events that spanned two months; however, for illustration purposes only the month the event started is graphed.



What locations are affected by excessive heat?

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

Do any of the participating jurisdictions have designated cooling centers?

Yes. Seven of the 21 participating municipalities, townships, schools, fire protection districts, and park districts have designated cooling centers. A “designated” cooling center is identified as any facility that has been *formally* identified by the jurisdiction (through emergency planning, resolution, Memorandum of Agreement, etc.) as a location available for use by residents of the jurisdiction during excessive heat events.

Figure EH-4 identifies the location of each cooling center by jurisdiction. At this time Lisbon, Plattville, Kendall Township, Oswego Township, Lisbon CCSD #90, Newark CHSD #18, Oswego CUSD #308, Parkview Christian Academy, Plano CUSD #88, St. Mary Catholic School, Bristol-Kendall FPD, Lisbon-Seward FPD, Sandwich Community FPD, and Oswegoland Park District do not have any cooling centers designated. In addition, there are no State of Illinois-designated cooling centers in Kendall County.

Figure EH-4 Designated Cooling Centers by Participating Jurisdiction	
Name/Address	Name/Address
<i>Montgomery</i>	<i>Plano</i>
Montgomery Village Hall, 200 N. River Street	Fox Valley Family Y.M.C.A., 3875 Eldamain Road
Montgomery Police Department, 10 Civic Center Ave.	Plano Police Department, 111 East Main Street
Oswego Public Library District, 1111 Reading Drive	Plano Community Library, 15 W. North Street
<i>Newark / Newark Fire Protection District</i>	Plano Walmart Supercenter, 6800 West Route 34
Newark FPD Fire House, 101 East Main Street	<i>Yorkville</i>
<i>Oswego / Oswego Fire Protection District</i>	Beecher Community Center, 908 Game Farm Road
Oswego Police Department, 3355 Woolley Road	Senior Service Associates, 908 Game Farm Road
Oswego Public Library District, 32 W. Jefferson St.	Caring Hands Thrift Shop, 1002 S. Bridge Street
Oswego Public Library District, 1111 Reading Dr.	Kendall County Health Department, 811 W. John St.
Oswego Village Hall, 100 Parkers Mill Road	Kendall County Public Safety Center, 1102 Cornell Rd.
	Yorkville Public Library, 902 Game Farm Rd.
	Yorkville City Hall, 651 Prairie Pointe Drive
	Kendall County Sheriff's Office, 1102 Cornell Ln.

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

The region, including Kendall County, 77 verified occurrences of excessive heat between 1995 and 2022. With 77 occurrences over the past 28 years, Kendall County should expect to experience at least two excessive heat events a year. It is important to keep in mind that there are almost certainly gaps in the excessive heat data. More events have almost certainly occurred than are documented in this section, which means that the probability is almost certainly higher than reported.

There were 22 years over the last 28 years where multiple (three or more) excessive heat events occurred. This indicates that the probability that multiple excessive heat events may occur during any given year within the County is 79%.

What is the probability of future excessive heat events occurring based on modeled future conditions?

Temperature in Illinois has trended upwards over the last century, with average temperatures in Illinois having increased by 1°F to 2°F in the past 120 years according to the Illinois State Climatologist. This trend is likely to continue, with conservative long-term estimates placing average temperatures by the end of the 21st century between 4° and 9° F warmer than they are today.

With increasing temperatures comes the increasing risk of extreme heat events, which are projected to continue to become more frequent and more severe than they have been historically. This is due to increases in temperatures observed during summer months, where just a few degrees difference can turn a hot day into a dangerously hot day. The number of days greater than 95° F in Illinois are forecasted to increase in the coming decades, with conservative projections predicting that even northern Illinois will see a minimum of 10 extreme heat days per year by the end of the 21st century, compared with one or two extreme heat days per year today. Even just a few additional extreme heat days a year could prove very damaging, both in terms of human health and economic costs.

Figures EH-5, EH-6, and EH-7 provide tabular and graphical projections for Kendall County, showing estimations for annual high temperature extremes in the early, mid, and late 21st century with both low and high estimates for each time period. Most likely, the true value will fall between these two estimates. By midcentury, the average number of days per year exceeding 90° F in Kendall County is forecasted to increase from around 14 today to between 47 and 57, and the single hottest temperature recorded in a year is predicted to increase by 6°F to 7° F according to the Climate Mapping for Resilience and Adaptation's Assessment Tool.

The Climate Explorer indicates that in Kendall County, extreme temperatures on the hottest days of the year are projected to increase by 7°F. This is based on the findings of the 2018 National Climate Assessment and compares projections for the middle third of the century (2035-2064) with average conditions observed from 1961-1990.

Taken together, an increase in the number of days per year with temperatures greater than 90° F and an increase in extreme temperatures on the hottest days for Kendall County indicates increased risk for extreme heat events.

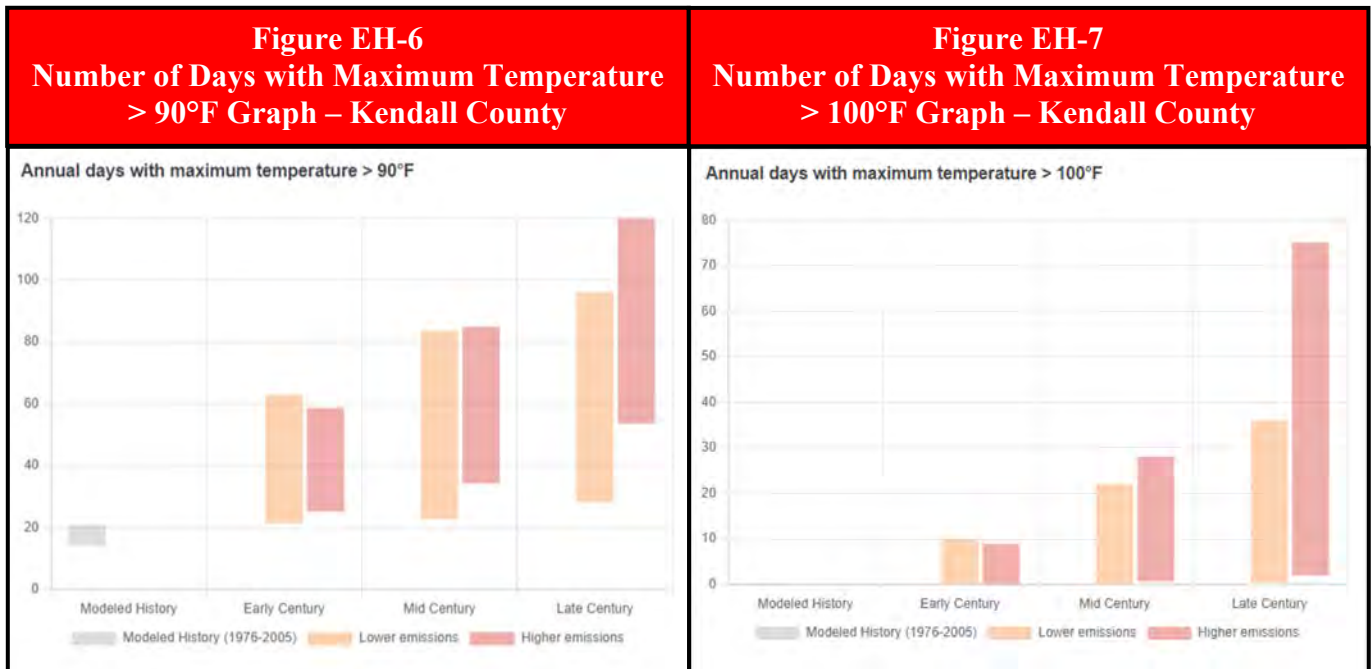
HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from excessive heat.

Are the participating jurisdictions vulnerable to excessive heat?

Yes. All of Kendall County, including the participating jurisdictions, is vulnerable to the dangers presented by excessive heat. Since 2013, the region, including Kendall County, has experienced 30 excessive heat events.

Figure EH-5 Annual High Temperature Extreme Projections Table – Kendall County							
Indicator	Modeled History (1976 - 2005)	Early Century (2015 - 2044)		Mid Century (2035 - 2064)		Late Century (2070 - 2099)	
	Min - Max	Lower Emissions Min - Max	Higher Emissions Min - Max	Lower Emissions Min - Max	Higher Emissions Min - Max	Lower Emissions Min - Max	Higher Emissions Min - Max
Temperature thresholds:							
Annual days with maximum temperature > 90°F	14 days 14 - 21	36 days 21 - 63	39 days 25 - 59	47 days 23 - 84	57 days 34 - 85	58 days 28 - 96	90 days 54 - 120
Annual days with maximum temperature > 95°F	3 days 2 - 4	11 days 4 - 30	14 days 4 - 30	18 days 5 - 50	26 days 11 - 57	27 days 8 - 70	56 days 20 - 97
Annual days with maximum temperature > 100°F	0 days 0 - 0	2 days 0 - 10	3 days 0 - 9	4 days 0 - 22	8 days 1 - 28	8 days 0 - 22	28 days 2 - 75
Annual days with maximum temperature > 105°F	0 days 0 - 0	0 days 0 - 2	0 days 0 - 2	1 days 0 - 7	1 days 0 - 7	1 days 0 - 13	10 days 0 - 49
Annual temperature:							
Annual single highest maximum temperature °F	96 °F 96 - 97	100 °F 97 - 106	100 °F 96 - 103	102 °F 97 - 111	103 °F 99 - 108	103 °F 98 - 114	108 °F 100 - 115
Annual highest maximum temperature averaged over a 5-day period °F	92 °F 91 - 92	95 °F 93 - 100	96 °F 93 - 99	97 °F 93 - 104	99 °F 95 - 104	99 °F 94 - 106	104 °F 97 - 110
Cooling degree days (CDD)	889 degree-days 845 - 967	1,243 degree-days 1,022 - 1,610	1,293 degree-days 1,053 - 1,508	1,433 degree-days 1,072 - 1,944	1,611 degree-days 1,277 - 2,042	1,634 degree-days 1,173 - 2,352	2,303 degree-days 1,630 - 3,131
N/A = Data Not Available for the selected area							



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

For excessive heat, the FEMA’s National Risk Index (NRI) rates the County as a whole as “Relatively Moderate”. Eleven of the 24 census tracts are rated “Relatively High” and the

remaining 13 census tracts are rated “Relatively Moderate”. **Table R-5** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

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

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, the following jurisdictions considered specific assets within their jurisdiction vulnerable to excessive heat.

Kendall County:

- ❖ Individuals in the County are vulnerable to excessive heat and its impacts, especially the elderly, unhoused, and sensitive populations.

Oswego:

- ❖ While individuals are vulnerable to excessive heat and its impacts, the Village provides cooling centers for residents’ use.

Plano:

- ❖ Individuals in the City are vulnerable to excessive heat and its impacts, especially the elderly.

What impacts resulted from the recorded excessive heat events?

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

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

Excessive Heat Fast Facts – Impacts/Risk

Excessive Heat Impacts:

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

Excessive Heat Risk/Vulnerability:

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

What other impacts can result from excessive heat events?

Other impacts of excessive heat include road buckling, power outages, stress on livestock, early school dismissals and school closings. In addition, excessive heat events can also lead to an increase in water usage and may result in municipalities imposing water use restrictions. In Kendall County, excessive heat should not impact municipal water supplies since none obtain their water from surface water bodies. Excessive heat may impact residents in unincorporated Kendall County however who rely on shallow private wells for their drinking water.

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

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

The level of risk or vulnerability posed by excessive heat to the public health and safety of *socially vulnerable populations* is considered to be **medium**. Socially vulnerable populations such as older adults (those 75 years of age and older) and small children (those younger than 5 years of age) are more susceptible to heat-related reactions and therefore their risk is elevated. **Figure EH-8** identifies the percent of socially vulnerable populations by participating municipality, township, and the County based on the U.S. Census Bureau's 2017-2021 American Community Survey data. In addition, individuals with chronic conditions, those on certain medications, and persons with weight or alcohol problems are also considered sensitive populations. However, demographic information is not available for these segments of the population.

Figure EH-8 Sensitive Populations by Participating Jurisdictions			
Participating Jurisdiction	% of Population 75 year of age & Older	% of Population Younger than 5 years of age	Total % of Sensitive Population
Lisbon ^{1,2,8}	8.4%	10.3%	18.7%
Montgomery ^{3,7,10,12}	2.6%	6.3%	8.9%
Newark ^{1,2,9}	5.2%	4.8%	10.0%
Oswego ^{3,10,12}	4.3%	6.8%	11.1%
Plano ^{5,6}	4.0%	11.1%	15.1%
Plattville ⁸	6.3%	8.3%	14.6%
Yorkville ^{4,7,10,12}	2.6%	5.4%	8.0%
Kendall Township ^{2,3,4,7,10}	5.1%	9.3%	14.4%
Oswego Township ^{3,7,10,12}	4.0%	5.6%	9.6%
Unincorp. Kendall County	3.7%	4.7%	8.4%
Kendall County	3.6%	6.3%	9.9%
State of Illinois	6.4%	5.8%	12.2%

¹Lisbon CCSD #90

⁴Parkway Christian Academy

⁷Bristol-Kendall FPD

¹⁰Oswego FPD

²Newark CHSD #18

⁵Plano CUSD #88

⁸Lisbon-Seward FPD

¹¹Sandwich Community FPD

³Oswego CUSD #308

⁶St. Mary Catholic School

⁹Newark FPD

¹²Oswegoland Park District

Source: U.S. Census Bureau.

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

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

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

Excessive heat has also been known to indirectly contribute to disruptions in the electrical grid. When the temperatures rise, the demand for energy also rises in order to operate air conditioners, fans, and other devices. This increase in demand places stress on the electrical grid components, increasing the likelihood of power outages. While not common in Kendall County, there is the potential for this to occur. The potential may increase over the next two decades if new power sources are not built to replace the state's aging nuclear power facilities that are expected to be decommissioned.

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

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

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

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

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

3.6 TORNADOES

HAZARD IDENTIFICATION

What is the definition of a tornado?

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

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

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

How are tornadoes rated?

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

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

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

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

Source: NOAA, Storm Prediction Center.

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

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

Are alerts issued for tornadoes?

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

- **Watch.** A tornado watch is issued when atmospheric conditions are favorable for the development of severe thunderstorms potentially capable of producing tornadoes. Watches are typically large, covering numerous counties or even states.

- **Warning.** A tornado warning is issued when a tornado has been sighted or indicated by weather radar. Warnings indicate imminent danger to life and property for those who are in the path of the tornado. Individuals should see shelter immediately.

HAZARD PROFILE

The following identifies past occurrences of tornadoes; details the severity or extent of each event (if known); identifies the locations potentially affected; and estimates the likelihood of future occurrences.

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

Table 10, located in **Appendix J**, summarizes the previous occurrences as well as the extent or magnitude of tornado events recorded in Kendall County. NOAA's Storm Events Database, Storm Data Publication and Storm Prediction Center have documented 22 occurrences of tornadoes in Kendall County between 1950 and 2022. Included in the 22 tornado events is one event from August 1990 that contributed to a major federal disaster declaration in Kendall County. In comparison, there have been 2,745 tornadoes statewide between 1950 and 2021 according to NOAA's Storm Prediction Center. **Figure T-2** charts the reported occurrences of tornadoes by magnitude. Of the 22 reported occurrences there were: 1 – F5, 3 – F3s, 2 – F2s, 2 – F1s, 6 – F0s, 2 – FUs, 2 – EF1s, 3 – EF0s, and 1 – EFU.

Tornado Fast Facts – Occurrences

Number of Tornadoes Reported (1950 – 2022): **22**
 Highest F-Scale Rating Recorded: **F5 (August 28, 1990)**
 Most Likely Month for Tornadoes to Occur: **May**
 Average Length of a Tornado: **3.5 miles**
 Average Width of a Tornado: **123 yards**
 Average Damage Pathway of a Tornado: **0.26 sq. mi.**
 Longest Tornado Path in the County: **18.6 miles (August 15, 1958)**
 Widest Tornado Path in the County: **600 yards (August 28, 1990)**
 Number of Federal Emergency & Major Disaster Declarations Related to Tornadoes: **1 (1990)**

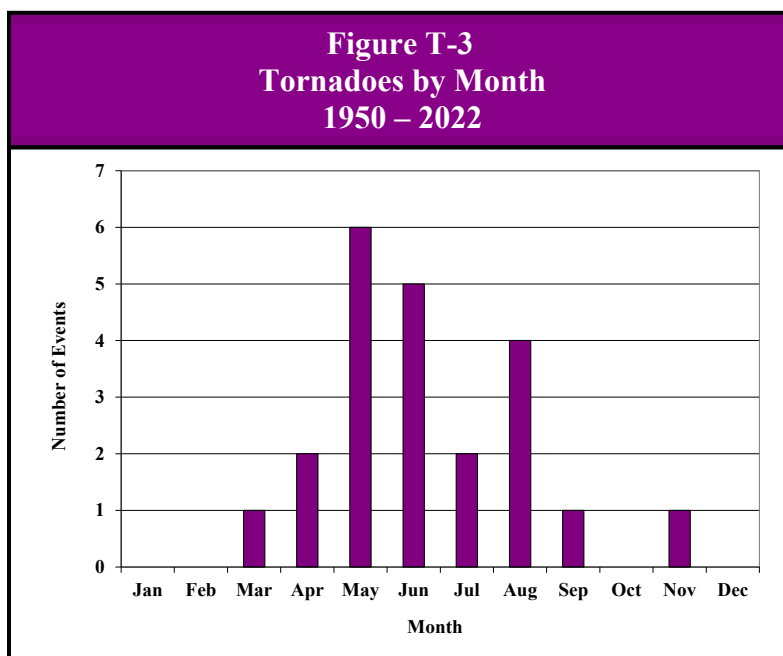
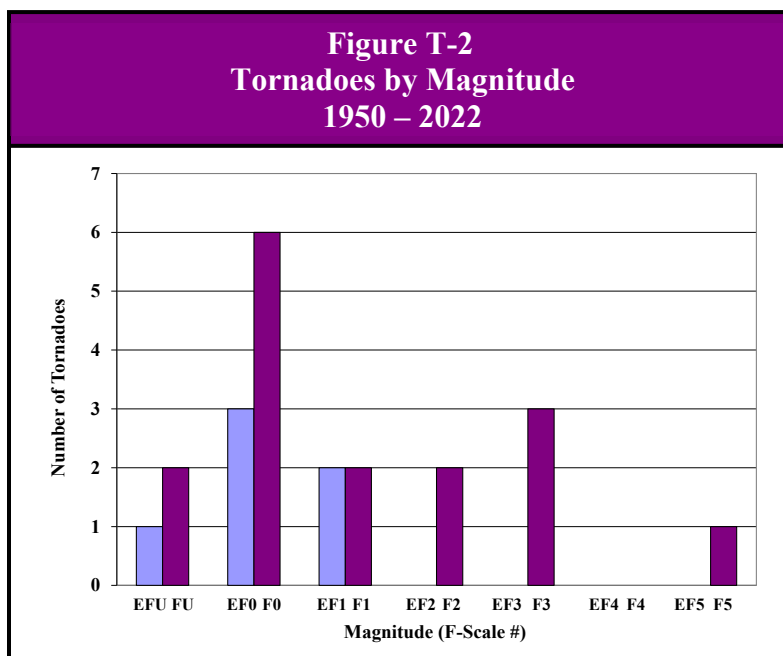
Figure T-3 charts the reported tornadoes by month. Of the 22 events, 11 (50%) took place in May, and June making this the peak period for tornadoes in Kendall County. Of those 11 events, six (55%) occurred during May, making this the peak month for tornadoes. In comparison, 1,720 of the 2,745 tornadoes (63%) recorded in Illinois from 1950 through 2021 took place in April, May, and June.

Approximately 82% of all tornadoes in the County occurred during the p.m. hours, with 11 of the tornado events (50%) taking place between 2 p.m. and 8 p.m. In comparison, more than half of all Illinois tornadoes occur between 2 p.m. and 8 p.m.

The tornadoes that have impacted Kendall County have varied from 0.1 miles (176 yards) to 18.7 miles in length and from 10 yards to 600 yards in width. The average length of a tornado in Kendall County is 3.5 miles and the average width is 123 yards (0.07 miles).

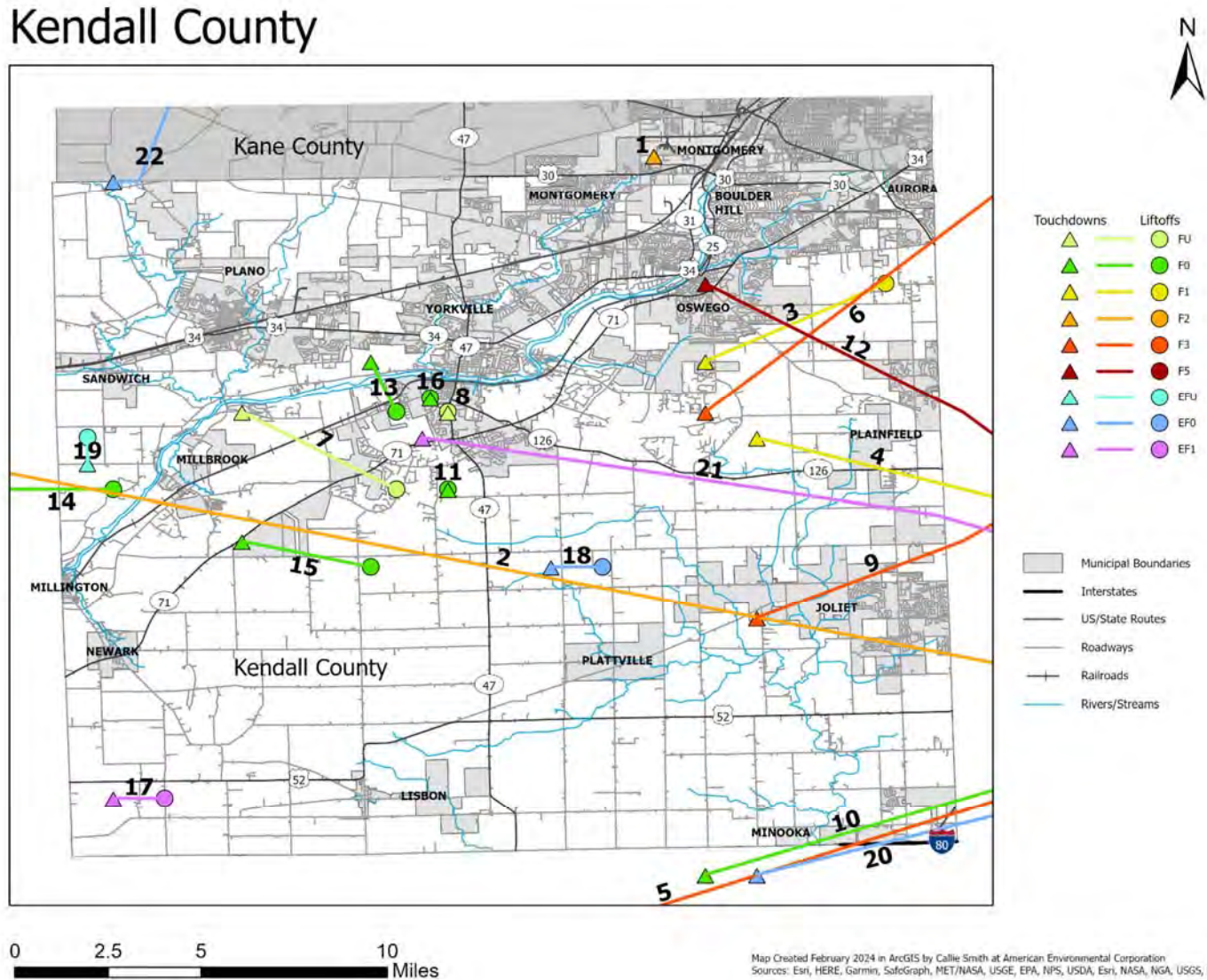
Figure T-4 shows the pathway of each reported tornado. The numbers next to each tornado correspond with the tornado description in **Table 10** located in **Appendix J**. Unlike other natural

hazards (i.e., severe winter storms, drought, and excessive heat), tornadoes impact a relatively small area. Typically, the area impacted by a tornado is less than four square miles. In Kendall County, the average damage pathway or area impacted by a tornado is 0.26 square miles.



The longest tornado recorded in Kendall County occurred on August 15, 1958. This F2 tornado, measuring 74.5 miles in length and 100 yards in width, touched down in Lee County west of Eldena and traveled southeast through DeKalb, La Salle and Kendall Counties before lifting off near Joliet in Will County. The tornado was on the ground in Kendall County for approximately 18.7 miles. The damage pathway of this tornado covered 4.23 square miles, with approximately 1.06 square miles occurring in Kendall County.

Figure T-4
Tornado Pathways in Kendall County



The widest tornado recorded in Kendall County measured 600 yards in width and occurred on August 28, 1990 when an F5 tornado touched down in Kendall County at Oswego and traveled southeast before lifting off at Joliet in Will County. The damage pathway of this tornado covered 5.59 square miles, with approximately 1.77 square miles occurring in Kendall County.

What locations are affected by tornadoes?

Tornadoes have the potential to affect the entire County. Half of the municipalities within the County have had reported occurrences of tornadoes within their corporate limits.

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

Kendall County has had 22 verified occurrences of tornadoes between 1950 and 2022. With 22 tornadoes over the past 73 years, the probability or likelihood that a tornado will touchdown somewhere in the County in any given year is 30%. There were five years over the last 73 years where more than one tornado occurred. This indicates that the probability that more than one tornado may occur during any given year within the County is 7%.

What is the probability of future tornadoes occurring based on modeled future conditions?

Since tornadoes only occur when several conditions are met, predicting them is extremely difficult, even in the short-term future. Somewhat easier to predict are supercell formations, which are large and longer-lived storm systems that create conditions favorable to producing tornadoes, such as strong rotational winds and updrafts. These systems are fed by warm humid air, which means that a wetter and warmer climate could make them a more likely occurrence. Since future condition forecasts suggest a wetter and warmer Illinois as discussed in Section 3.1, it is likely that the conditions that create tornadoes will become more frequent as well, increasing their likelihood. **Figure SS-7**, located in Section 3.1, contains a series of maps that show how the number of supercell tracks is likely to change in the future. The analysis of this trend should be revisited in subsequent planning efforts as more data becomes available.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from tornadoes.

Are the participating jurisdictions vulnerable to tornadoes?

Yes. All of Kendall County, including the participating jurisdictions, is vulnerable to the dangers presented by tornadoes. Since 2013, six tornadoes have been recorded in Kendall County.

Three of the seven participating municipalities have had a tornado touch down or pass through their municipal boundaries. **Figure T-5** lists the verified tornadoes that have touched down in or near or passed through each participating municipality and township. Six tornadoes have touched down in or passed through the Bristol-Kendall FPD while four tornadoes have touched down or passed through the Oswego FPD. Three tornadoes each have touched down in or passed through the Newark FPD and Sandwich Community FPD jurisdictions, while two tornadoes have touched down in or passed through the Lisbon-Seward FPD.

Figure T-5
Verified Tornadoes In or Near Participating Municipalities & Townships

Participating Municipality / Township	Number of Verified Tornadoes	Year	
		Touched Down/Passed Through Municipality / Township	Touched Down/Passed Near Municipality
Lisbon ^{1,2,8}	0	---	----
Montgomery ^{3,7,10,12}	0	---	---
Newark ^{1,2,9}	1	---	2014
Oswego ^{3,10,12}	6	1959, 1990	1959, 1972, 1976, 1990
Plano ^{5,6}	0	---	---
Plattville ⁸	0	---	---
Yorkville ^{4,7,10,12}	10	1958, 1977, 2003, 2003	1977, 1977, 1989, 2003, 2019
Kendall Township	8	1958, 1972, 1976, 1984, 1989, 2003, 2003, 2003	---
Oswego Township	3	1959, 1976, 1985	---

¹Lisbon CCSD #90⁴Parkway Christian Academy⁷Bristol-Kendall FPD¹⁰Oswego FPD²Newark CHSD #18⁵Plano CUSD #88⁸Lisbon-Seward FPD¹¹Sandwich Community FPD³Oswego CUSD #308⁶St. Mary Catholic School⁹Newark FPD¹²Oswegoland Park District

Five tornadoes have touched down in or passed through Oswego CUSD #308, three have touched down in or passed through Newark CHSD #18, and one has touched down in or passed through Lisbon CCSD #90. Interestingly enough, no tornadoes have touched down in or passed through Plano CUSD #88. In terms of the Oswegoland Park District, four tornadoes have touched down or passed through its boundaries. Unincorporated areas vulnerable to tornadoes include Little Rock which had a tornado touch down in its area in 2022.

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

For tornadoes FEMA's National Risk Index (NRI) rates the County as a whole as "Relatively High". Ten of the 24 census tracts are rated "Very High" and the remaining 14 census tracts are rated "Relatively High" for tornadoes. **Table R-5** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

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

Yes. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, the following jurisdictions considered specific assets within their jurisdiction vulnerable to tornadoes.

Bristol-Kendall Fire Protection District:

KenCom handles all 911 calls for the entire County, including the District. If the Dispatch Center was damaged by a tornado, then the District's ability to receive and respond to emergency calls will be severely diminished until the backup center can be staffed and activated.

Kendall County:

- ❖ The Kendall County Courthouse, Public Safety Center, Health Department, Coroner's Office, and Animal Control are located in close proximity to each other and are vulnerable to a devastating tornado. If these facilities are impacted, it would severely limit the County's ability to respond to the disaster.
- ❖ Tornadoes have the potential to down power lines causing electrical outages. If the permanent emergency backup generators at the Public Safety Center, which includes KenCom, do not function appropriately, then the County's ability to respond to a hazard event are severely diminished, including the ability to dispatch emergency responders until the backup center can be staffed and activated.
- ❖ Tornadoes can down trees and utility lines causing debris to block roadways, impacting travel and delaying emergency response times to individuals who need assistance or evacuation.

Kendall Township:

- ❖ If the permanent emergency backup generator at the Township Building doesn't function appropriately during a power outage caused by a tornado, then township staff would be unable to perform required duties in a timely fashion and the Building could not be used as an emergency shelter for District residents.

Lisbon:

- ❖ If the permanent emergency backup generator at the wastewater treatment plant doesn't function appropriately, then a power outage caused by a tornado could impact service to residents.

Lisbon CCSD #90:

- ❖ The staff, students, and infrastructure associated with the school are all vulnerable to tornadoes.

Montgomery:

- ❖ The Village's public works facility does not have an emergency backup generator which could limit service if a power outage is experienced as the result of a tornado.

Newark:

- ❖ If the permanent emergency backup generator at each well site don't function appropriately, then a power outage caused by a tornado could impact service to residents.

Parkview Christian Academy:

- ❖ One the Academy's buildings is listed on the National Register of Historic Places. This asset is vulnerable to tornadoes and could not be replaced if damaged or destroyed.

Yorkville:

- ❖ City Hall/Police Department are located in one building. If a tornado damaged the facility, then it would severely limit the City's ability to respond to the disaster and serve residents.
- ❖ The Communications Center and towers have the potential to be damaged by a tornado, which would limit the City's ability to quickly respond to emergency calls.
- ❖ Overhead electrical power lines to critical facilities/infrastructure within the City are vulnerable to damage from a tornado.
- ❖ Critical facilities/infrastructure such as senior homes and schools are vulnerable to tornadoes because they have not been hardened to reduce damages.

What impacts resulted from the recorded tornadoes?

Data obtained from NOAA’s Storm Events Database, Storm Data Publications, Storm Prediction Center, and Committee member records indicates that between 1950 and 2022, seven of the 22 tornadoes caused \$3,150,000 in property damages. A majority of the property damage total, \$2.5 million, was sustained as a result of the F3 tornado on March 12, 1976 that destroyed or heavily damaged several homes near Oswego. Property damage information was either unavailable or none was recorded for the remaining 15 reported occurrences.

No injuries or fatalities were reported as a result of any of the tornadoes. In comparison, Illinois averages roughly four tornado fatalities annually; however, this number varies widely from year to year.

Tornado Fast Facts – Impacts/Risk

Tornado Impacts:

- ❖ Total Property Damage (7 events): **\$3,150,000**
- ❖ Total Crop Damage: **n/a**
- ❖ Injuries (4 events): **n/a**
- ❖ Fatalities: **n/a**

Tornado Risk/Vulnerability:

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

What other impacts can result from tornadoes?

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

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

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

In terms of adequate access to health care, nearby hospitals in Aurora, Elgin, and Geneva (Kane County), DeKalb and Sandwich (DeKalb County), Mendota and Ottawa (LaSalle County), Morris (Grundy County), and Bolingbrook, Joliet, and New Lenox (Will County) are equipped to provide care and have sufficient capacity for the influx of additional patients from one or more counties.

Kendall County (including townships & fire protection districts)

For Kendall County, including the fire protection districts and townships with the exception of Oswego Township, the level of risk or vulnerability posed by tornadoes to public health and safety is considered to be **low to medium**. This assessment is based on the fact that tornadoes do not occur frequently in the County and a large majority of the tornadoes that have impacted the County have touched down in rural areas away from concentrated populations. In addition, outside of

Plano, Yorkville, Montgomery Oswego, and Aurora, the County is not densely populated and there is not a large number of high-risk living accommodations present.

Participating Municipalities (including schools, Oswego Township & Oswegoland Park District)

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

Do any participating jurisdictions have community safe rooms?

Yes. Plano indicated that City Hall serves as a community safe room. None of the other participating jurisdictions have community safe rooms within their jurisdictions. As a result, if a tornado were to touch down or pass through any of the population centers in the County, then there would be a greater likelihood of injuries and fatalities due to the lack of structures specifically designed and constructed to provide life-safety protection. Each jurisdiction should consider whether the potential impacts to public health and safety from a tornado are considered great enough to warrant the consideration of community safe rooms as a mitigation action.

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

Yes. All existing buildings, infrastructure, and critical facilities located within the County and participating jurisdictions are vulnerable to tornado damage. Buildings, infrastructure, and critical facilities located in the path of a tornado usually suffer extensive damage, if not complete destruction.

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

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

Assessing the Vulnerability of Existing Residential Structures

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

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

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

Assumption #1: Size of Tornado. To calculate the number of existing residential structures vulnerable to a tornado, the size (area impacted) of the tornado must first be determined. There are several scenarios that can be used to calculate the size, including the worst case and the average. For this analysis, the area impacted by an average-sized tornado in Kendall County will be used since it has a higher probability of recurring. In Kendall County, the area impacted by an average-sized tornado is 0.26 square miles. This average is based on more than 70 years of data.

Assumption #1

Size of Tornado = 0.26 sq. miles

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

Assumption #2

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

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

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

Assumption #3

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

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

Calculating Average Housing Unit Density

The average housing unit density can be calculated by taking the number of housing units in a jurisdiction and dividing that by the land area within the jurisdiction. **Figure T-6** provides a sample calculation.

Figure T-6
Calculation of Average Housing Unit Density – Kendall County

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

Kendall County: 44,443 housing units ÷ 320.2387 sq. miles = 138.781 housing units/sq. mile
(139 housing units)

Figure T-7 provides a breakdown of housing unit densities by participating municipality as well as for the unincorporated areas of the County and the County as a whole.

Figure T-7
Average Housing Unit Density by Participating Jurisdiction

Participating Jurisdiction	Township Location	Total Housing Units (2017-2021)	Mobile Homes (2017-2021)	Land Area (Sq. Miles) (2020)	Average Housing Unit Density (Units/Sq. Mi.) (Raw)
Lisbon ^{1,2,8}	Lisbon	109	0	2.117	51.488
Montgomery ^{3,7,10,12}	Bristol, Oswego	6,653	0	9.299	715.453
Newark ^{1,2,9}	Fox	443	0	1.124	394.128
Oswego ^{3,10,12}	Bristol, Oswego	11,816	0	14.888	793.659
Plano ^{5,6}	Little Rock	4,021	52	8.979	447.823
Plattville ⁸	Lisbon	68	0	2.259	30.102
Yorkville ^{4,7,10,12}	Bristol, Fox	7,125	13	19.997	356.303
Unincorp. County		10,909	0	250.778	43.501
County		44,443	68	320.238	138.781

¹Lisbon CCSD #90

²Newark CHSD #18

³Oswego CUSD #308

⁴Parkway Christian Academy

⁵Plano CUSD #88

⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

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

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

In Kendall County, as well as many other northcentral Illinois counties, there are pronounced differences in housing unit densities. A majority of all housing units (79%) are located in three of the County's nine townships (Oswego, Bristol, and Little Rock), while approximately 76% of all mobile homes are located in Little Rock Township. **Figure I-7**, located in Section 1.2, identifies the township boundaries. Tornado damage to buildings (especially mobile homes), infrastructure and critical facilities in the more densely populated townships is likely to be greater than in the rest of the County. While the County, Montgomery, and Oswego have specific ordinances that require anchoring systems for mobile home that would help limit the damage from lower rated tornadoes, the remaining five participating municipalities do not.

This substantial difference in density skews the average county housing unit density in Kendall County and is readily apparent when compared to the average housing unit densities for each of the townships within the County. **Figure T-8** provides a breakdown of housing unit densities by township and illustrates the differences between the various townships and the County as a whole.

Figure T-8
Average Housing Unit Density by Township

Township	Incorporated Municipalities Located in Township	Total Housing Units (2017-2021)	Mobile Homes (2017-2021)	Land Area (Sq. Miles) (2020)	Average Housing Unit Density (Units/Sq. Mi.) (Raw)
Big Grove ^{1,2,8,9}	Lisbon, Newark	662	0	35.723	18.531
Bristol ^{3,4,5, 7,12}	Montgomery, Oswego, Yorkville	10,363	0	28.350	365.538
Fox ^{2,5,7,9,10,11}	Millbrook, Millington, Newark, Yorkville	728	3	36.167	20.129
Kendall ^{2,3,4,7,10}	Yorkville	2,957	13	39.073	75.679
Lisbon ^{1,2,7,8}	Lisbon, Plattville	214	0	36.591	5.848
Little Rock ^{5,6,7,11}	Plano, Sandwich	5,119	52	35.225	145.323
Na-Au-Say ^{3,10,12}	Joliet, Plainfield	3,152	0	34.245	92.043
Oswego ^{3,7,10,12}	Aurora, Montgomery, Oswego, Plainfield	19,490	0	39.911	488.337
Seward ⁸	Joliet, Minooka	1,758	0	34.952	50.298
Townships - 3 most populated		34,972	52	103.486	337.939
Townships - 6 least populated		9,471	16	216.751	43.695

¹Lisbon CCSD #90

²Newark CHSD #18

³Oswego CUSD #308

⁴Parkway Christian Academy

⁵Plano CUSD #88

⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

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

For six of the nine townships, the average county housing unit density is greater (in most cases considerably greater) than the average township housing unit densities. However, the average county housing unit density is considerably less than the housing unit densities for Oswego and Bristol Townships.

Estimating the Number of Potentially-Damaged Housing Units

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

In Kendall County, all of the participating municipalities have large commercial/industrial and/or undeveloped land areas within their municipal boundaries. These areas account for approximately one-third to nine-tenths of the land area in these municipalities. If these areas are subtracted from the U.S. Census Bureau land area figures, then the remaining land areas have fairly consistent housing unit densities and contain a majority of the housing units. **Figure T-9** provides a breakdown of the refined land area figures for the municipalities. These refined land area figures will be used to update the average housing unit density calculations for these municipalities.

Figure T-9 Refined Land Area Figures for Participating Municipalities with Large Tracts of Commercial/Industrial and Undeveloped Land Areas			
Participating Jurisdiction	Land Area (Sq. Miles) (2020)	Estimated Open Land Area & Commercial/Industrial Tracts (Sq. Miles)	Refined Land Area (Sq. Miles)
Lisbon ^{1,2,8}	2.117	2.030	0.087
Montgomery ^{3,7,10,12}	9.299	6.860	2.439
Newark ^{1,2,9}	1.124	0.870	0.254
Oswego ^{3,10,12}	14.888	5.540	9.348
Plano ^{5,6}	8.979	4.090	4.889
Plattville ⁸	2.259	2.170	0.089
Yorkville ^{4,7,10,12}	19.997	6.570	13.427

¹Lisbon CCSD #90

²Newark CHSD #18

³Oswego CUSD #308

⁴Parkway Christian Academy

⁵Plano CUSD #88

⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

With updated average housing unit densities calculated it is relatively simple to provide an estimate of the number of existing potentially-damaged housing units. This can be done by multiplying the average housing unit density by the area impacted by the average-sized Kendall County tornado. **Figure T-10** provides a sample calculation.

Figure T-10 Sample Calculation of Potentially-Damaged Housing Units – Kendall County
<p>Average Housing Unit Density x Area Impacted by the Average-Sized Kendall County Tornado = Potentially-Damaged Housing Units (Rounded Up to the Nearest Whole Number)</p> <p>Kendall County: 138.781 housing units/sq. mile x 0.26 sq. miles = 36.08 housing units (37 housing units)</p>

Since the refined land areas in Lisbon, Newark, and Plattville are less than the average area impacted, it is assumed that all of the housing units within these municipalities will be potentially damaged.

Figures T-11 and T-12 provide a breakdown of the number of potentially-damaged housing units by participating municipality, as well as by township and for the unincorporated areas of the County and the County as a whole. It is important to note that for the most densely populated townships, the estimated number of potentially-damaged housing units would only be reached if a tornado's pathway included the major municipality within the township. If the tornado remained in the rural portion of the township, then the number of potentially-damaged housing units would be considerably lower.

Figure T-11
Estimated Number of Housing Units by Participating Jurisdiction
Potentially Damaged by a Tornado

Participating Jurisdiction	Total Housing Units (2017-2021)	Land Area/Refined Land Area (Sq. Miles) (2020)	Average Housing Unit Density (Units/Sq. Mi.) (Raw)	Potentially-Damaged Housing Units (Units/0.26 Sq. Mi.) (Raw)	Potentially-Damaged Housing Units (Units/0.26 Sq. Mi.) (Rounded Up)
Lisbon ^{1,2,8}	109	0.087	---	109.00	109
Montgomery ^{3,7,10,12}	6,653	2.439	2727.76	709.22	710
Newark ^{1,2,9}	443	0.254	---	443.00	443
Oswego ^{3,10,12}	11,816	9.348	1264.014	328.64	329
Plano ^{5,6}	4,021	4.889	822.459	213.84	214
Plattville ⁸	68	0.089	---	68.00	68
Yorkville ^{4,7,10,12}	7,125	13.427	530.647	137.97	138
Unincorp. County	10,909	250.778	43.501	11.31	12
County	44,443	320.238	138.781	36.08	37

¹Lisbon CCSD #90

⁴Parkway Christian Academy

⁷Bristol-Kendall FPD

¹⁰Oswego FPD

²Newark CHSD #18

⁵Plano CUSD #88

⁸Lisbon-Seward FPD

¹¹Sandwich Community FPD

³Oswego CUSD #308

⁶St. Mary Catholic School

⁹Newark FPD

¹²Oswegoland Park District

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

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

Unincorporated Kendall County (including townships & fire protection district)

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

Figure T-12
Estimated Number of Housing Units by Township Potentially Damaged by a Tornado

Township	Total Housing Units (2017-2021)	Land Area (Sq. Miles) (2020)	Average Housing Unit Density (Units/Sq. Mi.) (Raw)	Potentially-Damaged Housing Units (Units/0.26 Sq. Mi.) (Raw)	Potentially-Damaged Housing Units (Units/0.26 Sq. Mi.) (Rounded Up)
Big Grove ^{1,2,8,9}	662	35.723	18.531	4.82	5
Bristol ^{3,4,5, 7,12}	10,363	28.350	365.538	95.04	96
Fox ^{2,5,7,9,10,11}	728	36.167	20.129	5.23	6
Kendall ^{2,3,4,7,10}	2,957	39.073	75.679	19.68	20
Lisbon ^{1,2,7,8}	214	36.591	5.848	1.52	2
Little Rock ^{5,6,7,11}	5,119	35.225	145.323	37.78	38
Na-Au-Say ^{3,10,12}	3,152	34.245	92.043	23.93	24
Oswego ^{3,7,10,12}	19,490	39.911	488.337	126.97	127
Seward ⁸	1,758	34.952	50.298	13.08	14
Townships - 3 most populated	34,972	103.486	337.939	87.86	88
Townships - 6 least populated	9,471	216.751	43.695	11.36	12

¹Lisbon CCSD #90²Newark CHSD #18³Oswego CUSD #308⁴Parkway Christian Academy⁵Plano CUSD #88⁶St. Mary Catholic School⁷Bristol-Kendall FPD⁸Lisbon-Seward FPD⁹Newark FPD¹⁰Oswego FPD¹¹Sandwich Community FPD¹²Oswegoland Park District

Participating Municipalities (including schools, Oswego Township & Oswegoland Park District)

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

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

Yes and No. While Kendall County, Montgomery, Newark, Oswego, Plano, and Yorkville have building codes in place that will likely lessen the vulnerability of new buildings and critical facilities to damage from tornadoes, Lisbon and Plattville do not. However, even new buildings and critical facilities built to code are vulnerable to the risks posed by a higher rated tornado.

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

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

Unlike other hazards, such as flooding, there are no standard loss estimation models or methodologies for tornadoes. However, a rough estimate of potential dollar losses to the

potentially-damaged housing units determined previously can be calculated if several additional decisions/assumptions are made regarding:

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

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

Assumption #4: Value of Potentially-Damaged Housing Units.

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

Assumption #4

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

To determine the average market value, the average assessed value must first be calculated. The average assessed value is calculated by taking the total assessed value of residential buildings within a jurisdiction and dividing that number by the total number of housing units within the jurisdiction. The average market value is then determined by taking the average assessed value and multiplying that number by three (the assessed value of a structure in Kendall County is approximately one-third of the market value). **Figure T-13** provides a sample calculation. The total assessed value is based on 2022 tax assessment information obtained from the County officials.

Figure T-13
Sample Calculation of Average Assessed Value & Average Market Value – Yorkville

Average Assessed Value

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

Yorkville: \$594,475,190 ÷ 7,125 housing units = \$83,435

Average Market Value

Average Assessed Value x 3 = Average Market Value

Yorkville: \$83,435 x 3 = \$250,305
(**\$250,305**)

Figures T-14 and T-15 provide the average assessed value and average market value for each participating municipality as well as by township and for the unincorporated areas of the County and the County as a whole.

Figure T-14 Average Market Value of Housing Units by Participating Jurisdiction				
Participating Jurisdiction	Total Assessed Value of Residential Buildings (2022)	Total Housing Units (2017-2021)	Average Assessed Values	Average Market Value (2022)
Lisbon ^{1,2,8}	\$5,164,653	109	\$47,382	\$142,146
Montgomery ^{3,7,10,12}	\$467,806,567	6,653	\$70,316	\$210,948
Newark ^{1,2,9}	\$20,439,102	443	\$46,138	\$138,414
Oswego ^{3,10,12}	\$974,852,538	11,816	\$82,503	\$247,509
Plano ^{5,6}	\$219,229,235	4,021	\$54,521	\$163,563
Plattville ⁸	\$5,841,124	68	\$85,899	\$257,697
Yorkville ^{4,7,10,12}	\$594,475,190	7,125	\$83,435	\$250,305
Unincorp. County	\$700,537,756	10,909	\$64,216	\$192,648
County	\$3,473,354,672	44,443	\$78,153	\$234,459

¹Lisbon CCSD #90

²Newark CHSD #18

³Oswego CUSD #308

⁴Parkway Christian Academy

⁵Plano CUSD #88

⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

Source: County Clerks' offices.

Figure T-15 Average Market Value of Housing Units by Township				
Participating Jurisdiction	Total Assessed Value of Residential Buildings (2022)	Total Housing Units (2017-2021)	Average Assessed Values	Average Market Value (2022)
Big Grove ^{1,2,8,9}	\$28,508,531	662	\$43,064	\$129,193
Bristol ^{3,4,5, 7,12}	\$842,369,156	10,363	\$81,286	\$243,859
Fox ^{2,5,7,9,10,11}	\$51,965,751	728	\$71,382	\$214,145
Kendall ^{2,3,4,7,10}	\$272,347,149	2,957	\$92,103	\$276,308
Lisbon ^{1,2,7,8}	\$17,351,422	214	\$81,081	\$243,244
Little Rock ^{5,6,7,11}	\$287,600,974	5,119	\$56,183	\$168,549
Na-Au-Say ^{3,10,12}	\$299,414,345	3,152	\$94,992	\$284,976
Oswego ^{3,7,10,12}	\$1,516,561,697	19,490	\$77,812	\$233,437
Seward ⁸	\$157,235,647	1,758	\$89,440	\$268,320
Townships - 3 most populated	\$2,646,531,827	34,972	\$75,676	\$227,027
Townships - 6 least populated	\$826,822,845	9,471	\$87,300	\$261,901

¹Lisbon CCSD #90

²Newark CHSD #18

³Oswego CUSD #308

⁴Parkway Christian Academy

⁵Plano CUSD #88

⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

Source: Kendall County Clerk

Assumption #5: Damage Scenario. Finally, a decision must be made regarding the percent damage sustained by the potentially-damaged housing units and their contents. For this scenario, the expected percent damage sustained by the structure and its contents is 100%; in other words, all of the potentially-damaged housing units would be completely destroyed. While it is highly unlikely that each and every housing unit would sustain the maximum percent damage, identifying and calculating different degrees of damage within the average area impacted is complex and provides an additional complication when updating the Plan.

Assumption #5

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

Structural Damage = 100%

Content Damage = 100%

Calculating Potential Dollar Losses

With all the decisions and assumptions made, the potential dollar losses can now be calculated. First, the potential dollar losses to the **structure** of a potentially-damaged housing unit must be determined. This is done by taking the average market value for a residential structure and multiplying it by the percent damage (100%) to get the average structural damage per unit. Next the average structural damage per unit is multiplied by the number of potentially-damaged housing units. **Figure T-16** provides a sample calculation.

Figure T-16

Structure: Potential Dollar Loss Sample Calculation – Yorkville

Average Market Value of a Housing Unit with the Jurisdiction x Percent Damage =
Average Structural Damage per Housing Unit

Yorkville: \$250,305 x 100% = \$250,305 per housing unit

Average Structural Damage per Housing Unit x Number of Potentially-Damaged Housing
Units within the Jurisdiction = *Structure* Potential Dollar Losses

Yorkville: \$250,305 per housing unit x 138 housing units = \$34,542,090
(**\$34,542,090**)

Next, the potential dollar losses to the **content** of a potentially-damaged housing unit must be determined. Based on FEMA guidance, the average value of a residential housing unit's content is approximately 50% of its market value. Therefore, start by taking one-half the average market value for a residential structure and multiply by the percent damage (100%) to get the average content damage per unit. Next the average content damage per unit is multiplied by the number of potentially-damaged housing units. **Figure T-17** provides a sample calculation.

Finally, the **total potential dollar losses** may be calculated by adding together the potential dollar losses to the structure and content. **Figures T-18 and T-19** give a breakdown of the total potential dollar losses by municipality and township. For comparison, an estimate of potential dollar losses was calculated for the entire County, the unincorporated portions of the County, the six most populated townships and the nine least populated townships.

Figure T-17

Content: Potential Dollar Loss Sample Calculation – Yorkville

$\frac{1}{2}$ (Average Market Value of a Housing Unit) with the Jurisdiction x Percent Damage =
Average Content Damage per Housing Unit

Yorkville: $\frac{1}{2}$ (\$250,305) x 100% = \$125,152.50 per housing unit

Average Content Damage per Housing Unit x Number of Potentially-Damaged Housing
Units within the Jurisdiction = *Content* Potential Dollar Losses

Yorkville: \$125,152.50 per housing unit x 138 housing units = \$17,271,045
(\$17,271,045)

Figure T-18

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

Participating Jurisdiction	Average Market Value (2022)	Potentially-Damaged Housing Units (Rounded Up)	Potential Dollar Losses		Total Potential Dollar Losses
			Structure	Content	
Lisbon ^{1,2,8}	\$142,146	109	\$15,493,914	\$7,746,957	\$23,240,871
Montgomery ^{3,7,10,12}	\$210,948	710	\$149,773,080	\$74,886,540	\$224,659,620
Newark ^{1,2,9}	\$138,414	443	\$61,317,402	\$30,658,701	\$91,976,103
Oswego ^{3,10,12}	\$247,509	329	\$81,430,461	\$40,715,231	\$122,145,692
Plano ^{5,6}	\$163,563	214	\$35,002,482	\$17,501,241	\$52,503,723
Plattville ⁸	\$257,697	68	\$17,523,396	\$8,761,698	\$26,285,094
Yorkville ^{4,7,10,12}	\$250,305	138	\$34,542,090	\$17,271,045	\$51,813,135
Unincorp. County	\$192,648	12	\$2,311,776	\$1,155,888	\$3,467,664
County	\$234,459	37	\$8,674,983	\$4,337,492	\$13,012,475

¹Lisbon CCSD #90

²Newark CHSD #18

³Oswego CUSD #308

⁴Parkway Christian Academy

⁵Plano CUSD #88

⁶St. Mary Catholic School

⁷Bristol-Kendall FPD

⁸Lisbon-Seward FPD

⁹Newark FPD

¹⁰Oswego FPD

¹¹Sandwich Community FPD

¹²Oswegoland Park District

This assessment illustrates why potential residential dollar losses should be considered when jurisdictions are deciding which mitigation projects to pursue. ***Potential dollar losses caused by an average tornado in Kendall County would be expected to exceed at least \$23 million in any of the participating municipalities.***

Potential dollar losses caused by an average tornado in Kendall County townships would be expected to range from \$729,732 in Lisbon Township to at least \$44.4 million in Oswego Township. As discussed previously, the estimate for the entire County is skewed because it does not take into consideration the differences in the housing density.

Figure T-19
Estimated Potential Dollar Losses to Potentially-Damaged
Housing Units from a Tornado by Township

Participating Jurisdiction	Average Market Value (2022)	Potentially-Damaged Housing Units (Rounded Up)	Potential Dollar Losses		Total Potential Dollar Losses
			Structure	Content	
Big Grove ^{1,2,8,9}	\$129,193	5	\$645,965	\$322,983	\$968,948
Bristol ^{3,4,5, 7,12}	\$243,859	96	\$23,410,464	\$11,705,232	\$35,115,696
Fox ^{2,5,7,9,10,11}	\$214,145	6	\$1,284,870	\$642,435	\$1,927,305
Kendall ^{2,3,4,7,10}	\$276,308	20	\$5,526,160	\$2,763,080	\$8,289,240
Lisbon ^{1,2,7,8}	\$243,244	2	\$486,488	\$243,244	\$729,732
Little Rock ^{5,6,7,11}	\$168,549	38	\$6,404,862	\$3,202,431	\$9,607,293
Na-Au-Say ^{3,10,12}	\$284,976	24	\$6,839,424	\$3,419,712	\$10,259,136
Oswego ^{3,7,10,12}	\$233,437	127	\$29,646,499	\$14,823,250	\$44,469,749
Seward ⁸	\$268,320	14	\$3,756,480	\$1,878,240	\$5,634,720
Townships - 3 most populated	\$227,027	88	\$19,978,376	\$9,989,188	\$29,967,564
Townships - 6 least populated	\$261,901	12	\$3,142,812	\$1,571,406	\$4,714,218

¹Lisbon CCSD #90²Newark CHSD #18³Oswego CUSD #308⁴Parkway Christian Academy⁵Plano CUSD #88⁶St. Mary Catholic School⁷Bristol-Kendall FPD⁸Lisbon-Seward FPD⁹Newark FPD¹⁰Oswego FPD¹¹Sandwich Community FPD¹²Oswegoland Park District

Vulnerability of Commercial/Industrial Businesses and Infrastructure/Critical Facilities

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

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

3.7 DROUGHTS

HAZARD IDENTIFICATION

What is the definition of a drought?

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

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

What types of drought occur?

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

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

How are droughts measured?

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

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

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

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

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

U.S. Drought Monitor (USDM)

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

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

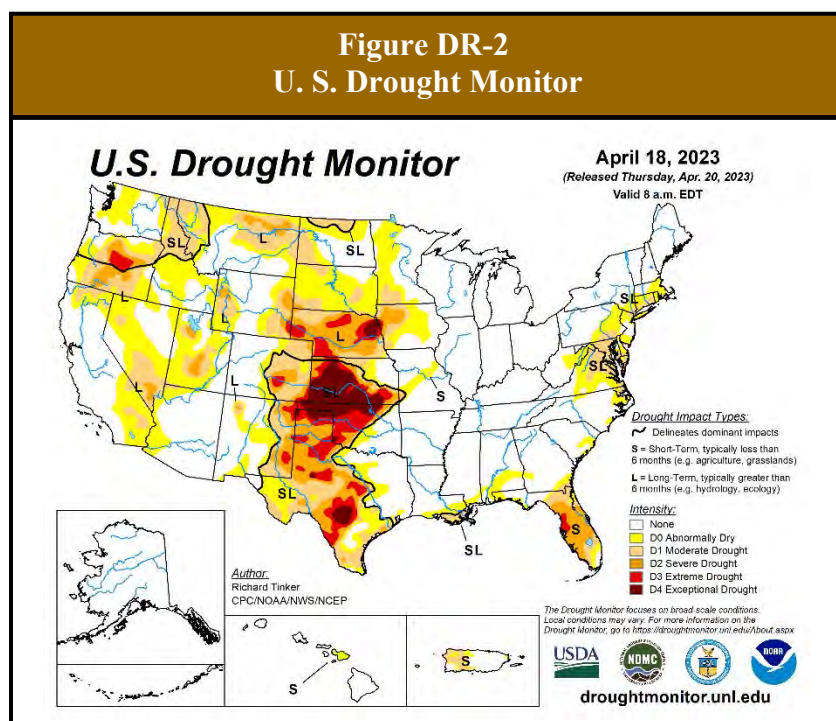
Because the ranges of the various indicators often don’t coincide, the final drought category tends to be based on what a majority of the indicators show and on local observations. The authors also weight the indices according to how well they perform in various parts of the country and at different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

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

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

Figure DR-1 U.S. Drought Monitor – Drought Intensity Categories	
Category	Possible Impacts
D0 (Abnormally Dry)	<ul style="list-style-type: none"> Going into drought: <ul style="list-style-type: none"> short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: <ul style="list-style-type: none"> some lingering water deficits pastures or crops not fully recovered
D1 (Moderate Drought)	<ul style="list-style-type: none"> Some damage to crops, pastures Streams, reservoirs, or wells low; some water shortages developing or imminent Voluntary water-use restrictions requested
D2 (Severe Drought)	<ul style="list-style-type: none"> Crop or pasture losses likely Water shortages common Water restrictions imposed
D3 (Extreme Drought)	<ul style="list-style-type: none"> Major crop/pasture losses Widespread water shortages or restrictions
D4 (Exceptional Drought)	<ul style="list-style-type: none"> Exceptional and widespread crop/pasture losses Shortages of water in reservoirs, streams, and wells creating water emergencies

Source: U.S. Drought Monitor.



The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the U.S. Department of Agriculture, and the National Oceanic and Atmospheric Administration. Map Courtesy of NDMC.

HAZARD PROFILE

The following identifies past occurrences of drought, details the severity or extent of each event (if known); identifies the locations potentially affected and estimates the likelihood of future occurrences.

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

Table 11, located in **Appendix J**, summarizes the previous occurrences as well as the extent or magnitude of the drought events recorded in Kendall County. NOAA's Storm Events Database, the Illinois State Water

Drought Fast Facts – Occurrences

Number of Drought Events Reported (1980 – 2022): **4**

Number of Drought Events County was Designated a USDA Primary Natural Disaster Area: **2 (2005 & 2012)**

Survey, the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS), the NDMC at the University of Nebraska-Lincoln, and the USDA have documented four official droughts for Kendall County between 1980 and 2022. The County was designated a USDA Primary Natural Disaster area for both the 2005 and 2012 droughts.

The recorded drought events ranged in length from 9.5 to 16 months. Of the three drought events with a recorded starting month, two began in June and one began in May. Two of the drought events were assigned drought intensity category ratings by the USDM, with the 2005 drought reaching D3, extreme drought, and the 2012 drought reaching D2, severe drought.

The State of Illinois Drought Preparedness and Response Plan identified seven additional outstanding statewide droughts since 1900 based on statewide summer values of the PDSI provided by NOAA's National Center for Environmental Information. Those seven droughts occurred in 1902, 1915, 1931, 1934, 1936, 1954 and 1964; however, the extent to which Kendall County was impacted was unavailable.

What locations are affected by drought?

Drought events affect the entire County. Droughts, like excessive heat and severe winter storms, tend to impact large areas, extending across an entire region and affecting multiple counties.

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

Kendall County, including the participating jurisdictions, has experienced four droughts between 1980 and 2022. With four occurrences over 43 years, the probability or likelihood that the County may experience a drought in any given year is 9.3%. However, if earlier recorded droughts are factored in, then the probability that Kendall County may experience a drought in any given year decreases to 8.9%.

What is the probability of future drought events occurring based on modeled future conditions?

Despite precipitation trending upwards in Illinois in recent decades, drought conditions are likely to be more problematic in the future than they have been in the recent past, due to a combination of changes in precipitation patterns and an increase in summer temperatures.

In terms of predicting the likelihood of drought conditions, the amount of precipitation received is important, but even more critical is the timing of precipitation events. More frequent precipitation events maintain soil in a spongy, porous state that readily absorbs moisture; alternatively, more infrequent precipitation events tend to lead to dry, hardened earth, which is more effective at repelling water than absorbing it. When a precipitation event does occur over this drought-stricken soil, most of the water runs off and pools in bottomlands, leaving most land ‘high and dry’ while simultaneously flooding the lowest-lying areas.

Another factor making this outcome more likely is the trend of increasing temperatures in Illinois, particularly during the summer when rain events are already more sporadic. Over the past 120 years, average temperatures in Illinois have increased by 1°F and 2°F according to the Illinois State Climatologist, a trend that is likely to continue. In the future, hotter summer temperatures are likely to lead to more evaporation that will exacerbate dry conditions, causing droughts to intensify more rapidly and become more intense.

Figures SS-8 and SS-9, located in Section 3.1, and **Figures EH-6, EH-7, and EH-8**, located in Section 3.5, provide tabular and graphical projections for Kendall County showing average annual estimates for temperature and precipitation in the early, mid, and late century, with both low and high estimates for each time period. Most likely, the true values will fall between these two estimates. According to the Climate Mapping for Resilience and Adaptation’s Assessment Tool, the number of days exceeding 90°F in Kendall County is projected to go from 14 today to between 47 and 57 days, while days exceeding 100°F are likely to increase from an average of zero days per year today to 4 to 8 days by midcentury. It also forecasts that the average annual precipitation in Kendall County is likely to increase by 2 inches per year, while the average number of days per year without precipitation is projected to increase by 3 to 4 days.

The Climate Explorer indicates that in Kendall County, the average number of dry spells (a period of consecutive days without precipitation) is projected to increase by one. Extreme temperatures on the hottest days of the year are projected to increase by 7°F. This is based on the findings of the 2018 National Climate Assessment and compares projections for the middle third of the century (2035-2064) with average conditions observed from 1961-1990.

In combination, a decrease in the frequency of precipitation and a significant increase in the number of days with extreme heat in Kendall County would create conditions that will be more likely to produce droughts than today.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from drought.

Are the participating jurisdictions vulnerable to drought?

Yes. All of Kendall County, including the participating jurisdictions, is vulnerable to drought. Neither the amount nor the distribution of precipitation; soil types; topography; or water table conditions provides protection for any area within the County.

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

For drought, FEMA's National Risk Index (NRI) rates the County as a whole as "Very Low". All 24 census tracts are rated "Relatively Low" or "Very Low" for drought. **Table R-5** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

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

No. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, none of the participating jurisdictions consider specific assets within their jurisdictions vulnerable to drought.

What impacts resulted from the recorded drought events?

Data obtained from the USDA Risk Management Agency, indicates that between 1980 and 2022, two of the four droughts (2005 & 2012) caused an estimated \$27,791,955 in damages to insured crops in Kendall County. Damage information was either unavailable or none was recorded for the remaining two reported occurrences.

Of the five drought events, disaster relief payment information was only available for one of the events. In 1988, landowners and farmers in Illinois were paid in excess of \$382 million in relief payments; however, a breakdown by county was unavailable.

Drought Fast Facts – Impacts/Risk

Drought Impacts:

- ❖ Total Property Damage: *n/a*
- ❖ Total Crop Damage: *\$27.7 million (insured crop only)*

Drought Risk/Vulnerability:

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

What other impacts can result from drought events?

Based on statewide drought records available from the Illinois State Water Survey, the most common impacts that result from drought events in Illinois include reductions in crop yields and drinking water shortages.

Crop Yield Reductions

Kendall County has traditionally been known for its fertile farmland. Farmland accounts for approximately 67% of all the land in the County. According to the 2017 Census of Agriculture, there were 313 farms in Kendall County occupying 137,899 acres. In comparison, there were 364 farms occupying 63% (130,100 acres) of the total land area in the County in 2012. Of the land in farms in 2017, 97% or approximately 133,760 acres are in crop production.

According to the 2017 Census of Agriculture, total crop and livestock sales accounted for \$101.6 million in revenue. This is a 1% decrease in revenue from the 2012 Census of Agriculture when total crop and livestock sales accounted for \$102.6 million. Kendall County ranks 66th in crop cash receipts and 78th in livestock cash receipts. A severe drought would have a major

financial impact on the large agricultural community, particularly if it occurred during the growing season. Dry weather conditions, particularly when accompanied by excessive heat, can result in diminished crop yields and place stress on livestock.

A reduction in crop yields was seen as a result of the 1983, 1988, 2005, and 2012 droughts. **Figure DR-3** illustrates the reduction yields seen for corn and soybeans during the recorded drought events. The USDA's National Agricultural Statistics Service records show that yield reductions for corn were most severe for the 2005 drought when there was a 39.6% reduction in corn yields while yield reductions for soybeans were most severe for the 1988 drought when there was a 26.1% reduction in soybean yields.

Figure DR-3 Crop Yield Reductions Due to Drought – Kendall County				
Year	Corn		Soybeans	
	Yield (bushel)	% Reduction Previous Year	Yield (bushel)	% Reduction Previous Year
1982	137.0	--	39.0	--
1983	90.0	34.3%	37.0	5.1%
1984	94.0	--	27.0	--
1987	139.0	--	44.0	--
1988	86.0	38.1%	32.5	26.1%
1989	149.0	--	44.5	--
2004	182.0	--	52.0	--
2005	110.0	39.6%	41.0	21.2%
2006	184.0	--	53.0	--
2011	165.3	--	54.4	--
2012	102.4	38.1%	43.5	20.0%
2013	182.2	--	51.8	--

Source: USDA, National Agricultural Statistics Service.

Drinking Water Shortages

Municipalities that rely on surface water sources for their drinking water supplies are more vulnerable to shortages as a result of drought. In Kendall County, ***none of the participating municipalities rely exclusively on surface water sources*** for their drinking water supply. According to the Illinois Environmental Protection Agency's Source Water Assessment Program, five of the seven participating municipalities obtain their public water from deep sandstone, bedrock, or shallower sand and gravel aquifers. Residents of Lisbon and Plattville do not have community water supplies and instead rely on private wells of varying depth for their drinking water.

While most of the participating municipalities are less vulnerable to drinking water shortages, a prolonged drought or a series of droughts in close succession do have the potential to impact water levels in aquifers used for individual drinking water wells in rural areas. This is because individual (private) water wells tend to be shallower than municipal (public) water wells.

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

Unlike other natural hazards that affect the County, drought events do not typically cause injuries or fatalities. The primary concern centers on the financial impacts that result from loss of crop yields and livestock and potential drinking water shortages. Even taking into consideration the potential impacts that a water shortage may have on the general public, the risk or vulnerability to public health and safety from drought is *low*.

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

No. In general, existing buildings, infrastructure and critical facilities located in Kendall County and the participating jurisdictions are not vulnerable to drought. The primary concern centers on the financial impacts that result from loss of crop yields and livestock.

While buildings do not typically sustain damage from drought events, in rare cases infrastructure and critical facilities may be directly or indirectly impacted. While uncommon, droughts can contribute to roadway damage. Severe soil shrinkage can compromise the foundation of a roadway and lead to cracking and buckling.

Prolonged heat associated with drought can also increase the demand for energy to operate air conditioners, fans, and other devices. This increase in demand places stress on the electrical grid, which increases the likelihood of power outages.

Additionally, droughts have impacted drinking water supplies. Reductions in aquifer water levels can cause water shortages that jeopardize the supply of water needed to provide drinking water and fight fires. While water use restrictions can be enacted in an effort to maintain a sufficient supply of water, they are only temporary and do not address long-term viability issues. Drinking water supplies vulnerable to drought, such as those that rely solely on surface water or shallow wells, need to consider mitigation measures that will provide long-term stability before a severe drought, or a series of droughts occur. Effective mitigation measures include drilling additional wells, preferably deep wells, securing agreements with alternative water sources and constructing water lines to provide a backup water supply.

In general, the risk or vulnerability to buildings, infrastructure and critical facilities from drought is *low*, even taking into consideration the potential impact a drought may have on drinking water supplies and the stress that prolonged heat may place on the electrical grid.

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

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

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

Unlike other natural hazards there are no standard loss estimation models or methodologies for drought. Since drought typically does not cause structure damage, it is unlikely that future dollar losses will be excessive. The primary concern associated with drought is the financial impacts that result from loss of crop yields and the potential impacts to drinking water supplies. Since a large

part of the County is involved in farming activities, it is likely that there will be future dollar losses to drought. In addition, reduced water levels and the water conservation measures that typically accompany a drought will most likely impact consumers as well as businesses and industries that are water-dependent (i.e., car washes, landscapers, etc.).

3.8 EARTHQUAKES

HAZARD IDENTIFICATION

What is the definition of an earthquake?

An earthquake is a sudden shaking of the ground caused when rocks forming the earth's crust slip or move past each other along a fault (a fracture in the rocks). Most earthquakes occur along the boundaries of the earth's tectonic plates. These slow-moving plates are being pulled and dragged in different directions, sliding over, under and past each other. Occasionally, as the plates move past each other, their jagged edges will catch or stick causing a gradual buildup of pressure (energy).

Eventually, the force exerted by the moving plates overcomes the resistance at the edges and the plates snap into a new position. This abrupt shift releases the pent-up energy, producing vibrations or seismic waves that travel outward from the earthquake's point of origin. The location below the earth's surface where the earthquake starts is known as the hypocenter or focus. The point on the earth's surface directly above the focus is the epicenter.

The destruction caused by an earthquake may range from light to catastrophic depending on a number of factors including the magnitude of the earthquake, the distance from the epicenter, the local geologic conditions as well as construction standards and time of day (i.e., rush hour). Earthquake damage may include power outages, general property damage, road, and bridge failure, collapsed buildings and utility damage (ruptured gas lines, broken water mains, etc.).

Most of the damage done by an earthquake is caused by its secondary or indirect effects. These secondary effects result from the seismic waves released by the earthquake and include ground shaking, surface faulting, liquefaction, landslides and, in rare cases, tsunamis.

According to the U.S. Geological Survey, more than 143 million Americans in the contiguous U.S. are exposed to potentially damaging ground shaking from earthquakes. More than 44 million of those Americans, located in 18 states, are exposed to very strong ground shaking from earthquakes. Illinois ranks 10th in terms of the number of individuals exposed to very strong ground shaking. The Federal Emergency Management Agency's Hazus analysis indicates that the annualized earthquake losses to the national building stock is \$6.1 billion per year. A majority of the average annual loss is concentrated in California (\$3.7 billion). The central U.S. (including Illinois) ranks third in annualized earthquake losses at \$480 billion, behind the Pacific Northwest (Washington and Oregon) with annualized earthquake losses at \$710 billion.

What is a fault?

A fault is a fracture or zone of fractures in the earth's crust between two blocks of rock. They may range in length from a few millimeters to thousands of kilometers. Many faults form along tectonic plate boundaries. Faults are classified based on the angle of the fault with respect to the surface (known as the dip) and the direction of slip or movement along the fault. There are three main groups of faults: normal, reverse (thrust) and strike-slip (lateral).

Normal faults occur in response to pulling or tension along the two blocks of rock causing the overlying block to move down the dip of the fault plane. Most of the faults in Illinois are normal faults. Reverse or thrust faults occur in response to squeezing or compression of the two blocks of rock causing the overlying block to move up the dip of the fault plane. Strike-slip or lateral faults can occur in response to either pulling/tension or squeezing/compression causing the blocks to move horizontally past each other.

Geologists have found that earthquakes tend to recur along faults, which reflect zones of weakness in the earth's crust. Even if a fault zone has recently experienced an earthquake, there is no guarantee that all the stress has been relieved. Another earthquake could still occur.

What are tectonic plates?

Tectonic plates are large, irregularly-shaped, relatively rigid sections of the earth's crust that float on the top, fluid layer of the earth's mantle. There are about a dozen tectonic plates that make up the surface of the planet. These plates are approximately 50 to 60 miles thick and the largest are millions of square miles in size.

How are earthquakes measured?

The severity of an earthquake is measured in terms of its magnitude and intensity. A brief description of both terms and the scales used to measure each are provided below.

Magnitude

Magnitude refers to the amount of seismic energy released at the hypocenter of an earthquake. The magnitude of an earthquake is determined from measurements of ground vibrations recorded by seismographs. As a result, magnitude is represented as a single, instrumentally determined value. A loose network of seismographs has been installed all over the world to help record and verify earthquake events.

There are several scales that measure the magnitude of an earthquake. The most well-known is the Richter Scale. This logarithmic scale provides a numeric representation of the magnitude of an earthquake through the use of whole numbers and decimal fractions. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in ground vibrations measured. In addition, each whole number increase corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number. It is important to note that the Richter Scale is used only to determine the magnitude of an earthquake, it does not assess the damage that results.

Once an earthquake's magnitude has been confirmed, it can be classified. **Figure EQ-1** categorizes earthquakes by class based on their magnitude (i.e., Richter Scale value). Any earthquake with a magnitude less than 3.0 on the Richter Scale is classified as a micro earthquake while any earthquake with a magnitude of 8.0 or greater on the Richter Scale is considered a "great" earthquake. Earthquakes with a magnitude of 2.0 or less are not commonly felt by individuals. The largest earthquake to occur in the U.S. since 1900 took place off the coast of Alaska in Prince William Sound on March 28, 1964 and registered a 9.2 on the Richter Scale.

Intensity

Intensity refers to the effect an earthquake has on a particular location. The intensity of an earthquake is determined from observations made of the damage inflicted on individuals, structures, and the environment. As a result, intensity does not have a mathematical basis; instead, it is an arbitrary ranking of observed effects. In addition, intensity generally diminishes with distance. There may be multiple intensity recordings for a region depending on a location's distance from the epicenter.

Figure EQ-1 Earthquake Magnitude Classes	
Class	Magnitude (Richter Scale)
micro	smaller than 3.0
minor	3.0 – 3.9
light	4.0 – 4.9
moderate	5.0 – 5.9
strong	6.0 – 6.9
major	7.0 – 7.9
great	8.0 or larger

Source: Michigan Technological University, UPSeis

Although numerous intensity scales have been developed over the years, the one currently used in the U.S. is the Modified Mercalli Intensity Scale. This scale, composed of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals. The lower numbers of the intensity scale are based on human observations (i.e., felt only by a few people at rest, felt quite noticeably by persons indoors, etc.).

The higher numbers of the scale are based on observed structural damage (i.e., broken windows, general damage to foundations etc.). Structural engineers usually contribute information when assigning intensity values of VIII or greater. **Figure EQ-2** provides a description of the damages associated with each level of intensity as well as comparing Richter Scales values to Modified Mercalli Intensity Scale values.

Generally, the Modified Mercalli Intensity value assigned to a specific site after an earthquake is a more meaningful measure of severity to the general public than magnitude because intensity refers to the effects actually experienced at that location.

When and where do earthquakes occur?

Earthquakes can strike any location at any time. However, history has shown that most earthquakes occur in the same general areas year after year, principally in three large zones around the globe. The world's greatest earthquake belt, the circum-Pacific seismic belt (nicknamed the "Ring of Fire"), is found along the rim of the Pacific Ocean, where about 81 percent of the world's largest earthquakes occur.

The second prominent belt is the Alpide, which extends from Java to Sumatra and through the Himalayan Mountains, the Mediterranean Sea and out into the Atlantic Ocean. It accounts for about 17 percent of the world's largest earthquakes, including those in Iran, Turkey, and Pakistan. The third belt follows the submerged mid-Atlantic Ridge, the longest mountain range in the world, nearly splitting the entire Atlantic Ocean north to south.

While most earthquakes occur along plate boundaries some are known to occur within the interior of a plate. (As the plates continue to move and plate boundaries change over time, weakened boundary regions become part of the interiors of the plates.) Earthquakes can occur along zones

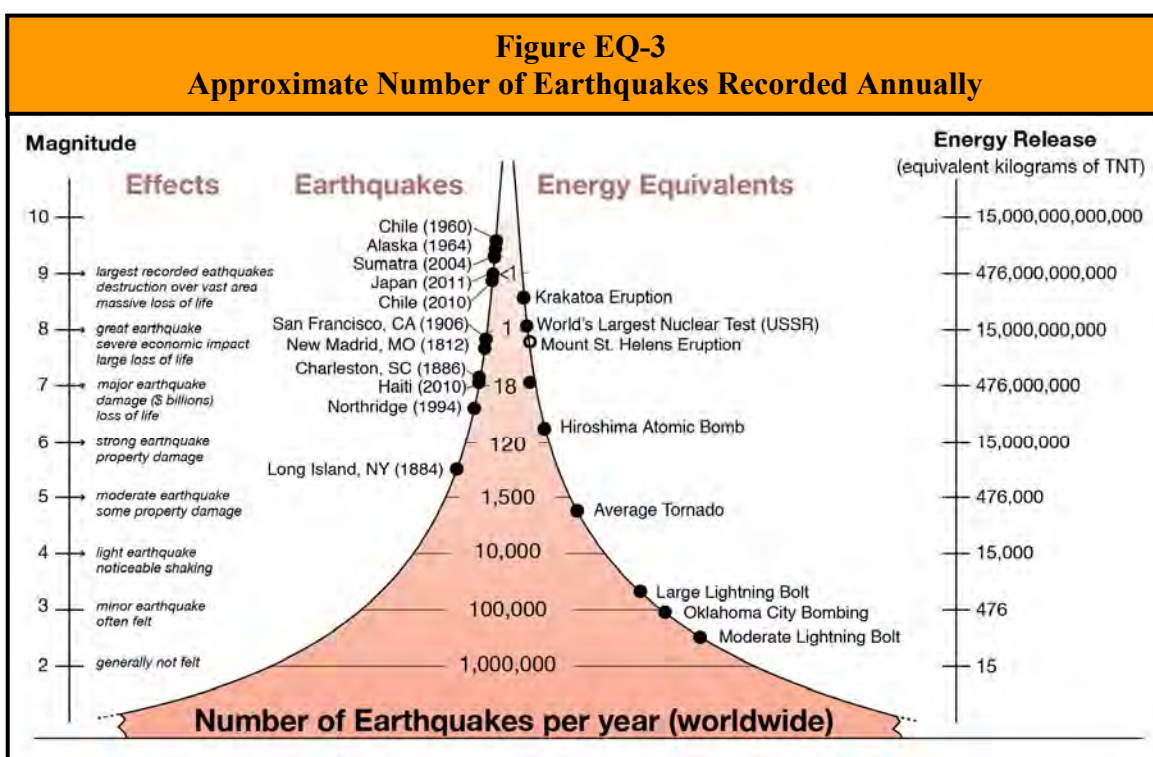
of weakness within a plate in response to stresses that originate at the edges of the plate or from deep within the earth's crust. The New Madrid earthquakes of 1811 and 1812 occurred within the North American plate.

Figure EQ-2 Comparison of Richter Scale and Modified Mercalli Intensity Scale		
Richter Scale	Modified Mercalli Scale	Observations
1.0 – 1.9	I	Felt by very few people; barely noticeable. No damage.
2.0 – 2.9	II	Felt by a few people, especially on the upper floors of buildings. No damage.
3.0 – 3.9	III	Noticeable indoors, especially on the upper floors of buildings, but may not be recognized as an earthquake. Standing cars may rock slightly; vibrations similar to the passing of a truck. No damage.
4.0	IV	Felt by many indoors and a few outdoors. Dishes, windows, and doors disturbed. Standing cars rocked noticeably. No damage.
4.1 – 4.9	V	Felt by nearly everyone. Small, unstable objects displaced or upset; some dishes and glassware broken. Negligible damage.
5.0 – 5.9	VI	Felt by everyone. Difficult to stand. Some heavy furniture moved. Weak plaster may fall and some masonry, such as chimneys, may be slightly damaged. Slight damage.
6.0	VII	Slight to moderate damage to well-built ordinary structures. Considerable damage to poorly-built structures. Some chimneys may break. Some walls may fall.
6.1 – 6.9	VIII	Considerable damage to ordinary buildings. Severe damage to poorly built buildings. Some walls collapse. Chimneys, monuments, factory stacks, columns fall.
7.0	IX	Severe structural damage in substantial buildings, with partial collapses. Buildings shifted off foundations. Ground cracks noticeable.
7.1 – 7.9	X	Most masonry and frame structures and their foundations destroyed. Some well-built wooden structures destroyed. Train tracks bent. Ground badly cracked. Landslides.
8.0	XI	Few, if any structures remain standing. Bridges destroyed. Wide cracks in ground. Train tracks bent greatly. Wholesale destruction.
> 8.0	XII	Total damage. Lines of sight and level are distorted. Waves seen on the ground. Objects thrown up into the air.

Sources: Michigan Technological University, Department of Geological and Mining Engineering and Sciences, UPSeis.
U.S. Geological Survey.

How often do earthquakes occur?

Earthquakes occur every day. Magnitude 2 and smaller earthquakes occur several hundred times a day worldwide. These earthquakes are known as micro earthquakes and are generally not felt by humans. Major earthquakes, greater than magnitude 7, generally occur at least once a month. **Figure EQ-3** illustrates the approximate number of earthquakes that occur worldwide per year based on magnitude. This figure also identifies manmade and natural events that release approximately the same amount of energy for comparison.



Source: Incorporated Research Institutions for Seismology, Education and Outreach Series, "How Often Do Earthquakes Occur?"

HAZARD PROFILE

The following details the location of known fault zones and geologic structures, identifies past occurrences of earthquakes, details the severity or extent of each event (if known); identifies the locations potentially affected and estimates the likelihood of future occurrences.

Are there any faults located within the County?

Yes, there is one known fault zone located in Kendall County. The Sandwich Fault Zone is approximately 85 miles long and runs northwest-southeast across northern Illinois, from central Ogle County to southern Will County and is the largest fault zone in northern Illinois. This fault varies in width from ½ mile to 2 miles wide. **Figure EQ-4** illustrates the location of these geologic structures.

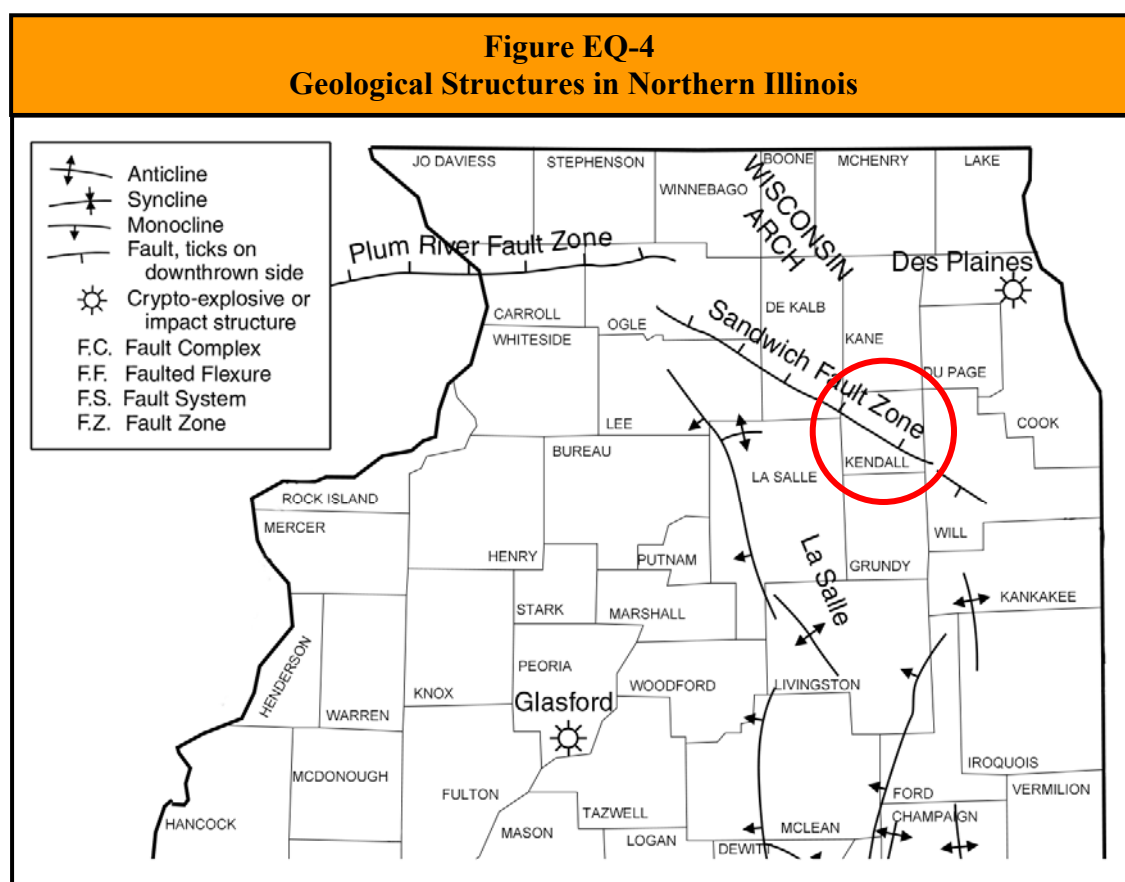
When have earthquakes occurred previously? What is the extent of these previous quakes?

According to the Illinois State Geological Survey (ISGS), the U.S. Geological Survey and Center for Earthquake Research and Information (CERI) at the University of Memphis, one earthquake originated in Kendall

Earthquake Fast Facts – Occurrences

Earthquakes Originating in the County (1795 – 2022): **1**
 Fault Zones Located within the County: **1**
 Geological Structures Located within the County: **None**
 Earthquakes Originating in Adjacent Counties (1795-2022): **6**
 Fault Zones Located in Nearby Counties: **None**
 Geologic Structures Located in Adjacent Counties: **1**

County during the last 200 years. On January 2, 1912, an estimated 4.0 to 4.9 magnitude earthquake originated northwest of Lisbon. This earthquake has an intensity rating of VI on the Modified Mercalli Intensity Scale.



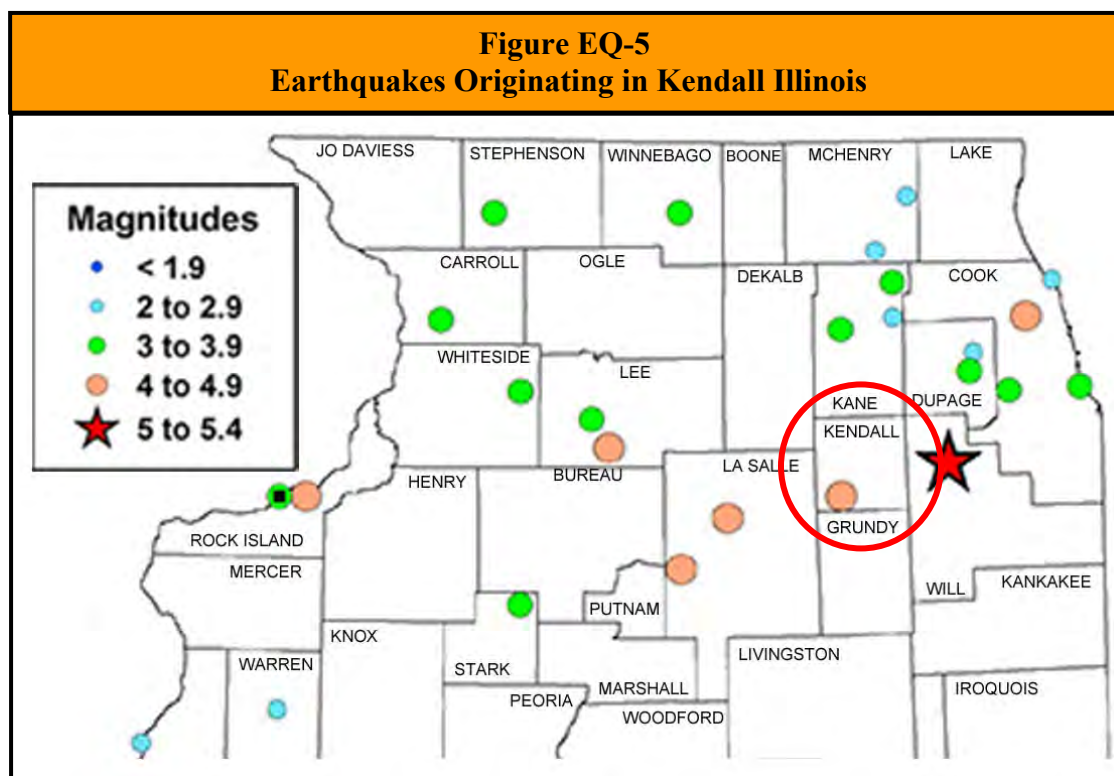
Source: Illinois State Geological Survey.

Additionally, County residents have felt ground shaking caused by earthquakes that have originated outside of the County. The following provides a brief description of these events while **Figure EQ-5** illustrates the epicenters this and nearby earthquakes.

Northeastern Illinois

Six earthquakes have originated in nearby LaSalle, Kane, and Will Counties. The following provides a brief description of each.

- ❖ On February 10, 2010 a magnitude 3.8 earthquake took place approximately two miles northeast of Virgil in Kane County. This earthquake was felt over much of Illinois, Indiana and central and southern Wisconsin. This earthquake had an intensity of IV on the Modified Mercalli Intensity Scale.
- ❖ An earthquake with a magnitude of 4.1 originated approximately eight miles northwest of Ottawa in LaSalle County on January 28, 2004. Ground shaking was felt across six states. This earthquake had an intensity of V on the Modified Mercalli Intensity Scale.



Source: Illinois State Geological Survey.

- ❖ On March 16, 1947, an earthquake with an estimated magnitude 2.6 originated in West Dundee in Kane County. This earthquake had an intensity of IV on the Modified Mercalli Intensity Scale.
- ❖ An earthquake with an estimated magnitude of 2.6 in South Elgin in Kane County on March 16, 1944. This earthquake had an intensity of IV on the Modified Mercalli Intensity Scale.
- ❖ On May 26, 1909, an earthquake with a magnitude of 5.1 originated somewhere in where Will, Kendall, Kane, and DuPage Counties meet. The exact location of this earthquake isn't known. No intensity rating was available for this event.
- ❖ An earthquake with an estimated magnitude of 4.4 originated approximately two miles west of Oglesby in LaSalle County on May 27, 1881. This earthquake had an intensity of VI on the Modified Mercalli Intensity Scale.

Northern Illinois

In addition to the above referenced event, there have been approximately two dozen other earthquakes that have occurred in northern Illinois in the last century, though none of them were greater than a magnitude 5.1. These earthquakes generally caused minor damage within 10 to 20 miles of the epicenter and were felt over several counties. Earthquakes greater than a magnitude 5 are generally not expected in this region. The following highlights a few of the other recent earthquakes that have taken place in northern Illinois.

- ❖ A magnitude 3.6 earthquake took place on November 6, 2023 approximately one mile from Standard in Putnam County. This earthquake had an intensity of IV on the Modified Mercalli Intensity Scale.

- ❖ On March 25, 2015 a magnitude 2.9 earthquake took place at Lake in the Hills in McHenry County. This earthquake was felt over several counties. Damage information was unavailable for this event. This earthquake had an intensity of IV on the Modified Mercalli Intensity Scale.
- ❖ A magnitude 3.2 earthquake took place on November 4, 2013 on the east side of McCook in Cook County. This earthquake was felt mainly in the Chicago metro area. No intensity rating was available for this event.

Southern Illinois

In addition to the above referenced events, Kendall County residents also felt ground shaking caused by several earthquakes that have originated in southern Illinois. The following provides a brief description of a few of the larger events that have occurred.

- ❖ On April 18, 2008, a magnitude 5.2 earthquake was reported in southeastern Illinois near Bellmont in Wabash County. The earthquake was located along the Wabash Valley seismic zone. Minor structural damage was reported in several towns in Illinois and Kentucky. Ground shaking was felt over all or parts of 18 states in the central U.S. and southern Ontario, Canada.
- ❖ A magnitude 5.2 earthquake took place on June 10, 1987, in southeastern Illinois near Olney in Richland County. This earthquake was also located along the Wabash Valley seismic zone. Only minor structural damage was reported in several towns in Illinois and Indiana. Ground shaking was felt over all or parts of 17 states in the central and eastern U.S. and southern Ontario, Canada.
- ❖ The strongest earthquake in the central U.S. during the 20th century occurred along the Wabash Valley seismic zone in southeastern Illinois near Dale in Hamilton County. This magnitude 5.4 earthquake occurred on November 9, 1968, with an intensity estimated at VII for the area surrounding the epicenter. Moderate structural damage was reported in several towns in south-central Illinois, southwest Indiana, and northwest Kentucky. Ground shaking was felt over all or parts of 23 states in the central and eastern U.S. and southern Ontario, Canada.

Three of the ten largest earthquakes ever recorded within the continental U.S. took place in 1811 and 1812 along the New Madrid seismic zone. This zone lies within the central Mississippi Valley and extends from northeast Arkansas through southeast Missouri, western Tennessee, western Kentucky, and southern Illinois. These magnitude 7.5 and 7.3 major earthquakes were centered near the town of New Madrid, Missouri and caused widespread devastation to the surrounding region and were felt by people in cities as far away as Pittsburgh, Pennsylvania and Norfolk, Virginia.

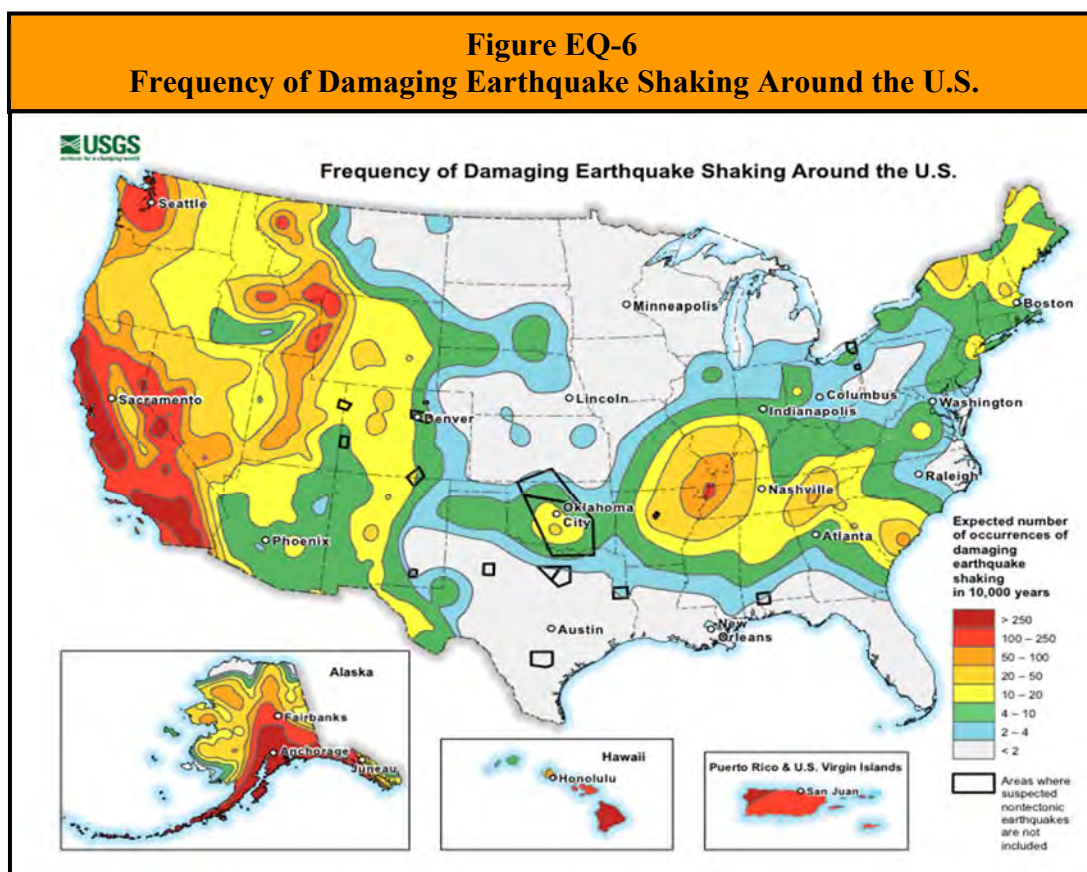
The quakes locally changed the course of the Mississippi River creating Reelfoot Lake in northwestern Tennessee. These earthquakes were not an isolated incident. The New Madrid seismic zone is one of the most seismically active areas of the U.S. east of the Rockies. Since 1974 more than 4,000 earthquakes have been recorded within this seismic zone, most of which were too small to be felt.

What locations are affected by earthquakes? What is the extent of future potential earthquakes?

Earthquake events generally affect the entire County. Earthquakes, like drought, impact large areas extending across an entire region and affecting multiple counties. Kendall County's

proximity to multiple fault zones, both large and small, makes the entire area likely to be affected by an earthquake if these faults become seismically active.

According to the USGS, Kendall County can expect 2 to 10 occurrences of damaging earthquake shaking over a 10,000-year period. **Figure EQ-6** illustrates the frequency of damaging earthquake shaking around the U.S.



Source: U.S. Geological Survey.

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

As with flooding, calculating the probability of future earthquakes changes depending on the magnitude of the event. According to the ISGS, Illinois is expected to experience a magnitude 3.0 earthquake every year, a magnitude 4.0 earthquake every four years and a magnitude 5.0 earthquake every 20 years. The likelihood of an earthquake with a magnitude of 6.3 or greater occurring somewhere in the central U.S. within the next 50 years is between 86% and 97%.

While the major earthquakes of 1811 and 1812 do not occur often along the New Madrid fault, they are not isolated events. In recent decades, scientists have collected evidence that earthquakes similar in size and location to those felt in 1811 and 1812 have occurred several times before within the central Mississippi Valley around 1450 A.D., 900 A.D. and 2350 B.C.

The general consensus among scientists is that earthquakes similar to the 1811-1812 earthquakes are expected to recur on average every 500 years. The U.S. Geological Survey and the Center for Earthquake Research and Information (CERI) at the University of Memphis estimates that for a 50-year period the probability of a repeat of the 1811-1812 earthquakes is between 7% and 10% and the probability of an earthquake with a magnitude of 6.0 or larger is between 25% and 40%.

HAZARD VULNERABILITY

The following describes the vulnerability to participating jurisdictions, identifies the impacts on public health and property (if known) and estimates the potential impacts on public health and safety as well as buildings, infrastructure, and critical facilities from earthquakes.

Are the participating jurisdictions vulnerable to earthquakes?

Yes. All of Kendall County is vulnerable to earthquakes. The unique geological formations topped with glacial drift soils found in the central U.S. conduct an earthquake's energy farther than in other parts of the Nation. Consequently, earthquakes that originate in the Midwest tend to be felt at greater distances than earthquakes with similar magnitudes that originate on the West Coast.

Earthquake Fast Facts – Risk

Earthquake Risk/Vulnerability:

- ❖ Public Health & Safety – Light/Moderate Quake within the County or immediate region: **Low**
- ❖ Public Health & Safety – Strong Quake within the County or immediate region: **Low to Medium**
- ❖ Buildings/Infrastructure/Critical Facilities – Light/Moderate Quake within the County or immediate region: **Low**
- ❖ Buildings/Infrastructure/Critical Facilities – Strong Quake within the County or immediate region: **Low to Medium**

This vulnerability, found throughout most of Illinois and all of Kendall County, is compounded by relatively high water tables within the region. When earthquake shaking mixes the groundwater and soil, ground support is further weakened thus adding to the potential structural damages experienced by buildings, roads, bridges, electrical lines, and natural gas pipelines.

The infrequency of major earthquakes, coupled with relatively low magnitude/intensity of past events, has led the public to perceive that Kendall County is not vulnerable to damaging earthquakes. This perception has allowed the County and participating municipalities to develop largely without regard to earthquake safety.

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

For earthquakes, FEMA's National Risk Index (NRI) rates the County as a whole as "relatively low". All 24 census tracts are rated "Relatively Low" or "Very Low" for earthquakes. **Table R-5** presents the overall NRI scores and ratings for each census tract as well as for the County as a whole.

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

No. Based on responses to an Assets Vulnerability Survey distributed to the participating jurisdictions, none of the participating jurisdictions consider specific assets within their jurisdictions vulnerable to earthquakes.

What impacts resulted from the recorded earthquake events?

Property damage figures were either unavailable or none were recorded, and no injuries or fatalities were reported as a result of the January 2, 1912 earthquake that originated in Kendall County. While Kendall County residents felt the earthquakes that have occurred in Illinois, no damages were reported as a result of these events. Given the magnitude of the great earthquakes of 1811 and 1812, it is almost certain that individuals in what is now Kendall County felt those quakes; however, historical records do not indicate the intensity or impacts that these quakes had on the County.

What other impacts can result from earthquakes?

Earthquakes can impact human life, health, and public safety. **Figure EQ-7** details the potential impacts that may be experienced by the County should a magnitude 6.0 or greater earthquake occur in the region.

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

The risk or vulnerability to public health and safety from an earthquake is dependent on the intensity and location of the event. Since there is one known fault in Kendall County, there is the possibility that another earthquake will originate in the County at some point in the future and cause damage. However, there have not been any earthquakes associated with these faults in the last 200 years and the fault zones in northern Illinois are not expected to produce an earthquake greater than a magnitude 5.0. Therefore, if a light earthquake originates within the County or from the structures in the immediate region, the risk or vulnerability to public health and safety is considered *low*. This risk is elevated to *low to medium* for a strong earthquake originating in the immediate region and *medium* for a strong earthquake originating within the County.

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

Yes. All existing buildings, infrastructure and critical facilities located in Kendall County and the participating jurisdictions are vulnerable to damage from earthquakes. However, given the County's size (about 131,000 individuals), its population density, the fact that there are few buildings higher than two stories (with the exception of grain elevators and multi-story buildings in Oswego) tempered by the low potential for magnitude 5.0 and above earthquakes to occur in the immediate region, the damage is anticipated to be slight with only superficial structure damage such as broken windows and cracks in weak plaster and masonry.

If a strong earthquake (6.0 – 6.9) were to occur in the region, then unreinforced masonry buildings are most at risk during an earthquake because the walls are prone to collapse outward. Steel and wood buildings have more ability to absorb the energy from an earthquake while wood buildings with proper foundation ties have rarely collapsed in earthquakes. In this scenario building damage in Kendall County would range from moderate to considerable for well-built ordinary structures and considerable to severe for poorly-built structures. **Figure EQ-8**, located at the end of this

section, identifies the number of unreinforced masonry buildings that serve as critical facilities within the participating jurisdictions.

Figure EQ-7 Potential Earthquake Impacts	
Direct	Indirect
<p><i>Buildings</i></p> <ul style="list-style-type: none"> • Temporary displacement of businesses, households, schools, and other critical services where heat, water and power are disrupted • Long-term displacement of businesses, households, schools, and other critical services due to structural damage or fires <p><i>Transportation</i></p> <ul style="list-style-type: none"> • Damages to bridges (i.e., cracking of abutments, subsidence of piers/supports, etc.) • Cracks in the pavement of critical roadways • Increased traffic on Interstate, U.S., and State Routes (especially if the quake originates along the Sandwich Fault Zone) as residents move out of the area to seek shelter and medical care and as emergency response, support services and supplies move south to aid in recovery • Misalignment of rail lines due to landslides (most likely near stream crossings), fissures and/or heaving <p><i>Utilities</i></p> <ul style="list-style-type: none"> • Downed power and communication lines • Breaks in drinking water and sanitary sewer lines resulting in the temporary loss of service • Disruptions in the supply of natural gas due to cracking and breaking of pipelines <p><i>Health</i></p> <ul style="list-style-type: none"> • Injuries/deaths due to falling debris and fires <p><i>Other</i></p> <ul style="list-style-type: none"> • Cracks in the earthen dams of the lakes and reservoirs within the County which could lead to dam failures 	<p><i>Health</i></p> <ul style="list-style-type: none"> • Use of County health facilities (especially if the quake originates along the New Madrid Fault) to treat individuals injured closer to the epicenter • Emergency services (ambulance, fire, law enforcement) may be needed to provide aid in areas where damage was greater <p><i>Other</i></p> <ul style="list-style-type: none"> • Disruptions in land line telephone service throughout an entire region (i.e., central and southern Illinois) • Depending on the seasonal conditions present, more displacements may be expected as those who may not have enough water and food supplies seek alternate shelter due to temperature extremes that make their current housing uninhabitable

An earthquake also has the ability to damage infrastructure and critical facilities such as roads and utilities. In the event of a major earthquake, bridges are expected to experience moderate damage such as cracking in the abutments and subsidence of piers and supports. The structural integrity may be compromised to the degree where safe passage is not possible, resulting in adverse travel times as alternate routes are taken. Some rural families may become isolated where alternate paved routes do not exist. In addition, cracks may form in the pavement of key roadways. **Figure R-6** lists the number of each type of critical infrastructure by jurisdiction.

An earthquake may also down overhead power and communication lines causing power outages and disruptions in communications. Cracks or breaks may form in natural gas pipelines and

drinking water and sewage lines resulting in temporary loss of service. In addition, an earthquake could cause cracks to form in the earthen dams located within the County, increasing the likelihood of a dam failure.

As with public health and safety, the risk or vulnerability to buildings, infrastructure and critical facilities is dependent on the intensity and location of the event. The risk to buildings, infrastructure and critical facilities is considered to be **low** for a light to moderate earthquake that originates within the County or immediate region. This risk is elevated to **low/medium** for a strong earthquake originating in the immediate region and **medium** for a strong earthquake originating within the County.

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

Yes. All future buildings, infrastructure and critical facilities located in Kendall County and the participating jurisdictions are vulnerable to damage from earthquakes. While the County and all of the participating municipalities, with the exception of Lisbon and Plattville, have building codes in place, these codes do not contain seismic provisions that address structural vulnerability for earthquakes. As a result, there is the potential for future buildings, infrastructure, and critical facilities to face the same vulnerabilities as those of existing buildings, infrastructure, and critical facilities described previously.

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

Since property damage information was either unavailable or none was recorded for the documented earthquakes that impacted Kendall County, there is no way to accurately estimate future potential dollar losses to vulnerable structures. However, according to County officials the total equalized assessed values of all residential, commercial, and industrial buildings in the planning area is \$4,444,350,435. Since all of the structures in the planning area are susceptible to earthquake impacts to varying degrees, this total represents the countywide property exposure to earthquake events.

Given Kendall County's proximity to geologic structures and fault zones, both large and small, and the fact that all structures within the County are vulnerable to damage, it is likely that there will be future dollar losses from any earthquake ranging from strong to great. As a result, participating jurisdictions were asked to consider mitigation projects that could provide wide ranging benefits for reducing the impacts or damages associated with earthquakes.

Figure EQ-8
Number of Unreinforced Masonry Buildings Serving as Critical Facilities by Jurisdiction

Participating Jurisdiction	Government ¹	Law Enforcement	Fire Stations	Ambulance Service	Schools	Drinking Water	Wastewater Treatment	Medical ²	Healthcare Facilities ³
Kendall County	---	---	---	---	---	---	---	---	---
Lisbon	---	---	---	---	---	---	---	---	---
Montgomery	---	---	---	---	---	---	---	---	---
Newark	---	---	---	---	---	---	---	---	---
Oswego	---	---	---	---	---	---	---	---	---
Plano	---	---	---	---	---	---	---	---	---
Plattville	1	---	---	---	---	---	---	---	---
Yorkville	2	---	---	---	7	---	---	---	---
Kendall Township	---	---	---	---	---	---	---	---	---
Oswego Township	2	---	---	---	---	---	---	---	---
Lisbon CCSD #90	---	---	---	---	1	---	---	---	---
Newark CHSD #18	---	---	---	---	---	---	---	---	---
Oswego CUSD #308	---	---	---	---	---	---	---	---	---
Parkview Christian Academy	---	---	---	---	1	---	---	---	---
Plano CUSD #88	---	---	---	---	5	---	---	---	---
St. Mary Catholic School	---	---	---	---	1	---	---	---	---
Bristol-Kendall FPD	---	---	---	---	---	---	---	---	---
Lisbon-Seward FPD	---	---	---	---	---	---	---	---	---
Newark FPD	1	---	1	1	2	---	---	---	---
Oswego FPD	---	---	---	---	---	---	---	---	---
Sandwich Community FPD	1	---	---	---	7	---	---	---	---
Oswegoland Park District	---	---	---	---	---	---	---	---	---

¹ Government includes: courthouses, city/village halls, township buildings, highway/road maintenance centers, etc.

² Medical includes: public health departments, hospitals, urgent/prompt care, and medical clinics.

³ Healthcare Facilities include: nursing homes, skilled care facilities, memory care facilities, residential group homes, etc.

--- Indicates jurisdiction does not own/maintain any critical facilities within that category.

3.9 MAN-MADE HAZARDS

While the focus of this Plan update is on natural hazards, an *overview of selected man-made hazards* has been included. The Committee recognizes that man-made hazards can also pose risks to public health and property. The extent and magnitude of the impacts that result from man-made hazard events can be influenced by natural hazard events. For example, severe winter storms can cause accidents involving trucks transporting hazardous substances. These accidents may lead to the release of these substances, which can result in injury and potential contamination of the natural environment.

Consequently, the Planning Committee decided to summarize the more prominent man-made hazards in Kendall County. The man-made hazards profiled in this Plan update include:

- ❖ Hazardous Substances
 - Generation
 - Transportation
 - Storage/Handling
- ❖ Hazardous Material Incidents
- ❖ Hazardous Waste Remediation
- ❖ Nuclear Incidents
- ❖ Terrorism
- ❖ Waste Disposal

While the man-made hazards risk assessment does not have the same depth as the natural hazards risk assessment, it does provide useful information that places the various man-made hazards in perspective.

3.9.1 Hazardous Substances

Hazardous substances broadly include any flammable, explosive, biological, chemical, or physical material that has the potential to harm public health or the environment. For the purposes of this Plan, the term hazardous substance includes hazardous product and hazardous waste. A hazardous waste is defined as the byproduct of a manufacturing process that is either listed or has the characteristics of ignitability, corrosivity, reactivity, or toxicity and cannot be reused. A hazardous product is all other hazardous material.

Hazardous substances can pose a public health threat to individuals at their workplace and where they reside. The type and quantity of the substance, the pathway of exposure (inhalation, ingestion, dermal, etc.), and the frequency of exposure are factors that will determine the risk of adverse health effects experienced by individuals. Impacts can range from minor, short-term health issues to chronic, long-term illnesses.

In addition to impacting public health, hazardous substances can also cause damage to buildings, infrastructure, and the environment. Incidents involving hazardous substances can range from minor (scarring on building floors and walls) to catastrophic (i.e., destruction of entire buildings, structural damage to roadways, etc.) and lead to injuries and fatalities. The number of incidents involving hazardous substances in Illinois and across the U.S. every year underscores the need for trained and equipped emergency responders to minimize damages.

Since 1970, significant changes have occurred in regard to how hazardous substances are transported and disposed. Comprehensive regulations and improved safety and industrial hygiene practices have reduced the frequency of incidents involving hazardous substances. Based on the

small number of facilities in Kendall County that generate and use hazardous substances, the population size, transportation patterns, and land use, the probability of a release occurring in Kendall County should remain similar to other counties in Illinois. The relatively low numbers of transportation incidents should not diminish municipal or county commitment to emergency management.

HAZARD PROFILE – HAZARDOUS SUBSTANCES

The following subsections identify the general pathways – generation, transportation, and storage/handling – by which hazardous substances pose a risk to public health and the environment in Kendall County.

3.9.1.1 Generation

Kendall County has two facilities that generate reportable quantities of hazardous substances as a result of their operations according to the U.S. Environmental Protection Agency (USEPA) Toxic Release Inventory. **Figure MMH-1** identifies the hazardous substance generators located in Kendall County and summarizes the substances generated.

Hazardous Substances Fast Facts - Occurrences

Generation

Number of Facilities that Generate Reportable Quantities of Hazardous Substances (2021): **2**

Transportation

Number of Roadway Incidents Involving Hazardous Substance Shipments (2012 - 2021): **11**

Number of Railway Accidents/Incidents Involving Hazardous Substance Shipments (2012 - 2021): **1**

Number of Pipeline Incidents Involving Hazardous Substances (2012 - 2021): **3**

Storage/Handling

Number of Facilities that Store/Handle Hazardous Substances (2021): **41**

Number of Facilities that Store/Handle Extremely Hazardous Substances (2021): **13**

Figure MMH-1
Generators of Solid & Liquid Hazardous Substances – 2021

Name	Hazardous Substances Generated	Amount Generated (Pounds)
Plano		
Midwest Manufacturing Treating Plant	Copper compounds	0
	<i>Total:</i>	<i>0</i>
Plano Metal Specialties Inc	Copper	106
	Lead compounds	3
	<i>Total:</i>	<i>109</i>

Source: U.S. Environmental Protection Agency, TRI Explorer, Releases: Facility Report.

3.9.1.2 Transportation

Roadways

Illinois has the nation's third largest interstate system and third largest inventory of bridges. According to the Illinois Department of Transportation, there were just over 147,000 miles of highways and streets in Illinois in 2021. Most of the truck traffic in Kendall County is carried on Interstate 80. Other major roadways that carry truck traffic include U.S. Route 30, U.S. Route 34, U.S. Route 52, Illinois Route 25, Illinois Route 31, Illinois Route 47, Illinois Route 71, and Illinois Route 126. While this modern roadway system provides convenience and efficiency for

commuters, it also aids inter-state and intra-state commerce which includes the transportation of hazardous substances. A Commodity Flow Study to gauge chemical transport has not been conducted for Kendall County.

According to records obtained from the Illinois Emergency Management Agency (IEMA), there were 11 recorded roadway incidents involving the shipment of hazardous substances in Kendall County between 2012 through 2021. **Figure MMH-2** provides information on these incidents.

Figure MMH-2 Roadway Incidents* Involving Shipments of Hazardous Substances 2012 – 2021				
Date	Area	Location	Hazardous Product Released	Quantity Released
9/10/2012	Plainfield [^]	IL Route 126, east of Ridge Rd & west of County Line Rd	Diesel fuel	Unknown
7/24/2014	Aurora	South Orchard Rd	Diesel fuel Hydraulic fluid	5 gallons 25 gallons
9/11/2015	Minooka [^]	U.S. 52 & Grove Rd	Gasoline	200 gallons
3/3/2016	Yorkville [^]	IL Route 47 & Galena Rd	Diesel fuel	Unknown
3/4/2016	Yorkville [^]	IL Route 47 & Galena Rd	Diesel fuel	20 gallons
11/16/2016	Minooka [^]	Ashley Rd & White Willow Rd	Anhydrous ammonia	3,000 gallons
10/11/2017	Minooka [^]	I-80, eastbound MP 122	Motor oil	330 gallons
1/22/2018	Yorkville [^]	IL Route 71 & Highpoint Rd	Hydraulic oil & Diesel fuel	Unknown
2/13/2018	Lisbon [^]	IL Route 47, south of U.S. Route 52	Diesel fuel	25 gallons
7/2/2020	Minooka [^]	I-80, eastbound exit 122	Diesel fuel	25 gallons
8/24/2021	Yorkville [^]	IL Route 47 & Walker Rd	Diesel fuel	Unknown

* For the purposes of this report a roadway incident is generally defined as an accident/incident that occurs while in the process of transporting a hazardous substance(s) on a highway, roadway, access drive, field entrance, rest area or parking lot. Vehicles that experience a release while refueling are not considered roadway incidents but are instead considered fixed facility incidents.

[^] Accident verified in the vicinity of this area.

Railways

Illinois' rail system is the country's second largest, with the East St. Louis and Chicago terminals being two of the busiest in the nation. In Kendall County there is one Class I rail line operated by Burlington Northern Santa Fe Railway. According to the Association of American Railroads, 3,796,300 carloads (125.9 million tons) of freight originated in Illinois in 2019 (the latest year for which data is available). Chemicals accounted for 101,100 carloads (9.7 million tons) or 2.8% of the total freight handled. In comparison, 27,549,000 carloads of freight originated in the U.S. in 2019 with approximately 2,014,000 carloads (7.1%) involved in the transport of chemicals.

The Illinois Commerce Commission (ICC) is required to maintain records on railway accidents/incidents that involve hazardous substances. Their records are divided into three categories. These three categories are described in **Figure MMH-3**.

Figure MMH-3 ICC Hazardous Substances Railroad Accident/Incidents Classification Categories	
Category	Description
A	railroad derailments resulting in the release of the hazards substance(s) being transported
B	railroad derailments where hazards substance(s) were being transported but no release occurred
C	releases of hazardous substance(s)s from railroad equipment occurred; however, no railroad derailment was involved

Since 2012, there have been no rail accidents involving hazardous substances in Kendall County according to the ICC. In comparison, ICC records indicate that since 2012 the annual number of railway accidents in Illinois involving hazardous substances has ranged between 45 and 122. **Figure MMH-4**, located at the end of this section, provides a breakdown by category of the ICC-recorded railway accidents/incidents involving hazardous substances. Included is a comparison of the number of accidents/incidents in Kendall County to those in Cook and the Collar Counties as well as the rest of Illinois.

According to IEMA's hazardous materials incident records for 2013 through 2022, there was an additional rail accident/incident involving the release of hazardous substances. **Figure MMH 5** provides information on these incidents by rail line. No derailments were associated with any of these accidents/incidents.

Figure MMH-5 IEMA Recorded Railway Accidents/Incidents Involving Hazardous Substances 2013 - 2022				
Date	Area	Location	Hazardous Substance Released	Quantity Released
BNSF				
1/25/2011	Montgomery	Knell Road	Diesel fuel	900 gallons

[^] Accident/incident verified in the vicinity of this area.

Source: Illinois Emergency Management Agency, Hazardous Materials Incident Reports.

The top 20 hazardous substances moved by rail through Illinois include: sodium hydroxide, petroleum gases (liquefied), sulfuric acid, anhydrous ammonia, chlorine, sulfur, vinyl chloride, propane, fuel oil, denatured alcohol, methanol, gasoline, phosphoric acid, hydrochloric acid, styrene monomer, carbon dioxide (refrigerated liquid), ammonium nitrate, sodium chlorate, and diesel fuel.

Pipelines

Energy gases (natural gas and liquefied petroleum gas), petroleum liquids (crude oil and gasoline), and liquid and gas products used in industrial processes are carried in above-ground and buried pipelines across Illinois. In Kendall County, there are five major pipelines that carry natural gas, one each operated by ANR Pipeline Co., Guardian Pipeline LLC, Kendall Power Co., natural Gas Pipeline of America, and Northern Border Pipeline. There are also two major pipelines carrying crude oil, gasoline, or hazardous liquids crossing the County from northwest to southeast. One is

operated by Amoco Oil Co. and the other is operated by Enbridge Energy. **Figure MMH-6** shows the pipelines in Kendall County.

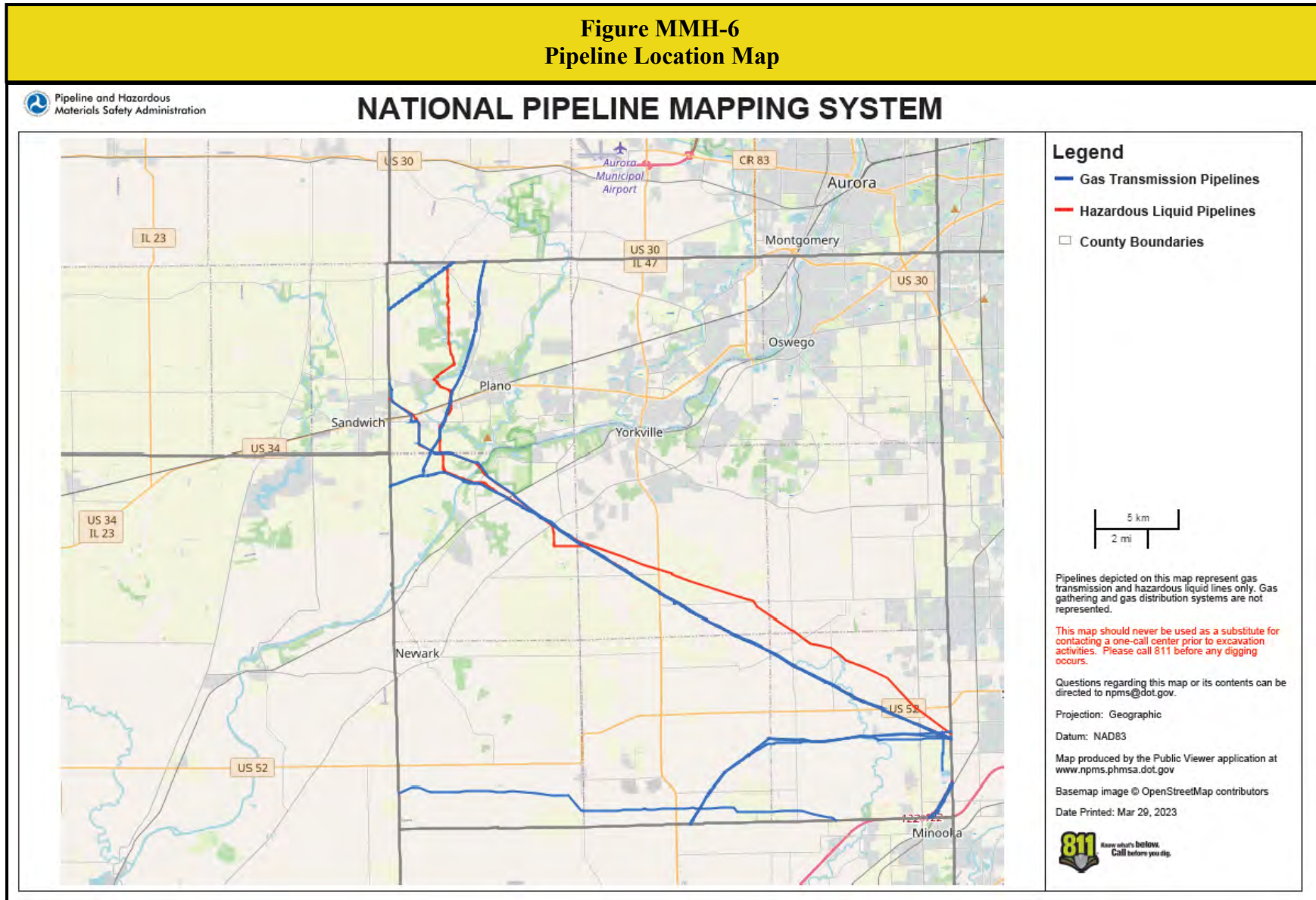
Three natural gas pipeline releases occurred in Kendall County during a 10-year period from 2012 through 2021. All of the releases occurred at the ANR Pipeline Company's Sandwich Compressor Station in unincorporated Kendall County. The first release occurred on July 13, 2012 when gas leaked by a fuel line block/bleed valve and some accumulated in the blowdown exhaust silencer and was ignited by a mechanical spark from the turbocharger causing an explosion to occur inside the silencer, damaging the silencer and nearby connecting facilities. No personnel were injured in the incident.

The second release occurred on August 9, 2013 when gas that had leaked into the crankcase of a unit ignited causing an explosion that damaged the engine and building. Three technicians received first aid attention for their minor injuries at a local medical clinic. The third release occurred on September 2, 2017 when two release valves were incorrectly positioned allowing gas to vent from the station intermittently for about 31 minutes.

There have been several high-profile incidents across the U.S., including one in Illinois, that have raised public concerns about our aging pipeline infrastructure. The following provides a brief description of each incident.

- On July 26, 2010, a 30-inch liquid product pipeline rupture near Marshall, Michigan and released at least 840,000 gallons of oil into a creek that led to the Kalamazoo River, a tributary of Lake Michigan.
- On September 9, 2010, another pipeline release received national attention. A 34-inch liquid product pipeline in the Chicago suburb of Romeoville, Illinois released more than 360,000 gallons of crude oil that flowed through sewers and into a retention pond narrowly avoiding the Des Plaines River. This release triggered numerous odor complaints from residents in the adjacent municipalities of Lemont and Bolingbrook. The property damage/cleanup costs were estimated at \$46.6 million.
- Also, on September 9, 2010, a 30-inch-high pressure natural gas pipeline ruptured in the San Francisco suburb of San Bruno, California that resulted in an explosion that killed
- eight people, injured 51, destroyed over 30 homes and damaged an entire neighborhood. The property damage was estimated at around \$55 million.
- On March 12, 2014, a gas main rupture in Manhattan, New York resulted in an explosion that killed eight people and leveled two multi-use, five story buildings.
- On May 19, 2015, a 24-inch liquid product pipeline ruptured near Refugio State Beach in Santa Barbara County, California and released approximately 100,000 gallons of crude oil. The release occurred along a rustic stretch of coastline that forms the northern boundary of the Santa Barbara Channel, home to a rich array of sea life. Oil ran down a ravine and entered the Pacific Ocean, blackening area beaches, creating a 9-mile oil slick and impacting birds, marine mammals, fish, and coastal and subtidal habitats.

**Figure MMH-6
Pipeline Location Map**



Continual monitoring and maintenance of these pipelines is necessary to prevent malfunctions from corrosion, aging, or other factors that could lead to a release. In addition to normal wear and tear experienced by pipelines, the possibility of sabotage and seismic activity triggering a release must be considered when contemplating emergency response scenarios.

3.9.1.3 Storage/Handling

Beyond knowing where hazardous substances are generated and the methods and routes used to transport them, it is important to identify where hazardous substances are handled and stored. This information will help government officials and emergency management professionals make informed choices on how to better protect human health, property and the environment and what resources are needed should an incident take place.

Records obtained from IEMA-OHS's Tier II database were used to gather information on the facilities that generate, use and store chemicals in excess of reportable threshold quantities within Kendall County. The Tier II information was then compared with USEPA's Toxic Release Inventory (TRI) and information from Illinois Environmental Protection Agency (IEPA) databases. This review identified 41 facilities within Kendall County in 2021 that store and handle hazardous substances

Of these 41 facilities, 13 reported the presence of Extremely Hazardous Substances (EHSs) at their facilities. An EHS is any USEPA-identified chemical that could cause serious, irreversible health effects from an accidental release. There are approximately 400 chemicals identified as EHSs. Stationary sources that possess one or more of these substances at or above threshold reporting quantities are required to notify IEMA.

3.9.2 Waste Disposal

Waste disposal has caused surface water and ground water contamination in Illinois and across the U.S. Beginning in the late 1970s substantial regulatory changes strengthened the design, operating and monitoring requirements for landfills where the majority of waste is disposed. These regulatory changes have helped reduce the public health threat posed by landfills.

HAZARD PROFILE – WASTE DISPOSAL

The following subsections identify the general pathways – solid, medical, and hazardous – by which waste disposal poses a risk to public health and the environment in Kendall County.

3.9.2.1 Solid Waste

While recycling activities have reduced the amount of solid waste (waste generated in households), the majority continues to be disposed of in landfills. As of 2021, there were 36 landfills operating in Illinois.

Waste Disposal Fast Facts - Occurrences

Solid Waste

Number of Solid Waste Landfills Operating in Kendall County (2022): **None**

Number of Landfills Serving Kendall and adjacent counties (2022): **4**

Potentially-Infectious Medical Waste (PIMW)

Number of Facilities within the County Permitted to Handle PIMW: **None**

Hazardous Waste

Number of Commercial Off-Site Hazardous Waste Treatment or Disposal Facilities located in the County: **None**

According to IEPA's Annual Landfill Capacity Report issued in July 2022, there were no commercial landfills that operate in Kendall County. There are currently four landfills that serve Kendall and the adjacent counties. These landfills include Laraway Recycling and Disposal in Joliet (Will County), Prairie View Recycling and Disposal in Wilmington (Will County), DeKalb County Landfill in DeKalb (DeKalb County), and the LandComp Landfill in Ottawa (LaSalle County).

3.9.2.2 Potentially-Infectious Medical Waste

Potentially-Infectious Medical Waste (PIMW) is generated in connection with medical research; biological testing; and the diagnosis, treatment or immunization of human beings or animals. PIMW is typically generated at hospitals, nursing homes, medical or veterinary clinics, dental offices, clinical or pharmaceutical laboratories, and research facilities. According to IEPA's list of permitted PIMW Facilities, there are no facilities permitted to accept medical waste for disposal in Kendall County.

3.9.2.3 Hazardous Waste

A hazardous waste is defined as the byproduct of a manufacturing process that is either listed or has the characteristics of ignitability, corrosivity, reactivity, or toxicity and cannot be reused. According to IEPA's Storage, Treatment, Recycling, Incinerating, Transfer Stations, and Processing list, there are currently no off-site hazardous waste treatment or disposal facilities located in Kendall County.

3.9.3 Hazardous Material Incidents

A hazardous material or hazmat incident refers to any accident involving the release of hazardous substances, which broadly include any flammable, explosive, biological, chemical, or physical material that has the potential to harm public health or the environment. These incidents can take place where the substances are used, generated, or stored or while they are being transported. In addition, hazmat incidents also include the release of hazardous substances, such as fuel, used to operate vehicles. These releases can be the result of an accident or a leak.

HAZARD PROFILE – HAZARDOUS MATERIALS INCIDENTS

From 2012 to 2021, there were 30 hazmat incidents recorded in Kendall County. Of these incidents, 12 (40%) involved transportation incidents or accidents while 18 (60%) occurred at fixed facilities. Eleven (37) of the 12 (74%) transportation incidents or accidents involved petroleum-based products.

Hazmat Incident Fast Facts - Occurrences

Number of Hazardous Material Incidents in Kendall County (2012 - 2021): **30**

Number of Transportation-Related Incidents/Accidents: **12**

Number of Fixed Facility-Related Incidents/Accidents: **18**

Average Number of Hazardous Material Incidents Experienced Annually: **3**

Based on the recorded incidents, Kendall County experienced an average of three hazmat incidents annually from 2012 through 2021. The types of existing industries; the major transportation corridors through the County, which include interstate and Illinois highways, rail, and pipeline; and chemical use within and adjacent to the County suggest that hazmat incidents are likely to

continue to take place at the rate reflected in the 10-year study period. Constant vigilance, proper training and equipment, and prompt response are needed to minimize the potential impacts of each incident.

3.9.4 Waste Remediation

The improper disposal or containment of special and hazardous waste through the years has led to soil, groundwater, and surface water contamination of sites across the U.S. In order to safeguard human health and the environment, these contaminants must be removed or neutralized so they cannot cause harm. This process is known as waste remediation.

HAZARD PROFILE – WASTE REMEDIATION

In Illinois, waste remediation is handled through several programs including the federal Superfund program, the State Response Action Program, the state Site Remediation Program, and the Leaking Underground Storage Tanks Program. The following provides a brief description of each.

Superfund (CERLCA) Program/ National Priorities List

Superfund is a USEPA-led program to clean up sites within the U.S. contaminated by hazardous waste that has been dumped, left out in the open, or otherwise improperly managed and which pose a risk to human health and/or the environment. Sites of national priority among the known or threatened releases of hazardous substances, pollutants or contaminants throughout the U.S. and its territories are identified on the National Priorities List (NPL). Those sites that pose the largest threat to public health and the environment are typically found on the NPL.

Waste Remediation Fast Facts - Occurrences

Superfund

Number of Superfund Sites in the County: *None*

Illinois Site Response Action Program

Number of SRAP Sites in the County: *3*

Illinois Site Remediation Program

Number of SRP Sites in the County: *16*

Number of SRP Sites with NFR/4Y Letters: *12*

Illinois Leaking Underground Storage Tanks Program

Number of LUST Sites in County: *79*

Number of LUST Sites with NFR/Non-LUST/4Y Letters: *66*

According to the NPL database, there are 45 Superfund sites in Illinois. There are no Superfund sites in Kendall County.

State Response Action Program (SRAP)

The main objective of the State Response Action Program (SRAP) is to clean up hazardous substances at sites that present an imminent and substantial threat to human health and the environment, but which may not be addressed by other federal or state cleanup programs. The sites handled by the SRAP include abandoned landfills, old manufacturing plants, former waste oil recycling operations, contaminated agrichemical facilities, and other areas where surface water, groundwater, soil, and air may be contaminated with hazardous substances. Since the mid-1980s, cleanup activities have been conducted at more than 500 sites in Illinois through this Program. Once the threat to human health and the environment has been mitigated, some sites are transferred to other state cleanup programs to complete remediation activities.

There are three SRAP sites in Kendall County, all of which have either completed the program or been transferred to another program.

Illinois Site Remediation Program (SRP)

The Site Remediation Program (SRP) is a voluntary cleanup program that provides applicants the opportunity to receive technical assistance in determining what course of action is needed to remediate sites where hazardous substances, pesticides, or petroleum may be present. The goal of the SRP is to receive a no further remediation determination from IEPA. Most site remediation in Illinois is handled through this Program. Since the mid-1980s, remediation activities have been conducted and monitored at approximately 5,800 sites in Illinois. Properties that satisfy respective IEPA laws and regulations can receive a No Further Remediation (NFR) letter. They must demonstrate, through proper investigation and, when warranted, remedial action, that environmental conditions at their remediation site do not present a significant risk to human health or the environment. This letter describes what remediation activities have been taken and whether any portion of the property, based on future property use, might need additional remediation.

There are 16 SRP sites in Kendall County. Twelve of the 16 SRP sites (75%) have received NFR or 4Y letters. The remaining four sites do not pose an immediate threat to public health or the environment.

Leaking Underground Storage Tank Program (LUST)

The Leaking Underground Storage Tanks Program (LUST) oversees remedial activities associated with petroleum product releases from underground storage tanks (UST). This program began in the late 1980s as a result of the threats posed by vapors in homes and businesses, contaminated groundwater, and contaminated soil. In Illinois, more than 14,500 acres of soil contaminated by leaking underground tanks have been remediated between 1988 and 2010 (the most recent year for which data was available).

In Kendall County, there are 79 sites involving the remediation of petroleum product releases from underground storage tanks. Of the 79 LUST sites, 66 (84%) have received NFR letters, other clearance letters, or remediation is virtually complete.

3.9.5 Nuclear Incidents

The term “nuclear incident” refers to the release of significant levels of radioactive material or exposure of the general public to radiation. This section does not address the intentional or malicious release of radioactive materials as a result of a terrorism activity. Exposure to dangerous levels of radiation can have varying health effects on people and animals. Impacts range from minor health issues to fatal illnesses.

HAZARD PROFILE – NUCLEAR INCIDENTS

In Kendall County, residents could be exposed to radioactive material and/or radiation from a nuclear incident that occurs:

- at the Dresden Generating Station located in Grundy County;
- at the Braidwood Generating Station located in Will County;

- at the LaSalle Generating Station located in LaSalle County;
- at the Byron Generating Station located in Ogle County; or
- as spent nuclear fuel rods are being transported by railway through the County.

There have been no nuclear incidents and therefore no injuries or damages associated with any of the nuclear power facility or the transportation of spent nuclear fuel rods through Kendall County.

3.9.5.1 Power Facilities

Commercial nuclear facilities constructed in the U.S. should withstand most natural hazards such as tornadoes and severe storms that frequently occur in Illinois. Nonetheless, IEMA-OHS has developed a Radiological Emergency Response Plan in cooperation with other state and local governments. Procedures are in place and exercises are conducted with state and local officials to protect the public in the unlikely event of a nuclear emergency. There are four nuclear generating stations relatively close to Kendall County operated by Constellation Energy. **Figure MMH-7** identifies the facility, its location, and its respective distance to the Kendall County border.

Nuclear Incidents Fast Facts - Occurrences

Number of Nuclear Power Facilities in the County: **None**

Number of Nuclear Power Facilities near the County: **4**

Emergency Planning Zones

Are there Areas in the County within the 10-mile Critical Risk Zone of any Nuclear Power Facilities? **Yes (the southeast portion of the County)**

Are there Areas in the County within the 50-mile Pathway Zone of any Nuclear Power Facilities? **Yes (the entire County)**

Number of Incidents Impacting the County: **None**

Figure MMH-7 Nuclear Generating Stations Near Kendall County		
Nuclear Generating Station Name	Location	Distance to Kendall County Border
Braidwood Generating Station	1.25 miles northeast of Braceville Will County	15 miles
Byron Generating Station	3.25 miles south of Byron Ogle County	43 miles
Dresden Generating Station	7 miles east of Morris Grundy County	5 miles
LaSalle County Generating Station	4.5 miles south of Marseilles LaSalle County	15 miles

An Emergency Planning Zone (EPZ) around each nuclear facility is assessed to estimate potential damages to the public and critical infrastructure. EPZs typically include a 10-mile Critical Risk Zone and a 50-mile Ingestion Pathway Zone. Ingestion refers to radiation that might enter a person's body. The southeast portion of Kendall County falls within the 10-mile Critical Risk Zone for the Dresden Generating Station. The entire county falls within the 50-mile Ingestion Pathway Zone for the Braidwood, Dresden, and LaSalle County Generating Stations, while the northwest portion of the County falls within the 50-mile Ingestion Pathway Zone for the Byron Generating Station. **Figure MMH-8** identifies the locations that fall within these zones.

Figure MMH-8 Locations within Emergency Planning Zones		
Nuclear Generating Station Name	Areas within 10-Mile Critical Risk Zone	Areas within 50-Mile Ingestion Pathway Zone
Braidwood Generating Station	none	Entire County
Byron Generating Station	none	Portions of Little Rock, Fox, and Bristol Townships, including the Villages of Plano, Millbrook, and Millington
Dresden Generating Station	Portions of Lisbon and Seward Townships, including the Village of Minooka and City of Joliet	Entire County
LaSalle County Generating Station	none	Entire County

The consequences associated with a release at any nuclear power facility would depend on the magnitude of the accident and the prevailing weather conditions. A significant incident might require individuals to stay indoors or to evacuate to temporary relocation centers. Temporary relocation centers have been established for Kendall County residents should a significant event requiring evacuation occur at the nearby nuclear power facility.

To protect the food supply, persons owning livestock may be advised to remove all livestock from pasture, shelter if possible, and provide them with stored feed and protected water. The American Nuclear Insurers (ANI) Company provides insurance to cover the Exelon Corporation's legal liability up to the limits imposed by the Price-Anderson Act, for bodily injury and property damage such as the loss of livestock and crops caused by a nuclear energy incident at the Clinton Generator Station.

No nuclear power facilities have had any incidents that have impacted Kendall County. The probability of an incident causing off-site impacts appears low.

3.9.5.2 Transportation of Spent Nuclear Fuel Rods by Railway

The protocol for moving spent nuclear fuel rods from nuclear power plants requires that the train be stopped and inspected before moving through Illinois and that it be escorted as it moves through the State. Inspection of the track ahead of the train is also required to reduce the risk of derailment.

While movement of nuclear material has been minimal as the U.S. grapples with the issue of developing national or regional repositories, more rail movement is anticipated in the future. At the present time, the nuclear power facility previously mentioned is storing spent fuel rods on-site. If a national or regional repository is established, then the spent fuel rods will be moved off-site. According to the Illinois Commerce Commission, there has never been a railway transportation accident resulting in the release of radioactive material; however, widespread concern remains regarding its safe transportation.

3.9.6 Terrorism

Terrorism has different definitions across the globe. For the purpose of this Plan, terrorism will be defined as any event that includes violent acts which threaten, or harm lives, health or property

conducted by domestic or foreign individuals or groups aimed at civilians, the federal government or symbolic locations intended to cause widespread fear.

HAZARD PROFILE – TERRORISM

The attack on the World Trade Center and the Pentagon on September 11, 2001 by foreign terrorists galvanized national action against terrorism and resulted in the creation of the U.S. Department of Homeland Security. While the number of terrorist activities garnering national attention in the U.S. has been relatively small, approximately 201,183 terrorist events have occurred worldwide between 1970 and 2019, according to the National Consortium for the Study of Terrorism and Responses to Terrorism (the Consortium). During this same time span, the Consortium documented 3,004 terrorist events within the U.S.

Acts of terrorism have resulted in fatalities and injuries as a result of kidnappings, hijackings, bombings, and the use of chemical and biological weapons. The Global Terrorism Database has documented 3,633 American fatalities in the U.S. between 1995 and 2019 from terrorist attacks. The attacks on September 11, 2001 account for 3,001 of the 3,633 fatalities.

Terrorism Fast Facts – Occurrences*

Number of Recorded Terrorism Events Worldwide (1970 – 2019): **201,183**

Number of Recorded Terrorism Events in the U.S. (1970 – 2019): **3,004**

Number of Recorded Terrorism Events in Illinois (1970 – 2019): **117**

* Based on data from the National Consortium for the Study of Terrorism and Responses to Terrorism (START) Global Terrorism Database.

A search of the Global Terrorism Database identified 117 incidents of terrorism in Illinois between 1970 and 2019. These incidents resulted in six fatalities and 38 injuries.

The Federal Bureau of Investigation's (FBI) provides supporting documentation on domestic terrorist attacks in a series of reports on terrorism. These reports provide a chronological summary of terrorist incidents in the U.S. with detailed information on attacks between 1980 and 2005. During this time period, 192 incidents were documented within the U.S. Six of these incidents occurred in Illinois; five in the Chicago area and one downstate.

Other more recent events in Illinois occurred on September 24, 2009 when a single individual from Macon County sought to carry out his anger at the federal government by detonating a van filled with explosive outside of the Federal Courthouse in Springfield. This attempt was thwarted by the FBI.

On May 16, 2018 at around 8:00 a.m., 19-year-old boy, armed with a 9-mm semi-automatic rifle, fired several shots near the Dixon High School Gymnasium where approximately 180 students were practicing for graduation. The school's resource officer confronted the shooter, who fled from the school on foot. The shooter fired several shots at the resource officer, who returned fire, wounding the shooter in the shoulder. The gunman suffered non-life threatening injuries. No students or staff were injured in the incident. Faculty and staff barricaded doors and took cover as the incident unfolded.

More recently an active shooter incident occurred at the Highland Park Independence Day parade on July 4, 2022. A 22-year-old man, armed with a semi-automatic rifle, gained access to the roof

of a building along the parade route and opened fire on spectators and those in the parade killing seven individuals and wounding an additional 48 individuals. The shooter evaded immediate capture and fled the scene but was apprehended later the same day. He confessed to the shooting and is being held without bail as he awaits trial.

It is impossible to predict with any reasonable degree of accuracy how many terrorism events might be expected to occur in Kendall County or elsewhere in Illinois. Although targets for terrorist activity are more likely centered in larger urban areas, recruitment, training, and other support activities, such as the ones described above, have occurred in rural areas.

The economic resources available to some terrorist groups coupled with the combination of global tensions, economic uncertainty and frustration towards government appear to have recently raised the frequency of attempts. Enhanced efforts by law enforcement officials and civilian vigilance for unusual activity or behavior will be needed to repel terrorists whether they are domestic or foreign in origin.

Figure MMH-4
ICC Recorded Railway Accidents/Incidents Involving Hazardous Substances
2012 – 2021

Year	Category	Accident/Incident Location			
		Illinois	Kendall County	Cook & Collar Counties	All Other Counties
2012	A	4	0	2	2
	B	13	0	11	2
	C	73	0	42	31
2013	A	5	0	3	2
	B	23	0	16	7
	C	82	0	51	29
2014	A	2	0	2	0
	B	36	0	22	14
	C	84	0	40	43
2015	A	4	0	3	1
	B	27	0	15	12
	C	69	0	36	31
2016	A	4	0	1	3
	B	14	0	6	8
	C	65	0	33	29
2017	A	2	0	1	1
	B	14	0	9	5
	C	69	0	34	33
2018	A	1	0	0	1
	B	8	0	4	4
	C	55	0	24	31
2019	A	6	0	4	2
	B	6	0	4	2
	C	33	0	12	21
2020	A	4	0	2	2
	B	7	0	5	2
	C	46	0	30	16
2021	A	4	0	2	2
	B	31	0	16	15
	C	29	0	13	16

Source: Illinois Commerce Commission

4.0 MITIGATION STRATEGY

The mitigation strategy identifies how participating jurisdictions are going to reduce or eliminate the potential loss of life and property damage that results from the natural hazards identified in the Risk Assessment section of this Plan. The strategy includes:

- Reviewing, re-evaluating, and updating the mitigation goals. Mitigation goals describe the objective(s) or desired outcome(s) that the participants would like to accomplish in terms of hazard and loss prevention. These goals are intended to reduce or eliminate long-term vulnerabilities to natural hazards.
- Evaluating the status of the existing mitigation actions and identifying a comprehensive range of jurisdiction-specific mitigation actions including those related to continued compliance with the National Flood Insurance Program (NFIP). Mitigation actions are projects, plans, activities, or programs that achieve at least one of the mitigation goals identified.
- Analyzing the existing and new mitigation actions identified for each jurisdiction. This analysis ensures each action will reduce or eliminate future losses associated with the hazards identified in the Risk Assessment section.
- Reviewing, re-evaluating, and updating the mitigation actions prioritization methodology. The prioritization methodology outlines the approach used to prioritize the implementation of each identified mitigation action.
- Identifying the entity(s) responsible for implementation and administration. For each mitigation action, the entity(s) responsible for implementing and administering that action is identified as well as the timeframes for completing the actions and potential funding sources.
- Conducting a preliminary cost/benefit analysis of each mitigation action. The qualitative cost/benefit analysis provides participants a general idea of which actions are likely to provide the greatest benefit based on the financial cost and staffing efforts needed.

As part of the Plan update, the mitigation strategy was reviewed and revised. A detailed discussion of each aspect of the mitigation strategy and any updates made is provided below.

4.1 MITIGATION GOALS REVIEW

As part of the Plan update process, the mitigation goals from the previous Plan were reviewed and re-evaluated. The Planning Committee chose to update the three original goals and add six new goals in order to address a more comprehensive range of mitigation activities and projects.

The previous list of mitigation goals as well as potential updates to the list were distributed to the Committee members at the first meeting on January 24, 2023. Members were asked to review the list before the second meeting and consider whether any changes needed to be made or if additional goals should be included. At the Committee's April 18, 2023 meeting the group discussed the previous list of goals and approved them with no changes. **Figure MIT-1** lists the approved mitigation goals.

**Figure MIT-1
Mitigation Goals**

Goal 1	Lessen the impacts of hazards on new and existing infrastructure (buildings, roads, bridges, utilities, water supplies, sanitary sewer systems, etc.) in order to promote hazard-resistant communities.
Goal 2	Incorporate hazard mitigation strategies into existing and new community plans and regulations.
Goal 3	Develop long-term strategies to educate residents and businesses about the hazards affecting the County and the actions they can take before a hazard event occurs to protect themselves, as well as their households, homes, and businesses in an effort to encourage hazard resilience.
Goal 4	Protect the lives, health, safety, and welfare of the individuals living in the County from the dangers caused by natural and man-made hazards.
Goal 5	Place a priority on protecting public services and community lifelines (i.e., safety and security; food, water, and shelter; health and medical; energy; communication; and transportation), public services, and schools.
Goal 6	Preserve and protect the rivers, streams, and floodplains in the County.
Goal 7	Ensure future development does not increase the vulnerability of hazard-prone areas within the County or create unintended exposures to natural and man-made hazards.
Goal 8	Protect historic, cultural, and natural resources from the effects of natural and man-made hazards.
	Promote hazard resilience within Kendall County – the ability to prepare for, withstand, and rapidly recover from the effects of natural and man-made hazards.

4.2 EXISTING MITIGATION ACTIONS REVIEW

The Plan update process included a review and evaluation of the *existing hazard mitigation actions*. A copy of these original actions is included in **Appendices L** and **M**. A review of the existing hazard mitigation actions revealed the following shortcomings:

- ❖ Actions were not jurisdiction-specific. Most of the action were applied to every participating jurisdiction no matter their level of interest, ability to implement or relevance to their jurisdiction.
- ❖ Actions did not identify specific entities responsible for implementation. This created a situation in which the participating jurisdictions did not have a clear understanding of which department within their own jurisdiction was tasked with implementing the action and therefore no sense of responsibility or ownership of the action was taken.
- ❖ Actions already completed were included in the mitigation strategy. Several of the actions identified were already implemented prior to the completion and adoption of the Plan and therefore were eliminated.
- ❖ Actions focused on emergency preparedness, response or recovery and not mitigation. Several of the actions identified were aimed at addressing emergency preparedness, response or recovery and not mitigation needs and therefore were eliminated.

As a result of these findings, the Committee agreed to the creation of individual jurisdiction-specific mitigation action lists for each participant. In addition, those actions identified as completed or emergency preparedness, response or recovery in the original Plan, Mitigation Strategy Numbers 8, 9, 10, 11, 12, 15, 18, and 24, were eliminated. The remaining existing mitigation actions were evaluated, assigned to the appropriate participating jurisdiction(s), and

presented to the Planning Committee members for their review and evaluation at the second meeting held on April 18, 2023. Each participating jurisdiction was asked to identify those actions that were either in progress or that had been completed since the original Plan was prepared in 2011. Because jurisdictional priorities change over time, they were also given the opportunity to eliminate any action on their specific list that they did not deem currently relevant, viable, and/or practical for implementation.

Figures MIT-2 through MIT-8, located at the end of this section, summarize the results of this evaluation by jurisdiction. Each action listed includes a reference number to the original mitigation action list found in **Appendices L and M**. None of the participants identified changes in priorities since the previous Plan was approved.

Kendall Township, Lisbon CCSD #90, Lisbon-Seward Fire Protection District (FPD), Newark CHSD #18, Oswego CUSD #308, Oswego Township, Oswegoland Park District, Parkview Christian Academy, Plano CUSD #88, Sandwich Community FPD, and St. Mary Catholic School did not participate in the previous Plan update and therefore are not included in the summary. Bristol-Kendall FPD, Newark FPD, Oswego FPD, and Plattville participated in the original Plan but did not include any mitigation actions in the Plan and are also not included in the summary. While Millbrook participated in the previous Plan, they chose not to participate in the Plan update process and are not included in the summary.

4.3 NEW MITIGATION ACTION IDENTIFICATION

Following the review and evaluation of the existing mitigation actions, the Committee members were asked to consult with their respective jurisdictions to identify *new, jurisdiction-specific mitigation actions*. Instead of focusing on all-inclusive actions covering multiple jurisdictions, participants were asked to identify mitigation actions that met the specific needs and risks associated with their jurisdiction.

Representatives of Kendall County and each of the participating municipalities were also asked to identify mitigation actions that would ensure their continued compliance with the National Flood Insurance Program. The Kendall County Planning, Building & Zoning Department is responsible for the administration and enforcement of the County's ordinances regulating the development of land in Plattville. Therefore, projects related to continued compliance with the National Flood Insurance Program for Plattville will originate with the County.

he compiled lists of new mitigation actions were then reviewed to assure the appropriateness and suitability of each action. Those actions that were not deemed appropriate and/or suitable were either reworded or eliminated.

4.4 MITIGATION ACTION ANALYSIS

Next, those existing mitigation actions retained, and the new mitigation actions identified were assigned to one of four broad mitigation activity categories that allowed Committee members to compare and consolidate similar actions. **Figure MIT-9** identifies each mitigation activity category and provides a brief description.

Figure MIT-9 Types of Mitigation Activities	
Category	Description
Local Plans & Regulations (LP&R)	Local Plans & Regulations include actions that influence the way land and buildings are being developed and built. Examples include stormwater management plans, floodplain regulations, capital improvement projects, participation in the NFIP Community Rating System, comprehensive plans, and local ordinances (i.e., building codes, etc.)
Structure & Infrastructure Projects (S&IP)	Structure & Infrastructure Projects include actions that protect infrastructure and structures from a hazard or remove them from a hazard area. Examples include acquisition and elevation of structures in flood prone areas, burying utility lines to critical facilities, construction of community safe rooms, install “hardening” materials (i.e., impact resistant window film, hail resistant shingles/doors, etc.) and detention/retention structures.
Natural System Protection (NSP)	Natural System Protection includes actions that minimize damage and losses and also preserve or restore natural systems. Examples include sediment and erosion control, stream restoration and watershed management.
Education & Awareness Programs (E&A)	Education & Awareness Programs include actions to inform and educate citizens, elected officials and property owners about hazards and the potential ways to mitigate them. Examples include outreach/school programs, brochures, and handout materials, becoming a StormReady community, evacuation planning and drills, and volunteer activities (i.e., culvert cleanout days, initiatives to check in on the elderly/disabled during hazard events such as storms and extreme heat events, etc.)

Each mitigation action was then analyzed to determine:

- the hazard or hazards being mitigated;
- the general size of the population affected (i.e., small, medium, or large), the participant’s Social Vulnerability Index (SVI) ranking, status as a disadvantaged community per the Climate and Economic Justice Screening Tool (CEJST), as well as the participant’s status as an Economically Disadvantaged Rural Community (EDRC);
- the goal or goals fulfilled;
- whether the action would reduce the effects on new or existing buildings and infrastructure; and
- whether the action would ensure continued compliance with the National Flood Insurance Program.

Each mitigation action was also evaluated to determine whether it would mitigate risk to one or more of FEMA’s seven Community Lifelines. Community Lifelines are the most fundamental services in the community that, when stabilized, enable all aspects of society to function. These fundamental services enable the continuous operation of critical government and business functions essential to human health and safety or economic security. The Community Lifelines include Safety & Security; Food, Water, Shelter; Health & Medical; Energy (Power & Fuel); Communications; Transportation; and Hazardous Materials. **Figure MIT-10** provides a brief description of each Community Lifeline.

Figure MIT-10 Community Lifelines	
Category	Components/Subcomponents
Safety & Security	<ul style="list-style-type: none"> - Law Enforcement/Security (police stations, law enforcement, site security, correctional facilities) - Fire Service (fire stations, firefighting resources) - Search & Rescue (local search & rescue) - Government Service (emergency operation centers, essential government functions, government offices, schools, public records, historic/cultural resources) - Community Safety (flood control, other hazards, protective actions)
Food, Water, Shelter	<ul style="list-style-type: none"> - Food [commercial food distribution, commercial food supply chain, food distribution programs (e.g., food banks)] - Water [drinking water utilities (intake, treatment, storage & distribution), wastewater systems, commercial water supply chain]; - Shelter [housing (e.g., homes, shelters), commercial facilities (e.g., hotels)]; - Agriculture (animals & agriculture)
Health & Medical	<ul style="list-style-type: none"> - Medical Care (hospitals, dialysis, pharmacies, long-term care facilities, VA health system, veterinary services, home care) - Patient Movement (emergency medical services) - Fatality Management (mortuary and post-mortuary services) - Public Health (epidemiological surveillance, laboratory, clinical guidance, assessment/interventions/treatments, human services, behavioral health) - Medical Supply Chain [blood/blood products, manufacturing (e.g., pharmaceutical, device, medical gases), distribution, critical clinical research, sterilization, raw materials]
Energy	<ul style="list-style-type: none"> - Power Grid (generation systems, transmission systems, distribution systems) - Fuel [refineries/fuel processing, fuel storage, pipelines, fuel distribution (e.g., gas stations, fuel points), off-shore oil platforms]
Communications	<ul style="list-style-type: none"> - Infrastructure [wireless, cable systems and wireline, broadcast (e.g., TV and radio), satellite, data centers/internet] - Alerts, Warnings, & Messages (local alert/warning ability, access to IPAWS, NAWAS terminals) - 911 & Dispatch (public safety answering points, dispatch) - Responder Communications (LMR networks) - Finance (banking services, electronic payment processing)
Transportation	<ul style="list-style-type: none"> - Highway/Roadway/Motor Vehicle (roads, bridges) - Mass Transit (bus, rail, ferry) - Railway (freight, passenger) - Aviation [commercial (e.g., cargo/passenger), general, military] - Maritime (waterways, ports and port facilities)
Hazardous Materials	<ul style="list-style-type: none"> - Facilities [oil/hazmat facilities (e.g., chemical, nuclear), oil/hazmat/toxic incidents from facilities] - Hazmat, Pollutants, Contaminants (oil/hazmat/toxic incidents from non-fixed facilities, radiological or nuclear incidents)

4.5 MITIGATION ACTION PRIORITIZATION METHODOLOGY & COST/BENEFIT ANALYSIS REVIEW

The methodology applied to prioritize mitigation actions in the previous Plan was reviewed by the Committee as part of the Plan update process. The original prioritization methodology was based

on the STAPLE+E planning factors (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) and applied a rating of high, medium, low, or ongoing to each mitigation action.

Taking into account the number and types of factors assessed and the complexity associated with the STAPLE+E analysis, the Planning Committee decided to replace the original prioritization methodology with one focused on key factors such as frequency of the hazard, degree of mitigation, cost/benefit utilization, and risk reduction to community lifelines. This updated prioritization methodology was presented to the Planning Committee members at the third meeting held on July 11, 2023. The group reviewed and discussed the methodology and chose to approve it with no changes.

Figure MIT-11 identifies and describes the four-tiered prioritization methodology adopted by the Planning Committee. This methodology identifies which projects and activities maximize benefits and have a greater likelihood of reducing the long-term vulnerabilities associated with the most frequently-occurring natural hazards.

Figure MIT-11 Mitigation Action Prioritization Methodology			
P1 High Priority	P2 Significant Priority	P3 Moderate Priority	P4 Important
<ul style="list-style-type: none"> - Mitigates risk to the most frequently occurring hazards (i.e., severe storms, floods, severe winter storms, extreme cold, excessive heat) - Action has the potential to virtually eliminate or significantly reduce hazard impacts - Mitigates risk to at least one community lifeline - Benefits exceed cost - Action meets multiple plan goals and/or projects life & health 	<ul style="list-style-type: none"> - Mitigates risk to the most frequently occurring hazards (i.e., severe storms, floods, severe winter storms, extreme cold, excessive heat) - Action has the potential to reduce hazard impacts - May mitigate risk to a community lifeline - Benefit is equal to or exceeds cost - Action meets at least one plan goal 	<ul style="list-style-type: none"> - Mitigates risk to the less frequently occurring hazards (i.e., tornadoes, drought, earthquakes, man-made hazards) - Action has the potential to virtually eliminate or significantly reduce hazard impacts - Mitigates risk to at least one community lifeline - Benefits exceed cost - Action meets multiple plan goals and/or projects life & health 	<ul style="list-style-type: none"> - Mitigates risk to the less frequently occurring hazards (i.e., tornadoes, drought, earthquakes, man-made hazards) - Action has the potential to reduce hazard impacts - May mitigate risk to a community lifeline - Benefit is equal to or exceeds cost - Action meets at least one plan goal

While prioritizing the actions is useful and provides participants with additional information, it is important to keep in mind that implementing any the mitigation actions is desirable regardless of which prioritization category an action falls under.

In addition to weighing the cost of an action versus the benefits the action will produce as part of the prioritization methodology, a preliminary qualitative cost/benefit analysis was conducted on each mitigation action to demonstrate its monetary and non-monetary benefits and provide additional information that can be considered in each participant's decision-making process. The

costs and benefits were analyzed in terms of the general overall cost to complete an action as well as the staffing efforted needed and the action's likelihood of virtually eliminating or significantly reducing the risk associated with a specific hazard. The general descriptors of high, medium, and low were used. These terms are not meant to translate into a specific dollar amount, but rather to provide a relative comparison between the actions identified by each jurisdiction.

This analysis is only meant to give the participants a starting point to compare which actions are likely to provide the greatest benefit. It was repeatedly communicated to the Planning Committee members that when a grant application is submitted to IEMA-OHS/FEMA for a specific action, a detailed cost/benefit analysis will be required to receive funding.

4.6 MITIGATION ACTION IMPLEMENTATION & ADMINISTRATION

Finally, each participating jurisdiction was asked to identify how the mitigation actions will be implemented and administered. This included:

- identifying the party or parties responsible for oversight and administration;
- determining what funding source(s) are available or will be pursued; and
- describing the time frame for completion.

Oversight & Administration

It is important to keep in mind that some of the participating jurisdictions have limited capabilities related to organization and staffing for oversight and administration of the identified mitigation actions. Three of the seven participating municipalities are small in size, with populations of less than 1,250 individuals. In most cases these jurisdictions have minimal staff. Their organizational structure is such that most have very few offices and/or departments, generally limited to public works and water/sewer. Those in charge of the offices/departments often lack the technical expertise needed to individually oversee and administer the identified mitigation actions. As a result, most of the participating jurisdictions identified their governing body (i.e., village board, city council or board of trustees) as the entity responsible for oversight and administration simply because it is the only practical option given their organizational constraints. Other participants felt that oversight and administration fell under the purview of the entity's governing body (board/council) and not individual departments.

Funding Sources

While the Chicago Metropolitan Agency for Planning has the ability to assist with grant writing service to the participants, many do not have staff with grant writing capabilities. As a result, assistance was needed in identifying possible funding sources for the identified mitigation actions. The consultant provided written information to the participants about FEMA and non-FEMA funding opportunities that have been used previously to finance mitigation actions. In addition, funding information was discussed with participants during Committee meetings and in one-on-one contacts so that an appropriate funding source could be identified for each mitigation action.

A handout was prepared and distributed that provided specific information on the non-FEMA grant sources available including the grant name, the government agency responsible for administering the grant, grant ceiling, contact person and application period among other key points. Specific grants from the following agencies were identified: U.S. Department of Agricultural – Rural Development (USDA – RD), Illinois Department of Agriculture (IDOA), Illinois Department of

Commerce and Economic Opportunity (DCEO), Illinois Environmental Protection Agency (IEPA), Illinois Department of Natural Resources (IDNR) and Illinois Department of Transportation (IDOT).

The funding source identified for each action is the most likely source to be pursued; however, if grant funding is unavailable through the most likely or other suggested sources, then implementation of medium and large-scale projects and activities is unlikely due to the budgetary constraints experienced by most, if not all, of the participants due to their size, projected population growth and limited revenue streams. It is important to remember that the population for the entire County is approximately 131,000 individuals, with approximately 32,700 living in unincorporated Kendall County. Three of the seven participating municipalities are smaller in size, with populations of less than 1,250 individuals. Some of the jurisdictions struggle to maintain and provide the most critical of services to their residents. Additional funding is necessary if implementation is to be achieved.

Time Frame for Completion

The time frame for completion identified for each action is the timespan in which participants would like to see the action successfully completed. In most cases, however, the time frame identified is dependent on obtaining the necessary funding. As a result, a time range has been identified for many of the mitigation actions to allow for unpredictability in securing funds.

4.7 RESULTS OF MITIGATION STRATEGY

Figures MIT-12 through **MIT-33**, located at the end of this section, summarize the results of the mitigation strategy. The mitigation actions are arranged alphabetically by participating jurisdiction following the County and include both existing and new actions.

Figure MIT-2
Kendall County – Status of Existing Mitigation Actions
(Sheet 1 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information. (Kendall County Mitigation Strategy No. 1)	✓					✓	
Purchase and distribute weather radios to county residents to establish a Communications Community Lifeline. (Kendall County Mitigation Strategy No. 2)		✓				✓	
Install new river gages along tributaries of the Fox River, including Little Rock Creek, Big Rock Creek, and Blackberry Creek. (Kendall County Mitigation Strategy No. 3)	✓						✓
Develop mutual aid agreements with local government entities to improve coordination and enhance emergency preparedness, response, recovery, and mitigation activities within the County. (Kendall County Mitigation Strategy No. 4)	✓					✓	
Conduct public education about the risks associated with the nuclear facilities located near the County. (Kendall County Mitigation Strategy No. 5)	✓					✓	

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County’s vulnerability since the 2011 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Kendall County has one infrastructure improvement project in progress that has the potential to decrease the vulnerability of hazard prone areas in the County and one administrative activity completed that decreases the vulnerability of inundation-prone areas in the County. It is still too early to tell the degree of reduction that will be experienced from the implantation of these actions. The County has one administrative activity completed that has the potential to decrease vulnerability to Communications Community Lifelines and one infrastructure project and two administrative activities that establish Communications Community Lifelines. However these projects and activities will not significantly change the vulnerability of hazard prone areas within the County.

Figure MIT-2
Kendall County – Status of Existing Mitigation Actions
(Sheet 2 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Install landscape barriers (living snow fences) along county-owned roads, including but not limited to Grover Road, Plainfield Road, Ridge Road, Wolf Road, County Line Road, and Plains Road to limit blowing and drifting of snow, ease hazardous driving conditions, and ensure continued functionality of a Community Lifeline. (Kendall County Mitigation Strategy No. 6)	✓						✓
Develop and update stormwater management plans and ordinances. (Kendall County Mitigation Strategy No. 7)		✓			Stormwater Management Plan completed December 21, 2010.	✓	
Implement a floodplain buyout program to acquire repetitive flood loss properties and remove existing structures in Black Hawk Springs and along the Fox River and Blackberry Creek in Oswego. (Kendall County Mitigation Strategy No. 13)	✓					✓	
Relocate the Edith Farnsworth House, a National Register of Historic Places site, to mitigate flood risk. (Kendall County Mitigation Strategy No. 13)	✓						✓

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County’s vulnerability since the 2011 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Kendall County has one infrastructure improvement project in progress that has the potential to decrease the vulnerability of hazard prone areas in the County and one administrative activity completed that decreases the vulnerability of inundation-prone areas in the County. It is still too early to tell the degree of reduction that will be experienced from the implantation of these actions. The County has one administrative activity completed that has the potential to decrease vulnerability to Communications Community Lifelines and one infrastructure project and two administrative activities that establish Communications Community Lifelines. However these projects and activities will not significantly change the vulnerability of hazard prone areas within the County.

Figure MIT-2
Kendall County – Status of Existing Mitigation Actions
(Sheet 3 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Purchase and install transfer switches at critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages. (Kendall County Mitigation Strategy No. 14)	✓						✓
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines. (Kendall County Mitigation Strategy No. 16)	✓						✓
Implement Nixle, an electronic mass notification system, to provide time sensitive alerts and warnings about hazard events to residents and establish a Communications Community Lifeline. (Kendall County Mitigation Strategy No. 17)			✓		Chose Everbridge		✓

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County’s vulnerability since the 2011 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Kendall County has one infrastructure improvement project in progress that has the potential to decrease the vulnerability of hazard prone areas in the County and one administrative activity completed that decreases the vulnerability of inundation-prone areas in the County. It is still too early to tell the degree of reduction that will be experienced from the implantation of these actions. The County has one administrative activity completed that has the potential to decrease vulnerability to Communications Community Lifelines and one infrastructure project and two administrative activities that establish Communications Community Lifelines. However these projects and activities will not significantly change the vulnerability of hazard prone areas within the County.

Figure MIT-2
Kendall County – Status of Existing Mitigation Actions
(Sheet 4 of 5)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Develop a Tactical Interoperable Communications Plan (TICP) to improve communications among local government entities, ensure resilient and reliable communications during a major hazard event and mitigate risk to Community Lifelines. (Kendall County Mitigation Strategy No. 19)			✓	2020			✓
Purchase mobile signage to alert the public of hazardous conditions, power outages, road closures/detours, etc. associated with hazard events. (Kendall County Mitigation Strategy No. 20)			✓	2021			✓
Conduct a Commodity Flow Study to determine the types and quantities of hazardous substances and chemicals being transported within and through the County to assess potential impacts on Community Lifelines. (Kendall County Mitigation Strategy No. 22)	✓						✓

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County’s vulnerability since the 2011 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Kendall County has one infrastructure improvement project in progress that has the potential to decrease the vulnerability of hazard prone areas in the County and one administrative activity completed that decreases the vulnerability of inundation-prone areas in the County. It is still too early to tell the degree of reduction that will be experienced from the implantation of these actions. The County has one administrative activity completed that has the potential to decrease vulnerability to Communications Community Lifelines and one infrastructure project and two administrative activities that establish Communications Community Lifelines. However these projects and activities will not significantly change the vulnerability of hazard prone areas within the County.

Figure MIT-2 Kendall County – Status of Existing Mitigation Actions (Sheet 5 of 5)							
Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Establish best practices for burying power lines to establish a resilient and reliable power supply, limit service disruptions, and mitigate risk to Community Lifelines. (Kendall County Mitigation Strategy No. 23)	✓						✓
Improve signage and signals at intersections with frequent accidents, including US Route 24 and US Route 30 and IL Route 71 and US Route 34. (Kendall County Mitigation Strategy No. 26)			✓		Ongoing by State of Illinois		✓

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the County’s vulnerability since the 2011 Plan was approved. The County did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Kendall County has one infrastructure improvement project in progress that has the potential to decrease the vulnerability of hazard prone areas in the County and one administrative activity completed that decreases the vulnerability of inundation-prone areas in the County. It is still too early to tell the degree of reduction that will be experienced from the implantation of these actions. The County has one administrative activity completed that has the potential to decrease vulnerability to Communications Community Lifelines and one infrastructure project and two administrative activities that establish Communications Community Lifelines. However these projects and activities will not significantly change the vulnerability of hazard prone areas within the County.

Figure MIT-3
Lisbon – Status of Existing Mitigation Actions

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information. (Kendall County Mitigation Strategy No. 1)		✓			Started a mass text program	✓	
Purchase and install transfer switches at critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages. (Kendall County Mitigation Strategy No. 14)		✓			manual transfer switches have been installed at two lift stations. A backup generator is going to be installed at wastewater treatment plant.	✓	
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines. (Kendall County Mitigation Strategy No. 16)	✓						✓
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems. (Kendall County Mitigation Strategy No. 21)		✓				✓	

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village’s vulnerability since the 2011 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Lisbon has one infrastructure improvement project in progress that has the potential to decrease vulnerability of Food, Water, Shelter Community Lifelines. It is still too early to tell the degree of reduction that will be experience from the implementation of this action. The Village also has one administrative activity in progress that establishes a Communications Community Lifeline. This activity however will not significantly change the vulnerability of hazard prone areas in the Village.

Figure MIT-4
Montgomery – Status of Existing Mitigation Actions
(Sheet 1 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information. (Kendall County Mitigation Strategy No. 1)	✓						✓
Purchase and install transfer switches at critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages. (Kendall County Mitigation Strategy No. 14)		✓				✓	
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines. (Kendall County Mitigation Strategy No. 16)		✓				✓	

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendices L and M.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village’s vulnerability since the 2011 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Montgomery has five infrastructure improvement projects completed or in progress that have the potential to decrease the vulnerability of inundation and flood-prone areas in the Village. It is still too early to tell the degree of reduction that will be experience from the implementation of these actions. The Village has three additional infrastructure projects in progress that have the potential to decrease vulnerability to Safety & Security and Food, Water, Shelter Community Lifelines or establish a Communications Community Lifeline. However these projects will not significantly change the vulnerability of hazard prone areas within the Village.

Figure MIT-4
Montgomery – Status of Existing Mitigation Actions
(Sheet 2 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems. (Kendall County Mitigation Strategy No. 21)		✓				✓	
Acquire properties in flood-prone areas and remove existing structures. (Kane County Mitigation Strategy No. 5)		✓				✓	
Elevate flood-prone structures out of base floodplains. (Kane County Mitigation Strategy No. 5)	✓						✓
Install warning station complete with monitoring station and SCADA system along Waubonsie Creek in the Parkview Estates neighborhood area to alert Village emergency responders of rising flood waters and allow for the safe evacuation of residents when necessary. (Kane County Mitigation Strategy No. 8.2)		✓				✓	
Purchase and install a new weather/emergency warning siren to cover the expansion of residential areas to the west and south without alert coverage to establish Communications Community Lifelines. (Kane County Mitigation Strategy No. 9.9)			✓	2014	Village installed a warning siren at 2325 Dickson Road		✓

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendices L and M.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village’s vulnerability since the 2011 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Montgomery has five infrastructure improvement projects completed or in progress that have the potential to decrease the vulnerability of inundation and flood-prone areas in the Village. It is still too early to tell the degree of reduction that will be experience from the implementation of these actions. The Village has three additional infrastructure projects in progress that have the potential to decrease vulnerability to Safety & Security and Food, Water, Shelter Community Lifelines or establish a Communications Community Lifeline. However these projects will not significantly change the vulnerability of hazard prone areas within the Village.

Figure MIT-4
Montgomery – Status of Existing Mitigation Actions
(Sheet 3 of 3)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
<i>Montgomery Overflow of Blackberry Creek:</i> Replace the drain tile and restore drainage to the overflow route letting the soils drain and restoring their water holding and infiltration capacity which will allow the Overflow to function better during flood events. (Kane County Mitigation Strategy No. 10.28)		✓				✓	
Implement three-phase plan to reduce basement flooding experienced in the Lakewood Creek West subdivision which backs up to a large parcel of ComEd with a depressional storage area. Phase I includes upsizing the detention basin restrictor plates at downstream detention basins to allow improved passage of stormwater. Phase II will be the installation of a 24-inch storm sewer to bypass the ComEd depressional storage area and transmit the stormwater to the existing Lakewood West detention basin system. Phase III will be the construction of a secondary storm sewer outfall through the adjoining Lakewood Creek storm sewer/detention system. (Kane County Mitigation Strategy No. 10.29)			✓	2018	Village installed 1,457 feet of 15” perforated ADS storm sewer pipe in ComEd easement		✓

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendices L and M.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village’s vulnerability since the 2011 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Montgomery has five infrastructure improvement projects completed or in progress that have the potential to decrease the vulnerability of inundation and flood-prone areas in the Village. It is still too early to tell the degree of reduction that will be experience from the implementation of these actions. The Village has three additional infrastructure projects in progress that have the potential to decrease vulnerability to Safety & Security and Food, Water, Shelter Community Lifelines or establish a Communications Community Lifeline. However these projects will not significantly change the vulnerability of hazard prone areas within the Village.

Figure MIT-5 Newark – Status of Existing Mitigation Actions							
Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information. (Kendall County Mitigation Strategy No. 1)		✓			Village has a resident notification system in place to send text/email to residents to warn of weather related and other hazards		✓
Purchase and install transfer switches at critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages. (Kendall County Mitigation Strategy No. 14)			✓	2017	Village has backup generators at each well site		✓
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines. (Kendall County Mitigation Strategy No. 16)	✓					✓	
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems. (Kendall County Mitigation Strategy No. 21)		✓				✓	

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village’s vulnerability since the 2011 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Newark has one infrastructure improvement project in progress that has the potential to decrease vulnerability of inundation and flood-prone areas in the Village. It is still too early to tell the degree of reduction that will be experience from the implementation of this action. The Village has one infrastructure project and one administrative activity in progress or completed that have the potential to decrease vulnerability to Safety & Security and Food, Water, Shelter Community Lifelines or establish a Communications Community Lifeline. However these actions will not significantly change the vulnerability of hazard prone areas within the Village.

Figure MIT-6
Oswego – Status of Existing Mitigation Actions

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information. (Kendall County Mitigation Strategy No. 1)			✓	2013	Radios installed		✓
Purchase and install transfer switches at critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages. (Kendall County Mitigation Strategy No. 14)		✓		2017	Installed at Village Hall and new Police Department	✓	
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines. (Kendall County Mitigation Strategy No. 16)	✓					✓	
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems. (Kendall County Mitigation Strategy No. 21)		✓				✓	

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the Village’s vulnerability since the 2011 Plan was approved. The Village did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Oswego has one infrastructure improvement project in progress that has the potential to decrease vulnerability of inundation and flood-prone areas in the Village. It is still too early to tell the degree of reduction that will be experience from the implementation of this action. The Village has one infrastructure project and one administrative activity in progress or completed that have the potential to decrease vulnerability to Safety & Security and Food, Water, Shelter Community Lifelines or establish a Communications Community Lifeline. However these actions will not significantly change the vulnerability of hazard prone areas within the Village.

Figure MIT-7
Plano – Status of Existing Mitigation Actions
(Sheet 1 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information. (Kendall County Mitigation Strategy No. 1)			✓	2012	Added when Plano Police Department was built		✓
Purchase and install transfer switches at critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages. (Kendall County Mitigation Strategy No. 14)			✓	2012	Completed at Plano Police Department, City Garage, Wastewater Treatment Plant		✓
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines. (Kendall County Mitigation Strategy No. 16)			✓	2012	Completed at Plano Police Department when it was built		✓

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City’s vulnerability since the 2011 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Plano has one infrastructure improvement project in progress that has the potential to decrease vulnerability of inundation and flood-prone areas in the City. It is still too early to tell the degree of reduction that will be experience from the implementation of this action. The City has two infrastructure projects and one administrative activity completed that have the potential to decrease vulnerability to Safety & Security and Food, Water, Shelter Community Lifelines or establish Communications Community Lifeline and an additional administrative activity in progress. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure MIT-7
Plano – Status of Existing Mitigation Actions
(Sheet 2 of 2)

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems. (Kendall County Mitigation Strategy No. 21)		✓			Ongoing and as needed	✓	
Develop an evacuation plan for hazardous materials incidents. (Kendall County Mitigation Strategy No. 27)		✓			EOP established in 2016 & revised annually	✓	

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City’s vulnerability since the 2011 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Plano has one infrastructure improvement project in progress that has the potential to decrease vulnerability of inundation and flood-prone areas in the City. It is still too early to tell the degree of reduction that will be experience from the implementation of this action. The City has two infrastructure projects and one administrative activity completed that have the potential to decrease vulnerability to Safety & Security and Food, Water, Shelter Community Lifelines or establish Communications Community Lifeline and an additional administrative activity in progress. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure MIT-8
Yorkville – Status of Existing Mitigation Actions

Mitigation Action Description	Status of Mitigation Action			Year Completed	Summary/Details of Completed Action (i.e., location, scope, etc.)	Status of No/In Progress Actions	
	No Progress (✓)	In Progress (✓)	Completed (✓)			Included in Updated Action Plan (✓)	No Longer Relevant (✓)
Ensure all critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information. (Kendall County Mitigation Strategy No. 1)		✓				✓	
Purchase and install transfer switches at critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages. (Kendall County Mitigation Strategy No. 14)		✓				✓	
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines. (Kendall County Mitigation Strategy No. 16)	✓						✓
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems. (Kendall County Mitigation Strategy No. 21)	✓						

(Mitigation Strategy “No.”) refers to the original action by number detailed in Appendix L.

No substantial changes in development have occurred in hazard prone areas that would increase or decrease the City’s vulnerability since the 2011 Plan was approved. The City did not identify any changes in priorities since the previous Plan was approved.

In terms of changes in vulnerability associated with mitigation actions in progress or completed, Yorkville has one infrastructure project and one administrative activity in progress or completed that have the potential to decrease vulnerability to Safety & Security and Food, Water, Shelter Community Lifelines or establish a Communications Community Lifeline. However these actions will not significantly change the vulnerability of hazard prone areas within the City.

Figure MIT-12
Kendall County Hazard Mitigation Actions
(Sheet 1 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Develop a list of at risk/socially vulnerable populations within the County in order to alert these individuals of hazard events and provide services such as check ins.	EC, EH, EQ, F, MMH, SS, SWS, T	C	LP&R E&A	Small SVI: 0.1222	---	---	4, 9	P2/P4	Low/High	Community Health Division & Environmental Health Division / Public Health Department	1-2 years	County	New
Partner with local fire departments/fire protection districts to distribute carbon monoxide detectors and public information on the risk to life and property associated with the natural and man-made hazards that impact the County and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.1222	---	---	4	P2/P4	Low/Medium	Emergency Response Specialist / Public Health Department	2-3 years	County	New
Strengthen professional workforce capabilities related to building code administration and enforcement activities by acquiring software and hardware to assist in building and structure permitting and enforcement.	EC, EH, F, SS, SWS, T	S&S	LP&R	Large SVI: 0.1222	Yes	Yes	1, 2, 6, 7, 8, 9	P1/P3	Medium/High	Planning, Building & Zoning Director	2-5 years	County / FEMA BRIC	New
Update Land Resource Management Plan for unincorporated areas of the County as well as the incorporated municipalities of Millbrook and Plattville.	F, SS	S&S	LP&R	Large SVI: 0.1222	Yes	Yes	2, 6, 7, 8	P2	Low/Medium	Planning, Building & Zoning Director	2-5 years	County	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the County’s size (approx. 32,700 individuals in unincorporated areas), projected population growth and budgetary constraints. The County works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-12
Kendall County Hazard Mitigation Actions
(Sheet 2 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Update the County's stormwater ordinance.	F, SS	S&S	LP&R	Large SVI: 0.1222	Yes	Yes	2, 6, 7	P2	Low/Medium	Planning, Building & Zoning Director	1-2 years	County	Existing (2011) No. 7
Implement a floodplain buyout program to acquire repetitive flood loss properties and remove existing structures in Black Hawk Springs and along the Fox River and Blackberry Creek in Oswego.	F	S&S	LP&R S&IP NSP	Small SVI: 0.1222	---	Yes	2, 4, 6	P1	Medium/High	Planning, Building & Zoning Director	2-5 years	County / FEMA BRIC FMA	Existing (2011) No. 13
Ensure all county-owned critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Small SVI: 0.1222	---	---	4	P2/P4	Low/High	EMA Director	1-5 years	County	Existing (2011) No. 1

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of "Yes", and/or an Economically Disadvantaged Rural Community (EDRC) designation of "Yes" identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the County's size (approx. 32,700 individuals in unincorporated areas), projected population growth and budgetary constraints. The County works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-12
Kendall County Hazard Mitigation Actions
(Sheet 3 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and distribute weather radios to county residents to establish a Communications Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Small SVI: 0.1222	---	---	4	P2/P4	Low/High	EMA Director	1-5 years	County	Existing (2011) No. 2
Develop mutual aid agreements with local government entities to improve coordination and enhance emergency preparedness, response, recovery, and mitigation activities within the County.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R	Large SVI: 0.1222	Yes	Yes	1, 2, 4, 5	P1	Low/Medium	Chair County Board / EMA Director / Sheriff	2-5 years	County	Existing (2011) No. 4
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the County, including the nearby nuclear facilities, and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.1222	---	---	3, 4	P2/P4	Low/Medium	EMA Director	1-5 years	County	New / Existing (2011) No. 5

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the County’s size (approx. 32,700 individuals in unincorporated areas), projected population growth and budgetary constraints. The County works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-12
Kendall County Hazard Mitigation Actions
(Sheet 4 of 4)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small SVI: 0.1222	Yes	Yes	2, 6, 7	P1	Low/High	Chair County Board / Planning, Building & Zoning Director	1-5 years	County	New
Continue to make the most recent Flood Insurance Rate Maps available at the Planning, Building & Zoning Department to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small SVI: 0.1222	Yes	---	2, 3, 4 6, 7	P2	Low/Medium	Planning, Building & Zoning Director	1-5 years	County	New
Continue to make County and Village officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small SVI: 0.1222	Yes	---	3	P2	Low/Medium	Planning, Building & Zoning Director	1-5 years	County	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the County’s size (approx. 32,700 individuals in unincorporated areas), projected population growth and budgetary constraints. The County works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP. The Kendall County Planning, Building & Zoning Department is responsible for the administration and enforcement of the County’s ordinances regulating the development of land in the unincorporated areas of the County as well as the incorporated villages of Millbrook and Plattville. Therefore, projects related to continued compliance with the National Flood Insurance Program for Plattville will originate with the County.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-13
Bristol-Kendall Fire Protection District Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install a natural gas emergency backup generator at Station 2 to establish a resilient and reliable power supply, ensure sustained functionality during extended power outages, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Medium SVI: 0.0103 – 0.3791 CEJST: No	---	Yes	1, 5, 9	P1/P3	Medium/High	Fire Chief / Board of Trustees	5 years	FPD / FEMA HMGP BRIC	New
Purchase and install a natural gas emergency backup generator at Station 3 to establish a resilient and reliable power supply, ensure sustained functionality during extended power outages, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Medium SVI: 0.0103 – 0.3791 CEJST: No	---	Yes	1, 5, 9	P1/P3	Medium/High	Fire Chief / Board of Trustees	5 years	FPD / FEMA HMGP BRIC	New
Purchase new base station radio antennas to maintain continuity of operations, ensure system functionality, and mitigate risk to Community Lifelines essential to human health and safety.	EC, EH, EQ, F, MMH, SS, SWS, t	C	S&IP	Large SVI: 0.0103 – 0.3791 CEJST: No	---	Yes	4, 5, 9	P1/P3	Medium/High	Fire Chief / Board of Trustees	2 years	FPD / FEMA BRIC	New
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0103 – 0.3791 CEJST: No	---	---	4	P2/P4	Low/Medium	Fire Chief / Board of Trustees	1-5 years	FPD	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a career fire protection district of this size (serving approx. 34,000 individuals in a service area of approx. 77 square miles.) Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-14
Kendall Township Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install an automatic emergency backup generator at the Township Building to establish a resilient and reliable power supply in order to maintain continuity of government/operations and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	Yes	1, 5, 9	P1/P3	Medium/High	Supervisor / Highway Commissioner / Board of Trustees	1 year	Township / FEMA BRIC HMGP	New
Install hardening materials (i.e., shatter-proof/impact resistant glass, hail resistant doors, roof anchoring system, etc.) at the Township Building to increase building resilience to natural and man-made hazards, maintain continuity of government/operations, protect staff and residents, and mitigate risk to Community Lifelines.	EQ, MMH, SS, T	S&S	S&IP	Large SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Supervisor	1-2 years	Township / FEMA BRIC HMGP	New
Identify locations within the Township that can be used as warming and/or cooling centers and secure agreements to formally designate each location as warming and/or cooling centers for use by Township residents.	EC, EH	---	LP&R	Medium SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	---	4	P2	Low/Medium	Supervisor / Clerk	1-2 years	Township	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small, rural township of this size (approx. 8,600 individuals). The Township works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:			
DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:			
C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:			
E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:			
P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-14
Kendall Township Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Design and construct a community safe room (built to high wind standards and equipped with emergency backup generators and HVAC systems) at the Township Building for use by staff and residents to establish a Community Lifeline.	SS, T	---	S&IP	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	---	4	P1/P3	Medium/High	Supervisor	2-5 years	Township / FEMA HMGP BRIC	New
Make public information materials available to Township residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Township and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	---	3, 4	P2/P4	Low/Medium	Supervisor / Clerk	1-5 years	Township	New
Upsize select drainage culverts and bridges within the Township to increase carry capacity, better manage stormwater runoff, alleviate recurring drainage/flood problems, and ensure system resilience and functionality.	F, SS	T	S&IP	Medium SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	Yes	1, 5, 9	P1	Medium/High	Road Commissioner	2-5 years	Township / IDOT Local Roads	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small, rural township of this size (approx. 8,600 individuals). The Township works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-14
Kendall Township Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and distribute NOAA weather radios to township employees to establish a Communications Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	---	4	P2/P4	Low/High	Supervisor / Highway Commissioner / Board of Trustees	1 year	Township	New
Purchase and install outdoor storm warning sirens in unincorporated areas of the Township to establish Community Lifelines essential to human health and safety.	SS, T	---	LP&R E&A	Medium SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	---	4	P1/P3	Medium/High	Supervisor / Board of Trustees	2-4 years	Township / FEMA BRIC HMGP	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small, rural township of this size (approx. 8,600 individuals). The Township works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-15
Lisbon Hazard Mitigation Actions
(Sheet 1 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Prepare and adopt a stormwater management plan and ordinance.	F, SS	S&S	LP&R	Large SVI: 0.1018 CEJST: No EDRC: Yes	Yes	Yes	2, 6, 7	P2	Medium/High	President / Village Board	4 years	Village / FEMA BRIC FMA	New
Evaluate the adoption and/or implementation of building codes, specifications, and/or standards that reduce structure risk and vulnerability to natural hazards and ensures community resilience. Adopt proposed building codes. Develop professional workforce capabilities related to building codes through technical assistance and training and/or engage a third-party contractor to support activities related to building code enforcement.	EC, EH, EQ, F, SS, SWS, T	S&S	LP&R	Large SVI: 0.1018 CEJST: No EDRC: Yes	Yes	Yes	1, 2, 7, 9	P1/P3	Medium/High	President / Village Board	4 years	Village / FEMA BRIC	New
Relocate Village Hall out of the base floodplain of an unnamed tributary.*	F	S&S	S&IP	Large SVI: 0.1018 CEJST: No EDRC: Yes	---	Yes	1, 5, 6, 9	P1	Medium/High	President / Village Board	5 years	Village / FEMA FMA	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (less than 300 individuals). Village works hard to provide the most critical of services to its residents, but it’s a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-15
Lisbon Hazard Mitigation Actions
(Sheet 2 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install outdoor storm warning sirens to establish Community Lifelines essential to human health and safety.	SS, T	---	LP&R E&A	Large SVI: 0.1018 CEJST: No EDRC: Yes	---	---	4	P1/P3	Medium/High	President / Village Board	2 years	Village / FEMA BRIC HMGP / USDA – RD Critical Facilities Programs	New
Construct public drinking water supply system, including water tower, for the Village to ensure community resilience to drought, alleviate public health concerns stemming from floodwater contamination of private wells, aid in fire suppression during natural hazard events, and establish a Community Lifeline.	DR, F, SS	---	S&IP	Large SVI: 0.1018 CEJST: No EDRC: Yes	---	---	1, 5, 9	P1/P3	High/High	President / Village Board	5 years	Village / USDA – RD Water & Waste Disposal Program / IEPA SRF – PWSLP	New
Trim and manage trees and maintain easements to minimize the number and duration of service disruptions, improve community resilience, and mitigate risk to Community Lifelines.	SS, SWS, T	C E T	S&IP	Medium SVI: 0.1018 CEJST: No EDRC: Yes	Yes	Yes	1, 4, 5, 9	P1/P3	Medium/Medium	President / Village Board	1-5 years	Village	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (less than 300 individuals). Village works hard to provide the most critical of services to its residents, but it’s a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:				Community Lifelines to be Mitigated:				Type of Mitigation Activity:			
DR	Drought	MMH	Man-Made Hazard	C	Communications	H&M	Health & Medical	E&A	Education & Awareness	NSP	Natural Systems Protection
EC	Extreme Cold	SS	Severe Storms	E	Energy (Power & Fuel)	S&S	Safety & Security	LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects
EH	Excessive Heat	SWS	Severe Winter Storm	FWS	Food, Water, Shelter	T	Transportation				
EQ	Earthquake	T	Tornado	HM	Hazardous Material						
F	Flood										
Priority:											
P1	High Priority	P3	Moderate Priority								
P2	Significant Priority	P4	Important								

Figure MIT-15
Lisbon Hazard Mitigation Actions
(Sheet 3 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Improve coordination between the Village, Township and County in an effort to help implement hazard mitigation projects and cleanup activities aimed at reducing or eliminating the risk associated with natural and man-made hazard events.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Large SVI: 0.1018 CEJST: No EDRC: Yes	---	---	1, 2, 4, 5, 9	P2/P4	Low/Medium	President / Village Board	5 years	Village	New
Bury power lines to Village-owned critical facilities and infrastructure to establish a resilient and reliable power supply, improve resiliency, limit service disruptions, and mitigate risk to Community Lifelines.	SS, SWS, T	C E S&S T	S&IP	Large SVI: 0.1018 CEJST: No EDRC: Yes	---	Yes	1, 5, 9	P1/P3	Medium/High	President / Village Board	5 years	Village / FEMA BRIC HMGP	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Village and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.1018 CEJST: No EDRC: Yes	---	---	3, 4	P2/P4	Low/Medium	President / Village Board	1-5 years	Village	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (less than 300 individuals). Village works hard to provide the most critical of services to its residents, but it’s a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-15
Lisbon Hazard Mitigation Actions
(Sheet 4 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Ensure all village-owned critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Small SVI: 0.1018 CEJST: No EDRC: Yes	---	---	4	P2/P4	Low/High	President / Board of Trustees	1-5 years	Village	Existing (2011) No. 1
Purchase and install transfer switches at critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages.	EC, EH, EQ, F, MMH, SS, SWS, T	C FWS SS T	S&IP	Large SVI: 0.1018 CEJST: No EDRC: Yes	---	Yes	1, 4, 5	P1/P3	Medium/High	President / Board of Trustees	2-5 years	Village / FEMA BRIC HMGP	Existing (2011) No. 14
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems.	F, SS	SS T	S&IP	Medium SVI: 0.1018 CEJST: No EDRC: Yes	Yes	Yes	1, 5, 9	P2	Low/Medium	President / Board of Trustees	1-5 years	Village	Existing (2011) No. 21

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (less than 300 individuals). Village works hard to provide the most critical of services to its residents, but it’s a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-15
Lisbon Hazard Mitigation Actions
(Sheet 5 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	Yes	2, 6, 7	P1	Low/High	President Village Board / Village Clerk	1-5 years	Village	New
Continue to make the most recent Flood Insurance Rate Maps available at the Village Clerk's Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	---	2, 3, 4 6, 7	P2	Low/Medium	Village Clerk	1-5 years	Village	New
Continue to make Village officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	---	3	P2	Low/Medium	Village Clerk	1-5 years	Village	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of "Yes", and/or an Economically Disadvantaged Rural Community (EDRC) designation of "Yes" identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (less than 300 individuals). Village works hard to provide the most critical of services to its residents, but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-16
Lisbon Consolidated Community School District #90 Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install an automatic emergency backup generator at Lisbon Grade School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.1018 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District / USDA – RD Critical Facilities Programs	New
Purchase and install a grounding system to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Large SVI: 0.1018 CEJST: No	Yes	Yes	1, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District	New
Perform periodic, district-wide, multi-jurisdiction training on the District’s Reunification Plan for police, fire, EMA, and District staff. This Plan outlines how students will be reunified with their parent/guardian in the event of a school crisis or emergency. Training will include familiarizing personnel with the resources the District can provide as a single source for communication data.	EQ, F, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.1018 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / Board of Education	5 years	School District	New

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[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small, rural school district of this size (serving approx. 500 individuals in a 44 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-16
Lisbon Consolidated Community School District #90 Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Develop a Redundant Communication Systems Plan that outlines the types of back-up communication modalities available within the District to ensure resilient and reliable communications in the event of a major hazard occurrence to mitigate risk to a Community Lifeline. The Plan should include an audit of the current communications infrastructure system within the District, infrastructure needs, timeline for upgrades and the financial impact associated with the improvements	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Large SVI: 0.1018 CEJST: No	---	---	1, 2, 5, 9	P2/P4	Low/Medium	Superintendent / Board of Education	5 years	School District	New
Purchase and install window safety film at the Grade School to increase building resilience to natural and man-made hazards, maintain continuity of operations, protect staff and students, and mitigate risk to a Community Lifeline.	EQ, MMH, SS, T	S&S	S&IP	Large SVI: 0.1018 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District / FEMA BRIC HMGP	New
Educate students and staff about the natural and man-made hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.1018 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / Board of Education	2-5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small, rural school district of this size (serving approx. 500 individuals in a 44 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-17
Lisbon-Seward Fire Protection District Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Develop partnerships with local government entities to improve coordination and implementation of floodplain management projects/activities to reduce flood risk/impacts within the District.	F, SS	S&S	LP&R	Medium SVI: 0.0103 – 0.1018 CEJST: No	---	---	1, 4, 5, 9	P2	Low/Medium	Fire Chief / Board of Trustees	5 years	FPD	New
Improve drainage characteristics (re-grade/contour areas, install curb, permeable pavement, etc.) around the Newark Fire Station to alleviate drainage/flooding problems that occur during/after heavy rain events, better manage stormwater runoff, and mitigate risk to a Community Lifeline.	F, SS	S&S	S&IP	Medium SVI: 0.0103 – 0.1018 CEJST: No	---	Yes	1, 5, 9	P1	Medium/Medium	Fire Chief / Board of Trustees	5 years	FPD / FEMA FMA	New
Coordinate with Newark Public Works Department regarding upgrades to drainage system along S. Canal St. and Joliet Rd. to better manage stormwater runoff, alleviate drainage/flooding problems around the Fire Station associated with heavy rain events and mitigate risk to Community Lifelines.	F, SS	S&S T	LP&R E&A	Medium SVI: 0.0103 – 0.1018 CEJST: No	---	---	1, 5, 9	P2	Low/Medium	Fire Chief / Board of Trustees	5 years	FPD	New

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[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 3,000 individuals in a service area of 62 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

Hazard(s) to be Mitigated:				Community Lifelines to be Mitigated:				Type of Mitigation Activity:			
DR	Drought	MMH	Man-Made Hazard	C	Communications	H&M	Health & Medical	E&A	Education & Awareness	NSP	Natural Systems Protection
EC	Extreme Cold	SS	Severe Storms	E	Energy (Power & Fuel)	S&S	Safety & Security	LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects
EH	Excessive Heat	SWS	Severe Winter Storm	FWS	Food, Water, Shelter	T	Transportation				
EQ	Earthquake	T	Tornado	HM	Hazardous Material						
F	Flood										
Priority:											
P1	High Priority			P3	Moderate Priority						
P2	Significant Priority			P4	Important						

Figure MIT-17
Lisbon-Seward Fire Protection District Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Conduct a study into the creation and enforcement of fire prevention codes within the District, including an inter-governmental agreement with Kendall County Planning, Building & Zoning Department to ensure cooperation and enforcement.	EQ, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.0103 – 0.1018 CEJST: No	---	---	1, 2, 4, 7	P2/P4	Low/Medium	Fire Chief / Board of Trustees	5 years	FPD	New
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at Fire Stations to improve system resilience and ensure continuity of operations of Community Lifelines.	SS	C S&S	S&IP	Large SVI: 0.0103 – 0.1018 CEJST: No	---	Yes	1, 5, 9	P1	Medium/High	Fire Chief / Board of Trustees	5 years	FPD	New
Coordinate with local government entities and electrical utilities within the District to strengthen/harden overhead power line infrastructure or bury power lines to improve resilience, limit service disruptions, and mitigate risk to Community Lifelines.	SS, SWS, T	E S&S T	LP&R E&A	Large SVI: 0.0103 – 0.1018 CEJST: No	---	---	1, 2, 5, 9	P2	Low/Medium	Fire Chief / Board of Trustees	5 years	FPD	New

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Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-17
Lisbon-Seward Fire Protection District Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Expand public education programs at schools and churches to include information not only on fire safety but also the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches individuals can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0103 – 0.1018 CEJST: No	---	---	3, 4	P2/P4	Low/Medium	Fire Chief / Public Education Officer	2 years	FPD	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 3,000 individuals in a service area of 62 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-18
Montgomery Hazard Mitigation Actions
(Sheet 1 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Complete drainage and floodplain storage improvements to the Montgomery Overflow of Blackberry Creek. The Overflow conveys floodwaters from Blackberry Creek to the Fox River during large flood events.	F, SS	S&S	S&IP	Medium SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	Yes	1, 5, 6, 9	P1	Medium/High	President Village Board / Public Works Director	5 years	Village / FEMA FMA BRIC	New
Design and construct a secondary access route into the Blackberry Heights subdivision to establish an alternate Transportation Community Lifeline for emergency services personnel in the event the primary access road is blocked.	EQ, F, MMH, SS, SWS, T	S&S T	S&IP	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	Yes	1, 4, 5, 9	P1/P3	High/High	President Village Board / Public Works Director	5 years	Village	New
Construct improvements to the Parkview Estates bypass channel which diverts water from Waubonsie Creek during large flood events, protecting the Parkview Estates neighborhood.	F, SS	S&S	S&IP	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	Yes	1, 5, 6, 9	P1	Medium/High	President Village Board / Public Works Director	5 years	Village / FEMA FMA BRIC	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 10,700 individuals). The Village works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-18
Montgomery Hazard Mitigation Actions
(Sheet 2 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Establish a unified flood warning system for the Fox River, Waubonsie Creek, and Blackberry Creek to monitor water levels and alert officials to potential flood events.	F, SS	S&S	LP&R E&A	Medium SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	---	---	2, 4, 9	P2	Medium/High	President Village Board / Public Works Director	5 years	Village	New
Design and construct a storm sewer system on Sherman Ave. to better manage stormwater runoff and alleviate recurring drainage problems experienced in this area.	F, SS	---	S&IP	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	Yes	1, 5, 9	P1	Medium/High	President Village Board / Public Works Director	5 years	Village / IEPA SRF – WPCLP	New
Construct Catherine Lane storm sewer outfall pipe improvements and regrade ditches to improve stormwater conveyance.	F, SS	FWS	S&IP	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	---	Yes	1, 5, 9	P1	Medium/Medium	President Village Board / Public Works Director	5 years	Village	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 10,700 individuals). The Village works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-18
Montgomery Hazard Mitigation Actions
(Sheet 3 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install transfer switches at village-owned critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages.	EC, EH, EQ, F, MMH, SS, SWS, T	C FWS SS T	S&IP	Large SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	---	Yes	1, 4, 5	P1/P3	Medium/High	President Village Board / Public Works Director	2-5 years	Village / FEMA BRIC HMGP	Existing (2011) Kendall No. 14
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at village-owned critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines.	SS	C FWS S&S T	S&IP	Large SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	---	Yes	1, 4, 5, 9	P1	Medium/High	President Village Board / Public Works Director	2-5 years	Village	Existing (2011) Kendall No. 16
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems.	F, SS	SS T	S&IP	Medium SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	Yes	1, 5, 9	P2	Low/Medium	Public Works Director	1-5 years	Village	Existing (2011) Kendall No. 21

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 10,700 individuals). The Village works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-18
Montgomery Hazard Mitigation Actions
(Sheet 4 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Acquire properties in flood-prone areas, with a focus on repetitive loss properties in River Street, Marviray Manor, and Parkview Estates, and remove existing structures.	F	S&S	S&IP NSP	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	---	Yes	2, 4, 6	P1	Medium/High	President Village Board / Public Works Director / Community Development Director	5 years	Village / FEMA BRIC FMA	Existing (2015) Kane No. 5
Install warning station complete with monitoring station and SCADA system along Waubonsie Creek in the Parkview Estates neighborhood area to alert village emergency responders of rising flood waters and allow for the safe evacuation of residents when necessary.	F, SS	S&S	S&IP E&A	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	---	---	4	P2	Medium/Medium	President Village Board / Public Works Director	2-5 years	Village	Existing (2015) Kane No. 8
<i>Montgomery Overflow of Blackberry Creek:</i> Upgrade the drain tile to restore drainage to the overflow route letting the soils drain and restoring their water holding and infiltration capacity which will allow the Overflow to function better during flood events.	F, SS	S&S	S&IP NSP	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	Yes	1, 5	P1	Medium/High	President Village Board / Public Works Director	5 years	Village / FEMA BRIC FMA	Existing (2015) Kane No. 10

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 10,700 individuals). The Village works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-18
Montgomery Hazard Mitigation Actions
(Sheet 5 of 5)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	Yes	2, 6, 7	P1	Low/High	President Village Board / Community Development Director	1-5 years	Village	New
Continue to make the most recent Flood Insurance Rate Maps available at the Community Development Department to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	---	2, 3, 4, 6, 7	P2	Low/Medium	Community Development Director	1-5 years	Village	New
Continue to make Village officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small SVI: 0.0622 – 0.9077 CEJST: No EDRC: No	Yes	---	3	P2	Low/Medium	Community Development Director	1-5 years	Village	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 10,700 individuals). The Village works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-19
Newark Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install a remote monitoring system (power loss notification/call system) at drinking water well sites that alert operators to power outages and surges caused by natural hazard events and mitigate risk to Community Lifelines.	SS, SWS, T	FWS	S&IP	Large SVI: 0.1018 CEJST: No EDRC: No	---	Yes	1, 5, 9	P1/P3	Medium/High	President Village Board / Public Works Director	1-2 years	Village	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Village and the proactive approaches they can take to reduce their risk.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.1018 CEJST: No EDRC: No	---	---	3, 4	P2/P4	Low/Medium	President Village Board / Public Works Director	1-5 years	Village	New
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at village-owned critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines.	SS	C FWS S&S T	S&IP	Large SVI: 0.1018 CEJST: No EDRC: No	---	Yes	1, 4, 5, 9	P1	Medium/High	President Village Board / Public Works Director	2-5 years	Village	Existing (2011) No. 16
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems.	F, SS	SS T	S&IP	Medium SVI: 0.1018 CEJST: No EDRC: No	Yes	Yes	1, 5, 9	P2	Low/Medium	President Village Board / Public Works Director	1-5 years	Village	Existing (2011) No. 21

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 1,200 individuals). The Village works hard to provide critical services to its residents, but it’s a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-19
Newark Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small SVI: 0.1018 CEJST: No EDRC: No	Yes	Yes	2, 6, 7	P1	Low/High	President Village Board / City Engineer	1-5 years	Village	New
Continue to make the most recent Flood Insurance Rate Maps available at the Village Clerk's Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small SVI: 0.1018 CEJST: No EDRC: No	Yes	---	2, 3, 4 6, 7	P2	Low/Medium	City Engineer	1-5 years	Village	New
Continue to make Village officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small SVI: 0.1018 CEJST: No EDRC: No	Yes	---	3	P2	Low/Medium	City Engineer	1-5 years	Village	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of "Yes", and/or an Economically Disadvantaged Rural Community (EDRC) designation of "Yes" identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 1,200 individuals). The Village works hard to provide critical services to its residents, but it's a struggle. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-20
Newark Community High School District #18 Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install an automatic emergency backup generator at Newark Community High School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0653 – 0.1018 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District / USDA – RD Critical Facilities Program	New
Purchase and install a grounding system to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Large SVI: 0.0653 – 0.1018 CEJST: No	Yes	Yes	1, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District	New
Perform periodic, district-wide, multi-jurisdiction training on the District's Reunification Plan for police, fire, EMA, and District staff. This Plan outlines how students will be reunified with their parent/guardian in the event of a school crisis or emergency. Training will include familiarizing personnel with the resources the District can provide as a single source for communication data.	EQ, F, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.0653 – 0.1018 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / Board of Education	5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small, rural school district of this size (serving approx. 3,000 individuals in a 101 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-20
Newark Community High School District #18 Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Develop a Redundant Communication Systems Plan that outlines the types of back-up communication modalities available within the District to ensure resilient and reliable communications in the event of a major hazard occurrence to mitigate risk to a Community Lifeline. The Plan should include an audit of the current communications infrastructure system within the District, infrastructure needs, timeline for upgrades and the financial impact associated with the improvements.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Large SVI: 0.0653 – 0.1018 CEJST: No	---	---	1, 2, 5, 9	P2/P4	Low/Medium	Superintendent / Board of Education	5 years	School District	New
Purchase and install window safety film at the High School to increase building resilience to natural and man-made hazards, maintain continuity of operations, protect staff and students, and mitigate risk to a Community Lifeline.	EQ, MMH, SS, T	S&S	S&IP	Large SVI: 0.0653 – 0.1018 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District / FEMA BRIC HMGP	New
Educate students and staff about the natural and man-made hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0653 – 0.1018 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / Board of Education	2-5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small, rural school district of this size (serving approx. 3,000 individuals in a 101 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-21
Newark Fire Protection District Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Identify dry hydrants within the District that can be used as filling stations to supply an uninterrupted flow of water to aid in fire suppression as necessary during natural hazard events.	DR, EQ, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.0653 – 0.1018 CEJST: No	---	---	4, 5, 9	P2/P4	Low/Medium	Fire Chief / Board of Trustees	5 years	FPD	New
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0653 – 0.1018 CEJST: No	---	---	3, 4	P2/P4	Low/Medium	Fire Chief / Board of Trustees	1-5 years	FPD	New
Identify alternate locations for District apparatus, equipment, gear, etc. in the event a natural hazard incident impacts the fire station to ensure continued functionality of a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Large SVI: 0.0653 – 0.1018 CEJST: No	---	---	4, 5, 9	P2/P4	Low/Medium	Fire Chief / Board of Trustees	2-5 years	FPD	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a small rural, all-volunteer fire protection district of this size (serving approx. 3,500 individuals in a service area of 64 square miles). Additional funding is necessary if implementation is to be achieved.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-22
Oswego Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Upsize culverts along major roadways within the Village and install detention basins at strategic locations to alleviate recurring flooding/roadway overtopping, increase carrying capacity to better manage stormwater runoff, and ensure resilience of and mitigate risk to a Community Lifeline. Currently overtopping is occurring with events less than the 100 year frequency.	F, SS	T	S&IP	Medium SVI: 0.0157 – 0.3557 CEJST: No EDRC: No	---	Yes	1, 5, 9	P1	Medium/High	Public Works Director	5-10 years	Village / FEMA HMGP BRIC	New
Ensure all village-owned critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Small SVI: 0.0157 – 0.3557 CEJST: No EDRC: No	---	---	4	P2/P4	Low/High	Public Works Director / Police Chief / Parks & Recreations Director / City Administrator	1-5 years	Village	Existing (2011) No. 1

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 34,300 individuals). The Village works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-22
Oswego Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install transfer switches at village-owned critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages.	EC, EH, EQ, F, MMH, SS, SWS, T	C FWS SS T	S&IP	Large SVI: 0.0157 – 0.3557 CEJST: No EDRC: No	---	Yes	1, 4, 5	P1/P3	Medium/High	Facilities Division / Public Works Director	1-5 years	City / FEMA BRIC HMGP	Existing (2011) No. 14
Purchase and install lightning suppression/grounding systems, power conditioning, and surge protection at village-owned critical facilities/infrastructure to improve system resilience and ensure continuity of operations of Community Lifelines.	SS	C FWS S&S T	S&IP	Large SVI: 0.0157 – 0.3557 CEJST: No EDRC: No	---	Yes	1, 4, 5, 9	P1	Medium/High	Facilities Division / Public Works Director	1-5 years	City	Existing (2011) No. 16
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems.	F, SS	S&S T	S&IP	Medium SVI: 0.0157 – 0.3557 CEJST: No EDRC: No	Yes	Yes	1, 5, 9	P2	Low/Medium	Public Works Director	1-5 years	City	Existing (2011) No. 21

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 34,300 individuals). The Village works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-22
Oswego Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small SVI: 0.0157 – 0.3557 CEJST: No EDRC: No	Yes	Yes	2, 6, 7	P1	Low/High	President Village Board / Building Inspector	1-5 years	Village	New
Continue to make the most recent Flood Insurance Rate Maps available at the Building & Permits Department to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small SVI: 0.0157 – 0.3557 CEJST: No EDRC: No	Yes	---	2, 3, 4 6, 7	P2	Low/Medium	Building Inspector	1-5 years	Village	New
Continue to make Village officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small SVI: 0.0157 – 0.3557 CEJST: No EDRC: No	Yes	---	3	P2	Low/Medium	Building Inspector	1-5 years	Village	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (approx. 34,300 individuals). The Village works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-23
Oswego Community Unit School District #308 Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install automatic emergency backup generators at all District schools to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District / FEMA HMGP	New
Purchase and install grounding systems district-wide to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	Yes	Yes	1, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District	New
Perform periodic, district-wide, multi-jurisdiction training on the District's Reunification Plan for police, fire, EMA, and District staff. This Plan outlines how students will be reunified with their parent/guardian in the event of a school crisis or emergency. Training will include familiarizing personnel with the resources the District can provide as a single source for communication data.	EQ, F, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / Board of Education	5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of "Yes", and/or an Economically Disadvantaged Rural Community (EDRC) designation of "Yes" identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a school district of this size (serving approx. 17,500 students in a 69 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-23
Oswego Community Unit School District #308 Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Develop a Redundant Communication Systems Plan that outlines the types of back-up communication modalities available within the District to ensure resilient and reliable communications in the event of a major hazard occurrence to mitigate risk to a Community Lifeline. The Plan should include an audit of the current communications infrastructure system within the District, infrastructure needs, timeline for upgrades and the financial impact associated with the improvements.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	1, 2, 5, 9	P2/P4	Low/Medium	Superintendent / Board of Education	5 years	School District	New
Purchase and install window safety film at all District buildings to increase building resilience to natural and man-made hazards, maintain continuity of operations, protect staff and students, and mitigate risk to a Community Lifeline.	EQ, MMH, SS, T	S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District / FEMA BRIC HMGP	New
Educate students and staff about the natural and man-made hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / Board of Education	2-5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a school district of this size (serving approx. 17,500 students in a 69 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-24
Oswego Fire Protection District Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	3, 4	P2/P4	Low/Medium	Fire Chief / Command Staff / Board of Trustees	1 year	FPD	New
Harden (i.e., shatter-proof glass, hail resistant doors, roof anchoring system, etc.) all District facilities to improve structure resilience to natural and man-made hazards, safeguard functionality/ continuity of operations, protect staff, and mitigate risk to Community Lifelines.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	---	Yes	1, 4, 5	P1/P3	High/High	Fire Chief / Command Staff / Board of Trustees	1-5 years	FPD / FEMA BRIC HMGP	New
Evaluate the need for additional outdoor warning sirens with the District to maximize system's effectiveness and establish community lifelines in areas without coverage essential to human health and safety.	SS, T	C	S&IP E&A	Medium SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Fire Chief / Command Staff / Board of Trustees	1-3 years	FPD	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a career fire protection district of this size (serving approx. 75,000 individuals in a service area of 52 square miles.) Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:				Community Lifelines to be Mitigated:				Type of Mitigation Activity:			
DR	Drought	MMH	Man-Made Hazard	C	Communications	H&M	Health & Medical	E&A	Education & Awareness	NSP	Natural Systems Protection
EC	Extreme Cold	SS	Severe Storms	E	Energy (Power & Fuel)	S&S	Safety & Security	LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects
EH	Excessive Heat	SWS	Severe Winter Storm	FWS	Food, Water, Shelter	T	Transportation				
EQ	Earthquake	T	Tornado	HM	Hazardous Material						
F	Flood										
Priority:											
P1	High Priority			P3	Moderate Priority						
P2	Significant Priority			P4	Important						

Figure MIT-24
Oswego Fire Protection District Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install outdoor warning sirens in areas without coverage to establish Community Lifelines essential to human health and safety.	SS, T	---	S&IP	Medium SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P1/P3	Medium/High	Fire Chief / Command Staff / Board of Trustees	2-5 years	FPD / FEMA BRIC HMGP	New
Secure a Memorandum of Agreement with the Fox Bluff Vacation Cottage & RV Resort to construct a community safe room, equipped with an emergency backup generator and HVAC system, for use by guests to establish a Food, Water, Shelter Community Lifeline.	SS, T	---	LP&R	Small SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Fire Chief / Command Staff / Board of Trustees	1-3 years	FPD	New
Construct a community safe room, equipped with an emergency backup generator and HVAC system, at the Fox Bluff Vacation Cottage & RV Resort for use by guests to establish a Food, Water, Shelter Community Lifeline.	SS, T	---	S&IP	Small SVI: 0.0103 – 0.5559 CEJST: No	Yes	---	4	P1/P3	Medium/High	Fire Chief / Command Staff / Board of Trustees	2-5 years	FPD / FEMA BRIC HMGP	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a career fire protection district of this size (serving approx. 75,000 individuals in a service area of 52 square miles.) Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-25
Oswego Township Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Upgrade and expand the stormwater sewer system in the unincorporated subdivision of Boulder Hill to eliminate stormwater infiltration, better manage stormwater runoff, increase storage and draining capacity, and ensure system resilience and functionality in an effort to address recurring heavy rain/flood events that overwhelm the current system.	F, SS	FWS	S&IP	Small SVI: 0.0103 – 0.5559 CEJST: No EDRC: No	Yes	Yes	1, 5, 9	P1	High/High	Highway Commissioner / Board of Trustees	3 years	Township / IEPA SRF – WPCLP	New
Purchase and install an automatic emergency backup generator at the Township Building, which also houses a substation of the Kendall County Sheriff's Office, to establish a resilient and reliable power supply in order to maintain continuity of government/operations and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No EDRC: No	---	Yes	1, 5, 9	P1/P3	Medium/High	Supervisor / Board of Trustees	1-2 years	Township / FEMA BRIC HMGP	New
Purchase NOAA weather radios for Township buildings to establish a Communications Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Small SVI: 0.0103 – 0.5559 CEJST: No EDRC: No	---	---	4	P2/P4	Low/High	Community Resource Officer	1 year	Township	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a township of this size (approx. 55,600 individuals.) The Township works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-25
Oswego Township Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Construct stormwater conveyance system along Harvey Rd. from Rance Rd. to Wolf Crossing Rd. to better manage stormwater runoff in an effort to address recurring flood problems experienced during heavy rain events that have damaged adjacent farmland.	F, SS	T	S&IP	Small SVI: 0.0103 – 0.5559 CEJST: No EDRC: No	---	Yes	1, 5, 9	P1	Medium/High	Highway Commissioner / Board of Trustees	3 years	Township / FEMA HMGP / IEPA SRF – WPCLP	New
Construct stormwater conveyance system along Douglas Rd. from Collins Rd. to Wolf Crossing Rd. to better manage stormwater runoff in an effort to address recurring flood problems experienced during heavy rain events that have damaged adjacent farmland.	F, SS	T	S&IP	Small SVI: 0.0103 – 0.5559 CEJST: No EDRC: No	---	Yes	1, 5, 9	P1	Medium/High	Highway Commissioner / Board of Trustees	3 years	Township / FEMA HMGP / IEPA SRF – WPCLP	New
Make public information materials available to Township residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Township and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0103 – 0.5559 CEJST: No EDRC: No	---	---	3, 4	P2/P4	Low/Medium	Highway Commissioner / Board of Trustees	1-5 years	Township	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by a township of this size (approx. 55,600 individuals.) The Township works hard to maintain critical services to its residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-26
Oswegoland Park District Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install lightning detection & notification system equipment at community/natural area parks within the District to provide patrons advance warning of dangerous weather conditions and establish a Community Lifeline.	SS	---	S&IP E&A	Medium SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P1	Medium/High	Director of Parks & Planning	2-5 years	Park District	New
Design and construct community safe rooms (built to high wind standards and equipped with emergency backup generators and HVAC systems) for use by staff/visitors at facilities and community/natural area parks within the District to establish Food, Water, Shelter Community Lifelines.	SS, T	---	S&IP	Medium SVI: 0.0103 – 0.5559 CEJST: No	Yes	---	4	P1/P3	Medium/High	Director of Parks & Planning	2-5 years	Park District / FEMA HMGP BRIC	New
Install permeable paver parking lots in parks to better manage stormwater runoff, reduce peak flows, filter and clean contaminants, and promote groundwater recharge.	F, SS	---	NSP S&IP	Medium SVI: 0.0103 – 0.5559 CEJST: No	---	Yes	1, 2, 8, 9	P1	Medium/High	Director of Parks & Planning	5 years	Park District /	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by park districts of this size (serving approx. 65,000 individuals in a service area of 38 square miles). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-26
Oswegoland Park District Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Make public information materials available to park patrons that inform them of the risks to life and property associated with natural and man-made hazards and the proactive actions that they can take to reduce or eliminate their risks.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Director of Parks & Planning	1-5 years	Park District / IEPA GIGO / FEMA BRIC	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of large-scale activities/projects is unlikely due to the budgetary constraints experienced by park districts of this size (serving approx. 65,000 individuals in a service area of 38 square miles). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-27
Parkview Christian Academy Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install automatic emergency backup generators at both Upper Campus and Lower Campus buildings to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / School Board	5 years	Academy	New
Purchase and install grounding systems at both Campuses to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	Yes	Yes	1, 5, 9	P1/P3	Medium/High	Superintendent / School Board	5 years	Academy	New
Perform periodic, multi-jurisdiction training on the Academy's Reunification Plan for police, fire, EMA, and staff. This Plan outlines how students will be reunified with their parent/guardian in the event of a school crisis or emergency. Training will include familiarizing personnel with the resources the Academy can provide as a single source for communication data.	EQ, F, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / School Board	5 years	Academy	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of "Yes", and/or an Economically Disadvantaged Rural Community (EDRC) designation of "Yes" identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, private school of this size (approx. 500 students). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-27
Parkview Christian Academy Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Develop a Redundant Communication Systems Plan that outlines the types of back-up communication modalities available to ensure resilient and reliable communications in the event of a major hazard occurrence to mitigate risk to a Community Lifeline. The Plan should include an audit of the current communications infrastructure system within the Academy, infrastructure needs, timeline for upgrades and the financial impact associated with the improvements.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	1, 2, 5, 9	P2/P4	Low/Medium	Superintendent / School Board	5 years	School District	New
Purchase and install window safety film at both Campus buildings to increase building resilience to natural and man-made hazards, maintain continuity of operations, protect staff and students, and mitigate risk to a Community Lifeline.	EQ, MMH, SS, T	S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / School Board	1-5 years	School District	New
Educate students and staff about the natural and man-made hazards that have the potential to impact the Academy and the proactive actions they can take to reduce their risks.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / School Board	1-5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, private school of this size (approx. 500 students). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-27
Parkview Christian Academy Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Update evacuation plan/escape route materials for each classroom.	EQ, F, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / School Board	1-5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, private school of this size (approx. 500 students). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-28
Plano Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the City and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Medium SVI: 0.2833 – 0.3791 CEJST: No EDRC: No	---	---	3, 4	P2/P4	Low/Medium	President Village Board / Public Works Director	1-5 years	City	New
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems.	F, SS	S&S T	S&IP	Medium SVI: 0.2833 – 0.3791 CEJST: No EDRC: No	Yes	Yes	1, 5, 9	P2	Low/Medium	Public Works Director	2-5 years	City	Existing (2011) No. 21
Review/revise evacuation plan for hazardous materials incidents.	MMH	---	LP&R E&A	Large SVI: 0.2833 – 0.3791 CEJST: No EDRC: No	---	---	2, 4, 9	P4	Low/Medium	Mayor City Council / Police Lieutenant	1 year	City	Existing (2011) No. 27

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a city of this size (approx. 11,000 individuals). The City works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-28
Plano Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small SVI: 0.2833 – 0.3791 CEJST: No EDRC: No	Yes	Yes	2, 6, 7	P1	Low/High	Mayor City Council / City Engineer	1-5 years	City	New
Continue to make the most recent Flood Insurance Rate Maps available at the Building, Planning & Zoning Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small SVI: 0.2833 – 0.3791 CEJST: No EDRC: No	Yes	---	2, 3, 4 6, 7	P2	Low/Medium	City Engineer / Building, Planning & Zoning Director	1-5 years	City	New
Continue to make City officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small SVI: 0.2833 – 0.3791 CEJST: No EDRC: No	Yes	---	3	P2	Low/Medium	City Engineer / Building, Planning & Zoning Director	1-5 years	City	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a city of this size (approx. 11,000 individuals). The City works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-29
Plano Community Unit School District #88 Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install automatic emergency backup generators at all District schools to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0653 – 0.3791 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District / FEMA HMGP	New
Purchase and install grounding systems district-wide to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Large SVI: 0.0653 – 0.3791 CEJST: No	Yes	Yes	1, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District	New
Perform periodic, district-wide, multi-jurisdiction training on the District's Reunification Plan for police, fire, EMA, and District staff. This Plan outlines how students will be reunified with their parent/guardian in the event of a school crisis or emergency. Training will include familiarizing personnel with the resources the District can provide as a single source for communication data.	EQ, F, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.0653 – 0.3791 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / Board of Education	5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of "Yes", and/or an Economically Disadvantaged Rural Community (EDRC) designation of "Yes" identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a rural school district of this size (serving approx. 12,000 individuals in a 40 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-29
Plano Community Unit School #88 District Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Develop a Redundant Communication Systems Plan that outlines the types of back-up communication modalities available within the District to ensure resilient and reliable communications in the event of a major hazard occurrence to mitigate risk to a Community Lifeline. The Plan should include an audit of the current communications infrastructure system within the District, infrastructure needs, timeline for upgrades and the financial impact associated with the improvements.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Large SVI: 0.0653 – 0.3791 CEJST: No	---	---	1, 2, 5, 9	P2/P4	Low/Medium	Superintendent / Board of Education	5 years	School District	New
Purchase and install window safety film at all District buildings to increase building resilience to natural and man-made hazards, maintain continuity of operations, protect staff and students, and mitigate risk to a Community Lifeline.	EQ, MMH, SS, T	S&S	S&IP	Large SVI: 0.0653 – 0.3791 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Superintendent / Board of Education	5 years	School District / FEMA BRIC HMGP	New
Educate students and staff about the natural and man-made hazards that have the potential to impact the District and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0653 – 0.3791 CEJST: No	---	---	4	P2/P4	Low/Medium	Superintendent / Board of Education	2-5 years	School District	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a rural school district of this size (serving approx. 12,000 individuals in a 40 square-mile area). Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

**Figure MIT-30
Plattville Hazard Mitigation Actions**

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Secure a Memorandum of Agreement with the UPA Hall to construct a community safe room, equipped with an emergency backup generator and HVAC system, for use by Village residents to establish a Community Lifeline.	SS, T	---	LP&R	Medium SVI: 0.1018 CEJST: No EDRC: No	---	---	4	P1/P3	Low/Medium	President / Village Board	1-3 years	Village	New
Design and construct a community safe room (built to high wind standards and equipped with emergency backup generators and HVAC systems) at the UPA Hall for use by Village residents to establish a Community Lifeline.	SS, T	---	S&IP	Medium SVI: 0.1018 CEJST: No EDRC: No	Yes	---	4	P1/P3	High/High	President / Village Board	2-5 years	Village / FEMA HMGP BRIC	New
Make public information materials available to residents that detail the risks to life and property associated with the natural and man-made hazards that impact the Village and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.1018 CEJST: No EDRC: No	---	---	3, 4	P2/P4	Low/Medium	President / Village Board	1-5 years	Village	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a village of this size (less than 200 individuals). The Village struggles to provide even the most critical of services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

The Kendall County Planning, Building & Zoning Department is responsible for the administration and enforcement of the County’s ordinances regulating the development of land in Plattville. Therefore, projects related to continued compliance with the National Flood Insurance Program for Plattville will originate with the County.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-31
Sandwich Community Fire Protection District Hazard Mitigation Actions

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install an emergency backup generator at the fire station to establish a resilient and reliable power supply, ensure sustained functionality during extended power outages, maintain continuity of operations, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0653 – 0.3791 CEJST: No	---	Yes	1, 5, 9	P1/P3	Medium/High	Fire Chief / Board of Trustees	5 years	FPD / FEMA HMGP BRIC	New
Make public information materials available to District residents that detail the risks to life and property associated with the natural and man-made hazards that impact the District and the proactive approaches they can take to reduce their risk.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0653 – 0.3791 CEJST: No	---	---	4	P2/P4	Low/Medium	Fire Chief / Board of Trustees	1-5 years	FPD	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a combination (career/volunteer) fire protection district of this size (serving approx. 10,000 individuals in a service area of 70 square miles.) Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-32
St. Mary Catholic School Hazard Mitigation Actions
(Sheet 1 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install an automatic emergency backup generator at St. Mary School to establish a resilient and reliable power supply in order to maintain continuity of operations, ensure sustained functionality during extended power outages, and mitigate risk to a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Principal / School Board	5 years	School	New
Purchase and install a grounding system to protect critical infrastructure (i.e., computers, electrical systems, HVAC, etc.), improve infrastructure resilience, and ensure continued operations of Community Lifelines.	SS	C S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	Yes	Yes	1, 5, 9	P1/P3	Medium/High	Principal / School Board	5 years	School	New
Perform periodic, multi-jurisdiction training on the Academy's Reunification Plan for police, fire, EMA, and staff. This Plan outlines how students will be reunified with their parent/guardian in the event of a school crisis or emergency. Training will include familiarizing personnel with the resources the School can provide as a single source for communication data.	EQ, F, MMH, SS, T	S&S	LP&R E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Principal / School Board	5 years	School	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of "Yes", and/or an Economically Disadvantaged Rural Community (EDRC) designation of "Yes" identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, private schools. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:				Community Lifelines to be Mitigated:				Type of Mitigation Activity:			
DR	Drought	MMH	Man-Made Hazard	C	Communications	H&M	Health & Medical	E&A	Education & Awareness	NSP	Natural Systems Protection
EC	Extreme Cold	SS	Severe Storms	E	Energy (Power & Fuel)	S&S	Safety & Security	LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects
EH	Excessive Heat	SWS	Severe Winter Storm	FWS	Food, Water, Shelter	T	Transportation				
EQ	Earthquake	T	Tornado	HM	Hazardous Material						
F	Flood										
Priority:											
P1	High Priority	P3	Moderate Priority								
P2	Significant Priority	P4	Important								

Figure MIT-32
St. Mary Catholic School Hazard Mitigation Actions
(Sheet 2 of 2)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Develop a Redundant Communication Systems Plan that outlines the types of back-up communication modalities available to ensure resilient and reliable communications in the event of a major hazard occurrence to mitigate risk to a Community Lifeline. The Plan should include an audit of the current communications infrastructure system, infrastructure needs, timeline for upgrades and the financial impact associated with the improvements.	EC, EH, EQ, F, MMH, SS, SWS, T	S&S	LP&R E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	1, 2, 5, 9	P2/P4	Low/Medium	Principal / School Board	5 years	School	New
Purchase and install window safety film at the School to increase building resilience to natural and man-made hazards, maintain continuity of operations, protect staff and students, and mitigate risk to a Community Lifeline.	EQ, MMH, SS, T	S&S	S&IP	Large SVI: 0.0103 – 0.5559 CEJST: No	---	Yes	1, 4, 5, 9	P1/P3	Medium/High	Principal / School Board	1-5 years	School	New
Educate students and staff about the natural and man-made hazards that have the potential to impact the School and the proactive actions they can take to reduce their risks.	DR, EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Large SVI: 0.0103 – 0.5559 CEJST: No	---	---	4	P2/P4	Low/Medium	Principal / School Board	1-5 years	School	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by small, private schools. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:

DR	Drought	MMH	Man-Made Hazard
EC	Extreme Cold	SS	Severe Storms
EH	Excessive Heat	SWS	Severe Winter Storm
EQ	Earthquake	T	Tornado
F	Flood		

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-33
Yorkville Hazard Mitigation Actions
(Sheet 1 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Evaluate outdoor warning siren system needs within the City. Purchase and install a new emergency warning siren system to maximize the system's effectiveness and ensure continued operations Communications Community Lifelines essential to human health and safety.	SS, T	C	S&IP E&A	Large SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	---	4	P1/P3	Medium/High	Mayor City Council / Public Works Director	2-5 years	City / FEMA BRIC HMGP	New
Purchase P25-compliant interoperable land mobile radio system to allow City personnel to exchange critical communications across departments, agencies, and jurisdictions to maintain continuity of government/operations and ensure system resilience and functionality of a Community Lifeline.	EC, EH, EQ, F, MMH, SS, SWS, T	C	S&IP	Large SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	---	1, 2, 5, 9	P1/P3	High/High	Mayor City Council / Public Works Director / Police Chief	2-5 years	City / FEMA BRIC HMGP	New
Ensure all city-owned critical facilities are equipped with weather radios to establish a Communications Community Lifeline that notifies staff and residents of natural and man-made hazard event information.	EC, EH, EQ, F, MMH, SS, SWS, T	---	E&A	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	---	4	P2/P4	Low/High	Mayor City Council / Police Chief / Public Works Director	1-5 years	City	Existing (2011) No. 1

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a City of this size (approx. 20,500 individuals). The City works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

Acronyms

Hazard(s) to be Mitigated:			
EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:			
C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:			
E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:			
P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-33
Yorkville Hazard Mitigation Actions
(Sheet 2 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Purchase and install transfer switches at city-owned critical facilities/infrastructure to provide emergency backup power, ensure continued operations of Community Lifelines, and maintain continuity of government/operations during extended power outages.	EC, EH, EQ, F, MMH, SS, SWS, T	C FWS S&S T	S&IP	Large SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	---	Yes	1, 4, 5	P1/P3	Medium/High	Mayor City Council / Public Works Director	2-5 years	City / FEMA BRIC HMGP	Existing (2011) No. 14
Conduct stream and ditch maintenance along streams in developed areas to maximize carrying/storage capacity and reduce flood problems.	F, SS	S&S T	S&IP	Medium SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	Yes	1, 5, 9	P2	Low/Medium	Mayor City Council / Public Works Director	2-5 years	City	Existing (2011) No. 21
Review new Flood Insurance Rate Maps (FIRMs) when they become available. Update the flood ordinance to exceed federal standards and reflect the revised FIRMs and present both for adoption. Enforce flood ordinance to ensure new development does not increase flood vulnerability or create unintended exposures to flooding.*	F	S&S	LP&R	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	Yes	2, 6, 7	P1	Low/High	Mayor City Council / City Administrator	1-5 years	City	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a City of this size (approx. 20,500 individuals). The City works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

Figure MIT-33
Yorkville Hazard Mitigation Actions
(Sheet 3 of 3)

Activity/Project Description	Hazard(s) to be Mitigated	Community Lifeline(s) to be Mitigated	Type of Mitigation Activity	Population Affected (Size, SVI, CEJST, and/or EDRC) [§]	Reduce Effects of Hazard(s) on Buildings & Infrastructure		Goal(s) Met	Priority	Cost/Benefit Analysis	Organization / Department Responsible for Implementation & Administration	Time Frame to Complete Activity	Funding Source(s) [†]	Status
					New	Existing							
Continue to make the most recent Flood Insurance Rate Maps available at the Building Safety & Zoning Office to assist the public in considering where to construct new buildings.*	F	S&S	E&A	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	---	2, 3, 4 6, 7	P2	Low/Medium	City Administrator / Building Code Official	1-5 years	City	New
Continue to make City officials aware of the most recent Flood Insurance Rate Maps and issues related to construction in a floodplain.*	F	S&S	E&A	Small SVI: 0.0653 – 0.2508 CEJST: No EDRC: No	Yes	---	3	P2	Low/Medium	City Administrator	1-5 years	City	New

[§] Size refers to the general size of the population affected (i.e., small, medium, or large, while a Social Vulnerability Index (SVI) ranking of 0.6 or greater, a Climate and Economic Justice Screening Tool (CEJST) designation of “Yes”, and/or an Economically Disadvantaged Rural Community (EDRC) designation of “Yes” identifies potentially underserved communities and/or socially vulnerable populations using the SVI, CEJST, and EDRC as described in Section 1.2.

[†] Identifies the most likely funding source to be pursued for the activity/project described. However, if funding is unavailable through the most likely or other suggested sources, then implementation of medium to large-scale activities/projects is unlikely due to the budgetary constraints experienced by a City of this size (approx. 20,500 individuals). The City works hard to maintain critical services to residents. Additional funding is necessary if implementation is to be achieved within the time frames specified.

* Mitigation action to ensure continued compliance with NFIP.

Acronyms

Hazard(s) to be Mitigated:

EC	Extreme Cold	MMH	Man-Made Hazard
EH	Excessive Heat	SS	Severe Storms
EQ	Earthquake	SWS	Severe Winter Storm
F	Flood	T	Tornado

Community Lifelines to be Mitigated:

C	Communications	H&M	Health & Medical
E	Energy (Power & Fuel)	S&S	Safety & Security
FWS	Food, Water, Shelter	T	Transportation
HM	Hazardous Material		

Type of Mitigation Activity:

E&A	Education & Awareness	NSP	Natural Systems Protection
LP&R	Local Plans & Regulations	S&IP	Structure & Infrastructure Projects

Priority:

P1	High Priority	P3	Moderate Priority
P2	Significant Priority	P4	Important

5.0 PLAN MAINTENANCE

This section focuses on the Federal Emergency Management Agency (FEMA) requirements for maintaining and updating the Plan once it has been approved by FEMA and adopted by the participating jurisdictions. These requirements include:

- establishing the method and schedule for monitoring, evaluating and updating the Plan;
- describing how the requirements of the Plan will be incorporated into existing planning mechanisms; and
- detailing how continued public input will be obtained during the plan maintenance process.

These requirements ensure that the Plan remains an effective and relevant document. The following provides a detailed discussion of each requirement.

5.1 MONITORING, EVALUATING & UPDATING THE PLAN

Outlined below is a method and schedule for monitoring, evaluating, and updating the Plan. This method allows the participating jurisdictions to make necessary changes and updates to the Plan and track the implementation and results of the mitigation actions that have been undertaken.

5.1.1 Monitoring and Evaluating the Plan

The Plan update will be monitored and evaluated by a Plan Maintenance Subcommittee on an annual basis. The Subcommittee will be composed of the participating jurisdictions who sought Plan approval and other key members of the Committee. The Kendall County Emergency Management Agency (EMA) will chair the Plan Maintenance Subcommittee.

The Kendall County EMA will assume lead responsibility for monitoring and tracking the implementation status of the mitigation actions identified in the Plan update. It will be the responsibility of each Plan participant to provide the Kendall County EMA with an annual progress report on the status of their existing mitigation actions and identify whether any actions need to be modified. New mitigation actions may be added to the Plan during the annual monitoring and evaluation period or at any time during the plan maintenance cycle by contacting the Kendall County EMA and providing the appropriate information.

Monitoring & Evaluating

- ❖ A Plan Maintenance Subcommittee will be formed to monitor and evaluate the Plan update.
- ❖ The *Plan update will be monitored and evaluated* on an *annual basis*.
- ❖ Each Plan participant will be responsible for providing an annual progress report on the status of their mitigation actions.
- ❖ Plan participants can add *new mitigation actions* to the Plan *during the annual monitoring phase or by contacting* the Kendall County EMA.

The Kendall County EMA together with the Plan Maintenance Subcommittee will also evaluate the Plan update on an annual basis to determine the effectiveness of the Plan at achieving its stated purpose and goals. In order to evaluate the effectiveness of the Plan update, the Subcommittee will review the mitigation actions that have been successfully implemented and determine whether the action achieved the identified goal(s) and had the intended result (i.e., losses were avoided, or the vulnerability of hazard-prone areas were reduced).

The Subcommittee will also ask each Plan participant to identify any significant changes in development or priorities that have occurred within the previous 12 months; whether any new plans, policies, regulations, or reports have been adopted; and if any hazard-related damages to the jurisdiction's assets have been sustained (i.e., people, critical facilities, infrastructure, and systems, and/or natural, historic, and cultural resources).

In order to streamline the plan maintenance process, the Kendall County EMA will provide each Plan participant with a Plan Maintenance Checklist along with the necessary forms to complete and return. **Appendix N** contains a copy of Checklist and associated forms.

The Kendall County EMA will then prepare a progress report detailing the results of the annual Plan monitoring and evaluation period and provide copies to the Subcommittee. The annual progress report will include:

- information on any hazard-related damages sustained by assets within the planning area during the previous year.
- implementation status of the mitigation actions identified in the Mitigation Strategy.
- identification of any new mitigation actions proposed by the Plan participants.
- information on changes in development, priorities, and planning and regulatory capabilities for the Plan participants.
- identification of how information will be disseminated to stakeholders and constituents on the Plan and its progress in effort to seek continued public participation.

If any existing mitigation actions are modified or new mitigation actions are identified for the Plan participants, then Section 4.7 of the Mitigation Strategy will be updated, and the Plan update resubmitted to the Illinois Emergency Management Agency (IEMA) and FEMA for reference.

On an as needed basis the Kendall County EMA, in consultation with the Subcommittee, will evaluate requests from non-participating jurisdictions to “join” the Plan before the five-year update. Consideration will be given if certain conditions are met as outlined in Appendix D of *FEMA's Local Mitigation Planning Policy Guide*.

5.1.2 Updating the Plan

The Plan must be updated within five years of the of the Plan approval date indicated on the signed FEMA final approval letter. (This date can be found in Section 6, Plan Adoption.) This ensures that all the participating jurisdictions will remain eligible to receive federal grant funds to implement those mitigation actions identified in this Plan.

The Kendall County EMA, with assistance from the Plan Maintenance Subcommittee, will be responsible for updating the Plan. The update will

Updating the Plan

- ❖ The Kendall County EMA, with assistance from the Plan Maintenance Subcommittee, will be responsible for updating the Plan.
- ❖ The Plan ***must be updated within 5 years of the date of the final approval letter*** provided by FEMA.
- ❖ Once the Plan update has received FEMA/IEMA approval, each participating jurisdiction ***must adopt the Plan to remain eligible to receive federal mitigation funds.***

incorporate all of the information gathered during the monitoring and evaluation phase and will also include:

- ❖ a review of the Mitigation Strategy, including potential updates to the mitigation goals and prioritization methodology;
- ❖ an evaluation of whether additional natural hazards need to be addressed or included in the Plan;
- ❖ a review of new hazard data that may affect the Risk Assessment Section;
- ❖ identification of any changes in priorities within each participating jurisdiction; and
- ❖ identification of any changes in development that have occurred in hazard prone areas that would increase or decrease the participating jurisdictions' vulnerability.

A Planning Committee will be reformed to update the Plan and a public involvement strategy similar to the one employed for this Plan update will be implemented to ensure that the public and stakeholders have ample opportunities to become engaged and provide input during the development of the Plan update. In addition, any jurisdictions that did not take part in the previous Plan update may do so at this time. It will be the responsibility of these jurisdictions to provide all of the information needed to be integrated into the Plan update.

A public forum will be held to present the Plan update to the public for review and comment. The comments received at the public forum will be reviewed and incorporated into the Plan update. The Plan update will then be submitted to IEMA and FEMA for review and approval. ***Once the Plan update has received state and federal approval, FEMA requires that each of the participating jurisdictions adopt the Plan to remain eligible to receive federal funds to implement identified mitigation actions.***

5.2 INCORPORATING THE MITIGATION STRATEGY INTO EXISTING PLANNING MECHANISMS

As part of the planning process, the Committee identified each participating jurisdiction's existing capabilities (i.e., existing authorities, policies, programs, technical information, etc.) and resources available to support or accomplish mitigation and reduce long-term vulnerability. **Figures PP-3 through PP-14** identify the existing authorities, policies, programs, technical information, and resources available by capability type by jurisdiction. ***It will be the responsibility of each participating jurisdiction to incorporate, where applicable, the mitigation strategy and other information contained in the Plan update into the planning mechanisms identified for their jurisdiction.***

Adoption of this Plan update will trigger each participating jurisdiction to review and, where appropriate, integrate the Plan into other available planning mechanisms. The Plan Maintenance Subcommittee's annual review will help maintain awareness of the Plan among the participating jurisdictions and encourage active integration of the Plan into their day-to-day operations and planning mechanisms. Any time a mitigation action is slated for implementation by a participating jurisdiction, it will be integrated into their capital improvement plan/budget.

Several of the participating jurisdictions, including Kendall County, Montgomery, Oswego, Plano, Yorkville, have identified the need to adopt, review, and/or strengthen current policies or programs

in the near future. Several of the participating jurisdictions, Lisbon, Plattville, Kendall Township, Parkview Christian Academy, and St. Mary Catholic School, have limited capabilities to integrate the mitigation strategy and other information contained in the Plan update into existing planning mechanisms. These jurisdictions are smaller in size and may not have the financial resources or trained personnel to develop planning mechanisms such as comprehensive plans or building and zoning ordinances.

5.3 CONTINUED PUBLIC INVOLVEMENT

The County and participating jurisdictions understand the importance of continued public involvement and will seek public input on the Plan update throughout the plan maintenance cycle. Any meetings held by the Plan Maintenance Subcommittee will be noticed and open to the public. Stakeholders and the public will be encouraged to participate and provide feedback. Following distribution of the annual progress report, each participating jurisdiction will be encouraged to discuss the findings at their monthly board/council meetings to help maintain awareness of the Plan and encourage integration of the Plan in day-to-day operations.

Participating jurisdictions will also be encouraged to make the annual progress report available via social media and on their websites, as available, and at their offices. As the lead organization responsible for maintaining the Plan update, the Kendall County EMA will also periodically post mitigation-related topics to social media including where to access the approved Plan, information on the hazards that have the potential to impact the County, interesting facts about each hazard, and no or low-cost actions that residents can take to reduce their risk from natural hazards.

A copy of the approved Plan will be maintained and available for review at the Kendall County EMA Office and on the County's website. Individuals will be encouraged to provide feedback and submit comments for the next Plan update to the Kendall County EMA Office. The comments received will be compiled and included in the annual progress report and considered for incorporation into the next Plan update. Separate Committee meetings and a public forum will be held prior to the next Plan update submittal to ensure that the public and stakeholders have ample opportunity to become engaged, provide input during the development of the Plan update, and comment on the proposed revision to the Plan update.

6.0 PLAN ADOPTION

The final step in the planning process is the adoption of the approved Plan update by each participating jurisdiction. Each jurisdiction must formally adopt the Plan to become or remain eligible for federal grant funds to implement mitigation actions identified in this Plan.

6.1 PLAN ADOPTION PROCESS

Before the Plan update could be adopted by the participating jurisdictions, it was made available for public review and comment through a public forum and comment period. Comments received were incorporated into the Plan update and the Plan was then submitted to the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) and the Federal Emergency Management Agency (FEMA) for their review and approval.

Upon receipt of the Approval Pending Adoption (APA) letter from FEMA, the Plan update was presented to the County and participating jurisdictions for adoption. ***Each participating jurisdiction was required to formally adopt*** the Plan to become or remain eligible to receive federal grant funds to implement the mitigation actions identified in this Plan. Any jurisdiction that chose not to adopt the Plan update did not affect the eligibility of those who did.

Figure PA-1 identifies the participating jurisdictions and the date each formally adopted the Plan update. Signed copies of the adoption resolutions are located in **Appendix O**. FEMA signed the final approval letter on (Date) which began the five-year approval period and set the expiration date of (Date) for the Plan.

Figure PA-1 Plan Adoption Dates	
Participating Jurisdiction	Plan Adoption Date

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Provided below is a listing, by section, of the resources utilized to create this document.

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4.0 MITIGATION STRATEGY

1. Kendall County Multi-Jurisdictional All Hazards Mitigation Planning Committee. Existing Mitigation Project/Activity Status. Form.
2. Kendall County Multi-Jurisdictional All Hazards Mitigation Planning Committee. Hazard Mitigation Projects. Form.

Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
January 24, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	KEN RUNKLE	AMERICAN ENVIRONMENTAL	RISK ASSESSOR
2.	ROGER BONACHE	KCEMA	DIRECTOR
3.	Doug Westphal	Kendall Twp	Highway Comm.
4.	Andrea Bostwick-Campbell	American Environmental	EMS Manager
5.	Debbie Andersen	Village of Lisbon	Village Clerk
6.	Victoria Lundh	Kendall-Grundy Farm Bureau	Manager
7.	ARMANDO SANDER	Montgomery P.D.	Deputy Chief
8.	Kerry Behr	Village of Oswego	Project Engineer
9.	Don Schiradelky	Oswego Fire Dept.	ASS. STAFF CHIEF
10.	ERIC DUNN	City of Yorkville	Dir. of PHU
11.	Chris Mehochko	Grundy Kendall ROE	Regional Superintendent
12.	Caleb Waltruse	Kendall Co Sheriff's Office	Deputy Commander
13.	STEVE GREBNER	Kendall Township	Clerk
14.	Matt Kellogg	Kendall County	Board Chair
15.	Zach Zigterman	Plainfield	Commander / Deputy Director
16.	GEOFF PERMAN	City of Sandwich	City Administrator

Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
January 24, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Phil Smith	Montgomer	Chief of Police
2.	Rich ZIELKE	OSWEGOLAND PARK District	EXEC. DIRECTOR
3.	Brooke Shankley	Kendall County Board	Member
4.	Scott Kopyak	Kendall County	Administrator
5.	Jim Bateman	BIGFD	Chief
6.	Amanda Bally	GIS Dept.	GIS Specialist
7.	Jennifer Hughes	Village of Oswego	Public Works Director
8.	Chris Briggs	OSWEGO F.D.	Commander
9.	Daniel Gungl	Kendall County IFPD	Exec. Dir.
10.	Steve Gengler	Kendall Township	Supervisor
11.	RaeAnn Van Gundy	Health Dept.	Ex Director
12.	Lynette Bergeron	Plattsville Village / all	Trustee / Board member
13.	Antoinette White	Kendall County Forest Preserve District	Grounds Division Supervisor
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
January 24, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Jeff Mathue	NEWARK FIRE DEPT	Chief
2.	Tom Richards Jr	Big GROVE Twp.	Road comm
3.	Greg Witek	Little Rock-Fox FPD	Fire Chief
4.	Tracy Page	Kendall county EMA/sheriff	Deputy Director
5.	JULIA HOLT	Kendall county Health Dept	emergency response specialist
6.	NORM ALLISON	PLANO Police Dept	Lt.
7.	JAMES MORRIS	VILLAGE OF LISBON	Township
8.	MARK WOLF	VILLAGE OF MONTGOMERY	DIRECTOR OF PUBLIC WORKS
9.	Andy Nicoletti	Kendall County	CCAO
10.	JEFF BURGER	CYRUS PD	Chief
11.	JIM JENSEN	Yorkville PD	Chief
12.	Scott Cryder	Seward Twp	Highway Engineer
13.	Jason Livingston	KENDALL CO. SO.	
14.	Mary Maher-Bartolone	Bristol Township	Assessor
15.	Matt Asselmeier	Kendall County PBZ	Senior Planner
16.	Zachary Morel	Sandwich fire department	deputy chief

Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
January 24, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Lynette Bergeron	Kendall County Public Safety	Director
2.	Scott McLaffey	Edith Farnsworth House	ED & Curator
3.	John Burscheid	Kendall County Highway Dept.	Asst. County Engineer
4.	Chad Felotto	Oswego and Park Dist	Dir of Parks & Planning
5.	Chris	VILLAGE OF NEWARK	ADMINISTRATOR
6.	Matthew Lindsey	Kendall County Technology	Director
7.	Dan C. Carr	Kendall County Forest Pres. Dept	Exec Dir.
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
April 18, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Callie Smith	AEC	Environmental Analyst
2.	Juli a Molt	Kendall county HD	ERS
3.	Matthew Kinsey	Kendall County	ICT Director
4.	PAUL BOECKER	CITIZEN	
5.	Jeff Mathur	Newark Fire DEPT	Chief
6.	STEVE GEEBNER	Kendall Township	Clerk
7.	Zachary Morel	Sandwich fire dept.	deputy chief
8.	James M. Allen	LISBON VILLAGE	TRUSTEE
9.	GREG WITEK	LRF FPD	Fire Chief
10.	Jack McIntyre	village of Lisbon / Lisbon - Neward FPD	Trustee / EMS Coord.
11.	Natt Aspelmeier	Kendall County Planning, Building & Zoning	Senior Planner
12.	John Burscheid	Kendall County Highway Dept.	Asst. County Engineer
13.	Lynette Bergeron	HeavCom	Director
14.	JASON LANGSTON	KENDALL CO. SHERIFF'S OFF	COMMANDER.
15.	Chad Feldt	Oswego and Park Dist	Dir of Parks & Planning
16.	CLIFF FOX	VILLAGE OF NEWARK	VILL ADMINISTROTOR

Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
April 18, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	DAN POWERS	KENDALL County	KCFM Director
2.	ROGER BONNEAU	KENDALL CNTY	Director - EMS
3.	NORM ALLISON	PLANO (City of SPD)	Lt.
4.	Andrea Bostwick-Campbell	AEC	EMS Manager
5.	Bob DeLong	Oswego Township	Community Resource officer
6.	Deb Andersen ^{Deb} Andersen	Lisbon	Village Clerk
7.	Jim Bateman	Bristol Kendall FIRE	Fire Chief
8.	Kerry Behr	Oswego	Project Engineer
9.	Gina Belmont	KenCom	Assistant Director
10.	Rich ZIELKE	OSWEGOCAND PARK DIST	EXEC. DIRECTOR
11.	CHRIS BIGGS	OPD	COMMANDER
12.	Dan Schiradericy	OFPD	A/C
13.	MARK WOLF	VILLAGE OF MONTGOMERY	PUBLIC WORKS DIRECTOR
14.	Caleb Waltmire	Kendall Co. Sheriff	Deputy Commander
15.	Chris Mehochko	Grady Kendall ROE	Regional Superintendent
16.	JAMES JENSEN	Yorkville P.D	Chief of Police

Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
April 18, 2023

	<i>Name (Please Print)</i>	<i>Representing (Jurisdiction/Organization)</i>	<i>Title</i>
1.	Antoinette White	Kendall County Forest Preserve District	Grounds Supervisor
2.	Brooke Shanley	Kendall County	Board Member
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
April 18, 2023

	<i>Name (Please Print)</i>	<i>Representing (Jurisdiction/Organization)</i>	<i>Title</i>
1.	Judy Siedlecki	OSWEGOLA ND SR. & COMMUN. CTR.	VOLUNTEER
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
July 11, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Andrea Bestwick-Campbell	American Env. Corp	EMS Manager
2.	Zachary Morel	Sandwich Fire	deputy chief
3.	Debbie Andersen	Village of Lisbon	village clerk
4.	James Linn	" " "	TRUSTEE
5.	Jackson McIntyre	Lisbon-Seward PPD / Village of Lisbon	EMS coord. / Trustee
6.	Julia Holt	Kendall Co Health Dept	emergency response specialist
7.	Steve Gebner	Kendall Township	Clerk
8.	Gina Belmont	KenCom	Asst. Director of Operations
9.	Jim Bateman	Bristol Kendall	Fire chief
10.	Steve Gengler	Kendall Township	Supervisor
11.	James Jensen	Yorkville Police Dept	Chief
12.	MARK WOLF	VILLAGE OF MONTGOMERY	DIRECTOR OF PUBLIC WORKS
13.	Chris Byars	Oswego Police	Deputy Chief
14.	Scott Hill	Kendall County	County Board
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
July 11, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	KEN RUNKLE	AEC	RISK ASSESSOR
2.	JEFF MATTHEW	NEWARK FIRE DEPT	Chief
3.	Tracy Page	Kendall Sher. FF / EMA	Business / HR
4.	ROGER BOMUNE	?	Director
5.	Matt Asselmeier	Kendall County Planning, Building & Zoning	Director
6.	Kerry Behr	Village of Oswego	Project Engineer
7.	Rob DeLong	Oswego Township	Community Resources
8.	DAW Schiraberry	Oswego Fire	ASSISTANT chief
9.	Chad Feldt	Oswego Land Park Dist	Dir. of Parks & Planning
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
October 24, 2023

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Andrea Campbell	American Environmental	EMS Manager
2.	Debbie Andersen	Village of Lisbon	village clerk
3.	Julia Holt	Wendell Health Dept	ERS
4.	DAN Schirmer	oswego F.D	ASST. Chief
5.	Matt Asselmeier	Kendall County Planning, Building & Zoning	Director
6.	ROGER BOWACKI	KENDALL CO. EMA	DIRECTOR
7.	Tracy Page	Kendall County EMA/Sheriff's	Deputy Director
8.	JASON LANGSTON	KENDALL CO. S.O.	COMMANDER
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
October 24, 2023

	<i>Name (Please Print)</i>	<i>Representing (Jurisdiction/Organization)</i>	<i>Title</i>
1.	Collie Smith	AEC	Environmental Analyst
2.	Jim Morris	LISBON VILLAGE	TRUSTEE
3.	STEVE GREENER	Kendall Township	Clerk
4.	Rich ZIELKE	OSWEGOLAND PARK DIST	EXEC. DIRECTOR
5.	Kerry Behr	Village of Oswego	Project Engineer
6.	MARK WOLF	VILLAGE OF MONTGOMERY	DIRECTOR OF PUBLIC WORKS
7.	CHRIS BIGAS	OSWEGO POLICE	DEPUTY CHIEF
8.	Chris Melochko	Grundy Kendall ROE	Regional Superintendent
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
February 20, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Andrea Campbell	American Environmental	EMS Manager
2.	Callie Smith	AEC	Environmental Analyst
3.	Jim M. Allen	W. Dept of Labor	TRUSTEE
4.	Tracy Page	Kendall County EMA	Deputy Director
5.	Julia Holt	Kendall County Health Dept	emer. resp. specialist
6.	Chad Feldotto	Oswego and Park District	Dir of Parks & Planning
7.	Dan Schinadeck	OFPD	ASS. chief
8.	Geoff Penman	CITY of Sandwich	CITY ^{ADMINISTRATOR} of the
9.	Steve Gengler	Kendall Township	Supervisor
10.	Chris Mehochko	Grundy Kendall ROL	Regional Superintendent
11.	Caleb Waltham	Kendall Co. Sheriff's Office	Deputy Commander
12.	Chris Bokeratz	OSWEGO FIRE	Firefighter
13.	Christina Burns	Kendall County	County Administrator
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Attendance Sheet
Kendall County Multi-Jurisdictional
All Hazards Mitigation Planning Committee Meeting
February 20, 2024

	Name (Please Print)	Representing (Jurisdiction/Organization)	Title
1.	Rob DeLong	Oswego Township	Community Resources
2.	ROGER BONUCHI	Kendall County	Director
3.	Debbie Andersen	Village of Lisbon	Village Clerk
4.	NORM ALLISON	City of Plano	Interim Chief of Police.
5.	STEVE GROBNER	Kendall Township	Clerk
6.	MARK WOLF	VILLAGE OF MONTGOMERY	DIRECTOR OF PUBLIC WORKS
7.	Jennifer Hughes	Village of Oswego	Director of Public Works
8.	Carolyn Schur	Aurora EMA	Volunteer
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Meeting Minutes

Kendall County Multi-Jurisdictional All Hazards Mitigation Planning Committee

January 24, 2023

3:00 p.m.

Kendall County Health Department
811 W. John Street, Yorkville

Committee Members

Big Grove Township
Bristol Township
Bristol-Kendall FPD
Edith Farnsworth House
Grundy-Kendall ROE
KenCom Public Safety Dispatch
Kendall County
 Administrator
 Assessor's Office
 County Board
 EMA
 GIS
 Health Department
 Highway Dept.
 Planning, Building, & Zoning
 Sherriff's Office
 Technology
Kendall County Forest Preserve Dist.

Kendall Township
Kendall-Grundy Farm Bureau
Lisbon, Village of
Little Rock-Fox Fire District
Montgomery, Village of
Newark, Village of
Newark FPD
Oswego, Village of
Oswegoland Park District
Plainfield, Village of
Plano, Village of
Plattville, Village of
Sandwich, City of
Sandwich FPD
Seward Township
Yorkville, City of
American Environmental Corp.

Welcome and Introductions

Roger Bonuchi, Director of the Kendall County Emergency Management Agency, welcomed attendees. He indicated that the purpose of this Committee is to update the Kendall County All Hazards Mitigation Plan.

Handout materials were distributed to each member, including a Natural Hazard Events Questionnaire. A link to a citizen questionnaire was provided to potential members via email as well. The questionnaires will help gauge residents and committee member understanding of the natural hazards that impact the County and also identifies communication preferences.

Andrea Bostwick, American Environmental Corporation (AEC) began the meeting by providing background information on the planning grant and the planning process. Kendall County EMA applied for and received a planning grant from FEMA to update the County's hazard mitigation plan. This grant is administered through the Illinois Emergency Management Agency (IEMA) and pays for 90% of the planning cost. The remaining 10%

will be met through in-kind services. The goal of the grant is to obtain a FEMA-approved hazard mitigation plan. The process generally takes about 16 to 18 months from start to finish.

What is Mitigation?

Andrea explained that for the purpose of this process, mitigation is any sustained action that reduces the long-term risk to people and property from natural and man-made hazards and their impacts. Sustained actions can include projects and activities such as building a community safe room or establishing warming and cooling centers. Mitigation is one of the phases of emergency management and is an important component in creating hazard-resistant communities.

What is an All Hazards Mitigation Plan?

Andrea then explained that an All Hazards Mitigation Plan details the natural and man-made hazard events that have previously impacted the County and identifies activities and projects that reduce the risk to people and property from these hazards before an event occurs. A hazard mitigation plan is different from the County's Emergency Operations Plan/ Emergency Response Plan (EOP/ERP) because it identifies actions that can be taken before a disaster strikes whereas the EOP/ERP identifies how the County will respond during and immediately after an event occurs.

The natural and man-made hazards that will be included in the Plan are severe summer storms (including thunderstorms with damaging winds, hail, lightning, and heavy rain events); severe winter storms (including ice and snowstorms); floods (both flash flood and riverine floods); tornadoes; excessive heat; extreme cold; drought; and earthquakes; transportation, generation, and storage of hazardous substances; hazardous materials incidents; waste disposal; and remediation activities.

Andrea indicated that the Committee can also include additional hazards it feels have a significant impact on the County and then discussed dam failures. AEC will send out a survey in the next week to poll the Committee on whether to include this hazard in the Plan update.

Why Update an All Hazards Mitigation Plan?

Since the early 1990s damages caused by weather extremes have risen substantially. In 2021 the U.S. experienced \$141 billion in severe storm damages from twenty (20) severe weather and natural hazard events. The losses experienced in 2021 were the 3rd highest only behind 2017 (Harvey, Irma, Maria, and California Wildfires) and 2005 (Katrina, Rita, & Wilma). In the last decade, the U.S. has experienced the top three years with the highest total number of billion-dollar events and two of the top three years with the highest total losses ever recorded. Consequently, the Federal Emergency Management Agency (FEMA) continues to encourage counties throughout the U.S. to prepare and develop hazard mitigation plans because what they've found is that for every dollar spent on mitigation, \$6 dollars can be reaped in savings.

Updating this plan provides several major benefits:

1. Access to federal mitigation assistance funds. Specific projects and activities will be developed and updated through the planning process to help each participating jurisdiction reduce damages. By including these actions in this Plan, the participating jurisdictions will become eligible to receive state and federal funds to implement the actions.
2. Increased awareness of the impacts associated with natural hazards. Verifiable information about the natural hazards that occur in Kendall County will be gathered to help participants in municipal and county meetings make decisions about how to better protect citizens and property from storm damages.

The Planning Process

The goal of the Committee meetings is to update the Plan to meet state and federal requirements so that it can be approved by the IEMA and FEMA. The Planning Committee is an integral part of the planning process and ensures that the Plan is tailored to the needs of the County and participating jurisdictions.

A five meeting process has been developed to achieve this goal. Specific activities for the Committee meetings include:

1 st Committee meeting	Orientation to the Planning Process Required Information Needed to Participate
2 nd Committee meeting	Discuss the Risk Assessment Approve Mission Statement & Goals Participants Return Required Forms Begin discussing Mitigation Projects and Activities
3 rd Committee meeting	Discuss and approve Mitigation Strategy Committee returns draft list of Mitigation Projects and Activities
4 th Committee meeting	Finish discussing Mitigation Projects and Activities Committee discusses approval/adoption of the Plan
5 th Committee meeting (Public Forum)	Present the Plan for public review Committee helps answer questions from the public

Jurisdictions who wish to be part of the Plan must meet certain participation requirements that include:

- Participating in the planning meetings and public forum;
- Completing required forms;
- Coordinating with their constituents and the public; and
- Adopting the Plan once it's completed.

Information Needed from the Committee

As part of the Plan's update, Ken Runkle of AEC indicated that there is information that will be needed from each participating jurisdiction. The information provided will be used

to meet FEMA plan requirements. He then talked about each of the forms that must be completed at the beginning of the planning process. These Include:

Critical Facilities. Completed lists of Critical Facilities will be used to identify facilities vulnerable to natural hazards and will be provided to IEMA and FEMA as a separate supplement. Copies of the Plan made available to the public will not include these lists for security reasons.

Capability Assessment: Each jurisdiction has a unique set of capabilities and resources available to accomplish hazard mitigation and reduce long-term vulnerabilities to hazard events. As part of the update of the plan, the existing capabilities of each jurisdiction need to be identified and described.

Shelter Surveys. Identifies locations designated as severe weather shelters within each jurisdiction including warming centers, cooling centers and community safe rooms.

Drinking Water Supply Worksheet: Information on the drinking water supplies that serve the participating communities needs to be identified to assist in assessing drought vulnerability.

Andrea and Ken passed out the forms and fielded questions. Ken asked participants to complete the forms and return them by the next meeting if possible and to let him know if they had any questions.

Severe Weather Events

Andrea told the Committee that, while AEC will review multiple data sources, including NOAA, NWS, and state and federal databases, these sources don't always include every event nor do they always include damage information, especially dollar amounts. In many cases, individuals at the local level are our best resource for this kind of information.

She then asked Committee members to share their memories of hazardous events that have occurred in the County including any damages to critical infrastructure and facilities.

Hazard events related include:

- ❖ A tornado on August 10, 2020 damaged private property
- ❖ A storm with hail in 2019 caused roof damage in Oswego
- ❖ Rain events in 1996 included 19 inches of rain that caused widespread flooding
- ❖ 1997 drought event
- ❖ 2011 blizzard with 34 inches of snow
- ❖ Extremely low temperatures in 2019 that caused water service lines to freeze in Oswego
- ❖ 2012 drought
- ❖ Flooding in April 2013
- ❖ Very cold winter in 1984
- ❖ Severe winter storms in 1978 and 1979
- ❖ A microburst in 1990 caused roof damage to township buildings
- ❖ A tornado in Plainfield in 1990

She asked participants to identify any hazard events that have impacted their jurisdiction by completing the form titled, “Hazard Event Questionnaire”. The information provided will help supplement the information included in the risk assessment.

She also asked Committee members to please provide any storm damage photos they would be willing to share for inclusion in the Plan.

Community Participation

Ken stressed the importance of attending each committee meeting and indicated that member participation helps the County meet its 10% match for this grant in addition to assuring that member jurisdictions are eligible for IEMA/FEMA funds. He indicated that tag-teaming and designating substitute representatives is permissible when other obligations arise. Ken pointed out that a designated substitute representative does not have to be an official or employee of the jurisdiction.

Ken requested that each jurisdiction consider sharing meeting information with their boards, councils, etc. at regularly scheduled meetings and consider posting the press release or adding a calendar item to their web pages. He also asked jurisdictions who are on Facebook to consider posting about the Plan on their pages as well.

Ken indicated that another opportunity to include the public in the process is to post the link to the Citizen Questionnaire on their web pages or Facebook pages. The more individuals who complete the survey, the better our understanding will be of the public’s perception of the hazards that impact the County. Finally, he asked the participants to consider posting or making available at their offices the “Frequently Asked Questions” document in their meeting packet. It provides a quick summary of what the Plan is and why it’s important to participate.

Mission Statement & Goals

Copies of a draft mission statement and goals were distributed in the meeting packet. Committee Members were asked to review these prior to the next meeting. The mitigation goals describe the objectives or end results the Committee would like to accomplish in terms of hazard and loss reduction/prevention. Every project included in the Plan should be aimed at one or more of the goals identified by this Committee. Specific goals related to each jurisdiction can be added to this list as well.

What Happens Next?

The risk assessment will be the main topic of the next committee meeting. The second meeting of the Committee was scheduled for:

Tuesday, April 18, 2023
Location TBD
3 P.M.

Andrea asked Committee members to please review the “Tasks to be Completed” handout before the next meeting and indicated that AECs contact information could be found on the last page of the meeting handout if any questions come up. With no further questions the meeting was adjourned, and Roger Bonuchi closed by thanking attendees for their participation.

Meeting Minutes

Kendall County Multi-Jurisdictional All Hazards Mitigation Planning Committee

April 18th, 2023

3:00 p.m.

**Oswego Fire Protection District Station 1,
3511 Woolley Road, Oswego**

Committee Members

Bristol-Kendall Fire Protection District
Grundy/Kendall ROE
KenCom
Kendall County
 Board
 EMA
 Facilities Management
 Forest Preserve District
 Health Department
 Highway Department
 ICT
 Planning, Building, & Zoning
 Sheriff's Office
Kendall Township
Lisbon, Village of
Lisbon-Seward FPD

Little Rock-Fox Fire District
Montgomery, Village of
Newark FPD
Newark, Village of
Oswego FPD
Oswego Township
Oswego, Village of
Oswegoland Park District
Oswegoland Sr. & Community Center
Plano, City of
Plattville, Village of
Sandwich CFPD
Yorkville, City of
American Environmental Corp.

Welcome and Introductions

On behalf of the Kendall County Emergency Management Agency, Andrea Bostwick-Campbell and Callie Smith welcomed attendees.

Handout materials were distributed to each member in attendance. Andrea provided a brief recap to reorient Committee Members as to what was accomplished at the previous meeting. Before beginning the risk assessment presentation, Andrea asked the participating jurisdictions to submit their completed "Critical Facilities", "Capability Assessments", "Shelter Surveys" and "Drinking Water Worksheets" if they haven't done so already.

Risk Assessment

Andrea began the presentation by noting that there have been seven federally-declared disasters in Kendall County since 1972. A total of 509 verified natural hazard events have been documented over the last 20 to 70 years. There have been 273 events identified

since 2010. A minimum of \$7.8 million in damages have resulted from just 34 of these documented natural hazard events.

The damage amounts are actually much higher based on several facts:

- 1.) damage descriptions for many floods, tornadoes and severe storm events did not include dollar amounts;
- 2.) damages to roads from heat and freeze/thaws conditions were not included; and
- 3.) crop damage figures were unavailable for a majority of the events.

The frequency, magnitude, and property damages for each category of natural hazard were described.

Severe Storms

Severe storms are the most frequently occurring natural hazard in Kendall County with 156 events verified since 1996. Half of those events occurred since 2010. One of the 7 federal disaster declarations for Kendall County included severe storms (1996). At least \$805,500 in damages have resulted from 24 events, which is just over 10% of all the property damage recorded in the County. Only one injury was recorded as the direct result of a thunderstorm event. This figure does not include injuries or fatalities caused by hazardous driving conditions, such as wet pavement. Between 2017 and 2021, 4 fatalities and 393 injuries were attributed to hazardous driving conditions created by wet pavement in Kendall County alone.

The highest recorded wind speed in the County, not associated with a tornado, is 80 knots (92 mph) recorded south of Oswego on June 29, 2012 (near Whitetail Ridge Golf Club). The largest hail recorded in the County was 4.75 inches in diameter (larger than a softball), observed on June 10, 2015 in Minooka.

Severe Winter Storms

While the original Plan only documented 27 severe winter storms and 1 extreme cold event between 1994 and 2009, a review of additional resources allowed data gaps to be filled, which led to the identification of at least 76 verified events involving severe winter storms (snow and/or ice) since 1994 and 88 extreme cold events since 1995. Since 2010, there have been 38 snow/ice events and 51 extreme cold events in Kendall County. One of the seven federal disaster declarations for the County is related to severe winter storms (the 1990 ice storm). No damages or emergency protective measures were reported as the result of any of these events, though we know that funds were allocated for measures such as snow removal for larger storms. Between 2017 and 2021, 186 injuries were attributed to crashes involving ice and snow-covered roadways.

The record maximum 24-hour snowfall in the County is 18.1 inches, which occurred at the Newark COOP Station on February 1st and 2nd in 2011. Since there are no National Weather Service COOP stations in Kendall County that kept recent temperature records, data from Kane and Grundy counties was used to estimate the coldest regional temperature. The Morris COOP Station recorded a temperature of -26°F on December 28, 1924. The Aurora COOP Station recorded its coldest temperature on January 20, 1985, also a reading of -26°F.

Floods

The original Plan only identified 17 flood events between 1996 and 2008, but gaps in historical data were reviewed to document at least 84 verified flood events in the County, with 35 riverine/shallow flood events since 1997 and 49 flash flood events since 1996. Five of the seven federal disaster declarations for Kendall County are related to flooding ('72, '74, '96, '08, '13). At least \$4.1 million in damages has resulted from three general flood events, which represents over 50% of all the property damage recorded in the County. No injuries or fatalities were reported as a result of any of the recorded events.

Excessive Heat

The original Plan did not include excessive heat, so in adding it to this Plan additional resources were reviewed to fill historic data gaps which led to the identification of 88 recorded excessive heat events reported in Kendall County since 1995. No injuries or fatalities were recorded as the result of these events.

The hottest regional temperature recorded occurred on July 14, 1936; this was measured as 111°F in Aurora and 109°F in Morris. The years of 1936 and 1954 set records across the state for high temperatures, most of which still stand today.

Tornadoes

Since 1950, 21 tornadoes have been verified in Kendall County, with 6 occurring since 2010. Approximately \$2.9 million in property damages has resulted from 6 of these tornadoes, which is over 30% of all the property damage recorded in the County. No injuries or fatalities were recorded as a result of these events.

The highest recorded F-Scale rating for a tornado in the County was an F5, which occurred on August 28, 1990. The longest tornado was an EF2 that occurred on August 15, 1958 that traveled 18.6 miles across the County as part of its total 74.5 mile path. The widest tornado recorded in the County was the F5 from August 28, 1990, which was 600 yards wide.

Drought

Like excessive heat, the original Plan did not include drought. In adding it to this Plan, resources were reviewed which led to the identification of four major droughts during the last four decades – 1983, 1988, 2005, and 2012. There has been at least one drought per decade with the exception of the 1990s when no substantial droughts were recorded. In 2005, the County was designated a Primary Natural Disaster Area due to drought conditions. Following each declared drought, crop yield reductions were generally experienced, some substantial. Corn yield reductions were most severe for the 2005 drought when there was a 39.6% reduction in corn yields. Soybean yields were most severely reduced during the 1988 drought, when they fell by about 26.1%.

<u>Year</u>	<u>Corn</u>	<u>Soybeans</u>
1983	34.3%	5.1%
1988	38.1%	26.1%
2005	39.6%	21.2%
2012	38.1%	20.0%

Earthquakes

In the previous 200 years, only one earthquake has originated in Kendall County, an estimated 4.0 to 4.9 magnitude quake with an intensity of VI that originated northwest of Lisbon on January 2, 1912. No records were found that recorded any damages, injuries, or fatalities. Additionally, six earthquakes have originated in the adjacent counties of LaSalle, Kane, and Will. There is one known fault zone in the County, the Sandwich Fault Zone which is approximately 85 miles long and stretches from Ogle County to Will County in a northwest-southeast direction.

Man-Made Hazards Risk Assessment

While the focus of this planning effort is directed at natural hazards, FEMA allows a small portion of the planning process to be devoted to an overview of selected man-made hazards.

Although this overview does not have the same depth as the assessment of natural hazards, it provides useful information to place various man-made hazards in perspective. The man-made hazard risk assessment focused on the following categories of:

- generation, storage/handling, and transportation of hazardous substances;
- waste disposal;
- hazardous materials (hazmat) incidents; and
- waste remediation.

Hazardous substances broadly include flammable, explosive, biological, chemical, or physical material that has the potential to harm public health or the environment. For the purposes of this Plan, the term includes both hazardous product and hazardous waste.

Generation, Storage/Handling, & Transportation

In 2021, there were 2 facilities in Kendall County that generated reportable quantities of hazardous substances according to the USEPA.

Based on records obtained from IEMA's Tier II database, there were 41 stationary facilities within Kendall County that stored and/or handled hazardous substances. Thirteen of these facilities stored and/or handled chemicals identified as "Extremely Hazardous Substances".

Waste Disposal

There are no active commercial solid (household) waste landfills operating in Kendall County, no facilities within the County permitted to handle Potentially Infectious Medical Waste, and no commercial off-site hazardous waste treatment or disposal facilities.

Hazardous Materials (Hazmat) Incidents

A hazardous materials (hazmat) incident refers to any accident involving the release of hazardous substances. Incidents can take place at fixed facilities or as they are being transported. Between 2013 and 2022 there were 30 hazmat incidents reported to IEMA & ICC in Kendall County. Of the 30 incidents, 18 occurred at fixed facilities, while 12

occurred during transport. Of the 12 transportation hazmat incidents, 11 were roadway incidents and one was a rail incident.

Waste Remediation

Waste remediation in Illinois is primarily conducted through three programs: the federal Superfund Program (for sites posing the largest threat to public health and the environment), the Illinois Site Remediation Program (SRP), and the Illinois Leaking Underground Storage Tank (LUST) Program.

Superfund: There are no active Superfund sites in Kendall County.

Illinois SRP: There are 16 SRP sites located Kendall County. Twelve of the sites have received “No Further Remediation” (NFR) or 4(y) letters.

Illinois LUST: There are 79 LUST sites located in Kendall County. Approximately 84% of these sites have received NFR, Non-Lust Determination or Section 4(y) letters or remediation is virtually complete.

Risk Priority Index Exercise

Following the risk assessment, Andrea led the Committee through a Risk Priority Index (RPI) exercise. The RPI is a quantitative means of providing guidance for ranking the hazards that have the potential to impact the County. This ranking can assist participants in determining which hazards present the highest risks and therefore which ones to focus on when formulating mitigation projects and activities. Each hazard is scored on three categories: frequency, impacts on life and health and impacts on property and infrastructure based on a scoring system provided. Andrea walked the Committee through the scoring system using excessive heat as an example and then provided time for the Committee to fill out the PRI form during the meeting. The results will be compiled, and the findings will be presented at the next meeting.

Mission Statement & Goals

Andrea asked Committee members to review the draft mission statement and updated mitigation goals provided in the meeting materials. Both of these are required elements of the Plan. As part of the Plan update process, both items need to be reviewed and re-evaluated. The mission statement was reviewed, and it was determined that no revisions to the wording were needed.

Next, Andrea discussed the mitigation goals, which are intended to reduce long-term vulnerabilities to natural and man-made hazards. Each project included in the updated Plan should be aimed at one or more of the goals developed by the Committee. The updated goals were reviewed, and no revisions were made to the wording.

The mission statement and goals will be added to the Plan update.

Mitigation

Andrea explained that mitigation actions include activities and projects that reduce the long-term risk to people and property from the natural and man-made hazards discussed in the risk assessment.

To help the jurisdictions think about and assemble their lists, Andrea provided several examples and referred participants to a 2-page list of potential mitigation projects included in the handout material along with mitigation project lists from other jurisdictions. These examples can be used to help Committee members when they prepare their list. Finally, Andrea provided excerpts from a FEMA publication on mitigation ideas as another resource.

Status of Existing Projects

Callie distributed “**Status of Existing Mitigation Actions**” forms to each of the previously participating jurisdictions detailing the mitigation projects and activities included in the original Plan. Andrea explained that as part of the update process the status of these projects needs to be determined. She described how the form should be completed so that this information can be included in the Plan update.

New Projects

The form titled “**Hazard Mitigation Projects**” was distributed by Callie, and Andrea indicated this form should be used to submit new projects and activities for the Plan. She told the Committee that individual mitigation project lists will be developed for each participating jurisdiction and that this is a list of projects each jurisdiction would like to see accomplished if funding becomes available. FEMA is trying to stimulate the implementation of mitigation projects and activities to reduce the extraordinary amount of money being expended on hazard event damages.

The projects and activities included in the Plan should be mitigation-related, not emergency preparedness, response, recovery, or maintenance. Mitigation projects can include studies, regulatory activities, structural and infrastructure projects, and information/education activities. She provided advice for completing the mitigation project list including providing a detailed description of the project, the jurisdiction responsible for the project and the time frame to complete the project.

Committee members were encouraged to contact Andrea, Ken, or Callie if questions arise before they return to the next Committee meeting.

What Happens Next?

The vulnerability assessment and mitigation project prioritization methodology will be the main topics of the next Committee meeting.

The third meeting of the Committee was scheduled for:

Tuesday, July 11th, 2023

3:00 p.m.

Oswego Fire Protection District Station 1

3511 Woolley Road, Oswego

Public Comment

With no questions or comments, Andrea adjourned the meeting.

Meeting Minutes

Kendall County Multi-Jurisdictional All Hazards Mitigation Planning Committee

July 11, 2023

3:00 p.m.

**Oswego Fire Protection District Station 1,
3511 Woolley Road, Oswego**

Committee Members

Bristol-Kendall Fire Protection District
Kendall County
Board
EMA
Health Department
KenCom
Planning, Building, & Zoning
Sheriff's Office
Kendall Township
Lisbon, Village of

Lisbon-Seward FPD
Montgomery, Village of
Newark FPD
Oswego FPD
Oswego Township
Oswego, Village of
Oswegoland Park District
Sandwich Community FPD
Yorkville, City of
American Environmental Corp.

Welcome

Roger Bonuchi, Director of the Kendall County Emergency Management Agency, welcomed attendees. He turned the meeting over to Andrea Bostwick, American Environmental Corporation (AEC), who opened the meeting.

Handout materials were distributed to each member in attendance. Andrea provided a brief recap to reorient Committee Members as to what has been accomplished. Before beginning the vulnerability analysis presentation, Andrea asked the participating jurisdictions to submit their completed "Critical Facilities", "Capability Assessments", and "Shelter Surveys" if they haven't done so already.

Vulnerability Analysis

Ken Runkle of AEC then began the vulnerability analysis discussion by noting that the focus of this meeting is the vulnerability posed by tornadoes. The analysis estimates future potential damages in terms of dollar loss to residences, including contents, for each participating jurisdiction based on FEMA acceptable formulas. The potential damages were calculated on the magnitude most likely to be encountered, not on a worst-case event.

Tornadoes

Since 1950, 21 tornadoes have been verified in Kendall County. While occurring less frequently than severe storms and severe winter storms, tornadoes have caused at least \$2.9 million in property damages.

Using information from the 21 verified tornadoes, damages were calculated based on an “average” tornado. The average tornado in Kendall County impacts approximately 0.26 square miles. Housing densities were calculated from U.S. Census Bureau information for each of the participating jurisdictions. This information, along with a set of assumptions were used to estimate the number of vulnerable residential structures.

Potential dollar losses were then calculated for these vulnerable residential structures using the provided tax assessment values and an additional assumption about the degree of damage sustained by the structures and their contents.

Potential dollar losses caused by an average-sized tornado to residences and their contents would be expected to exceed at least \$23 million in any of the participating municipalities. Losses ranged from \$23 million in Lisbon to \$177 million in Montgomery. Potential dollar losses by township would be expected to range from \$729,732 in Lisbon Township to \$44 million in Oswego Township. Ken noted that the damage figure for the most populated townships would only be reached if the tornado's path included a portion a municipality.

Risk Priority Index Exercise Results

Andrea then presented the results of the Risk Priority Index Exercise that was conducted at the April 18, 2023 meeting. She provided the Committee with a brief recap on what the Risk Priority Index is and how it can help participants determine which hazards present the highest risk and therefore which ones to focus on when formulating mitigation projects and activities.

Based on the Committee's responses, tornadoes scored the highest, followed by thunderstorms with damaging winds and winter storms. The highest scoring man-made hazard was transportation related hazmat incidents. The hazards that scored the lowest included drought, terrorism, and fixed facility hazmat incidents.

A side-by-side comparison of how the hazards ranked between the original exercise conducted for the 2012 Plan and this exercise was provided for comparison. The top hazards from the original exercise included floods followed by tornadoes and severe winter storms/extreme cold.

Community Lifelines

Before discussing mitigation projects and the mitigation action tables with the Committee, Andrea took a few minutes to discuss the concept of community lifelines. FEMA has identified seven community lifelines that are the most fundamental services in the community that, when stabilized, enable all aspects of society to function. The seven community lifelines include: safety & security; food, water, shelter; health & medical; energy (power & fuel); communications; transportation; and hazardous materials.

While the concept of community lifelines was developed to support emergency response and planning, FEMA has begun applying it to all phases of emergency management. Efforts to protect community lifelines and prevent and mitigate potential impacts to them is one of the focuses of the BRIC grant program. A handout with a brief description of

the community lifelines was included in the meeting packet. Community lifelines will be included in most project description to create a clear connection to the concept.

Asset Vulnerability Survey

As part of the Plan update, Andrea indicated that vulnerable community assets need to be identified for the participating jurisdictions. FEMA requires that the Plan include a summary, such as a list of key issues or problem statements, which describes the effects the hazards have on each participating jurisdiction and their assets. Assets include people, structures (including critical facilities, infrastructure, and community lifelines), systems (networks and capabilities such as electrical and communications grids), and natural, historic, and cultural resources. She asked Committee members to complete a 2-page survey distributed to help identify each community's vulnerable assets and the hazards they are vulnerable to. This information will be used in the vulnerability analysis.

Mitigation Actions Prioritization Methodology

The Mitigation Actions Prioritization Methodology outlines the approach used to classify each mitigation action identified by the participating jurisdictions and is a FEMA-required element of the Plan.

Mitigation actions can be prioritized in a number of ways. Andrea explained that the updated methodology is based on key factors such as frequency of the hazard, degree of mitigation, and cost/benefit utilization.

This methodology helps objectively identify which projects and activities maximize benefits and have a greater likelihood to significantly reduce the long-term vulnerabilities associated with the most frequently-occurring hazards. After reviewing the updated methodology, the Committee determined that no changes needed to be made.

Andrea acknowledged that while this methodology does not take politics into consideration, this factor may affect the order in which projects are implemented. She also noted that it is important to keep in mind that implementing any of the mitigation projects is desirable regardless of which prioritization category they fall under.

Mitigation Projects

Committee Members were asked to submit their existing and new Mitigation Projects forms. Andrea then described how the draft methodology, the existing and new lists of mitigation projects, finalized goals and other information will be presented for Committee review.

Andrea chose a frequently requested mitigation project, a community safe room (tornado shelter), as an example to show how a typical project is prioritized and entered into the Plan on a Mitigation Action Table. She described how each column in the Mitigation Action Table would be completed for this example project.

Andrea explained that the information in the Mitigation Action Tables would be prepared by AEC, but that the Tables cannot be completed until all of the participants submit their draft lists of projects. Committee Members will have the opportunity at the next meeting

to review all of the mitigation projects submitted so that they can make adjustments to their lists if they choose.

It was noted that each jurisdiction will have their own list of jurisdiction-specific mitigation projects and they do not need to get approval from the County or any of the other participants for any of their projects. Participants were also reminded that this is a list of projects and activities they would like to see accomplished if funding becomes available. For a jurisdiction to be eligible for a project, it must be on its list.

This is a mitigation plan and there are some projects that IEMA/FEMA do not consider mitigation. Projects associated with emergency preparedness, disaster response & recovery and maintenance will not be included in the Plan. Andrea noted that as the committee members put their lists together, if they are unsure about whether a project would be considered mitigation, go ahead, and include it on their list. AEC will review the lists and help make the appropriate determinations.

What Happens Next?

Andrea asked that mitigation project forms and all other previously-distributed forms be returned to AEC by August 31. The Committee agreed to schedule the next meeting on:

October 24, 2023

3 p.m.

**Oswego Fire Protection District Station 1,
3511 Woolley Road, Oswego**

Public Comment

With no additional questions or comments, Andrea and Roger adjourned the meeting.

Meeting Minutes

Kendall County Multi-Jurisdictional All Hazards Mitigation Planning Committee

October 24, 2023

3:00 p.m.

**Oswego Fire Protection District Station 1,
3511 Woolley Road, Oswego**

Committee Members

Grundy Kendall ROE

Kendall County

EMA

Health Department

Planning, Building, & Zoning

Sheriff's Office

Kendall Township

Lisbon, Village of

Montgomery, Village of

Oswego FPD

Oswego, Village of

Oswegoland Park District

American Environmental Corp.

Welcome

Andrea Bostwick-Campbell, American Environmental Corporation (AEC), opened the meeting and welcomed attendees.

Handout materials were distributed to each member in attendance. Andrea provided a brief recap to reorient Committee members as to what has been accomplished and what will be covered at this meeting.

Mitigation Project Submittal & Action Tables

Andrea thanked the Committee Members for assembling their lists of mitigation projects and activities. She explained that the information in the draft Mitigation Action Tables handout was prepared by AEC using the lists of mitigation projects and activities provided by the participation jurisdictions. A draft of the Mitigation Strategy section that details the review and re-evaluation of the goals and prioritization methodology as well as how the mitigation projects were analyzed in the tables was also provided in the meeting handouts for review by the Committee.

Committee members were asked to review the Mitigation Action Tables containing the descriptions of the mitigation projects and activities. Andrea and Callie Smith of AEC moved throughout the room to discuss questions with each member. Some committee members expressed interest in adding additional mitigation projects to these tables. Andrea advised Committee Members who wished to add additional projects to provide them to her as soon as possible, and no later than mid-December.

Participants were reminded that this is a list of projects and activities they would like to see accomplished if the money becomes available. Also, for a jurisdiction to be eligible for a project, it must be on its list.

Since this is a mitigation plan, some projects were either removed or not included if they were not considered mitigation. Projects associated emergency preparedness, response, recovery, and maintenance will not be included in the Plan.

Public Forum and Adoption

Andrea laid out the timeline for the remainder of the Plan update process and explained in more detail how the final meeting and adoption process would proceed. The final Committee meeting will be conducted as an open-house style public forum to present the draft Plan for review and comment. A paper copy of the draft Plan will be available for review at the meeting and posted online on the County's website. There will be a two-week public comment period following the public forum.

Unless otherwise specified, Committee members will receive an electronic copy of the draft Plan to make available for public comment.

Once the comment period is over, any comments received will be incorporated into the Plan and submitted to IEMA/FEMA. Following IEMA and FEMA review, any edits requested will be made and then FEMA will issue an Approval Pending Adoption letter. At this point an email will be sent to all the participating jurisdictions, along with a copy of a model adoption resolution, asking them to formally adopt the Plan by resolution. A copy of the executed resolution should then be provided to AEC. Once all the adoption resolutions are received, Andrea will submit them to IEMA and FEMA. FEMA will then issue the Final Approval letter starting the clock for the five-year update.

Plan Maintenance and Update

Andrea described the commitments detailed in a draft of the Plan Maintenance and Update section provided in the meeting handouts for review by the Committee. The Plan will be monitored and evaluated on an annual basis by a Plan Maintenance Subcommittee, which will be made up of the participating jurisdictions and key members of the Planning Committee. The Kendall County EMA Office will send out a Plan Maintenance Checklist to each of the participating jurisdictions who will be responsible for providing information to the Subcommittee. This information will include: the status of their mitigation actions; any hazard-related damages to critical facilities and infrastructure; the adoption of any new plans, policies, or regulations; and any significant changes in development. The Subcommittee will also evaluate the Plan to determine its effectiveness at achieving its stated purpose and goals. Participants can also add new mitigation actions during the annual monitoring phase or by contacting the EMA Director.

The EMA Office will then prepare an annual progress report detailing the results of the annual monitoring and evaluation period and provide copies to the Subcommittee. Any modifications or additions to mitigation project lists will require an update of the Mitigation Strategy and a resubmittal of the Plan to IEMA and FEMA for reference.

At least once every five years, the Plan must be reviewed, revised, and resubmitted to IEMA/FEMA for the participating jurisdictions to remain eligible for mitigation project funds. At the five-year update, any jurisdiction that is not already part of this Plan and who wants to become part of the Plan may do so. New jurisdictions must supply the same information that all the current jurisdictions supplied.

What Happens Next?

Public Forum

The final Committee meeting will be conducted as an open-house style public forum where the draft Plan update will be presented for review and comment.

The public forum will be held on:

**Tuesday, February 20, 2023
Oswego Fire Protection District Station 1,
3511 Woolley Road, Oswego
5 p.m. to 7 p.m.**

Public Comment

With no other questions, the meeting was adjourned.

Kendall County Citizen Questionnaire

You can help protect lives and property from natural hazard events in the County by taking a few moments to complete this questionnaire.

Asterisk (*) denotes required questions for form completion.

*** 1. Please indicate where you live in the County (please check only one).**

- | | |
|---|--|
| <input type="checkbox"/> Aurora | <input type="checkbox"/> Oswego |
| <input type="checkbox"/> Joliet | <input type="checkbox"/> Plano |
| <input type="checkbox"/> Lisbon | <input type="checkbox"/> Plainfield |
| <input type="checkbox"/> Millbrook | <input type="checkbox"/> Plattville |
| <input type="checkbox"/> Minooka | <input type="checkbox"/> Sandwich |
| <input type="checkbox"/> Montgomery | <input type="checkbox"/> Yorkville |
| <input type="checkbox"/> Newark | <input type="checkbox"/> Unincorporated County |
| <input type="checkbox"/> Other (please specify) | |

*** 2. Please place a checkmark next to each of the natural hazards listed below that you have experienced in the County (please check all that apply).**

- ☐ Severe Summer Storms (thunderstorms, hail, lightning strikes)
- ☐ Floods
- ☐ Severe Winter Storms (snow, sleet, ice)
- ☐ Excessive Heat
- ☐ Extreme Cold
- ☐ Tornadoes
- ☐ Drought
- ☐ Earthquakes
- ☐ Mine/Land Subsidence
- ☐ Landslides
- ☐ Dam Failures
- ☐ Other (please specify)

3. Which of the natural hazards above have you encountered most frequently?

4. Rank the natural hazards listed below in order from 1 to 11 based on which hazard you feel poses the greatest threat. (1 = greatest threat and 11 = least threat)
Each number should only be used once.

- | | |
|---|---|
| <input type="checkbox"/> Severe Summer Storms | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Floods | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Severe Winter Storms | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Excessive Heat | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Extreme Cold | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Tornadoes | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Drought | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Earthquakes | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Mine/Land Subsidence | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Landslides | <input type="button" value="↑"/> <input type="button" value="↓"/> |
| <input type="checkbox"/> Dam Failures | <input type="button" value="↑"/> <input type="button" value="↓"/> |

* 5. What types of mitigation projects or activities are most needed in the County?
Please check the five you feel are most important

- | | |
|--|---|
| <input type="checkbox"/> Public information fact sheets and brochures describing actions residents can take to protect themselves and their property against natural hazard impacts. | <input type="checkbox"/> Tornado Safe Shelters |
| <input type="checkbox"/> Floodplain Ordinances | <input type="checkbox"/> Maintain roadway passage during snow storms and heavy rains |
| <input type="checkbox"/> Building Codes and Enforcement | <input type="checkbox"/> Provide sufficient water supply during drought |
| <input type="checkbox"/> Sirens or other Alert Systems | <input type="checkbox"/> Identify residents with special needs in order to provide assistance during a natural hazard event |


- | | |
|--|--|
| <input type="checkbox"/> Flood or Drainage Protection (i.e., culvert and drainage ditch maintenance, retention pond construction, dam or levee construction/maintenance and/or hydraulic studies to determine cause of drainage problems.) | <input type="checkbox"/> Retrofit critical infrastructure (public water supplies, schools, sewage treatment facilities, bridges, hospitals and other important services) to reduce potential damages |
| <input type="checkbox"/> Maintain power during storms by burying power lines, trimming trees and/or purchasing a back-up generator | |
| <input type="checkbox"/> Other (please specify) | |
| <input type="text"/> | |

*** 6. What are the most effective ways *for you* to receive information about how to make your household and property safer from natural hazards (Please check all that apply.)**

- | | |
|---|--|
| <input type="checkbox"/> Newspaper | <input type="checkbox"/> Mailings |
| <input type="checkbox"/> Television | <input type="checkbox"/> Extension Service |
| <input type="checkbox"/> Radio | <input type="checkbox"/> Public Workshops/Meetings |
| <input type="checkbox"/> Internet | <input type="checkbox"/> Fire Department/Law Enforcement |
| <input type="checkbox"/> Social Media (Facebook, Twitter, etc.) | <input type="checkbox"/> Public Health Department |
| <input type="checkbox"/> Schools | <input type="checkbox"/> Municipal/County Offices |
| <input type="checkbox"/> Other (please specify) | |
| <input type="text"/> | |

Thank you for your time in assisting with the update of the County's Hazard Mitigation Plan.
Kendall County Multi-Jurisdictional All Hazards Mitigation Advisory Committee

Done

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Kendall County Emergency Management Agency

January 17 at 1:24 PM · 🌐

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Kendall County Natural Hazards Citizen Questionnaire

You can help reduce risks from natural hazard events in the County by taking a few moments to complete this questionnaire. As part of the County's hazard mitigation planning process, a citizen questionnaire has been developed to gather information and gauge public perception about the natural hazards that impact the County. We would appreciate it if you would take about 5 minutes to complete this survey: www.surveymonkey.com/r/Kendall-CQ

*The Kendall County Emergency
Management Agency is seeking public input
concerning hazards.*



we want your feedback!

TAKE THE SURVEY

www.surveymonkey.com/r/Kendall-CQ

Frequently Asked Questions

Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update

1) What is the Kendall County Multi-Hazard Mitigation Plan?

The Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan evaluates damage to life and property from natural and man-made hazards that have impacted the County and identifies projects and activities to reduce these damages. The Plan is considered to be multi-jurisdictional because it includes municipalities and other jurisdictions (townships, fire protection districts, schools, etc.) who want to participate.

2) What is hazard mitigation?

Hazard mitigation is any action taken to **reduce** the long-term risk to people and property from natural and man-made hazards **before** an event occurs.

3) Why is this Plan being updated?

The Plan update fulfills federal planning requirements of the Stafford Act as amended by the Disaster Mitigation Act and the Disaster Recovery and Reform Act. While meeting federal requirements, this Plan update also provides these benefits:

- Funding for mitigation projects and activities ***before*** disasters occur.
- Funding for projects and activities ***following*** declared disasters.
- Increased awareness about natural hazards and closer cooperation among the various organizations and political jurisdictions involved in emergency planning and response.

4) Who is updating this Plan?

The Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee is updating the Plan with assistance from technical experts in emergency planning, environmental matters, and infrastructure. The Committee will include members from education, emergency services, municipal, township and county government, health care, and law enforcement.

5) How can I participate?

You are invited to attend public meetings of the Kendall County Multi-Hazard Mitigation Planning Committee. In addition, you are encouraged to provide photographs, other documentation, and anecdotal information about damages you experienced from natural and man-made hazards in Kendall County. Surveys will be available at participating jurisdictions and through Kendall County to help gather specific information from residents. All of this information will be used to update the Plan. The draft Plan update will be presented at a public forum for further public input.

More information can be obtained by contacting:

Roger Bonuchi, Director
Kendall County Emergency Management Agency
1102 Cornell Lane
Yorkville, IL 60560
(630) 553-4500

Media Outlets Serving Kendall County

WSPY (107.1 FM)

<https://www.wspynews.com/>

Shaw Local News Network – Kendall County

<https://www.shawlocal.com/>

News List – Kendall County

<https://www.kendallcountyil.gov/offices/advanced-components/list-detail-pages/news-list>



Kendall County Emergency Management Agency

Roger Bonuchi, Director
Tracy Page, Deputy Director

FOR IMMEDIATE RELEASE

Kendall County Prepares for Natural and Man-Made Disasters

Yorkville, IL (January 3, 2023) — Kendall County will update its plan to reduce the damages caused by severe weather such as floods, snow and ice storms, thunderstorms, and tornados, among other events. The plan is called a Hazard Mitigation Plan, and the process to update it will be funded through a grant from the Federal Emergency Management Agency (FEMA).

“The Plan describes the natural hazard events that have impacted the County and identifies activities and projects to reduce the risk to residents, property, and infrastructure,” said Roger Bonuchi, Kendall County Emergency Management Agency Director. “By having an updated hazard mitigation plan, the County and participating jurisdictions will become eligible for federal funds to construct these projects,” he added.

The Kendall County Hazard Mitigation Planning Committee will hold its first meeting on Tuesday, January 24, 2023, at 3:00 P.M. The meeting will be held at the Kendall County Health Department, 811 W. John Street, Yorkville. The meeting is open to the public.

The Planning Committee includes representatives from the county, townships, municipalities, schools, and health care services, as well as technical partners and other stakeholders. Meetings of this committee will be conducted over the next year as working sessions so that any interested residents can attend and ask questions. The purpose of these working sessions is to gather and discuss information that will be used to update the Plan.

“This mitigation plan is different from an emergency response plan because it focuses on ways to reduce and prevent damages before they occur,” added Bonuchi.

For additional information, please contact Roger Bonuchi at the Kendall County Emergency Management Agency at (630) 553-4500 or email at rbonuchi@kendallcountyil.gov

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Kendall County Emergency Management Agency

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Kendall County Emergency Management Agency

January 3 at 1:01 PM · 🌐

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**KENDALL COUNTY EMERGENCY
MANAGEMENT AGENCY**

NEWS RELEASE

Events

Monthly Meetings for Kendall Township Board is the third Tuesday of each month. Meetings start promptly at 7:30 PM at the Township Building at 9925 State Route 47.

Meeting Dates for 2023 (see posting on Download Page):

January 17th

February 21st

March 21st

April 18th

May 16th

June 20th

July 18th

August 15th

September 19th

October 17th

November 21st

December 19th

Kendall County has initiated the updating of their Hazard Mitigation Plan and Kendall township is participating. There will be a series of 5 public meetings and we will post the news release of the meeting prior to the next planned one on April 18th 2023. Here is the link to the one held on Jan 24th.

[Kendall County Hazard Mitigation Meeting.pdf](#)

[Home](#)

[2022 Annual Meeting](#)

Kendall Township

Appendix F

News List - Kendall County

Kendall County Prepares for Natural and Man-Made Disasters

Post Date: 01/03/2023 1:15 PM

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Kendall County Prepares For Natural And Man-Made Disasters With Updated Plan

Officials said having an updated hazard mitigation plan makes Kendall County eligible for federal funds to construct projects.



Emily Rosca, Patch Staff P

Posted Wed, Jan 4, 2023 at 3:10 pm CT

Reply



The public is invited to the Kendall County Hazard Mitigation Planning Committee's first meeting at 3 p.m. Jan. 24 in Yorkville. (Rachel Nunes/Patch)

Press release from the Kendall County Government:

OSWEGO, IL — Kendall County will update its plan to reduce the damages caused by severe weather such as floods, snow and ice storms, thunderstorms, and tornados, among other events. The plan is called a Hazard Mitigation Plan, and the process to update it will be funded through a grant from the Federal Emergency Management Agency (FEMA).

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Find out what's happening in Oswego with free, real-time updates from Patch.

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This press release was produced by the Kendall County Government. The views expressed here are the author's own.

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Crime & Safety | 23h

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Oswego High Senior Chosen First Chair In All-State 'Shrek' Production



https://www.wspynews.com/news/local/kendall-county-to-update-hazard-mitigation-plan/article_d6b6cb24-8e91-11ed-aa55-8b8d245ee47b.html

TOP STORY

Kendall County to update hazard mitigation plan

Ethan Kruger
Jan 9, 2023



Kendall County is beginning the process of updating its hazard mitigation plan for natural and man-made disasters in the coming months. Some of the hazards included are floods, snow and ice storms, and tornadoes.

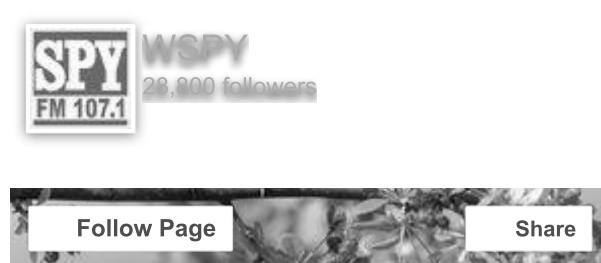
Roger Bonuchi is director of the Kendall County Emergency Management Agency. He says it's about identifying critical infrastructure.

Bonuchi says Kendall County's existing plan is due to be updated.

There will be meetings of the Kendall County Mitigation Planning Committee which includes representatives from local government, health care services, and other stakeholders.

The plan is not the county's emergency response plan which deals with emergencies as they occur, but rather is meant to reduce and prevent damage before there is an emergency.

The first meeting of the mitigation committee is on Tuesday, January 24 at the Kendall County Health Department at 811 W. John Street in Yorkville. It starts at three in the afternoon and is open to the public.





Kendall County Emergency Management Agency

Roger Bonuchi, Director
Tracy Page, Deputy Director

FOR IMMEDIATE RELEASE

Contact: Roger Bonuchi
630-553-4500

Reducing Damages Caused by Severe Weather and Other Hazards

Yorkville, IL (March 30, 2023) — The frequency of and damages caused by severe storms and other natural and man-made hazards in Kendall County will be discussed when the Kendall County Hazard Mitigation Planning Committee meets at the at the Oswego Fire Protection District Station 1, 3511 Woolley Road, Oswego at 3 p.m. on Tuesday, April 18.

This Committee, comprised of County, township, municipal, education, fire protection district, park district, and health care representatives, as well as technical partners and other stakeholders, will meet over the next several months to update the Kendall County All Hazards Mitigation Plan. All Committee meetings are open to the public.

“The goal of this Committee Meeting is to identify how often severe weather events occur within the County and what kinds of damages have resulted. Based on this information we will begin to compile lists of activities and projects to reduce damages caused by these events,” said Kendall County Emergency Management Agency Director, Roger Bonuchi.

The focus of this effort is on natural hazards — severe thunderstorms with damaging winds or hail, tornadoes, snow and ice storms, floods, drought, and excessive heat. Interested persons can provide input at these meetings or submit their comments and questions to their appropriate representatives.

Participants to date include the County, Lisbon, Montgomery, Newark, Oswego, Plainfield, Plano, Plattville, Sandwich, and Yorkville, as well as Big Grove Township, Bristol Township, Kendall Township, Grundy/Kendall ROE, Bristol-Kendall Fire Protection District (FPD), Little Rock-Fox FPD, Newark FPD, Oswego FPD, Sandwich Community FPD, Edith Farnsworth House, Kendall County Forest Preserve District, Oswegoland Park District, and Kendall-Grundy Farm Bureau. Jurisdictions who have yet to participate in a committee meeting are encouraged to attend.

“This Plan will be our best resource for determining how to reduce damages from storms and other natural and man-made hazards. After the Plan is updated, comprehensive information will be available in one document to help guide those who are making decisions about how to better protect Kendall County residents,” added Bonuchi.

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Kendall County Emergency Management Agency

March 30 at 6:45 PM · 🌐



FOR IMMEDIATE RELEASE

Contact: Roger Bonuchi
630-553-4500

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**KENDALL COUNTY EMERGENCY
MANAGEMENT AGENCY**



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The Kendall County Emergency Management Agency is holding a meeting about reducing damage from natural and man made disasters.



WSPYNEWS.COM

Kendall County EMA holding damage mitigation meeting

The Kendall County Emergency Management Agency is holding a meeting about reducing da...

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Record Newspapers - Shaw Local

April 6 at 12:04 PM ·



The public is invited when the committee meets at 3 p.m. on Tuesday, April 18, at Oswego Fire Protection District Station 1, 3511 Woolley Road, Oswego.



SHAWLOCAL.COM

Is Kendall County prepared for severe weather? Officials working to update All Hazards Mitigation Plan



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News List - Kendall County

Reducing Damages Caused by Severe Weather and Other Hazards

Post Date: 03/30/2023 2:44 PM

FOR IMMEDIATE RELEASE

Contact: Roger Bonuchi

630-553-4500

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https://www.wspynews.com/news/local/kendall-county-ema-holding-damage-mitigation-meeting/article_ba7b24ae-d479-11ed-8394-37d8d24e9af3.html

EDITOR'S PICK

Kendall County EMA holding damage mitigation meeting

WSPYNEWS

Apr 6, 2023



Oswego Fire Station. (WSPY News.com file photo)

The Kendall County Emergency Management Agency is holding a meeting about reducing damage from natural and man made disasters. The meeting is open to the public and will be on Tuesday, April 18 at three in the afternoon at the Oswego Fire Protection District Station 1 at 3511 Woolley Road.

A committee made up of local stakeholders, such as fire departments and city officials, will be discussing projects to improve damage mitigation.

It's part of the county's goal of updating its Hazard Mitigation plan which happens every few years.

Anyone interested can provide input the committee.



WSPYNEWS

April 07, 2023



Kendall County

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Is Kendall County prepared for severe weather? Officials working to update All Hazards Mitigation Plan

Public can attend meeting later this month at Oswego Fire Protection District Station 1

By Shaw Local News Network

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Appendix F

April 06, 2023 at 12:00 pm CDT

The frequency of and damage caused by severe storms and other natural and man-made hazards in Kendall County will be the topic for discussion when the Kendall County Hazard Mitigation Planning Committee meets at 3 p.m. on Tuesday, April 18, at the at Oswego Fire Protection District Station 1, 3511 Woolley Road, Oswego.

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All committee meetings are open to the public.

”The goal of this committee meeting is to identify how often severe weather events occur within the county and what kinds of damages have resulted. Based on this information we will begin to compile lists of activities and projects to reduce damages caused by these events,” Kendall County Emergency Management Agency Director Roger Bonuchi said in a news release.

”This plan will be our best resource for determining how to reduce damages from storms and other natural and man-made hazards.”

— Roger Bonuchi, director, Kendall County Emergency Management Agency

The focus of this effort is on natural hazards — severe thunderstorms with damaging winds or hail, tornadoes, snow and ice storms, floods, drought and excessive heat. Interested persons can provide input at these meetings or submit their comments and questions to their appropriate representatives.

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Politics & Government

Discussion About Reducing Damages Caused By Severe Weather Planned In Oswego

Organizers will compile a list of activities and projects to be completed to help reduce the damage from natural and man-made hazards.



Emily Rosca, Patch Staff 

Posted Thu, Mar 30, 2023 at 8:35 pm CT

 Reply (1)



Appendix F

The discussion will occur when the Kendall County Hazard Mitigation Planning Committee meets at the Oswego Fire Protection District Station 1 on April 18. (Shutterstock)

Press release from Kendall County Sheriff's Office:

KENDALL COUNTY, IL — The frequency of and damages caused by severe storms and other natural and man-made hazards in Kendall County will be discussed when the Kendall County Hazard Mitigation Planning Committee meets at the Oswego Fire Protection District Station 1, 3511 Woolley Road, Oswego at 3 p.m. on Tuesday, April 18.

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This press release was produced by Kendall County Sheriff's Office. The views expressed here are the author's own.

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Bond Issuance Passes For Oswego Fire Department: Unofficial Results





Kendall County Emergency Management Agency

Roger Bonuchi, Director
Tracy Page, Deputy Director

FOR IMMEDIATE RELEASE

Contact: Roger Bonuchi
630-553-4500

Reducing Damages Caused by Severe Weather and Other Hazards

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“Severe weather frequently damages buildings, crops, roads, and other critical infrastructure in this area. Since 1972, the County has been a part of seven federal disaster declarations. In addition, there has been at least \$7.8 million in verified property damages caused by hazard events in the County,” said Kendall County Emergency Management Agency Director, Roger Bonuchi. “Identifying preventative steps that can be taken to reduce the dollar damages as well as protect public health before a natural hazard event occurs is the goal of this planning process.”

This Committee began work in January 2023 to update the County’s All Hazards Mitigation Plan. Committee meetings are open to the public.

“Other emergency plans are directed at responding after a storm or disaster strikes. With this Plan, we will identify actions that can be taken to reduce damages caused by natural and man-made hazards for each participating jurisdiction before they occur. This Plan also helps assure each participating jurisdiction is eligible to receive federal grant money for mitigation projects,” added Bonuchi.

Building community safe rooms, acquiring flood prone properties, resolving drainage issues, retrofitting critical infrastructure to better withstand hazard events, installing back-up power supplies, and developing public information materials are a few of the more frequently encountered mitigation projects in Illinois.

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Kendall County Emergency Management Agency's mission is to
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1102 Cornell Ln, Yorkville, IL, United States, Illinois



(630) 553-4500



rbonuchi@kendallcountyil.gov



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Kendall County Emergency Management Agency

June 20 at 1:09 PM · 🌐

FOR IMMEDIATE RELEASE

Contact: Roger Bonuchi
630-553-4500

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**KENDALL COUNTY EMERGENCY
MANAGEMENT AGENCY**



Kendall County Emergency Management Agency

Roger Bonuchi, Director
Tracy Page, Deputy Director

FOR IMMEDIATE RELEASE

Contact: Roger Bonuchi
630-553-4500

Protecting Public Health and Property in Kendall County

Yorkville, IL (October 9, 2023) -- Projects and activities to prevent injuries and fatalities while maintaining vital services for Kendall County residents will be the main topic of discussion at the Kendall County All Hazards Mitigation Planning Committee meeting to be held at the Oswego Fire Protection District Station 1, 3511 Woolley Road, Oswego at 3 p.m. on Tuesday, October 24.

The Committee began work in January to update the County's All Hazards Mitigation Plan. This Plan details the past severe weather events that have impacted the County and identifies mitigation projects and activities that can be taken before a severe weather event occurs to protect residents and critical services and infrastructure.

"Obtaining FEMA's approval of our updated Plan will make all of the participants eligible to receive federal grant money for mitigation projects and activities," explained Kendall County Emergency Management Agency Director, Roger Bonuchi.

Projects identified by Committee members at this meeting will become part of the Kendall County All Hazards Mitigation Plan. While the committee has provided input on portions of the Plan, the entire Plan will be presented for public review and comment before it is submitted to the state and federal government for approval.

"A public forum will be conducted early next year for interested persons to review the Plan update and ask questions of Committee Members. A two-week public comment period will be held following the public forum to accommodate interested persons who are unable to attend. We want to make sure that anybody who is interested has an opportunity to review and comment on the draft Plan update," added Bonuchi.

Interested persons can submit questions and comments to the Committee members or directly to the Kendall County EMA Office.

XXXXXXXXXXXXXXXXXXXX



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1102 Cornell Ln, Yorkville, IL, United States, Illinois



(630) 553-4500



rbonuchi@kendallcountyil.gov



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Kendall County Emergency Management Agency

October 4 at 1:45 PM

FOR IMMEDIATE RELEASE

Contact: Roger Bonuchi - 630-553-4500

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**KENDALL COUNTY EMERGENCY
MANAGEMENT AGENCY**



Kendall County Emergency Management Agency

Roger Bonuchi, Director
Tracy Page, Deputy Director

FOR IMMEDIATE RELEASE

Contact: Roger Bonuchi
630-553-4500

Plan to Protect Public Health and Property in Kendall County Ready for Public Review

Yorkville, IL (February 5, 2024) -- The updated Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan outlining projects and activities to reduce damages caused by severe weather and other natural hazards will be available for public review and comment starting February 20. The Plan, along with a summary sheet and a comment survey, will be available for review at the Kendall County Public Safety Center (1102 Cornell Lane, Yorkville) and on the County website.

The comment period will remain open through March 5. Public comments received will be used to make any revisions needed before the Plan is submitted to the Illinois Emergency Management Agency and Office of Homeland Security and the Federal Emergency Management Agency.

The Kendall County Multi-Hazard Mitigation Planning Committee has been conducting working meetings open to the public since January 2023. The Committee prepared the Plan with technical assistance from state and federal agencies as well as a consultant specializing in emergency management planning.

The municipalities of Lisbon, Montgomery, Newark, Oswego, Plano, Plattville, and Yorkville have participated in the planning process. Other participating jurisdictions include Lisbon Community Consolidated School District #90, Newark Community High School District #18, Oswego Community Unit School District #308, Parkview Christian Academy, Plano School District #88, St. Mary School (Plano), Oswegoland Park District, Kendall Township, Oswego Township, Bristol-Kendall Fire Protection District (FPD), Lisbon-Seward FPD, Newark FPD, Oswego FPD, and Sandwich Community FPD.

"This Plan describes how the County and the participating jurisdictions have been impacted by severe weather and other hazards and identifies specific mitigation actions that can be taken to reduce damages to people and property before events occur," explained Roger Bonuchi, Kendall County Emergency Management Agency Director.

An open-house style public forum will be held at the Oswego Fire Protection District Station 1, 3511 Woolley Road, Oswego, from 5 p.m. to 7 p.m. on Tuesday, February 20. Individuals can come and review the Plan at any time during the forum. Those unable to attend can still review the Plan and provide comments without participating in the public forum.

XXXXXXXXXXXXXXXXXXXX



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Kendall County Emergency Management Agency

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Plan to Protect Public Health and Property in Kendall County
Ready for Public Review

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**KENDALL COUNTY EMERGENCY
MANAGEMENT AGENCY**

News List - Kendall County

Plan to Protect Public Health and Property Ready for Public Review

Post Date: 02/02/2024 8:51 AM

FOR IMMEDIATE RELEASE

Plan to Protect Public Health and Property in Kendall County

Ready for Public Review

Yorkville, IL (January 30, 2024) -- The updated Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan outlining projects and activities to reduce damages caused by severe weather and other natural hazards will be available for public review and comment starting February 20. The Plan, along with a summary sheet and a comment survey, will be available for review at the Kendall County Public Safety Center (1102 Cornell Lane, Yorkville) and on the County website.

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Contact: Roger Bonuchi

630-553-4500

[Return to full list >>](#)

https://www.wspynews.com/news/local/kendall-county-hazard-mitigation-plan-to-open-for-public-comment-later-this-month/article_468d5658-c293-11ee-9b8b-179b2b689636.html

FEATURED

TOP STORY

Kendall County hazard mitigation plan to open for public comment later this month

Ethan Kruger

Feb 3, 2024



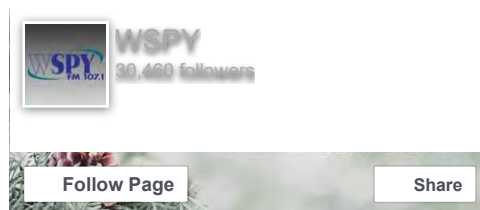
Kendall County Public Safety Center.

The Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan will be available for public viewing and comment later this month.

Emergency Management Agency (EMA) Director Roger Bonuchi says people can come by and view it at the Kendall County Public Safety Center in Yorkville or see it online beginning February 20th.

A committee has been working on updating the plan since January last year. Bonuchi says the last update was in 2010. It's normally done every ten years, but was delayed due to the COVID-19 pandemic.

There will also be an open house to discuss the plan at the Oswego Fire Protection District Station 1 at 3511 Woolley Road in Oswego on February 20 from five to seven.



News

Kendall County, IL Unveils Updated Multi-Hazard Mitigation Plan for Public Review

By: Country Herald Staff Report January 30, 2024

Yorkville, IL – Kendall County is inviting residents to review and comment on its updated Multi-Jurisdictional Multi-Hazard Mitigation Plan, which aims to minimize damages from severe weather and natural disasters. The public review period opens on February 20, with the Plan available at the Kendall County Public Safety Center and online.

According to county officials, the Plan, developed in collaboration with multiple municipalities and school districts, focuses on proactive strategies to protect public health and property. The public comment period extends until March 5, offering an opportunity for residents to influence the final submission to state and federal emergency management agencies.



The Plan's development, guided by the Kendall County Multi-Hazard Mitigation Planning Committee since January 2023, involves input from state and federal agencies and an emergency management consultant. It addresses the impact of severe weather and outlines specific mitigation actions.

Residents can also attend an open-house forum at the Oswego Fire Protection District Station 1 on February 20 to discuss the Plan. This initiative demonstrates Kendall County's commitment to preparedness and public safety in the face of natural hazards.

KENDALL COUNTY MULTI-JURISDICTIONAL MULTI-HAZARD MITIGATION PLAN PUBLIC FORUM SUMMARY HANDOUT

**FEBRUARY 20, 2024
5:00 P.M. – 7:00 P.M.**

Each year natural hazards (i.e., severe thunderstorms, tornadoes, severe winter storms, flooding, etc.) cause damage to property and threaten the lives and health of Kendall County residents. Since 1973, Kendall County has been included in 13 emergency and major federal disaster declarations and experienced at least \$8 million in recorded property damages and \$27.7 million in recorded crop damages.

In the last 10 years alone (2013 – 2022), there have been 48 thunderstorms with damaging winds, 41 extreme cold events, 30 excessive heat events, 29 severe winter storms, 25 riverine flood events, 20 flash flood events, 10 severe storms with hail one inch in diameter or greater, 6 tornadoes, 2 verified heavy rain events, and 1 lightning strike with verified damages in the County. While natural and man-made hazards cannot be avoided, their impacts can be reduced through effective hazard mitigation planning and implementation.

What is hazard mitigation planning?

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

Why prepare an updated multi-hazard mitigation plan?

By preparing and adopting an updated multi-hazard mitigation plan, participating jurisdictions become eligible to apply for and receive federal hazard mitigation funds to implement mitigation actions identified in the plan. These funds, made available through the Disaster Mitigation Act of 2000, can help provide local government entities with the opportunity to complete mitigation projects that would not otherwise be financially possible.

Who participated in the update of the County's Multi-Hazard Mitigation Plan?

Recognizing the benefits that could be gained from preparing an updated multi-hazard mitigation plan, Kendall County invited all the local government entities within the County to participate. The following jurisdictions chose to participate in the Plan update with the County:

- | | | |
|--------------------------|----------------------------|------------------------------|
| ❖ Bristol-Kendall FPD | ❖ Newark CHSD #18 | ❖ Parkview Christian Academy |
| ❖ Kendall Township | ❖ Newark FPD | ❖ Plano, City of |
| ❖ Lisbon, Village of | ❖ Oswego, Village of | ❖ Plano CUSD #88 |
| ❖ Lisbon CCSD #90 | ❖ Oswego CUSD #308 | ❖ Plattville, Village of |
| ❖ Lisbon-Seward FPD | ❖ Oswego FPD | ❖ Sandwich Community FPD |
| ❖ Montgomery, Village of | ❖ Oswegoland Park District | ❖ St. Mary Catholic School |
| ❖ Newark, Village of | ❖ Oswego Township | ❖ Yorkville, City of |

KENDALL COUNTY MULTI-JURISDICTIONAL MULTI-HAZARD MITIGATION PLAN

How was the Plan update developed?

The Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan update was developed through the Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee. The Committee included representatives from each participating jurisdiction, as well as agriculture, cultural resources, education, emergency services, planning, recreation, and social services. The Planning Committee met five times between January 2023 and February 2024.

Which hazards are included in the Plan update?

After reviewing the risk assessment, the Planning Committee chose to include the following hazards in the Plan:

Natural Hazards

- ❖ severe storms (thunderstorms, hail, lightning & heavy rain)
- ❖ floods (riverine & flash)
- ❖ severe winter storms (snow & ice)
- ❖ extreme cold
- ❖ excessive heat
- ❖ tornadoes
- ❖ drought
- ❖ earthquakes

Man-Made Hazards

- ❖ hazardous substances (generation, transportation, and storage/handling)
- ❖ waste disposal
- ❖ hazardous material incidents
- ❖ waste remediation
- ❖ nuclear incidents
- ❖ terrorism

What is included in the Plan update?

The Plan update is divided into sections that cover the planning process; the risk assessment; the mitigation strategy, including the jurisdiction-specific mitigation action lists; plan maintenance; and adoption. The majority of the Plan update is devoted to the risk assessment and mitigation strategy.

The risk assessment identifies the natural and man-made hazards that pose a threat to the County and includes a profile of each hazard, which describes the location and severity of past occurrences, reported damages to public health and property, and the likelihood of future occurrences. It also provides a vulnerability analysis that estimates the potential impacts each natural hazard would have on the health and safety of the residents of Kendall County, as well as the buildings, critical facilities, and infrastructure in the County.

The key component of the mitigation strategy is a list of the projects and activities developed by each participating jurisdiction to reduce the potential loss of life and property damage that results from the natural hazards identified in the risk assessment. These projects and activities are intended to be implemented *before* a hazard event occurs.

What happens next?

Any comments received at today's public forum and during the public comment period will be reviewed and, where applicable, incorporated into the draft Plan update before it is submitted to the Illinois Emergency Management Agency and Office of Homeland Security (IEMA-OHS) and the Federal Emergency Management Agency (FEMA) for review. Once IEMA-OHS and FEMA have reviewed and approved the Plan, it will be presented to the County and each participating jurisdiction for formal adoption. After adopting the Plan update, each participating jurisdiction will be eligible to apply for federal mitigation funds and can begin implementing the mitigation actions identified in the Plan.

KENDALL COUNTY MULTI-JURISDICTIONAL MULTI-HAZARD MITIGATION PLAN

COMMENT SHEET

**PLAN COMMENT PERIOD
FEBRUARY 20, 2024 THRU MARCH 5, 2024**

The County's Multi-Jurisdictional Multi-Hazard Mitigation Plan evaluates damage to life and property from the natural and man-made hazards that occur in the County. This Plan also identifies projects and activities for the County and each participating jurisdiction that will help reduce these damages. This comment sheet should be used to provide feedback on the draft Plan update.

What comments, concerns or questions do you have regarding the draft Plan update?
(Use additional sheets if necessary.)

Please Print Your Name, Address, and Phone Number Below:

Name: _____ Phone: _____
Address: _____
_____ Zip Code: _____

Comments will be accepted through March 5, 2024

Roger Bonuchi, Director
Kendall County Emergency Management Agency
1102 Cornell Ln.
Yorkville, IL 60560

Place
Stamp
Here

Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update Comment Survey

The Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan evaluates damage to life and property from the natural and man-made hazards that occur in the County. This Plan also identifies projects and activities for the County and each participating jurisdiction to help reduce these damages. This comment sheet should be used to provide feedback on the draft Plan update.

An asterisk (*) denotes a question that is required for form completion.

* 1. What comments, concerns or questions do you have regarding the draft Plan update?

* 2. Name:

3. Address:

4. City/Village/Town:

5. State/Province:

6. Zip Code:

* 7. Email Address:

8. Phone Number:

Comments will be accepted through March 5, 2024.

Done

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**Kendall County Emergency
Management Agency**
Roger Bonuchi, Director
Tracy Page, Deputy Director

To: DeKalb County ESDA: Dennis Miller (dmiller@dekalbcounty.org)
DuPage County OHSEM: Craig Dieckman (oem@dupagecounty.gov)
Grundy County EMA: Joe Schroeder (jschroeder@grundyco.org)
Kane County EMA: Scott Buziecki (kanecountyeoc@countyofkane.org)
LaSalle County EMA: Fred Moore (LaSalleCoEMA@lasallecounty.org)
Will County EMA: Allison Anderson (ema@willcountyillinois.com)

From: Roger Bonuchi, Kendall County Emergency Management Agency Director

Subject: Hazard Mitigation Plans Update

Date: January 30, 2024

The purpose of this memorandum is to inform you that Kendall County is updating its countywide Multi-Hazard Mitigation Plan. Since we share common boundaries, you are invited to review our draft Plan and provide comments during the public comment period, which runs from February 20 through March 5, 2024. Starting February 20, the Plan, along with a summary sheet and a comment survey, can be viewed on the Kendall County webpage.

A public forum is scheduled for:

Tuesday, February 20, 2024
5 p.m. to 7 p.m.
Oswego Fire Protection District Station 1,
3511 Woolley Road, Oswego

If you have any questions, please contact me at 630-553-4500 or rbonuchi@kendallcountyl.gov

American Environmental Corp., an emergency management and environmental consulting firm experienced in preparing these plans, is leading our planning process. If you have specific questions about the Plan, please contact Ken Runkle, a consultant team member, at 217-585-9517 x4 or krunkle@aecspfld.com

Runkle, Ken

From: Tracy Page <tpage@kendallcountyil.gov>
Sent: Tuesday, January 30, 2024 9:17 AM
To: Anderson, Lisa; aanderson@willcountyillinois.com; bciszczon@willcountyillinois.com; Besler, Linda; cflynn@lasallecounty.org; Chelsea Bowen; Christopher Buita; Deborah Dortmund (MadisonDeborah@co.kane.il.us); dmiller@dekalbcounty.org; Drendel, Beth; fmoore@lasallecounty.org; Jon Mensching (MenschingJonathan@co.kane.il.us); jschroeder@grundycountyil.gov; jsheldon@grundycountyil.gov; Ricky Ortiz (rortiz@grundycountyil.gov); Roger Bonuchi; Scott Buziecki (BuzieckiScott@KaneCountyIL.gov); tmuzzey@willcountyillinois.com; tmurray@willcountyillinois.com; oem@dupagecounty.gov
Cc: Runkle, Ken; Bostwick, Andrea; Smith, Callie
Subject: Kendall County - Hazard Mitigation Plan Review
Attachments: Kendall Hazard Adjacent Counties.pdf

Hello Neighboring Counties

The purpose of this memorandum is to inform you that Kendall County is updating its countywide Multi-Hazard Mitigation Plan. Since we share common boundaries, you are invited to review our draft Plan and provide comments during the public comment period, which runs from February 20 through March 5, 2024. Starting February 20, the Plan, along with a summary sheet and a comment survey, can be viewed on the Kendall County webpage.

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Sincerely,



Tracy Page
Deputy Director
Kendall County Emergency Management Agency

Phone 630-553-7500 x1115 **Fax** 630-553-4379
Web www.kendallcountyil.gov **Email** tpage@kendallcountyil.gov
1102 Cornell Lane, Yorkville, IL 60560



Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/23/1996	9:30 PM	Plano	n/a	n/a	n/a	n/a	n/a	
07/24/1996	11:15 AM	Oswego Boulder Hill^	n/a	n/a	n/a	n/a	n/a	<i>This event was part of a federally-declared disaster (Declaration #1129)</i> A severe thunderstorm downed trees in Oswego.
10/29/1996	5:30 PM	countywide	57 kts	n/a	n/a	n/a	n/a	
05/18/1997	6:45 PM	Yorkville Yorkville^	50 kts	n/a	n/a	n/a	n/a	Thunderstorm winds caused damage at a farm southeast of Yorkville. A semi-trailer was blown over, windows were broken and shingles peeled off a barn, and trees and limbs were blown down.
07/18/1997	2:45 PM	countywide	50 kts	n/a	n/a	n/a	n/a	Trees and power lines were downed countywide.
05/28/1998	9:30 PM	Yorkville	50 kts	n/a	n/a	n/a	n/a	Strong winds blew a tree down on to Highway 71.
06/18/1998	7:05 PM	Sandwich Plano^ Yorkville	64 kts	n/a	n/a	n/a	n/a	A large tree fell on a house in Yorkville.
06/28/1998	3:00 AM	Lisbon	50 kts	n/a	n/a	n/a	n/a	
06/29/1998	4:50 PM	Lisbon	61 kts	n/a	n/a	n/a	n/a	
08/24/1998	12:47 PM	Oswego Boulder Hill^	50 kts	n/a	n/a	n/a	n/a	Large trees were blown down in northern Kendall County.
09/20/1998	3:00 PM	Lisbon	50 kts	n/a	n/a	n/a	n/a	Trees were blown down.
11/10/1998	5:55 AM	countywide	50 kts	n/a	n/a	n/a	n/a	Some trees were downed.
07/21/1999	8:01 PM	Oswego Boulder Hill^	50 kts	n/a	n/a	n/a	n/a	Trees were blown down\.
05/18/2000	4:25 PM	Sandwich	52 kts	n/a	n/a	n/a	n/a	Kendall County emergency management reported large branches down along Route 52, and siding and roof damage to homes 10 to 12 miles. Power lines and trees were down blocking roads.

* Includes all events reported for the Village of Montgomery.

^ Thunderstorm with damaging winds verified in the vicinity of this location(s).

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1996 - 2022

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05/18/2000	4:30 PM	Newark Plattville Helmar [^]	60 kts	n/a	n/a	n/a	n/a	
08/06/2000	3:49 PM	Sandwich	52 kts	n/a	n/a	n/a	n/a	
08/06/2000	3:50 PM	Montgomery	61 kts	n/a	n/a	n/a	n/a	Widespread downed trees and power lines
06/14/2001	6:50 PM	Newark	50 kts	n/a	n/a	n/a	n/a	The main damage from this line of storms was in the form of trees and limbs down, as well as power lines and utility poles down.
07/22/2001	4:20 PM	Yorkville	50 kts	n/a	n/a	n/a	n/a	
09/06/2001	6:20 PM	Oswego Oswego [^] Boulder Hill [^]	50 kts	n/a	n/a	n/a	n/a	Part of a tree fell across a road.
06/04/2002	12:17 PM	Yorkville	50 kts	n/a	n/a	n/a	n/a	
05/30/2003	6:40 PM	Plano [^]	60 kts	n/a	n/a	n/a	n/a	Trees were blown down in Silver Springs State Park.
07/07/2003	7:15 AM	Yorkville Oswego Bristol [^]	50 kts	n/a	n/a	n/a	n/a	A few trees were blown down in Yorkville and Oswego.
07/07/2003	8:56 PM	Plano	50 kts	n/a	n/a	n/a	n/a	Trees were damaged in Plano.
07/11/2003	1:40 PM	Plano [^]	61 kts	n/a	n/a	n/a	n/a	
07/11/2003	2:15 PM	Lisbon [^] Millbrook	50 kts	n/a	n/a	n/a	n/a	
07/17/2003	8:15 PM	Joliet [^] Plainfield [^]	50 kts	n/a	n/a	n/a	n/a	Small trees were blown down 7 miles southeast of Oswego toward the Kendall Will county line.

* Includes all events reported for the Village of Montgomery.

[^] Thunderstorm with damaging winds verified in the vicinity of this location(s).

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1996 - 2022

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07/27/2003	11:35 AM	countywide	57 kts	n/a	n/a	n/a	n/a	Wind damage was widespread across Kendall County. Trees, large tree limbs and power lines were blown down in Plano, Newark and Oswego as well as many rural parts of the County. Trees were blown down blocking Illinois Route 71 west of Oswego. Trees 20 inches in diameter were blown down southeast of Plano along Lynwood Drive. Southwest of Plano, a large tree limb fell onto a roof and broke a skylight.
07/31/2003	8:25 PM	Plano Bristol^ Yorkville^ Oswego Boulder Hill^	52 kts	n/a	n/a	n/a	n/a	Trees and power lines were blown down across many parts of northern Kendall County.
05/12/2004	2:50 PM	Plattville^	50 kts	n/a	n/a	n/a	n/a	Power lines were blown down at the intersection of Newark Road and Route 47.
05/12/2004	2:55 PM	Oswego Boulder Hill^	50 kts	n/a	n/a	n/a	n/a	Large tree limbs were down along Wolfs Crossing Road.
05/13/2004	3:12 PM	Millbrook Millbrook^	57 kts	n/a	n/a	n/a	n/a	A 10 inch diameter tree was blown down near Budd Road and Route 71 near Millbrook.
05/13/2004	3:20 PM	Plano	58 kts	n/a	n/a	n/a	n/a	
05/13/2004	3:26 PM	Little Rock	61 kts	n/a	n/a	n/a	n/a	
05/13/2004	3:28 PM	Yorkville Bristol^	50 kts	n/a	n/a	n/a	n/a	
05/13/2004	3:34 PM	Montgomery	50 kts	n/a	n/a	n/a	n/a	Tree limbs were blown down.

* Includes all events reported for the Village of Montgomery.

^ Thunderstorm with damaging winds verified in the vicinity of this location(s).

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Severe Storms - Thunderstorms with Damaging Winds Reported in Kendall County*
1996 - 2022

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05/30/2004	5:35 PM	countywide	53 kts	1	n/a	n/a	n/a	Trees and tree limbs were blown down countywide. Also, trees were down at campground east of Millbrook. Tree limbs were down on a power line in Yorkville. A tree was down on a car in Little Rock. Another tree was down on a power line 3 miles south of Plano. At Plano, a tree was down on a car with a person trapped inside. In Yorkville, trees and tree limbs were blown down at the Kendall County Government Center at the intersection of Route 34 and Cannonball Road. Trees were also blown down at the intersection of Route 47 and Route 126.
07/22/2004	1:20 PM	Bristol^ Yorkville^ Oswego^	50 kts	n/a	n/a	n/a	n/a	Power lines knocked down on Winding Creek and Oak Creek Rds, near Rt. 71 between Yorkville and Oswego.
03/30/2005	4:44 PM	Newark	50 kts	n/a	n/a	n/a	n/a	Power lines reported down.
05/19/2005	3:27 PM	Yorkville	55 kts	n/a	n/a	n/a	n/a	A utility pole and numerous oak trees were blown down near Walker and Schlapp Roads.
05/19/2005	3:44 PM	Yorkville Plano^ Bristol^	50 kts	n/a	n/a	n/a	n/a	Railroad gates were blown down near Eldmain Road and Route 34.
08/02/2006	7:37 PM	Minnoka^	52 kts	n/a	n/a	n/a	n/a	
08/03/2006	3:35 AM	Plano^ Sandwich^	50 kts	n/a	n/a	n/a	n/a	A five inch diameter tree limb was blown down blocking a road.
08/10/2006	7:30 AM	Newark	55 kts	n/a	n/a	n/a	n/a	A large tree was blown down at US 52 and Stevens Road.
10/02/2006	9:09 PM	Oswego Boulder Hill^	50 kts	n/a	n/a	\$25,000	n/a	A large tree limb was blown down onto a vehicle which caused an accident at Stuart and Wooley Roads.

* Includes all events reported for the Village of Montgomery.

^ Thunderstorm with damaging winds verified in the vicinity of this location(s).

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
10/02/2006	9:37 PM	Yorkville	55 kts	n/a	n/a	n/a	n/a	A large tree was blown down blocking Fox Road.
10/02/2006	9:50 PM	Plano	50 kts	n/a	n/a	n/a	n/a	Numerous tree limbs blown down on Route 34 between Plano and Yorkville Roads.
10/02/2006	10:16 PM	Plano^	50 kts	n/a	n/a	n/a	n/a	Four to five inch diameter tree limbs blown down on Milhurth Road.
03/31/2007	8:11 PM	Newark	61 kts	n/a	n/a	n/a	n/a	Tree limbs blown down.
03/31/2007	8:19 PM	Bristol	61 kts	n/a	n/a	n/a	n/a	
03/31/2007	8:23 PM	Montgomery	68 kts	n/a	n/a	n/a	n/a	
06/01/2007	5:45 PM	Plano	50 kts	n/a	n/a	\$5,000	n/a	A large string of powerlines was blown down on Burr Oak Road off of Griswald Springs Road.
06/01/2007	6:06 PM	Yorkville^	56 kts	n/a	n/a	\$5,000	n/a	A gazebo was blown over.
07/10/2007	3:30 PM	Plano	50 kts	n/a	n/a	n/a	n/a	Small tree limbs were blown down.
07/18/2007	8:10 PM	Boulder Hill	50 kts	n/a	n/a	n/a	n/a	Six inch diameter tree limbs blown down.
07/18/2007	8:27 PM	Yorkville	50 kts	n/a	n/a	n/a	n/a	Numerous trees blown down near Route 47 and Kennedy.
08/23/2007	2:00 PM	Montgomery	56 kts	n/a	n/a	n/a	n/a	
08/23/2007	2:05 PM	Plattville^	50 kts	n/a	n/a	n/a	n/a	A large tree limb was blown down on County Line Road between Renwick and Caton Farm Road in Kendall County.
06/08/2008	11:15 AM	Montgomery	50 kts	n/a	n/a	\$500	n/a	A patio swing was picked up and thrown over a fence. Cast iron patio furniture was mangled. A trampoline was blown several houses down a street.
06/15/2008	6:20 AM	Plano^	50 kts	n/a	n/a	n/a	n/a	One tree was blown down on Creek Road north of Miller Road.
06/15/2008	6:25 AM	Yorkville	50 kts	n/a	n/a	n/a	n/a	One tree was blown down near Route 126 and Crooked Creek Road.
06/28/2008	3:07 PM	Plano	50 kts	n/a	n/a	n/a	n/a	Trees were blown down in Plano.

* Includes all events reported for the Village of Montgomery.

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1996 - 2022

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
07/10/2008	7:07 PM	Plattville^	55 kts	n/a	n/a	\$1,000	n/a	A tree and power lines were blown down near Caton Farm and Brisbin Roads.
07/10/2008	7:20 PM	Plattville^	55 kts	n/a	n/a	n/a	n/a	A tree was blown down on Plattville Road, just east of Route 47.
08/04/2008	6:20 PM	Millbrook Plano Yorkville Bristol	52 kts	n/a	n/a	\$6,000	n/a	At Millbrook, six inch diameter tree limbs with power lines were blown down near Sandy Bluff and Millhurst Roads. A large section of a tree was blown down at Dearborn and Harve Streets in Plano, which knocked down a utility pole. Tree limbs and power lines were blown down across other areas of Plano. At Bristol, a large tree was completely snapped off 8 to 10 feet above ground. Power lines were also knocked down.
08/04/2008	6:30 PM	Montgomery	61 kts	n/a	n/a	\$5,000	n/a	Sheet metal and insulation were torn off a soap factory by strong winds. Most of the damage was cosmetic, no structural damage was reported.
06/19/2009	5:40 PM	Plattville^	56 kts	n/a	n/a	\$1,000	n/a	A large tree and power lines were blown down blocking Caton Farm Road just east of Ridge Road.
06/19/2009	5:47 PM	Yorkville	61 kts	n/a	n/a	\$1,000	n/a	Numerous trees and power lines were blown down. People were trapped in cars due to the fallen trees and power lines.
06/19/2009	5:52 PM	Oswego^	65 kts	n/a	n/a	n/a	n/a	
06/19/2009	6:08 PM	Helmar^	61 kts	n/a	n/a	\$1,000	n/a	Numerous trees and power lines were blown down.
08/16/2009	1:00 PM	Montgomery	55 kts	n/a	n/a	\$1,000	n/a	Large tree limbs and signs were blown down along Route 30 between Route 47 and Route 25.
08/16/2009	1:05 PM	Boulder Hill	54 kts	n/a	n/a	n/a	n/a	
06/18/2010	2:45 PM	Oswego^	66 kts	n/a	n/a	n/a	n/a	

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Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/21/2010	9:02 PM	Plattville [^]	50 kts	n/a	n/a	\$200,000	n/a	A large silo blew down onto an anhydrous ammonia tank, damaging a valve. The ammonia leak resulted in evacuation of several nearby residences. There was also a tree blown down on a road.
06/23/2010	4:30 PM	Sandwich Plano [^]	50 kts	n/a	n/a	\$2,000	n/a	Utility poles and power lines were blown down near Sandy Bluff and Griswold Springs Roads.
06/23/2010	4:33 PM	Yorkville Yorkville [^] Plano Plano [^] Bristol	72 kts	n/a	n/a	\$12,000	n/a	Southeast of Yorkville a large tree was blown down near Route 126 and Minkler Road. East of Plano, two large trees were blown down on Keller Road. Trees were blown down on River Road. Part of a roof was blown off a house on River Road. One tree fell on a car. Other trees were blown over onto power lines. Tree limbs up to six inches in diameter were blown down. Part of a twelve inch diameter tree was blown down on a house. North of Yorkville, eight to twelve inch diameter trees were blown down. At Yorkville, trees with diameters up to 16 inches were snapped and uprooted. Numerous tree limbs and power lines were blown down along Route 47. Tree damage was reported near Countryside Parkway and Route 47 with estimated winds to 70 mph.
06/23/2010	4:40 PM	Oswego	68 kts	n/a	n/a	n/a	n/a	Oswego public works estimated 1,000 trees suffered some kind of damage or were completely blown down. A semi truck was blown over on Route 34.
06/23/2010	4:47 PM	Plainfield Joliet	60 kts	n/a	n/a	\$5,000	n/a	In Plainfield, a row of utility poles was blown down along Ridge Road.

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1996 - 2022

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/23/2010	4:52 PM	Oswego Boulder Hill^	60 kts	n/a	n/a	\$3,000	n/a	A large tree was blown down in front of a house on Fox Mead Court. The tree damaged gutters and siding on the house.
05/11/2011	5:54 PM	Oswego	60 kts	n/a	n/a	n/a	n/a	
06/08/2011	10:50 PM	Plano	50 kts	n/a	n/a	\$500	n/a	A utility pole was snapped near Fox River Drive.
06/08/2011	11:10 PM	Lisbon^	50 kts	n/a	n/a	n/a	n/a	A tree was reported down near the intersection of Lisbon Road and Route 52.
07/11/2011	6:48 AM	Yorkville Yorkville^	55 kts	n/a	n/a	\$1,000	n/a	A 4 to 5 inch diameter tree was blown down as were several large limbs. A backyard wooden jungle gym was destroyed.
07/11/2011	6:54 AM	Oswego Boulder Hill^	52 kts	n/a	n/a	n/a	n/a	
06/29/2012	8:14 PM	Plano	50 kts	n/a	n/a	n/a	n/a	Two 70-foot sections of wooden fencing were blown down.
06/29/2012	8:31 PM	Oswego^	80 kts	n/a	n/a	n/a	n/a	Trees and tree limbs were blown down.
07/24/2012	5:20 AM	Plattville^	56 kts	n/a	n/a	n/a	n/a	Two trees were split near Southworth Circle and Townsend Blvd.
08/04/2012	2:15 PM	Newark^ Plattville^	60 kts	n/a	n/a	n/a	n/a	Several large trees were blown down across the southern part of Kendall County.

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Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
08/04/2012	2:30 PM	Plattville [^]	60 kts	n/a	n/a	\$250,000	n/a	Kendall Township identified \$250,000 in damages to structures within the township, including multiple grain bins and buildings. A few utility poles and a large tree were blown down along Budd Road east of Millbrook. North of Yorkville, a half dozen large grain bins were dented including one bin that shifted several feet and had its roof peeled away. A large barn door was blown off into a house porch causing minor damage to the home. Trees were blown down near the intersection of Route 47 and Route 52 northeast of Lisbon.
06/12/2013	4:08 PM	Millbrook [^] Yorkville Yorkville [^] Lisbon [^]	70 kts	n/a	n/a	\$27,000	n/a	A few utility poles and a large tree were blown down along Budd Road east of Millbrook. North of Yorkville, a half dozen large grain bins were dented including one bin that shifted several feet and had its roof peeled away. A large barn door was blown off into a house porch causing minor damage to the home. Trees were blown down near the intersection of Route 47 and Route 52 northeast of Lisbon.
06/12/2013	4:25 PM	Plano Plano [^] Yorkville Yorkville [^] Bristol [^]	61 kts	n/a	n/a	n/a	n/a	Numerous trees were bent over between Plano and Yorkville.
06/12/2013	4:31 PM	Lisbon [^]	60 kts	n/a	n/a	n/a	n/a	
06/12/2013	4:33 PM	Oswego [^]	55 kts	n/a	n/a	n/a	n/a	A large tree was snapped.

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Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/24/2013	4:33 PM	Oswego Boulder Hill [^]	60 kts	n/a	n/a	n/a	n/a	A large tree was uprooted on Fox Bend Golf Course off of Ogden Avenue.
11/17/2013	11:20 AM	Yorkville Bristol [^]	61 kts	n/a	n/a	n/a	n/a	
11/17/2013	11:28 AM	Montgomery	52 kts	n/a	n/a	n/a	n/a	
06/18/2014	6:25 PM	Oswego Boulder Hill [^]	67 kts	n/a	n/a	n/a	n/a	
06/30/2014	8:53 PM	Oswego	65 kts	n/a	n/a	n/a	n/a	
05/08/2015	3:06 PM	Oswego [^]	53 kts	n/a	n/a	n/a	n/a	
05/25/2016	1:56 PM	Plano Yorkville [^] Bristol [^]	50 kts	n/a	n/a	n/a	n/a	Four 6-8 inch trees uprooted at Hoffman St. near Kristen St.
06/20/2016	12:43 PM	Plattville [^]	55 kts	n/a	n/a	n/a	n/a	Tree limbs down, trees snapped and leaning power poles with wires down as well as lightweight metal debris from farm structures near and along Grove Rd.
07/13/2016	5:15 PM	Newark [^]	56 kts	n/a	n/a	n/a	n/a	
07/13/2016	5:36 PM	Yorkville [^]	52 kts	n/a	n/a	n/a	n/a	
07/13/2016	5:41 PM	Oswego Plattville [^]	56 kts	n/a	n/a	n/a	n/a	Mature trees were bending.
02/28/2017	10:12 PM	Newark [^]	65 kts	n/a	n/a	\$1,000	n/a	Large trees were blown down blocking Roods Road. Power lines were also damaged.
03/07/2017	1:03 AM	Oswego Boulder Hill [^]	50 kts	n/a	n/a	\$1,000	n/a	A couple of power poles were blown down.
05/17/2017	11:05 PM	Plattville [^]	62 kts	n/a	n/a	n/a	n/a	
10/14/2017	6:30 PM	Newark	60 kts	n/a	n/a	\$5,000	n/a	Trees were blown down and utility poles were snapped along Chicago Road from near Coy Park Road to near Meadow Lane.

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Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/02/2018	3:30 PM	Plattville [^]	50 kts	n/a	n/a	n/a	n/a	A large tree limb was blown down.
05/16/2019	11:15 AM	Oswego Boulder Hill [^]	55 kts	n/a	n/a	n/a	n/a	A large tree was uprooted along Main Street.
05/27/2019	12:43 PM	Yorkville Bristol	60 kts	n/a	n/a	n/a	n/a	In Yorkville, a six foot diameter tree was uprooted. The windshield of a car was smashed by a tree that fell on it. A small portion of the roof of a home improvement store was torn off. At Bristol, Two large trees were blown down causing siding and roof damage to a house. A deck and a fence were also damaged.
05/27/2019	12:50 PM	Oswego Boulder Hill [^]	52 kts	n/a	n/a	n/a	n/a	A garage door was damaged by the winds.
06/30/2019	12:30 PM	Plano	50 kts	n/a	n/a	n/a	n/a	Multiple large tree limbs were blown down.
06/30/2019	1:12 PM	Plattville [^]	50 kts	n/a	n/a	n/a	n/a	Three large tree limbs were blown down with diameters ranging from 6 inches to one foot.
07/02/2019	7:20 PM	Montgomery	50 kts	n/a	n/a	n/a	n/a	Numerous power lines were blown down on Aucutt Road.
05/23/2020	1:56 PM	Plattville [^]	50 kts	n/a	n/a	n/a	n/a	Small trees and large tree limbs were blown down.
06/26/2020	6:23 PM	Oswego Boulder Hill [^]	61 kts	n/a	n/a	n/a	n/a	
06/26/2020	6:45 PM	Newark	60 kts	n/a	n/a	n/a	n/a	Trees were blown down and power was out for a significant portion of Newark.
06/26/2020	6:52 PM	Lisbon	60 kts	n/a	n/a	n/a	n/a	A tree was blown down across Route 52.
06/26/2020	7:01 PM	Plattville [^]	60 kts	n/a	n/a	n/a	n/a	A one foot diameter tree was blown down blocking the right lane on Route 52, two miles west of Ridge Road.

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Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Plan

Table 1
Severe Storms - Thunderstorms with Damaging Winds Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
07/19/2020	10:04 AM	Boulder Hill Oswego	55 kts	n/a	n/a	n/a	n/a	A large tree was blown down completely blocking a road in Boulder Hill. A 3 to 6 inch diameter tree limb was blown down in Oswego
08/10/2020	2:11 PM	Plano Yorkville^ Yorkville	65 kts	n/a	n/a	n/a	n/a	Tree limbs and power lines were blown down in Plano. Trees, tree limbs and power lines were blown down in Yorkville.
08/10/2020	2:20 PM	Yorkville	60 kts	n/a	n/a	n/a	n/a	Several trees and large tree limbs were blown down.
08/10/2020	2:26 PM	Oswego^	60 kts	n/a	n/a	n/a	n/a	Damage to siding of a house was reported along with small tree limbs blown down nearby.
11/10/2020	5:06 PM	Plattville^	50 kts	n/a	n/a	n/a	n/a	
08/11/2021	8:18 AM	Sandwich Little Rock Plano	60 kts	n/a	n/a	\$125,000	n/a	The Plano School District identified \$125,000 in damages from roof failure caused by high winds. Several trees were snapped or blown down between Sandwich and Plano, including one tree blown down on Little Rock Road. A large oak tree was snapped at its base in Little Rock.
08/11/2021	8:28 AM	Oswego Boulder Hill	55 kts	n/a	n/a	n/a	n/a	At Oswego, a large tree limb was blown down and a fence was blown over. Half of another tree was snapped at its fork. Multiple large tree limbs were blown down in Boulder Hill.
08/11/2021	8:35 AM	Montgomery^ Yorkville^	59 kts	n/a	n/a	n/a	n/a	
09/07/2021	1:47 PM	Lisbon Lisbon^	60 kts	n/a	n/a	n/a	n/a	Numerous tree limbs up to four inches in diameter were blown down. Corn crops were blown down south of Lisbon.
09/07/2021	1:55 PM	Lisbon^	63 kts	n/a	n/a	n/a	n/a	

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Date(s)	Start Time	Location(s)	Magnitude Windspeed (knots)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
09/07/2021	1:58 PM	Minooka	60 kts	n/a	n/a	n/a	n/a	A few shingles were blown off the west side roof of a residence along Holt Road. Corn crops were blown down nearby.
09/07/2021	1:59 PM	Plattville [^]	56 kts	n/a	n/a	n/a	n/a	Tree limbs were blown down.
03/25/2022	3:20 PM	Yorkville	55 kts	n/a	n/a	n/a	n/a	Westbound Van Emmon Street was blocked near Benjamin Street due to a tree that was blown down. Power lines were blown down across Route 34 at Tuma Road, blocking portions of the road.
03/25/2022	3:23 PM	Montgomery	50 kts	n/a	n/a	n/a	n/a	A roof of an industrial building was damaged with debris on a roadway.
08/03/2022	12:33 PM	Yorkville Yorkville [^]	60 kts	n/a	n/a	n/a	n/a	A couple of trees were blown down in Yorkville. East of Yorkville large trees were blown down along Route 71, east of Winding Creek Road.
09/11/2022	6:05 AM	Oswego Boulder Hill [^]	50 kts	n/a	n/a	n/a	n/a	A photo shared on social media showed a healthy 9 inch diameter tree limb snapped near Cheshire Court and Canton Drive.
11/05/2022	10:11 AM	Yorkville Bristol [^]	50 kts	n/a	n/a	n/a	n/a	A photo shared on social media showed siding that had been torn off of a house.
GRAND TOTAL:				1	0	\$684,000	\$0	

Source: Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

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Table 2
Severe Storms - Hail Events Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
04/19/1996	8:10 PM	Plattville [^]	1.00 in.	n/a	n/a	n/a	n/a	
06/10/1999	4:15 PM	Newark	1.00 in.	n/a	n/a	n/a	n/a	
05/12/2000	3:45 PM	Newark	1.75 in.	n/a	n/a	n/a	n/a	
05/12/2000	4:02 PM	Yorkville [^]	3.50 in.	n/a	n/a	n/a	n/a	The largest hail fell in a small area a couple miles south-southeast of Yorkville, east of Route 47 between Ament Road and Walker Road. A few farm houses received hail from billiard ball to baseball size.
05/12/2000	4:05 PM	Oswego Boulder Hill [^]	1.75 in.	n/a	n/a	n/a	n/a	
06/25/2002	10:38 AM	Oswego [^]	1.00 in.	n/a	n/a	n/a	n/a	
07/11/2003	1:40 PM	Lisbon [^]	1.00 in.	n/a	n/a	n/a	n/a	
08/01/2003	3:58 PM	Oswego Boulder Hill [^]	1.00 in.	n/a	n/a	n/a	n/a	Reported at the intersection of US 30 and US 34.
05/23/2004	6:27 PM	Yorkville Yorkville [^]	1.75 in.	n/a	n/a	n/a	n/a	There were several reports of hail 3/4 inch and larger from in and around Yorkville. The largest was golfball size at the intersection of Route 126 and 71.
03/30/2005	4:45 PM	Lisbon [^] Plattville Joliet	1.00 in.	n/a	n/a	n/a	n/a	Quarter sized hail reported at the intersection of Rt. 47 and Newark Rd.
05/11/2005	5:17 AM	Oswego Boulder Hill [^]	1.00 in.	n/a	n/a	n/a	n/a	
04/02/2006	5:52 PM	Oswego Oswego [^]	1.00 in.	n/a	n/a	n/a	n/a	
04/25/2008	6:00 PM	Montgomery	1.00 in.	n/a	n/a	n/a	n/a	
06/21/2010	9:05 PM	Plattville [^]	1.00 in.	n/a	n/a	n/a	n/a	Quarter size hail was reported near Ridge Road and Theodore Street.

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Table 2
Severe Storms - Hail Events Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
04/03/2011	10:10 PM	Plattville [^]	1.50 in.	n/a	n/a	n/a	n/a	Hail up to the size of walnuts was reported covering roads.
06/04/2011	2:29 PM	Oswego	1.00 in.	n/a	n/a	n/a	n/a	Quarter size hail was reported near Collins and Grove Roads.
08/13/2011	2:20 PM	Yorkville	1.00 in.	n/a	n/a	n/a	n/a	
06/12/2013	4:25 PM	Plano	1.00 in.	n/a	n/a	n/a	n/a	
06/12/2013	4:32 PM	Oswego Boulder Hill	1.75 in.	n/a	n/a	n/a	n/a	Multiple reports of quarter sized hail were received from Oswego, including a quarter size hail report near the intersection of routes 30 and 34. Golfball size hail was reported near the intersection of Route 30 and Briarcliff Road.
06/12/2013	4:41 PM	Montgomery	1.50 in.	n/a	n/a	n/a	n/a	
06/12/2013	4:55 PM	Oswego [^]	1.00 in.	n/a	n/a	n/a	n/a	
06/10/2015	6:20 PM	Plattville [^]	4.75 in.	n/a	n/a	\$100,000	n/a	A photo was sent to NWS Chicago showing hail up to 4.75 inches in diameter near the intersection of Camden Drive and Kettleson Drive. Multiple vehicles were damaged including shattered windshields.
04/10/2017	11:51 AM	Plattville [^]	1.75 in.	n/a	n/a	n/a	n/a	
05/16/2019	9:04 PM	Oswego Bristol [^]	1.75 in.	n/a	n/a	n/a	n/a	
05/27/2019	12:41 PM	Yorkville Yorkville [^] Bristol [^] Oswego [^]	1.75 in.	n/a	n/a	n/a	n/a	Golf ball sized hail was estimated in Yorkville with damage to siding on houses.

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Date(s)	Start Time	Location(s)	Magnitude Hail Stone Diameter (inches)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
05/27/2019	12:50 PM	Oswego Boulder Hill [^]	2.00 in.	n/a	n/a	n/a	n/a	Hail up to two inches in diameter was reported in Oswego. Several homes suffered significant roof, siding and gutter damage.
08/10/2020	2:30 PM	Oswego Boulder Hill [^]	1.00 in.	n/a	n/a	n/a	n/a	Quarter size hail was reported in Oswego.
GRAND TOTAL:				0	0	\$100,000	\$0	

Source: NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

* Includes all events reported for the Village of Montgomery.

[^] Hail event verified in the vicinity of this location(s).

Table 3 Severe Storms - Lightning Events Reported in Kendall County* 2010 - 2022							
Date(s)	Start Time	Location(s)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
06/23/2010	4:40 PM	Yorkville [^]	n/a	n/a	\$8,000	n/a	Lightning struck and damaged emergency services transmitters on a 140-foot tall tower.
10/24/2021	n/a	Oswego	n/a	n/a	\$20,000	n/a	The Oswego Park District reported that lightning struck the driving range shed and start a fire at its Fox Bend Golf Course. The structure and its contents were a complete loss.
GRAND TOTAL:			0	0	\$28,000	\$0	

Source: Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
 NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

* Includes all events reported for the Village of Montgomery.

[^] Lightning strike event verified in the vicinity of this location(s).

Table 4 Severe Storms - Heavy Rain Events Reported in Kendall County* 2009 - 2022								
Date(s)	Start Time	Magnitude Rainfall (inches)	Observed Location(s)¹	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
08/26/2009 thru 08/28/2009	2:31 PM	3.69 in.	Montgomery	n/a	n/a	n/a	n/a	
05/17/2020	3:00 PM	3.00 in.	Joliet	n/a	n/a	n/a	n/a	
08/25/2021	7:00 PM	4.10 in.	Montgomery	n/a	n/a	n/a	n/a	rainfall of 4.10 inches was measured in 1 hour and 47 minutes.
GRAND TOTAL:				0	0	\$0	\$0	

Sources: NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

* Includes all events reported for the Village of Montgomery.

[^] Heavy rain event verified in the vicinity of this location(s).

¹ Observed Location information was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center's cli-MATE data system and NOAA's Storm Events Database.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
02/20/1997 thru 02/22/1997	6:00 PM	area rivers, streams, and creeks	countywide	---				n/a	n/a	n/a	n/a	Widespread extensive flooding resulted from the heavy rains falling over still frozen soils.
05/30/2004 thru 06/01/2004	n/a	Fox River	northern portion of county	13.92 ft. 05/31/2004				n/a	n/a	n/a	n/a	
01/13/2005	4:00 AM	area rivers, streams, and creeks	countywide	---			X	n/a	n/a	n/a	n/a	The intersection of County Line Rd. and Indian Boundary Rd. was closed due to flooding from 1 foot of standing water. County Line Rd. is the dividing line between Kendall and Will Counties and flooding occurred on both sides of the road and thus in both Counties.
10/02/2006 thru 10/03/2006	9:45 PM	area rivers, streams, and creeks	northwestern portion of county	---			X	n/a	n/a	n/a	n/a	Six inches of standing water reported all over Plano. Standing water reported in streets in Yorkville
03/01/2007	2:52 PM	area rivers, streams, and creeks	northeastern portion of county	---			X	n/a	n/a	n/a	n/a	Standing water covering both lanes of 127th Street at the Will/Kendall County line. Six inches of standing water on Reservation Road east of Minkler Road.

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
03/31/2007	9:25 PM	area rivers, streams, and creeks	northeastern portion of county	---			X	n/a	n/a	n/a	n/a	Four to five inches of water on Minkler and Reservation Roads.
07/18/2007 thru 07/19/2007	9:09 PM	area rivers, streams, and creeks	northeastern portion of county	---			X	n/a	n/a	n/a	n/a	Four inches of flowing water at Simmom and Douglas Roads. Simmon flooded for one half mile. Eight inches of standing water at Dolores and Route 31.
08/23/2007 thru 08/29/2007	n/a	Fox River	countywide	14.77 ft. 08/24/2007 4th highest crest on record		X	X	n/a	n/a	n/a	n/a	Water on many roadways across the county. The Oswegoland Park District indicated that Hudson Crossing Park, Prairie Point Community Park, Violet Patch Park on the Fox River and Fox Bend Golf Course were all flooded for days and cleanup was handled by park district staff

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
09/13/2008 thru 09/16/2008	n/a	Fox River, area rivers, streams, and creeks	countywide	15.12 ft. 09/14/2008 3rd highest crest on record			X	n/a	n/a	\$92,293	n/a	<i>This event is part of a major federal disaster declaration (Declaration #1800)</i> Public Assistance Figures for Kendall County totaled \$92,293. Totals by Jurisdiction: \$26,600 Plano; \$14,034 Kendall County; \$1,924 Oswego FPD; \$49,735 Landmarks Preservation Council of Illinois
12/27/2008 thru 12/29/2008	n/a	Fox River, area rivers, streams, and creeks	countywide	14.11 ft. 12/28/2008 9th highest crest on record				n/a	n/a	n/a	n/a	
03/09/2009 thru 03/10/2009	n/a	Fox River, area rivers, streams, and creeks	countywide	13.54 ft. 03/09/2009				n/a	n/a	n/a	n/a	
05/13/2010 thru 05/14/2010	n/a	Fox River, area rivers, streams, and creeks	northern portion of county	13.77 ft. 05/14/2010				n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
07/23/2010 thru 07/25/2010	n/a	Fox River	northern portion of county	14.06 ft. 07/24/2010 10th highest crest on record				n/a	n/a	n/a	n/a	
08/03/2010 thru 08/06/2010	6:00 AM	area rivers, streams, and creeks	countywide	---				n/a	n/a	n/a	n/a	
06/09/2011 thru 06/10/2011	7:09 PM	area rivers, streams, and creeks	countywide	---			X	n/a	n/a	n/a	n/a	Middle Aux Sable Creek was out of its bank near Ashley Road by Plattville. Heavy rain caused 10 to 12 inches of standing water at the intersection of Dolores Street and Charles Court near Oswego.
07/24/2011 thru 07/25/2011	10:07 AM	area rivers, streams, and creeks	countywide	---				n/a	n/a	n/a	n/a	
04/17/2013 thru 04/27/2013	n/a	Fox River, area rivers, streams, and creeks	countywide	15.14 ft. 04/18/2013 2nd highest crest on record		X	X	n/a	n/a	n/a	n/a	The Oswegoland Park District indicated that Hudson Crossing Park, Violet Patch Park on the Fox River and Fox Bend Golf Course were all flooded and cleanup was handled by park district staff

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
06/26/2013 thru 07/02/2013	9:44 PM	area rivers, streams, and creeks	countywide	---				n/a	n/a	n/a	n/a	
06/15/2015 thru 06/16/2015	n/a	Fox River, area rivers, streams, and creeks	countywide	14.37 ft. 06/15/2015 7th highest crest on record				n/a	n/a	n/a	n/a	
08/12/2016 thru 08/13/2016	11:09 PM	area rivers, streams, and creeks	countywide	---				n/a	n/a	n/a	n/a	
02/28/2017 thru 03/01/2017	9:09 PM	area rivers, streams, and creeks	southeastern portion of county	---				n/a	n/a	n/a	n/a	
04/30/2017 thru 05/02/2017	n/a	Fox River, area rivers, streams, and creeks	countywide	13.74 ft. 05/01/2017				n/a	n/a	n/a	n/a	
07/12/2017 thru 07/27/2017	n/a	Fox River	northern portion of county	14.21 ft. 07/23/2017 8th highest crest on record				n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
10/14/2017 thru 10/15/2017	n/a	Fox River, area rivers, streams, and creeks	countywide	13.71 ft. 10/15/2017				n/a	n/a	n/a	n/a	
02/20/2018 thru 02/21/2018	n/a	Fox River, area rivers, streams, and creeks	countywide	13.65 ft. 02/21/2018				n/a	n/a	n/a	n/a	
05/21/2018 thru 05/22/2018	n/a	Fox River	northern portion of county	13.60 ft. 05/21/2018				n/a	n/a	n/a	n/a	
05/30/2018 thru 05/31/2018	3:10 PM	area rivers, streams, and creeks	countywide	---	X		X	n/a	n/a	n/a	n/a	Residential flooding was reported in the Southbury subdivision in Oswego. The intersection of Southbury Blvd and Colchester Drive was flooded with water over the curb and up to the sidewalk.
06/22/2018 thru 06/29/2018	n/a	Fox River	northern portion of county	13.99 ft. 06/27/2018				n/a	n/a	n/a	n/a	
05/01/2019 thru 05/02/2019	n/a	Fox River	northern portion of county	13.68 ft. 05/01/2019				n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
05/09/2019 thru 05/10/2019	n/a	Fox River	northern portion of county	13.92 ft. 05/09/2019				n/a	n/a	n/a	n/a	
05/27/2019	n/a	Fox River, area rivers, streams, and creeks	northern portion of county	13.64 ft. 05/27/2019			X	n/a	n/a	n/a	n/a	Six to ten inches of standing water was reported on some neighborhood streets in Oswego.
06/30/2019	1:30 PM	area rivers, streams, and creeks	southeastern portion of county	---			X	n/a	n/a	n/a	n/a	Flooding was reported at the intersection of Holt and Ridge Roads near Minooka.
09/13/2019 thru 09/23/2019	n/a	Fox River	northern portion of county	13.68 ft. 09/22/2019				n/a	n/a	n/a	n/a	
09/28/2019 thru 09/29/2019	12:30 AM	area rivers, streams, and creeks	western portion of county	---				n/a	n/a	n/a	n/a	After flash flooding during the evening of September 27th, flood waters continued to slowly recede through the morning of September 29th.
10/02/2019 thru 10/12/2019	n/a	Fox River	northern portion of county	13.73 ft. 10/03/2019				n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
10/26/2019 thru 11/04/2019	8:44 PM	area rivers, streams, and creeks	countywide	---				n/a	n/a	n/a	n/a	
03/29/2020	n/a	Fox River	northern portion of county	13.62 ft. 03/29/2020				n/a	n/a	n/a	n/a	
04/29/2020 thru 05/02/2020	n/a	Fox River	northern portion of county	13.93 ft. 04/30/2020				n/a	n/a	n/a	n/a	
05/14/2020 thru 05/25/2020	n/a	Fox River, area rivers, streams, and creeks	countywide	14.66 ft. 05/18/2020 5th highest crest on record				n/a	n/a	n/a	n/a	
02/22/2022	12:45 PM	area rivers, streams, and creeks	countywide	---			X	n/a	n/a	n/a	n/a	Ditches were reported overflowing near River Road just west of Yorkville. Minor overbank flooding was reported along Hollenback Creek near Millbrook.

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 5
General Flood Events Reported in Kendall County*
1997 - 2022

Date(s)	Start Time	Water Body	Location(s)	Magnitude Flood Crest Fox River River Montgomery ¹	Impacts ²			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
					Home	Business	Infra-structure					
09/11/2022	6:15 AM	area rivers, streams, and creeks	countywide	---			X	n/a	n/a	n/a	n/a	Street flooding was reported in Oswego.
GRAND TOTAL:								0	0	\$92,293	\$0	

Sources: Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
 NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Data.
 NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.
 NOAA, National Weather Service, River Observations, North Central River Forecast Center, Fox River at Montgomery.
 United States Geological Survey, National Water Dashboard.

* Includes all events reported for the Village of Montgomery.

¹ Flood stage at gauge location is 13.5 feet, moderate flood stage is 15.0 feet and major flood stage is 16.0 feet.

² An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 6
Flash Flood Events Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Impacts ¹			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
07/17/1996 thru 07/18/1996	6:00 PM	countywide			X	n/a	n/a	\$1,500,000	n/a	<i>This event was part of a major federal disaster declaration (Declaration #1129)</i> Kendall Township indicated that 14-17 inches of rain fell flooding homes and washing out culverts and bridges.
02/21/1997	8:14 AM	countywide				n/a	n/a	n/a	n/a	
07/10/2000	4:00 AM	countywide				n/a	n/a	n/a	n/a	
07/27/2003	12:00 PM	countywide			X	n/a	n/a	n/a	n/a	Street flooding was reported in Plano.
05/09/2004	7:13 PM	countywide				n/a	n/a	n/a	n/a	
05/13/2004	6:00 PM	countywide			X	n/a	n/a	n/a	n/a	Flooding was reported on High Point Road between Budd and Fox Roads in Yorkville. Deep standing water was reported on IL Rte. 126, half a mile east of IL Rte. 71.
05/30/2004	6:00 PM	countywide			X	n/a	n/a	n/a	n/a	Roads were flooded.
06/11/2004 thru 06/12/2004	11:25 PM	countywide			X	n/a	n/a	n/a	n/a	Water was flowing across US Rte. 34 in Plano and numerous roads were covered by high water in Oswego. Collins Road between Grove and Plainfield Roads was closed due to high water.
07/06/2004	7:00 PM	countywide				n/a	n/a	n/a	n/a	
08/28/2004	2:38 AM	countywide				n/a	n/a	n/a	n/a	
09/13/2006	3:40 AM	southern portion of county				n/a	n/a	n/a	n/a	
10/02/2006 thru 10/03/2006	10:32 PM	countywide				n/a	n/a	n/a	n/a	
07/18/2007 thru 07/19/2007	9:50 PM	countywide				n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

[^] Flash flood event verified in the vicinity of this location(s).

¹ An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 6
Flash Flood Events Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Impacts ¹			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
08/20/2007	3:30 AM	countywide				n/a	n/a	n/a	n/a	
08/22/2007 thru 08/23/2007	9:56 PM	countywide				n/a	n/a	n/a	n/a	
08/23/2007 thru 08/24/2007	6:26 PM	countywide				n/a	n/a	n/a	n/a	
09/13/2008	1:28 AM	countywide				n/a	n/a	n/a	n/a	<i>This event was part of a major federal disaster declaration (Declaration #1800)</i>
09/14/2008	3:15 AM	countywide	X	X	X	n/a	n/a	\$2,000,000	n/a	<i>This event was part of a major federal disaster declaration (Declaration #1800)</i> In Oswego, Route 25 was flooded and closed between Oswego and Montgomery Roads. Several cars drove around the barricades and at least one car was swept into the Fox River. The driver was able to escape. Four miles south of Little Rock, Jetter Road was flooded and closed. Three occupants of a car were rescued after their car was swept into Big Rock Creek. In Plano, many roads were flooded and closed, including Hale Road, Main Street, Miller Road and Creek Road. Extensive flooding was reported along Rock Creek Road. The Farnsworth House in Plano was damaged by flood waters from the Fox River. Extensive flooding was reported in Millington. Part of Fox River Drive was washed away and 17 roads across Kendall County were closed due to flooding. Basement flooding was also reported.

* Includes all events reported for the Village of Montgomery.

[^] Flash flood event verified in the vicinity of this location(s).

¹ An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 6
Flash Flood Events Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Impacts ¹			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
12/27/2008	2:43 PM	countywide				n/a	n/a	n/a	n/a	Collins Road between Plainfield Road and Grove Road was flooded and impassable.
02/26/2009	7:59 PM	northeastern portion of county				n/a	n/a	n/a	n/a	
05/15/2009	5:46 PM	countywide				n/a	n/a	n/a	n/a	
06/02/2010	2:48 AM	countywide				n/a	n/a	n/a	n/a	
08/03/2010	5:30 AM	countywide			X	n/a	n/a	n/a	n/a	Several roads were flooded across parts of Kendall County including Route 52 and Grove Road; County Line Road at Caton Farm Road; Ridge Road and Caton Farm Road; on Morgan Drive in Oswego; and at Schlapp and Cherry Roads.
06/09/2011	5:33 AM	countywide				n/a	n/a	n/a	n/a	
07/23/2011	2:37 AM	eastern portion of county				n/a	n/a	n/a	n/a	
07/23/2011 thru 07/24/2011	11:43 PM	countywide				n/a	n/a	n/a	n/a	
05/06/2012 thru 05/07/2012	11:22 PM	southern portion of county				n/a	n/a	n/a	n/a	
08/04/2012	2:55 PM	countywide			X	n/a	n/a	n/a	n/a	One to two feet of water covered parts of Route 126 near Yorkville.
08/26/2012 thru 08/27/2012	7:54 PM	northeastern portion of county				n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

[^] Flash flood event verified in the vicinity of this location(s).

¹ An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 6
Flash Flood Events Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Impacts ¹			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
04/18/2013	6:00 AM	countywide	X		X	n/a	n/a	\$535,584	n/a	<i>Event Description Provided Below</i>
<i>This event was part of a major federal disaster declaration (Declaration #4116)</i> <i>This event was part of a state disaster proclamation</i> Numerous roads were closed across the county due to flooding. Oswego indicated that flooding occurred village-wide causing residential flooding, blocking roadway access and washing out culverts.						Public Assistance Figures for Kendall County totaled \$535,584. Totals by Jurisdiction: \$4,688 Lisbon-Seward FPD; \$5,211 Lisbon Township; \$6,302 Na-Au-Say Township; \$131,263 Oswego; \$39,897 Seward Township; \$11,185 Kendall County; \$57,708 Oswego CUSD #308; \$6,020 Oswego FPD; \$160,628 Oswegoland Park District; \$1,878 Kendall County ETSB; \$15,002 Oswego Township Road District; \$68,215 Kendall County Forest Preserve District; \$27,587 Big Grove Road District				
06/12/2013	5:40 PM	countywide				n/a	n/a	n/a	n/a	
11/17/2013	11:44 AM	eastern portion of county				n/a	n/a	n/a	n/a	
05/11/2014	6:57 PM	southern portion of county				n/a	n/a	n/a	n/a	
06/10/2015	6:49 PM	southeastern portion of county				n/a	n/a	n/a	n/a	
06/13/2015 thru 06/14/2015	6:25 PM	southern portion of county				n/a	n/a	n/a	n/a	
06/15/2015	6:09 PM	countywide				n/a	n/a	n/a	n/a	
06/22/2015 thru 06/23/2015	8:59 PM	countywide				n/a	n/a	n/a	n/a	
09/18/2015 thru 09/19/2015	5:32 PM	countywide				n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

[^] Flash flood event verified in the vicinity of this location(s).

¹ An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 6
Flash Flood Events Reported in Kendall County*
1996 - 2022

Date(s)	Start Time	Location(s)	Impacts ¹			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
06/22/2016 thru 06/23/2016	8:52 PM	southern portion of county				n/a	n/a	n/a	n/a	
08/12/2016	5:51 PM	countywide				n/a	n/a	n/a	n/a	
07/12/2017	10:14 AM	northern portion of county				n/a	n/a	n/a	n/a	
10/14/2017 thru 10/15/2017	10:02 PM	countywide				n/a	n/a	n/a	n/a	
07/02/2019 thru 07/03/2019	8:30 PM	northeastern portion of county				n/a	n/a	n/a	n/a	
07/21/2019	10:39 PM	northern portion of county				n/a	n/a	n/a	n/a	
09/27/2019 thru 09/28/2019	7:30 PM	countywide			X	n/a	n/a	n/a	n/a	Interstate 80 was closed due to flooding near Minooka.
05/15/2020	12:11 AM	northern portion of county				n/a	n/a	n/a	n/a	
05/17/2020	4:15 PM	countywide			X	n/a	n/a	n/a	n/a	Multiple reports of flooded roads were received near 127th Street and Collins Road. Flood waters 12 to 18 inches deep were reported on Caton Farm and Ridge Roads. Flooding was reported on Interstate 80 near Ridge Road.
06/26/2021	11:00 AM	countywide			X	n/a	n/a	n/a	n/a	The intersection of Route 126 and Ridge Road was flooded and impassable.

* Includes all events reported for the Village of Montgomery.

[^] Flash flood event verified in the vicinity of this location(s).

¹ An "X" in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event. A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 6 Flash Flood Events Reported in Kendall County* 1996 - 2022										
Date(s)	Start Time	Location(s)	Impacts ¹			Injuries	Fatalities	Property Damages	Crop Damages	Impacts/ Event Description
			Home	Business	Infra-structure					
08/25/2021 thru 08/26/2021	9:06 PM	northeastern portion of county				n/a	n/a	n/a	n/a	
GRAND TOTAL:						0	0	\$4,035,584	\$0	

Sources: Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
 Iowa State University, Iowa Environmental Mesonet, National Weather Service Data, Search for Warnings.
 NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Data.
 NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

* Includes all events reported for the Village of Montgomery.

[^] Flash flood event verified in the vicinity of this location(s).

¹ An “X” in the columns of Home, Business and Infrastructure indicates impacts occurred to those structure/infrastructure types during a general flood event.
 A detailed description of the type and magnitude of the impacts are included in the Impacts/Event Description column if available.

Table 7
Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
01/26/1994 thru 01/27/1994	6:00 PM	Ice Storm		X	0.5 in.	X			n/a	n/a	n/a	Between 40,000 and 60,000 customers lost power, some for several days, across the region.
12/08/1995 thru 12/09/1995	12:00 PM	Winter Storm	4.0 in.				40 mph		n/a	n/a	n/a	Strong winds caused severe blowing and drifting of snow, especially in open areas.
01/15/1997 thru 01/18/1997	6:00 AM	Winter Storm	6.0 in.				X		n/a	n/a	n/a	The snow was followed by windy and bitter cold weather. The combination of severe wind chill and blowing and drifting snow caused many schools to close.
02/16/1997	n/a	Heavy Snow	4.0 in.					Yorkville	n/a	n/a	n/a	
03/09/1998	4:00 AM	Winter Storm	8.0 in.				X		n/a	n/a	n/a	Strong winds combined with the heavy snow damaged power lines and tree limbs throughout the area. More than 300,000 households lost power, with some places without electricity for up to 4 days.

* Includes all events reported for the Village of Montgomery.

¹ An "X" in the snow, freezing rain, ice, sleet and/or strong winds columns indicates the presences of that weather condition during the severe winter storm event.

² Observed Location information was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center's cli-MATE data system and NOAA's Storm Events Database.

Table 7
Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
01/01/1999 thru 01/02/1999	7:00 PM	Heavy Snow	14.4 in.				50 mph		n/a	n/a	n/a	<i>This event was part of a federal emergency declaration (Declaration #3134)</i> Heavy snow and blowing snow caused hazardous travel.
03/08/1999 thru 03/09/1999	5:00 PM	Winter Storm	8.0 in.				X		n/a	n/a	n/a	Strong east winds caused blowing and drifting of snow. There were many traffic accidents. Many schools closed.
01/19/2000 thru 01/20/2000	12:00 PM	Heavy Snow	6.0 in.					Newark	n/a	n/a	n/a	
02/18/2000	3:00 AM	Winter Storm	7.0 in.				30 mph	Newark	n/a	n/a	n/a	Numerous accidents due to slick road conditions and poor visibility were reported throughout northern Illinois.
12/11/2000 thru 12/12/2000	3:00 AM	Blizzard	8.0 in.				45 mph	Newark	n/a	n/a	n/a	<i>This event was part of a federal emergency declaration (Declaration #3161)</i>
12/14/2000	n/a	Heavy Snow	4.1 in.					Newark	n/a	n/a	n/a	<i>This event was part of a federal emergency declaration (Declaration #3161)</i>
01/31/2002	4:00 AM	Winter Storm	9.0 in.					Newark	n/a	n/a	n/a	The snow caused numerous car accidents.

* Includes all events reported for the Village of Montgomery.

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² Observed Location information was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center's cli-MATE data system and NOAA's Storm Events Database.

Table 7
Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
03/02/2002 thru 03/03/2002	8:00 PM	Heavy Snow	9.0 in.					Newark	n/a	n/a	n/a	
02/15/2003	n/a	Heavy Snow	4.0 in.					Newark	n/a	n/a	n/a	
03/04/2003 thru 03/05/2003	10:00 PM	Heavy Snow	4.7 in.					Newark	n/a	n/a	n/a	
01/05/2004	n/a	Heavy Snow	5.0 in.					Newark	n/a	n/a	n/a	
11/25/2004	n/a	Heavy Snow	4.5 in.					Yorkville	n/a	n/a	n/a	
01/04/2005 thru 01/06/2005	7:00 PM	Heavy Snow	5.5 in.					Newark Yorkville	n/a	n/a	n/a	
01/21/2005 thru 01/22/2005	5:00 PM	Heavy Snow	4.5 in.					Yorkville	n/a	n/a	n/a	
12/09/2005	n/a	Heavy Snow	4.7 in.					Newark Yorkville	n/a	n/a	n/a	
01/20/2006 thru 01/21/2006	6:00 PM	Heavy Snow	5.0 in.					Newark Yorkville	n/a	n/a	n/a	
03/06/2006	8:00 AM	Heavy Snow	5.0 in.					Yorkville	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

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² Observed Location information was obtained from NWS’s COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center’s cli-MATE data system and NOAA’s Storm Events Database.

Table 7
Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
11/30/2006 thru 12/01/2006	8:00 PM	Winter Storm	6.0 in.	X		X			n/a	n/a	n/a	<i>This event was part of a federal emergency declaration (Declaration #3269)</i>
02/06/2007 thru 02/07/2007	7:00 AM	Heavy Snow	6.5 in.					Newark Yorkville	n/a	n/a	n/a	Numerous traffic accidents were reported across the area.
02/13/2007	2:00 AM	Blizzard	2.0 in.				35 mph	Newark	n/a	n/a	n/a	
02/25/2007 thru 02/26/2007	4:00 PM	Winter Storm	X in.		X	X	35 mph	Yorkville	n/a	n/a	n/a	Mixed precipitation occurred with accumulations of snow, sleet, and ice between 1 and 3 inches.
12/01/2007	11:00 AM	Ice Storm	X	X	0.5 in.	X			n/a	n/a	n/a	
12/05/2007	n/a	Heavy Snow	4.9 in.					Newark	n/a	n/a	n/a	
12/16/2007	n/a		4.5 in.					Yorkville	n/a	n/a	n/a	
01/29/2008	7:00 PM	Winter Storm	3.0 in.				35 mph		n/a	n/a	n/a	Heavy snow combined with wind gusts to create near blizzard conditions with numerous locations reporting visibility less than a quarter mile.
01/31/2008 thru 02/01/2008	12:00 PM	Heavy Snow	12.0 in.					Newark Yorkville	n/a	n/a	n/a	
02/04/2008	5:00 PM	Heavy Snow	4.0 in.					Yorkville	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

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² Observed Location information was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center's cli-MATE data system and NOAA's Storm Events Database.

Table 7
Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
12/17/2008	n/a	Heavy Snow	4.4 in.					Newark Oswego Yorkville	n/a	n/a	n/a	
12/18/2008 thru 12/19/2008	10:00 PM	Winter Storm	1.0 in.	X	0.3 in.	X		Yorkville	n/a	n/a	n/a	Snow, ice, and sleet caused numerous vehicle accidents and spinouts.
12/21/2008	1:00 AM	Blizzard	1.0 in.				40 mph		n/a	n/a	n/a	
12/24/2008	n/a	Heavy Snow	4.6 in.					Lisbon	n/a	n/a	n/a	
01/14/2009	12:00 AM	Heavy Snow	6.8 in.					Lisbon Oswego Yorkville Newark	n/a	n/a	n/a	
12/26/2009 thru 12/27/2009	3:00 AM	Heavy Snow	7.0 in.					Yorkville	n/a	n/a	n/a	
01/07/2010	n/a	Heavy Snow	4.0 in.					Lisbon	n/a	n/a	n/a	
02/22/2010	n/a	Heavy Snow	5.3 in.					Yorkville	n/a	n/a	n/a	
12/04/2010	n/a	Heavy Snow	4.8 in.					Lisbon Newark Yorkville	n/a	n/a	n/a	

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Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
12/11/2010 thru 12/12/2010	2:00 PM	Winter Storm	3.0 in.				55 mph		n/a	n/a	n/a	Very strong winds developed causing whiteout and near blizzard conditions in open spaces. Hundreds of accidents, spin outs and vehicles in ditches were reported across the area.
12/21/2010	n/a	Heavy Snow	4.5 in.					Oswego Yorkville	n/a	n/a	n/a	
02/01/2011 thru 02/02/2011	10:00 AM	Blizzard	18.1 in.				55 mph	Newark Yorkville	n/a	n/a	n/a	<i>This event was part of a state disaster proclamation</i> Many motorists and their vehicles became stranded as conditions deteriorated and snow quickly accumulated.
01/13/2012	n/a	Heavy Snow	6.2 in.					Newark Oswego Yorkville	n/a	n/a	n/a	
01/20/2012 thru 01/21/2012	10:00 AM	Heavy Snow	8.2 in.					Newark Oswego Yorkville	n/a	n/a	n/a	
02/27/2013	n/a	Heavy Snow	4.0 in.					Yorkville	n/a	n/a	n/a	
03/05/2013 thru 03/06/2013	6:00 AM	Heavy Snow	11.7 in.					Oswego Plainfield Yorkville	n/a	n/a	n/a	

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Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
01/02/2014	n/a	Heavy Snow	4.5 in.					Oswego	n/a	n/a	n/a	
01/04/2014 thru 01/06/2014	1:00 PM	Heavy Snow	10.3 in.				X	Oswego Plainfield Yorkville	n/a	n/a	n/a	<i>This event was part of a state disaster proclamation</i> Strong winds at times created blizzard-like conditions, reducing visibility to a few hundred feet or less.
01/26/2014 thru 01/27/2014	6:00 PM	Winter Storm	4.0 in.				58 mph		n/a	n/a	n/a	Winds gusting up to 58 mph at times led to temporary blizzard-like conditions that caused severe impacts to area roadways. Illinois State Police in District 5 serving Kendall, Grundy, and Will counties reported over 100 cars stuck and described I-57 as a wasteland.
02/05/2014	n/a	Heavy Snow	5.3 in.					Oswego Plainfield Yorkville	n/a	n/a	n/a	
02/09/2014	n/a	Heavy Snow	4.0 in.					Oswego	n/a	n/a	n/a	
02/17/2014 thru 02/18/2014	6:00 AM	Heavy Snow	7.1 in.					Oswego Plainfield Yorkville	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

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² Observed Location information was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center's cli-MATE data system and NOAA's Storm Events Database.

Table 7
Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
03/11/2014 thru 03/12/2014	10:00 PM	Heavy Snow	6.2 in.					Oswego Plainfield	n/a	n/a	n/a	
02/01/2015 thru 02/02/2015	12:00 AM	Winter Storm	16.8 in.				35 mph	Oswego Plainfield Yorkville	n/a	n/a	n/a	A period of blizzard to near blizzard conditions occurred in many locations.
03/24/2015	n/a	Heavy Snow	4.6 in.					Plainfield	n/a	n/a	n/a	
11/20/2015 thru 11/21/2015	5:00 PM	Heavy Snow	4.5 in.					Yorkville	n/a	n/a	n/a	
12/28/2015	3:00 AM	Sleet		X	X	X			n/a	n/a	n/a	Sleet mixed with freezing rain and snow occurred along and north of I-80.
12/04/2016 thru 12/05/2016	8:15 AM	Heavy Snow	7.0 in.					Lisbon Oswego Plainfield Yorkville	n/a	n/a	n/a	
02/08/2018 thru 02/09/2018	6:00 PM	Heavy Snow	10.0 in.					Lisbon Oswego Plainfield Yorkville	n/a	n/a	n/a	
02/11/2018	n/a	Heavy Snow	4.2 in.					Lisbon Oswego	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

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² Observed Location information was obtained from NWS’s COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center’s cli-MATE data system and NOAA’s Storm Events Database.

Table 7
Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
11/26/2018	n/a	Heavy Snow	5.0 in.					Plainfield Yorkville	n/a	n/a	n/a	
01/19/2019	n/a	Heavy Snow	5.4 in.					Oswego Yorkville	n/a	n/a	n/a	
01/28/2019	n/a	Heavy Snow	4.7 in.					Plainfield	n/a	n/a	n/a	<i>This event was part of a state disaster proclamation</i>
02/11/2019 thru 02/12/2019	2:15 PM	Ice Storm		X	0.5 in.				n/a	n/a	n/a	Damage to tree limbs and power lines were reported in some areas.
02/13/2020	n/a	Heavy Snow	4.5 in.					Oswego	n/a	n/a	n/a	
03/23/2020	n/a	Heavy Snow	5.6 in.					Plainfield	n/a	n/a	n/a	
12/29/2020 thru 12/30/2020	2:45 PM	Winter Storm	5.0 in.	0.2 in.					n/a	n/a	n/a	
01/25/2021 thru 01/26/2021	4:00 PM	Heavy Snow	5.0 in.						n/a	n/a	n/a	
01/30/2021 thru 01/31/2021	3:00 PM	Heavy Snow	8.5 in.					Oswego Plainfield	n/a	n/a	n/a	
02/15/2021 thru 02/16/2021	3:00 PM	Heavy Snow	8.0 in.						n/a	n/a	n/a	<i>This event was part of a state disaster proclamation</i>

* Includes all events reported for the Village of Montgomery.

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² Observed Location information was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center's cli-MATE data system and NOAA's Storm Events Database.

Table 7
Severe Winter Storm Events Reported in Kendall County*
1994 - 2022

Date(s)	Start Time	Event Type	Magnitude ¹					Observed Location(s) ²	Injuries	Fatalities	Property Damages	Impacts/ Event Description
			Snow (inches)	Freezing Rain (inches)	Ice (inches)	Sleet (Inches)	Strong Wind (mph)					
02/01/2022 thru 02/02/2022	10:00 PM	Heavy Snow	8.8 in.					Oswego Plainfield	n/a	n/a	n/a	<i>This event was part of a state disaster procamation</i>
02/17/2022	11:00 AM	Winter Storm	3.0 in.				30 mph		n/a	n/a	n/a	Winds produced widespread blowing and drifting snow. Numerous traffic accidents were reported.
12/22/2022 thru 12/24/2022	9:30 AM	Winter Storm	3.0 in.				55 mph		n/a	n/a	n/a	Wind gusts produced widespread blowing snow and near whiteout conditions in many areas, especially in rural and open areas.

GRAND TOTAL:	0	0	\$0
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Sources: NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Cooperative Observation Forms.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

* Includes all events reported for the Village of Montgomery.

¹ An “X” in the snow, freezing rain, ice, sleet and/or strong winds columns indicates the presences of that weather condition during the severe winter storm event.

² Observed Location information was obtained from NWS’s COOP Observation Station records as well as other officially-designated sources identified in the Midwestern Regional Climate Center’s cli-MATE data system and NOAA’s Storm Events Database.

Table 8
Regional Extreme Cold/Wind Chill Events Reported in Kendall County*
1995 - 2022

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
01/04/1995	n/a	-5 °F	8 °F	n/a	Aurora	n/a	n/a	n/a	
02/05/1995	n/a	-1 °F	13 °F	n/a	Aurora	n/a	n/a	n/a	
02/11/1995 thru 02/12/1995	n/a	-5 °F	16 °F	n/a	Aurora	n/a	n/a	n/a	
12/10/1995	n/a	-4 °F	11 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/30/1996 thru 02/05/1996	n/a	-22 °F	12 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/11/1997 thru 01/13/1997	n/a	-11 °F	12 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/17/1997 thru 01/18/1997	n/a	-13 °F	9 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/04/1999 thru 01/11/1999	n/a	-23 °F	25 °F	n/a	Aurora Morris	n/a	n/a	n/a	
12/23/1999	n/a	-4 °F	17 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/21/2000	n/a	-11 °F	11 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/24/2000	n/a	-8 °F	16 °F	n/a	Aurora Morris	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

¹ Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 8
Regional Extreme Cold/Wind Chill Events Reported in Kendall County*
1995 - 2022

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
12/18/2000	n/a	-15 °F	15 °F	n/a	Aurora Morris	n/a	n/a	n/a	
12/22/2000 thru 12/25/2000	n/a	-16 °F	20 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/02/2001	n/a	-10 °F	19 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/23/2003	1:00 AM	-7 °F	13 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
01/26/2003	n/a	-4 °F	18 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/28/2004 thru 01/31/2004	n/a	-9 °F	19 °F	-34 °F	Aurora Morris	n/a	n/a	n/a	
12/19/2005	n/a	-3 °F	14 °F	n/a	Aurora Morris	n/a	n/a	n/a	
02/18/2006 thru 02/19/2006	1:00 AM	-8 °F	8 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/04/2007 thru 02/10/2007	9:00 PM	-11 °F	15 °F	-35 °F	Aurora Morris	n/a	n/a	n/a	
02/15/2007 thru 02/16/2007	n/a	-6 °F	19 °F	n/a	Aurora Morris	n/a	n/a	n/a	

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Table 8
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1995 - 2022

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
01/02/2008 thru 01/03/2008	12:25 AM	-1 °F	17 °F	-20 °F	Aurora Morris	n/a	n/a	n/a	
01/19/2008 thru 01/20/2008	1:00 AM	-7 °F	8 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
01/24/2008 thru 01/25/2008	1:00 AM	-9 °F	4 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
01/30/2008 thru 01/31/2008	12:06 AM	-2 °F	17 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/10/2008 thru 02/11/2008	n/a	-5 °F	16 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/20/2008	1:00 AM	2 °F	17 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
12/21/2008 thru 12/22/2008	10:29 AM	-6 °F	8 °F	-40 °F	Aurora Morris	n/a	n/a	n/a	
01/14/2009 thru 01/16/2009	7:00 PM	-22 °F	13 °F	-45 °F	Aurora Morris	n/a	n/a	n/a	
01/25/2009	n/a	-9 °F	11 °F	n/a	Aurora Morris	n/a	n/a	n/a	

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		Low (Min)	High (Max)	Wind Chill (Max)					
02/04/2009	n/a	-2 °F	13 °F	n/a	Aurora	n/a	n/a	n/a	
01/01/2010 thru 01/03/2010	8:00 PM	-5 °F	16 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
01/10/2010	1:00 AM	-6 °F	17 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
12/13/2010	1:00 AM	-3 °F	14 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
01/21/2011 thru 01/22/2021	n/a	-6 °F	18 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/02/2011 thru 02/03/2011	10:00 PM	-6 °F	24 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/09/2011 thru 02/10/2011	n/a	-10 °F	16 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
01/21/2013 thru 01/22/2013	7:00 PM	-7 °F	13 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
01/31/2013 thru 02/01/2013	9:48 PM	0 °F	17 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	

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Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
12/11/2013 thru 12/12/2013	7:00 PM	-7 °F	24 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
12/24/2013	n/a	-5 °F	15 °F	n/a	Aurora Morris	n/a	n/a	n/a	
12/29/2013 thru 12/30/2013	8:00 PM	-2 °F	14 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
01/02/2014 thru 01/03/2014	10:00 PM	-6 °F	16 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
01/05/2014 thru 01/08/2014	7:00 PM	-17 °F	18 °F	-50 °F	Aurora Morris	n/a	n/a	n/a	<i>This event was part of a state disaster proclamation</i>
01/22/2014 thru 01/24/2014	8:00 PM	-8 °F	17 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
01/27/2014 thru 01/29/2014	4:00 AM	-14 °F	6 °F	-45 °F	Aurora Morris	n/a	n/a	n/a	
02/03/2014 thru 02/04/2014	n/a	-9 °F	19 °F	n/a	Aurora Morris	n/a	n/a	n/a	

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		Low (Min)	High (Max)	Wind Chill (Max)					
02/06/2014 thru 02/11/2014	1:00 AM	-15 °F	15 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/26/2014	1:00 AM	-2 °F	n/a	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/27/2014	1:00 AM	-1 °F	10 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
03/03/2014	1:00 AM	-5 °F	9 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
01/05/2015 thru 01/09/2015	1:00 AM	-10 °F	20 °F	-40 °F	Aurora Morris	n/a	n/a	n/a	
02/06/2015	n/a	-4 °F	19 °F	n/a	Aurora Morris	n/a	n/a	n/a	
02/14/2015 thru 02/15/2015	9:00 PM	-3 °F	17 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/18/2015 thru 02/20/2015	7:00 PM	-9 °F	8 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/23/2015 thru 02/24/2015	1:00 AM	-6 °F	19 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
02/27/2015	3:00 AM	-7 °F	14 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	

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Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
12/14/2016 thru 12/15/2016	10:00 PM	-3 °F	16 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
03/06/2014	n/a	-1 °F	15 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/11/2016	n/a	-1 °F	12 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/17/2016 thru 01/18/2016	10:00 PM	-5 °F	9 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
12/16/2016	n/a	-3 °F	16 °F	n/a	Aurora Morris	n/a	n/a	n/a	
12/18/2016 thru 12/19/2016	7:00 AM	-10 °F	5 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
01/06/2017 thru 01/07/2016	n/a	-5 °F	19 °F	n/a	Aurora Morris	n/a	n/a	n/a	
12/26/2017 thru 01/07/2018	7:00 PM	-16 °F	19 °F	-40 °F	Aurora Morris	n/a	n/a	n/a	
02/06/2018	n/a	-5 °F	11 °F	n/a	Aurora Morris	n/a	n/a	n/a	
01/21/2019	n/a	-1 °F	14 °F	n/a	Aurora Morris	n/a	n/a	n/a	

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Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
01/24/2019 thru 01/26/2019	7:00 PM	-13 °F	11 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
01/27/2019	1:00 AM	-9 °F	n/a	-25 °F	Aurora Morris	n/a	n/a	n/a	
01/29/2019 thru 01/31/2019	4:41 AM	-25 °F	7 °F	-60 °F	Aurora Morris	n/a	n/a	n/a	<i>This event was part of a state disaster proclamation</i> The Kendall County Public Health Administrator indicated that school and government officers were closed January 30th and 31st
03/04/2019	n/a	-4 °F	15 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
01/18/2020 thru 01/19/2020	10:00 PM	1 °F	16 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
02/13/2020 thru 02/14/2020	9:00 PM	-7 °F	18 °F	-20 °F	Aurora Morris	n/a	n/a	n/a	
02/07/2021 thru 02/17/2021	1:00 AM	-12 °F	19 °F	-35 °F	Aurora Morris	n/a	n/a	n/a	
01/06/2022 thru 01/07/2022	10:00 PM	-5 °F	17 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	

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Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Impacts/Event Description
		Low (Min)	High (Max)	Wind Chill (Max)					
01/25/2022 thru 01/26/2022	9:00 PM	-12 °F	10 °F	-30 °F	Aurora Morris	n/a	n/a	n/a	
12/22/2022 thru 12/25/2022	10:00 PM	-10 °F	15 °F	-25 °F	Aurora Morris	n/a	n/a	n/a	
02/03/2023	12:00 AM	1 °F	19 °F	-20 °F	Aurora Morris	n/a	n/a	n/a	
GRAND TOTAL:						0	0	\$0	

Sources: Iowa State University, Iowa Environmental Mesonet, National Weather Service Data, Search for Warnings.
Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
Midwestern Regional Climate Center, cli-MATE.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Cooperative Observation Forms.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

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Table 9
Regional Excessive Heat Events Reported in Kendall County*
1995 - 2022

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
06/20/1995	n/a	94 °F	74 °F	n/a	Aurora	n/a	n/a	n/a	n/a	
07/11/1995 thru 07/16/1995	n/a	102 °F	70 °F	n/a	Aurora	n/a	n/a	n/a	n/a	
07/29/1995 thru 07/30/1995	n/a	94 °F	72 °F	n/a	Aurora	n/a	n/a	n/a	n/a	
08/11/1995 thru 08/13/1995	n/a	96 °F	69 °F	n/a	Aurora	n/a	n/a	n/a	n/a	
06/30/1996	n/a	93 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/23/1997 thru 06/24/1997	n/a	96 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/14/1997	n/a	94 °F	69 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/25/1998 thru 06/27/1998	n/a	96 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/21/1998	n/a	94 °F	75 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/04/1999 thru 07/05/1999	n/a	94 °F	74 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	

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Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/21/1999 thru 07/25/1999	11:00 AM	95 °F	70 °F	111 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/28/1999 thru 07/31/1999	11:00 AM	101 °F	70 °F	105 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/21/2001 thru 07/23/2001	n/a	98 °F	66 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/31/2001 thru 08/01/2001	n/a	95 °F	69 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
08/08/2001	n/a	96 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/21/2002 thru 06/23/2002	n/a	95 °F	69 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/30/2002 thru 07/04/2002	n/a	96 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/08/2002	n/a	95 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/21/2002 thru 07/22/2002	n/a	99 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	

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		Day (Max)	Night (Min)	Heat Index (Max)						
08/01/2002	n/a	95 °F	72 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/04/2003	n/a	96 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
08/26/2003	n/a	93 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/24/2005 thru 06/29/2005	n/a	97 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/17/2005 thru 07/18/2005	n/a	96 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
05/28/2006	n/a	95 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/16/2006 thru 07/17/2006	1:00 PM	95 °F	73 °F	105 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/29/2006 thru 08/02/2006	n/a	99 °F	73 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	
06/23/2009 thru 06/25/2009	11:00 AM	95 °F	72 °F	105 °F	Aurora Morris	n/a	n/a	n/a	n/a	
08/09/2009	12:00 PM	90 °F	73 °F	105 °F	Aurora Morris	n/a	n/a	n/a	n/a	

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		Day (Max)	Night (Min)	Heat Index (Max)						
07/23/2010	10:00 AM	92 °F	71 °F	105 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/28/2010	n/a	90 °F	73 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
08/10/2010 thru 08/13/2010	na	93 °F	71 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	
06/07/2011	n/a	95 °F	73 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/01/2011	3:00 PM	92 °F	72 °F	105 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/18/2011 thru 07/22/2011	11:00 AM	99 °F	70 °F	120 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/23/2011 thru 07/24/2011	10:00 AM	94 °F	71 °F	110 °F	Morris	n/a	n/a	n/a	n/a	
07/28/2011 thru 07/29/2011	10:00 AM	92 °F	72 °F	105 °F	Morris	n/a	n/a	n/a	n/a	
08/01/2011 thru 08/03/2011	n/a	92 °F	73 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	

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		Day (Max)	Night (Min)	Heat Index (Max)						
09/01/2011 thru 09/02/2011	n/a	95 °F	69 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
05/28/2012	n/a	98 °F	73 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/19/2012 thru 06/21/2012	n/a	94 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/28/2012	12:00 PM	100 °F	75 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/03/2012 thru 07/08/2012	11:00 AM	103 °F	71 °F	118 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/16/2012 thru 07/19/2012	n/a	101 °F	71 °F	105 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/23/2012	n/a	92 °F	72 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/25/2012	11:00 AM	102 °F	72 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	
08/04/2012	n/a	96 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/15/2013 thru 07/20/2013	n/a	95 °F	70 °F	109 °F	Aurora Morris	n/a	n/a	n/a	n/a	

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		Day (Max)	Night (Min)	Heat Index (Max)						
08/28/2013	n/a	93 °F	74 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
09/11/2013	n/a	97 °F	73 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/18/2014	n/a	92 °F	75 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/18/2015 thru 07/19/2015	10:00 AM	93 °F	71 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	
09/07/2015	n/a	94 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/21/2016 thru 07/24/2016	12:00 PM	94 °F	70 °F	113 °F	Aurora Morris	n/a	n/a	n/a	n/a	
08/12/2016	n/a	92 °F	73 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
09/07/2016	n/a	93 °F	73 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/12/2017 thru 06/14/2017	n/a	97 °F	69 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
09/23/2017	n/a	95 °F	69 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
05/28/2018	n/a	100 °F	69 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

¹ Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 9
Regional Excessive Heat Events Reported in Kendall County*
1995 - 2022

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
06/16/2018 thru 06/18/2018	12:00 PM	96 °F	71 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	
06/29/2018 thru 07/01/2018	11:00 AM	95 °F	71 °F	120 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/04/2018	12:00 PM	91 °F	72 °F	105 °F	Aurora Morris	n/a	n/a	n/a	n/a	
08/05/2018 thru 08/06/2018	n/a	94 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
08/27/2018 thru 08/28/2018	11:00 AM	95 °F	70 °F	109 °F	Aurora Morris	n/a	n/a	n/a	n/a	
07/03/2019 thru 07/06/2019	n/a	94 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/14/2019 thru 07/15/2019	n/a	92 °F	69 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/18/2019 thru 07/21/2019	3:00 PM	95 °F	70 °F	118 °F	Aurora Morris	n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

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Table 9
Regional Excessive Heat Events Reported in Kendall County*
1995 - 2022

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/07/2020 thru 07/08/2020	n/a	94 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
07/18/2020	12:00 PM	90 °F	73 °F	105 °F	Morris	n/a	n/a	n/a	n/a	
08/26/2020 thru 08/28/2020	n/a	93 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
08/11/2021	12:00 PM	93 °F	69 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	
08/24/2021 thru 08/25/2021	1:00 PM	95 °F	69 °F	106 °F	Aurora Morris	n/a	n/a	n/a	n/a	
08/28/2021 thru 08/29/2021	n/a	92 °F	70 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
06/14/2022 thru 06/15/2022	3:46 AM	98 °F	71 °F	110 °F	Aurora Morris	n/a	n/a	n/a	n/a	
06/21/2022	1:20 PM	98 °F	71 °F	108 °F	Aurora Morris	n/a	n/a	n/a	n/a	

* Includes all events reported for the Village of Montgomery.

¹ Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 9
Regional Excessive Heat Events Reported in Kendall County*
1995 - 2022

Date(s)	Start Time	Magnitude - Temperature °F			Observed Location(s) ¹	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
		Day (Max)	Night (Min)	Heat Index (Max)						
07/05/2022	12:00 PM	97 °F	66 °F	110 °F	Morris	n/a	n/a	n/a	n/a	
08/07/2022	n/a	93 °F	71 °F	n/a	Aurora Morris	n/a	n/a	n/a	n/a	
GRAND TOTAL:						0	0	\$0	\$0	

Sources: Iowa State University, Iowa Environmental Mesonet, National Weather Service Data, Search for Warnings.

Midwestern Regional Climate Center, cli-MATE.

NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Cooperative Observation Forms.

NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

* Includes all events reported for the Village of Montgomery.

¹ Observed Location information, if available, was obtained from NWS's COOP Observation Station records as well as other officially-designated sources identified in NOAA's Storm Events Database and the Midwestern Regional Climate Center's cli-MATE data system.

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
1	08/06/1958	5:10 PM	Montgomery	F 2	2.0 mi.	70 yd.	n/a	n/a	\$250,000	n/a	
2	08/15/1958	2:00 AM	Millbrook^ Milbrook Yorkville Joliet	F 2	18.6 mi.	100 yd.	n/a	n/a	n/a	n/a	<u>Touchdown/Liftoff – Multiple Counties</u> Touched down in Lee County west of Eldena and traveled southeast through DeKalb, La Salle and Kendall Counties before lifting off near Joliet in Will County – total length: 74.5 miles
3	09/26/1959	7:30 PM	Oswego^ Oswego	F 1	3.0 mi.	10 yd.	n/a	n/a	\$25,000	n/a	Destroyed a large barn
4	04/06/1972	8:30 PM	Oswego^ Plainfield^ Plainfield	F 1	4.0 mi.	50 yd.	n/a	n/a	\$25,000	n/a	<u>Touchdown/Liftoff – Two Counties</u> Touched down in Kendall County southeas of Osewego and traveled southeast before lifting off east Joliet in unincorporated Will County – total length: 10.7 miles

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^ Tornado touchdown verified in the vicinity of this location(s).

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
5	07/17/1972	4:45 PM	Minooka Minooka^	F 3	3.1 mi.	200 yd.	n/a	n/a	n/a	n/a	<u>Touchdown/Liftoff – Multiple Counties</u> Touched down in Marshall County just south of Camp Grove and traveled northeast through Putnam, La Salle, Grundy, and Kendall Counties before lifting off at Joliet in Will County – total length: 81.5 miles
6	03/12/1976	12:50 PM	Oswego^ Plainfield^	F 3	7.0 mi.	30 yd.	n/a	n/a	\$2,500,000	n/a	<u>Touchdown/Liftoff – Multiple Counties</u> Touched down in Kendall County south of Oswego and traveled northeast through the northwest corner of Will before lifting off at Lombard in DuPage County – total length: 22.6 miles Several homes were destroyed or heavily damaged in a subdivision near Oswego, with the most intense damage occurring in this area
7	06/30/1977	8:45 AM	Milbrook^ Yorkville^	F U	3.0 mi.	177 yd.	n/a	n/a	n/a	n/a	

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^ Tornado touchdown verified in the vicinity of this location(s).

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
8	06/30/1977	9:10 AM	Yorkville Yorkville^	F U	1.7 mi.	350 yd.	n/a	n/a	n/a	n/a	
9	04/27/1984	5:39 PM	Joliet Plainfield	F 3	5.0 mi.	200 yd.	n/a	n/a	n/a	n/a	<u>Touchdown/Liftoff – Two Counties</u> Touched down in Kendall County southeast of Osewego and traveled southeast before lifting off just east of Plainfield in unincorporated Will County – total length: 9.0 miles
10	06/15/1985	5:00 PM	Minooka	F 0	3.3 mi.	10 yd.	n/a	n/a	n/a	n/a	<u>Touchdown/Liftoff – Multiple Counties</u> Touched down in Grundy County west of Minooka and traveled northeast through the southeast corner of Kendall County before lifting off at Joliet in Will County – total length: 13.0 miles
11	06/05/1989	12:05 PM	Yorkville^	F 0	0.1 mi.	10 yd.	n/a	n/a	\$0	n/a	Kendall County Sheriff reported seeing a tornado touch down and stir up dust in an open field near IL Rte. 71 and Pavillion Road.

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^ Tornado touchdown verified in the vicinity of this location(s).

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
12	08/28/1990	2:30 PM	Oswego Oswego^ Plainfield^ Plainfield	F 5	5.2 mi.	600 yd.	n/a	n/a	\$250,000	n/a	<i>This event was part of a federally-declared disaster Declaration #878</i> <u><i>Touchdown/Liftoff – Two Counties</i></u> Touched down in Kendall County at Oswego and traveled southeast before lifting off at Joliet in Will County – total length: 16.4 miles Tornado first touched down at Oswego, damaging several buildings. The tornado moved southeast across crop land roughly parallel to US Route 30. The first 4 to 5 miles the tornado was F1 and F2 across rural areas, then became F3 as it crossed into Will County.

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^ Tornado touchdown verified in the vicinity of this location(s).

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
13	05/28/2003	2:39 PM	Yorkville^	F 0	1.0 mi.	50 yd.	n/a	n/a	\$0	n/a	A weak tornado touched down 2 miles west of Bristol near Route 47 in northern Kendall county. The tornado was on the ground for 2 minutes. No damage was reported.
14	05/30/2003	6:35 PM	Millbrook^	F 0	1.0 mi.	100 yd.	n/a	n/a	n/a	n/a	<u>Touchdown/Liftoff – Two Counties</u> Touched down in LaSalle County southeast of Somonauk and traveled east before lifting off west of Millbrook in Kendall County – total length: 2.5 miles
15	05/30/2003	6:42 PM	Millbrook^ Yorkville	F 0	3.5 mi.	100 yd.	n/a	n/a	n/a	n/a	A tree was damaged at Hollenback Road and Route 71. A large tree was snapped at Walker Road and Helmar Road. A large farm building collapsed just south of Walker Road and east of Lisbon Road.

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^ Tornado touchdown verified in the vicinity of this location(s).

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
16	07/27/2003	12:26 PM	Yorkville	F 0	1.0 mi.	100 yd.	n/a	n/a	n/a	n/a	A weak tornado touchdown near the Hideaway Lake Camp. Numerous trees were damaged and some were blown down. Damage occurred to several trailers and campers from the falling trees and tree limbs. The tornado appeared to skip along the ground with the strongest winds staying aloft affecting mainly the trees.
17	06/30/2014	8:38 PM	Newark [^]	EF 1	1.15 mi.	50 yd.	n/a	n/a	\$50,000	n/a	The Kendall County Forest Preserve District identified \$50,000 in damages to its roof, downed trees and power lines. Concentrated damage was also found at two farmsteads including the destruction of an outbuilding and large trees snapped at their bases.

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[^] Tornado touchdown verified in the vicinity of this location(s).

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
18	05/27/2019	12:47 PM	Yorkville^	EF 0	0.97 mi.	30 yd.	n/a	n/a	n/a	n/a	A tornado briefly touched down near the intersection of Walker Road and Ashley Road. A video of the tornado showed it kicked up dust in an open field. No damage was reported.
19	05/17/2020	2:15 PM	Millbrook^ Sandwich^	EF U	0.69 mi.	25 yd.	n/a	n/a	n/a	n/a	A brief tornado touched down. No damage was reported.
20	05/23/2020	1:57 PM	Minooka Minooka^	EF 0	2.07 mi.	100 yd.	n/a	n/a	n/a	n/a	<u>Touchdown/Liftoff – Multiple Counties</u> Touched down in Grundy County on the west side of Minooka and traveled northeast through the southeast corner of Kendall County before lifting off just north of Channahon in unincorporated Will County – total length: 6.3 miles Two wooden utility poles were blown down along with a half dozen large trees and numerous large tree limbs

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^ Tornado touchdown verified in the vicinity of this location(s).

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
21	08/10/2020	2:15 PM	Yorkville Plainfield Joliet	EF 1	10.47 mi.	250 yd.	n/a	n/a	\$50,000	n/a	<i>Event Description Provided Below</i>
<u><i>Touchdown/Liftoff – Two Counties</i></u>							The tornado continued moving east southeast producing damage to trees along Rte 126. The most significant damage was found east of Schlapp Road along Wheeler Road where trees were mangled, a farm building was destroyed with debris deposited in a nearby field and a large grain bin was bent inward				
Touched down in Kendall County at Yorkville and traveled southeast before lifting off near Joliet in unincorporated Will County – total length: 14.45 miles							Wood panels were thrown into the ground leaving scour marks in the grass.				
A tornado touched down near Walsh Drive, just north of Route 71.							Six utility poles were snapped along Ridge Road and a 1000-1500 pound auger was moved about 50 feet.				
A pergola was destroyed, siding was ripped off a house and parts of a fence and a tree were thrown over a road.											
Eyewitness accounts indicated the debris was lifted and twirled.											

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[^] Tornado touchdown verified in the vicinity of this location(s).

Table 10
Tornadoes Reported in Kendall County*
1950 - 2022

Map No.	Date(s)	Start Time	Location(s)	Magnitude Fujita Scale	Length (Miles) ¹	Width (Yards)	Injuries	Fatalities	Property Damages	Crop Damages	Impacts/Event Description
22	11/05/2022	10:06 AM	Little Rock	EF 0	0.20 mi.	100 yd.	n/a	n/a	n/a	n/a	<u>Touchdown/Liftoff – Two Counties</u> Touched down in Kendall County at Little Rock and traveled north-northeast before lifting off at Big Rock in Kane County – total length: 3.7 miles Sporadic tree and power line damage occurred along its path.
GRAND TOTAL:							0	0	\$3,150,000	\$0	

Sources: Kendall County Multi-Jurisdictional Multi-Hazard Mitigation Planning Committee Member responses to the Natural Hazard Events Questionnaire.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Data.
NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.
NOAA, National Weather Service, Storm Prediction Center, SVRGIS, Tornadoes (1950-2021) Database.

* Includes all events reported for the Village of Montgomery.

¹ The length provided is only for the portion(s) of the tornado that occurred in the County.

[^] Tornado touchdown verified in the vicinity of this location(s).

Table 11
Drought Events Reported in Kendall County*
1980 - 2022

Year(s)	Start Month	Duration (Months)	Magnitude Drought Intensity Category ¹					Percent Crop Yield Reduction from Previous Year		Designated USDA Primary Natural Disaster Area	Crop Damages	Impacts/Event Description
			D0	D1	D2	D3	D4	Corn	Soybeans			
1983	n/a	n/a						34.3 %	5.1 %	n/a	n/a	All 102 counties in Illinois were proclaimed state disaster areas because of high temperatures and insufficient precipitation beginning in mid-June
1988	June	16						46.3 38	26.1 %	n/a	n/a	Approximately half of all Illinois counties were impacted by drought conditions
2005 - 2006	May	12	X	X	X	X		39.6 %	21.2 %	Yes	\$2,590,557 ^	
2012 - 2013	June	9.5	X	X	X			38.1 %	20.0 %	Yes	\$25,201,398 ^	
GRAND TOTAL:											\$27,791,955 *	

Sources: Illinois State Water Survey, Illinois State Climatologist.

National Drought Mitigation Center, United States Drought Monitor.

NOAA, National Environmental Satellite, Data & Information Service, National Centers for Environmental Information, Storm Events Database.

United States Department of Agriculture, National Agricultural Statistics Service, Quik Stats Lite.

* Includes all events reported for the Village of Montgomery.

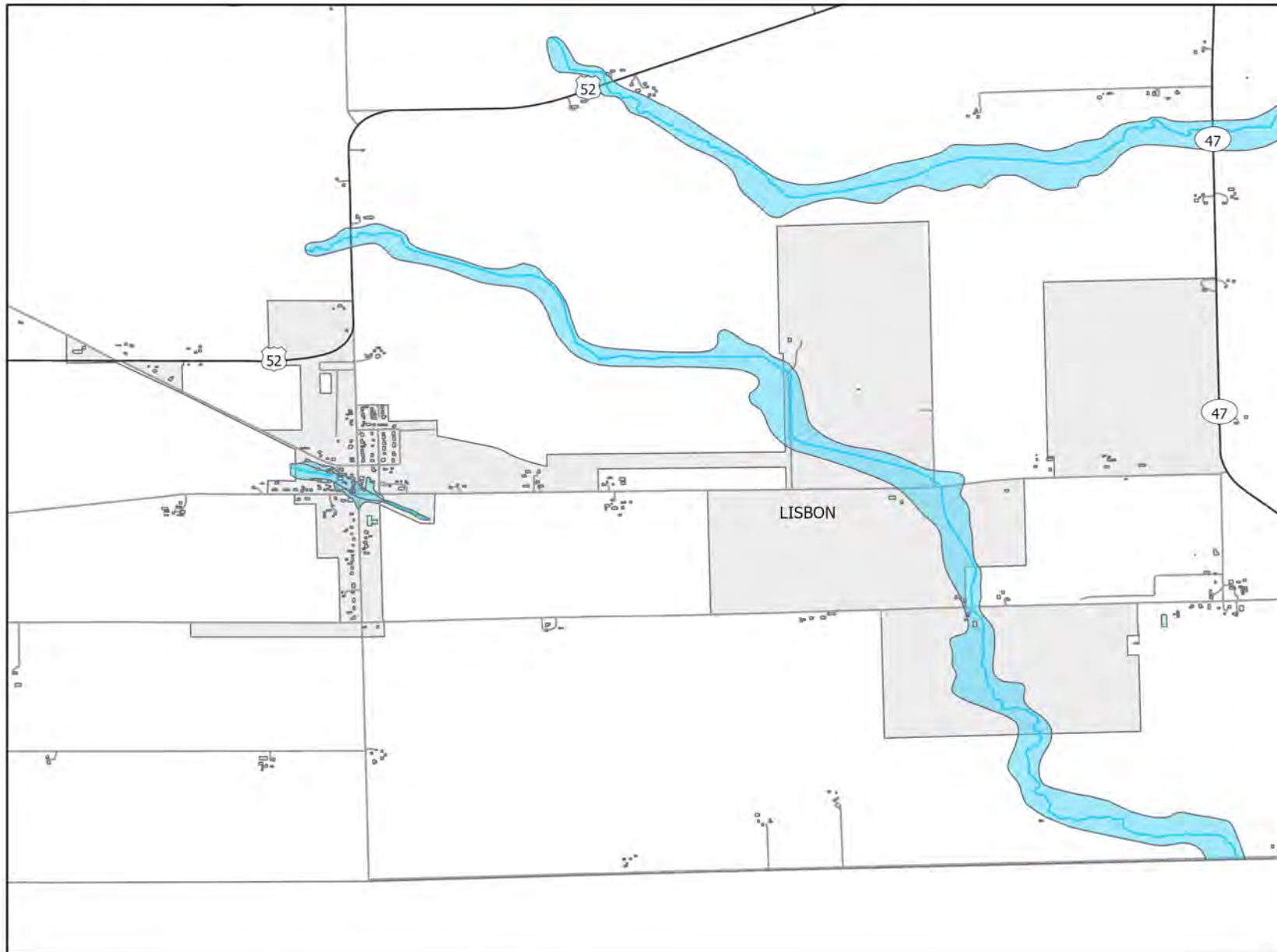
^ Crop Damage figures were obtained from USDA Risk Management Agency and only represent losses sustained by insured crops.

¹ An "X" identifies the level of drought intensity reached by at least a portion of the County during the event, if available.

US Drought Monitor – Drought Intensity Category Descriptions

D0	abnormally dry	D3	extreme drought
D1	moderate drought	D4	exceptional drought
D2	severe drought		

Lisbon

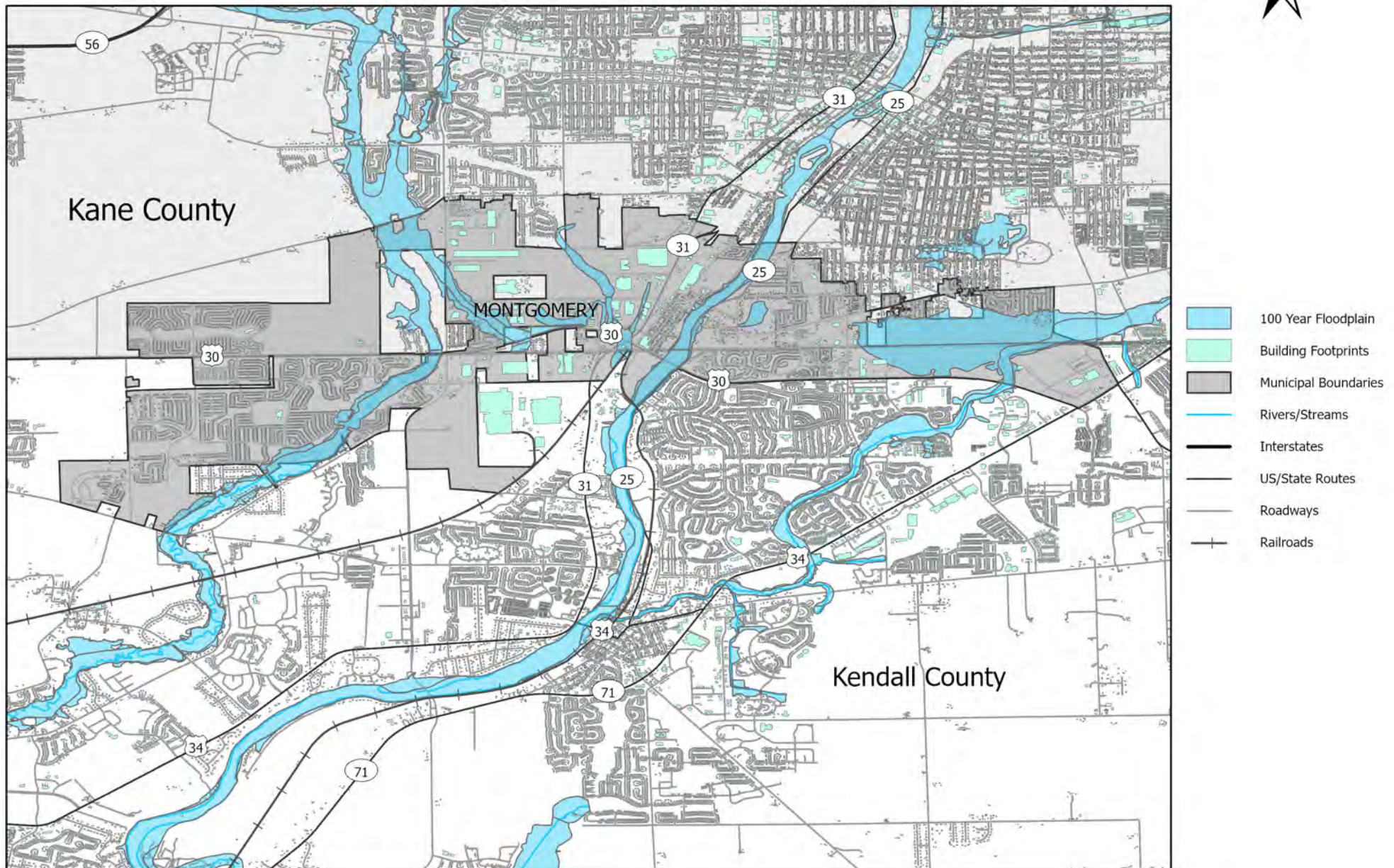


-  100 Year Floodplain
-  Building Footprints
-  Municipal Boundaries
-  Rivers/Streams
-  Interstates
-  US/State Routes
-  Roadways
-  Railroads

0 0.5 1 2 Miles

Map Created December 2023 in ArcGIS by Callie Smith at American Environmental Corporation
Sources: Esri, HERE, Garmin, SafeGraph, MET/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

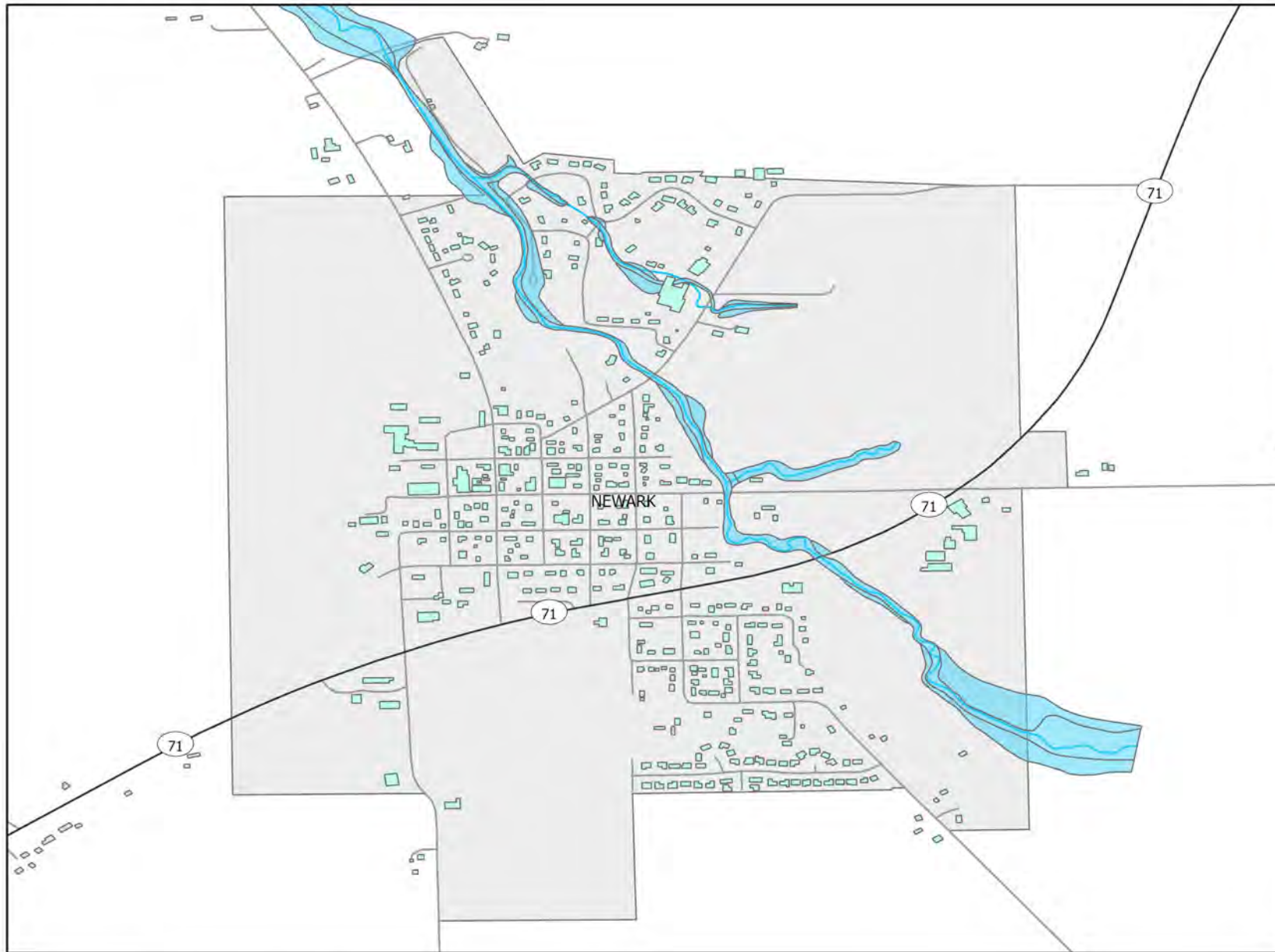
Montgomery



0 1 2 4 Miles

Map Created December 2023 in ArcGIS by Callie Smith at American Environmental Corporation
Sources: Esri, HERE, Garmin, SafeGraph, MET/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

Newark

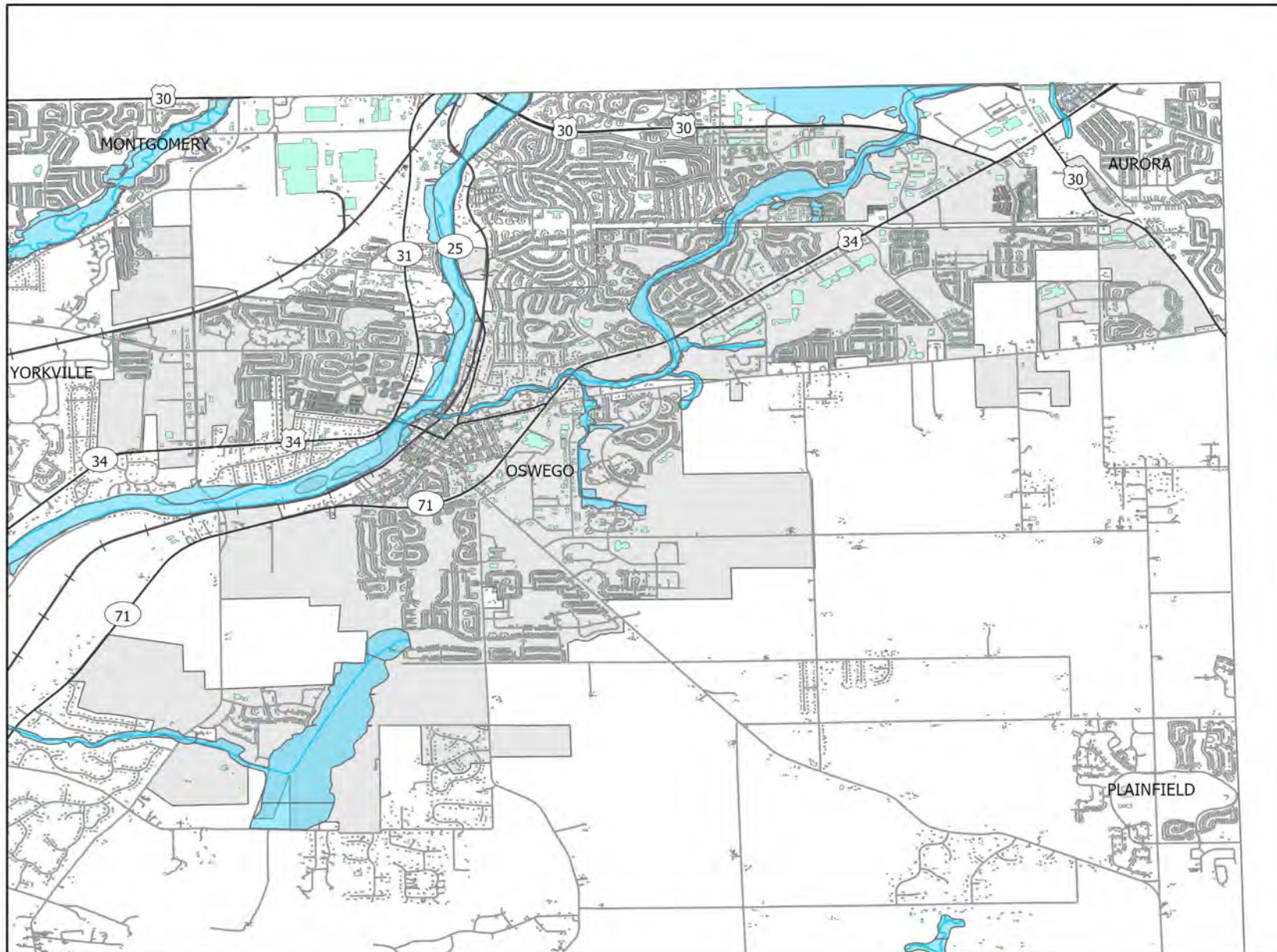


- 100 Year Floodplain
- Building Footprints
- Municipal Boundaries
- Rivers/Streams
- Interstates
- US/State Routes
- Roadways
- Railroads

0 0.25 0.5 1 Miles

Map Created December 2023 in ArcGIS by Callie Smith at American Environmental Corporation
Sources: Esri, HERE, Garmin, SafeGraph, MET/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

Oswego

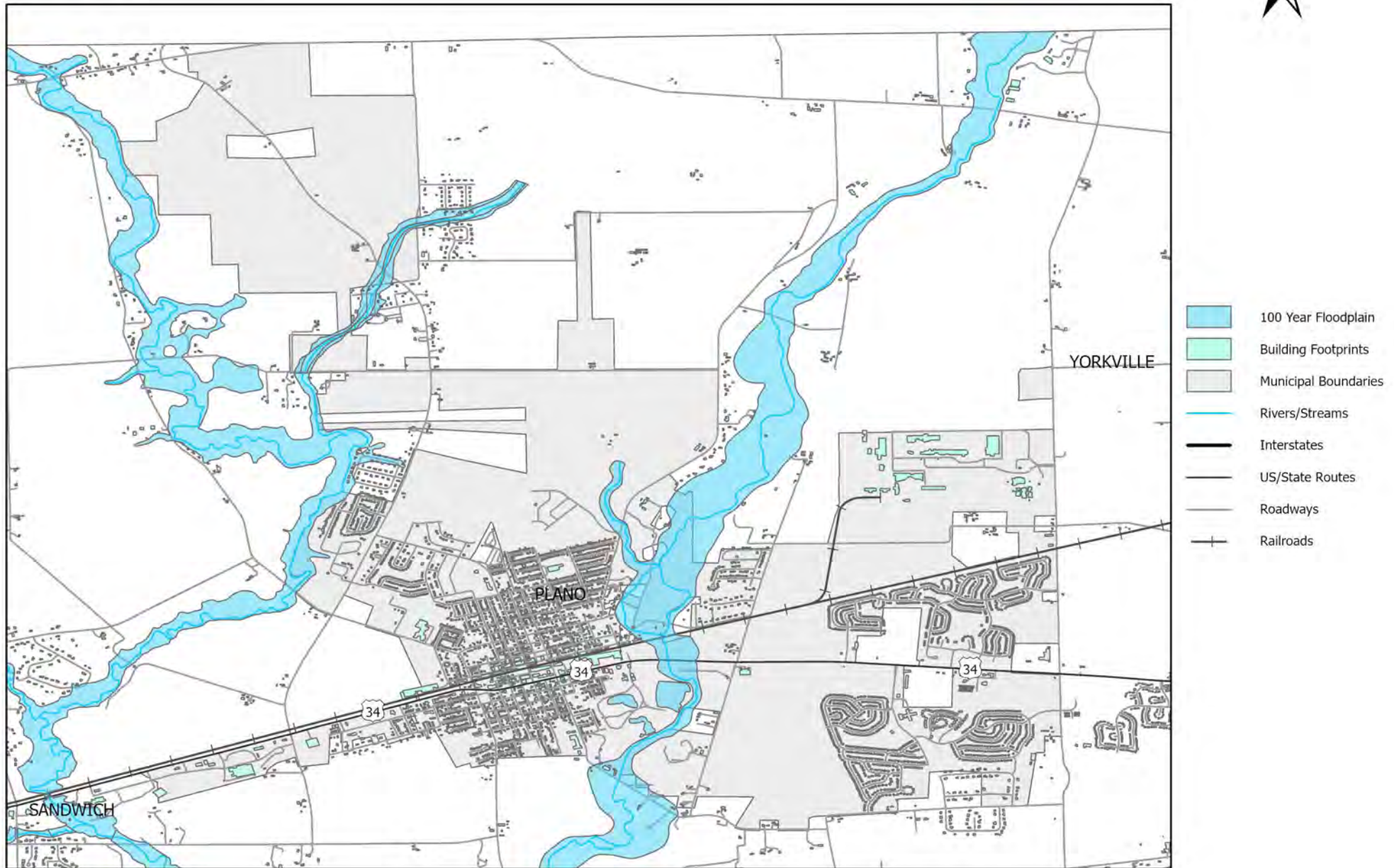


- 100 Year Floodplain
- Building Footprints
- Municipal Boundaries
- Rivers/Streams
- Interstates
- US/State Routes
- Roadways
- Railroads

0 1 2 4
Miles

Map Created December 2023 in ArcGIS by Callie Smith at American Environmental Corporation
Sources: Esri, HERE, Garmin, SafeGraph, MET/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

Plano



0 0.75 1.5 3 Miles

Map Created December 2023 in ArcGIS by Callie Smith at American Environmental Corporation
Sources: Esri, HERE, Garmin, SafeGraph, MET/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

Plattville

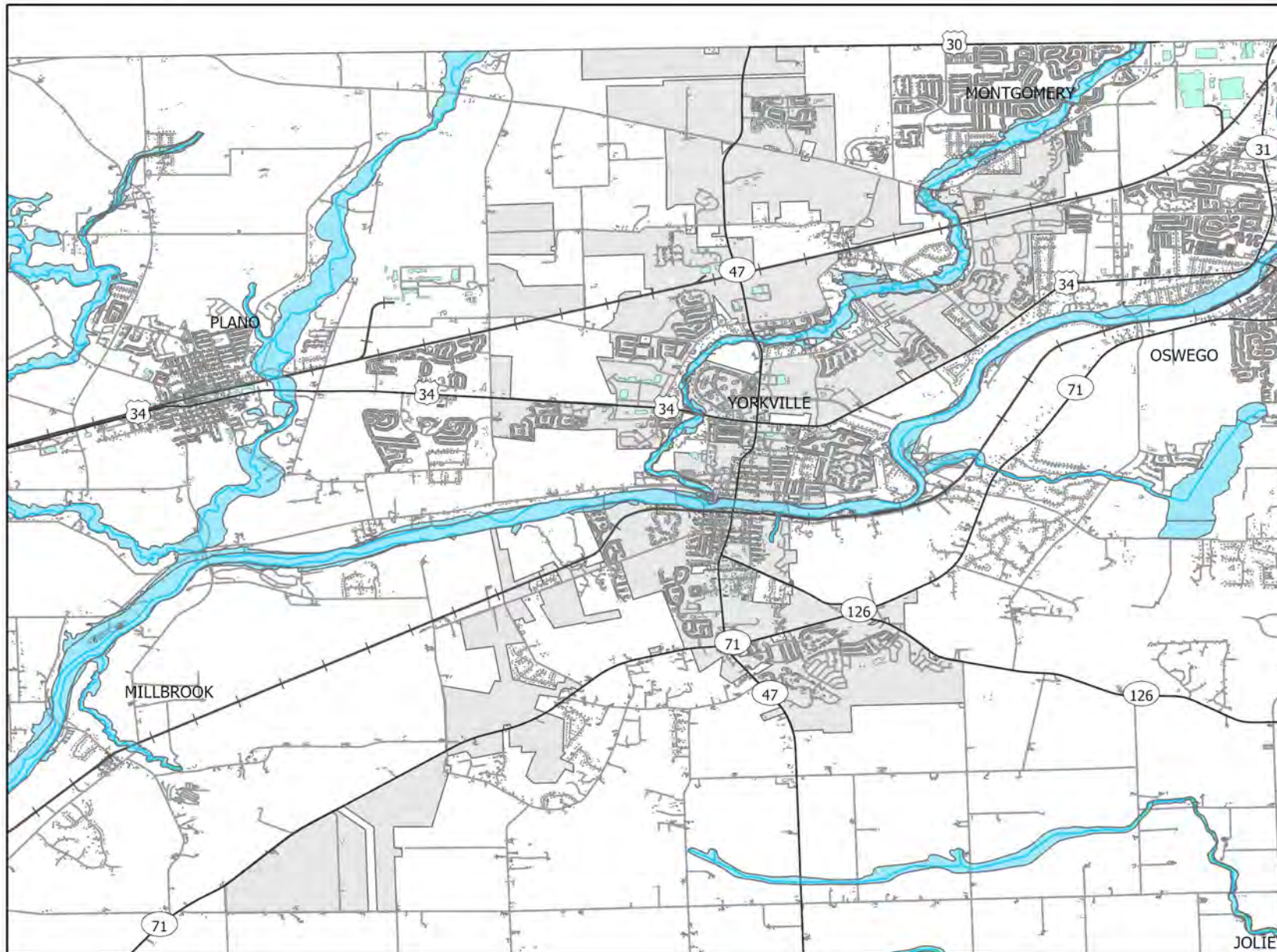


-  100 Year Floodplain
-  Building Footprints
-  Municipal Boundaries
-  Rivers/Streams
-  Interstates
-  US/State Routes
-  Roadways
-  Railroads

0 0.25 0.5 1 Miles

Map Created December 2023 in ArcGIS by Callie Smith at American Environmental Corporation
Sources: Esri, HERE, Garmin, SafeGraph, MET/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

Yorkville



- 100 Year Floodplain
- Building Footprints
- Municipal Boundaries
- Rivers/Streams
- Interstates
- US/State Routes
- Roadways
- Railroads

0 1.25 2.5 5
Miles

Map Created December 2023 in ArcGIS by Callie Smith at American Environmental Corporation
Sources: Esri, HERE, Garmin, SafeGraph, MET/NASA, USGS, EPA, NPS, USDA, Esri, NASA, NGA, USGS, FEMA

Table 5-5: Mitigation Strategies

No.	Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
1	Require critical facilities to have weather radios	Goal: Improve emergency communications with the public Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Thunderstorm	Kendall County, Boulder Hill, Plano, Sandwich, Yorkville, Lisbon, Montgomery, Newark, Oswego	Ongoing	All critical facilities are equipped with weather radios. The county would like to develop a program to distribute weather radios to the public as well and will solicit funding from IEMA and FEMA.
2	Install stream gauges	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Flood	Kendall County	Ongoing	New stream gauges are being installed on tributaries to Fox River: Little Rock Creek, Big Rock Creek, Blackberry Creek
3	Establish mutual aid agreements	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.	Winter Storm, Hazmat	Kendall County	Ongoing	The county has mutual aid agreements in place for hazmat incidents and snow removal.
4	Create a database for identification of special needs population	Goal: Develop long-term strategies to educate the community residents on the hazards affecting their county Objective: Improve education and training of emergency personnel and public officials.	Tornado, Flood, Earthquake, Thunderstorm, Winter Storm, Drought, Hazmat, Fire	Kendall County	Ongoing	The county keeps a database for senior citizens with special needs. There are continued attempts to create a similar database for non-senior residents.
5	Conduct public education regarding nearby nuclear power plant	Goal: Develop long-term strategies to educate the community residents on the hazards affecting their county Objective: Raise public awareness on hazard mitigation.	Hazmat	Kendall County	Ongoing	After 9-11, the county conducted extensive public education.
6	Build snow fences along roads to mitigate drifting snow	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Equip public facilities and communities to guard against damage caused by secondary effects of hazards.	Winter Storm	Kendall County	Ongoing	All state highways have snow fences. The county would like to build additional snow fences along the following roads: Grover Road, Plainfield Road, Ridge Road, Wolf Road, County Line Road, and Plains Road. Funding will be sought from the highway department and ILDOT. If funding is available, implementation will begin within three years.

No.	Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
7	Develop stormwater management ordinances and plans	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.	Flood	Kendall County	In Progress	The county has developed a number of stormwater management ordinances (including for Ausable Creek) and updates them on a regular basis. The county will continue to use local resources to develop stormwater management plans for each community.
8	Establish warming and cooling centers	Goal: Lessen the impacts of hazards on at risk populations. Objective: Improve emergency sheltering in the community.	Drought, Winter Storm	Plano, Sandwich, Yorkville, Montgomery, Oswego	Complete	Kendall County communities are equipped with warming and cooling centers.
9	Install Reverse 911 for mass notification	Goal: Improve communication to the public. Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Kendall County	Complete	The county has a Reverse 911 system.
10	Establish a system to alert first responders of emergencies	Goal: Improve First Responder communication. Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Thunderstorm	Boulder Hill, Plano, Sandwich, Yorkville, Montgomery, Oswego	Complete	First responders in the northern part of the county are alerted by Skywarn in conjunction with Chicago systems.
11	Establish safe rooms in critical facilities	Goal: Lessen the impacts of hazards to the community. Objective: Improve emergency sheltering in the community.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Kendall County, Boulder Hill, Plano, Sandwich, Yorkville, Lisbon, Montgomery, Newark, Oswego	Complete	The county has safe rooms in all critical facilities.
12	Buy out homes in areas that have frequent flooding	Goal: Create new or revise existing plans/maps for the community Objective: Support compliance with the NFIP for each jurisdiction.	Flood	Montgomery	Complete	Homes along Fox River in Montgomery have been bought out.
13	Institute a buy-out plan for repetitive loss properties in Black Hawk Springs and along Oswego Fox River and Blackberry Creek; move Farnsworth House (historical site) to a new location	Goal: Create new or revise existing plans/maps for the community Objective: Support compliance with the NFIP for each jurisdiction.	Flood	Kendall County	High	The County EMA and Floodplain Managers will oversee the implementation of the project. Funding has not been secured as of 2010 but will be sought from funding sources such as IEMA. Implementation, if funding is available, is forecasted to begin within five years.

No.	Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
14	Purchase transfer switches to provide back-up power to critical facilities	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Improve emergency sheltering in the community.	Tornado, Flood, Earthquake, Thunderstorm, Winter Storm	Kendall County, Boulder Hill, Plano, Sandwich, Yorkville, Lisbon, Montgomery, Newark, Oswego	High	The County and other jurisdictions will oversee the implementation of this project. Local resources will be used to determine which facilities should receive generators. Funding has not been secured as of 2010, but the pre-disaster mitigation program and community development grants are possible funding sources. If funding is available, this project is forecasted to begin within one year.
15	Establish CERT teams and procure funding for training and equipment	Goal: Develop long-term strategies to educate the community residents on the hazards affecting their county Objective: Improve education and training of emergency personnel and public officials.	Tornado, Flood, Earthquake, Thunderstorm, Winter Storm, Hazmat, Fire, Drought	Kendall County	High	The County EMA will oversee this project. Funding will be sought from FEMA and IEMA. If funding is available, implementation will begin within one year.
16	Install lightning suppression, power conditioning, and surge protection in critical facilities	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Retrofit critical facilities with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.	Thunderstorm	Kendall County, Boulder Hill, Plano, Sandwich, Yorkville, Lisbon, Montgomery, Newark, Oswego	High	The County EMA will oversee this project. Funding will be sought from community grants and local resources. If funding is available, implementation will begin within five years.
17	Implement Nixle for mass media release via e-mail and text messages	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Flood, Earthquake, Thunderstorm, Winter Storm, Hazmat, Fire, Drought	Kendall County	High	The County EMA will work with first responders to implement Nixle. Funding for public education may be sought from FEMA. If resources are available, implementation will begin within one year.
18	Establish secure mobile classrooms	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Retrofit critical facilities with structural design practices and equipment that will withstand natural disasters and offer weather-proofing.	Tornado, Flood, Earthquake, Thunderstorm, Winter Storm	Kendall County, Boulder Hill, Plano, Sandwich, Yorkville, Lisbon, Montgomery, Newark, Oswego	Medium	The County EMA will work with engineers to oversee the implementation of this project. Funding has not been secured as of 2010, but federal, state, and community development grants are possible funding sources. Implementation, if funding is available, will begin within three years.
19	Improve communications interoperability	Goal: Improve communications between First Responders. Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Flood, Earthquake, Thunderstorm, Drought, Winter Storm, Hazmat, Fire	Kendall County	Medium	The County EMA will oversee implementation of this project. Local resources will be used to develop an interoperability plan. Funding for exercises and training may be sought from state resources. If funding and resources are available, implementation will begin within three years.

No.	Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
20	Procure temporary signage to use during power outages or warn of road closure	Goal: Improve communication with the public. Objective: Equip public facilities and communities with means to guard against damage caused by secondary effects of hazards.	Flood	Kendall County	Medium	The County EMA and County Highway Departments oversee the implementation of this project. Local resources will be used as much as possible and additional funding will be sought from the PDM program. Implementation, if funding is available, is forecasted to begin within three years.
21	Conduct stream and ditch maintenance along all streams in developed areas of the county	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Flood	Boulder Hill, Plano, Sandwich, Yorkville, Lisbon, Montgomery, Newark, Oswego	Medium	The County Engineer will oversee this project. The U.S. Army Corps of Engineers and the DNR are potential funding sources. If funding is available, implementation will begin within three years.
22	Conduct a commodity flow study	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Hazmat	Kendall County	Medium	The County EMA will work with the highway department to complete this project. Funding will be sought from ILDOT. If funding is available, implementation will begin within three years.
23	Establish best practices for burying power lines in new subdivisions	Goal: Create new or revise existing plans/maps for the community Objective: Conduct new studies/research to profile hazards and follow up with mitigation strategies.	Winter Storm	Kendall County	Low	County officials will establish and document best practices using local resources. If resources are available, implementation will begin within five years.
24	Procure emergency operation system/switches for traffic signals (manual control)	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Tornado, Flood, Earthquake, Thunderstorm, Winter Storm	Kendall County	Low	The County EMA and County Highway Departments oversee the implementation of this project. Funding will be sought from federal and state agencies. Implementation, if funding is available, is forecasted to begin within five years.
25	Improve condition of Wolf Road by installing new culverts and/or elevating the road	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Minimize the amount of infrastructure exposed to hazards.	Flood	Kendall County	Low	The County Highway Department will oversee this project. Funding will be sought from DNR, FEMA, and IEMA. If funding is available, implementation will begin within five years.
26	Improve signage and signals at intersections with frequent accidents: 34 and 30; 71 and 34	Goal: Lessen the impacts of hazards to new and existing infrastructure Objective: Evaluate and strengthen the communication and transportation abilities of emergency services throughout the county.	Hazmat	Kendall County	Low	The County EMA and County Highway Department oversee the implementation of this project. Funding will be sought from federal and state agencies. Implementation, if funding is available, is forecasted to begin within five years.

No.	Mitigation Item	Goals and Objects Satisfied	Hazards Addressed	Jurisdictions Covered	Priority	Comments
27	Develop an evacuation plan for hazmat incidents	Goal: Create new or revise existing plans/maps for the community Objective: Review and update existing, or create new, community plans and ordinances to support hazard mitigation.	Hazmat	Plano	Low	Plano currently has no evacuation plan. City resources will be used to develop and publicize the plan. If resources are available, implementation will begin within five years.

	An action cannot be implemented without sufficient funding. Examine various avenues for funding a mitigation project; a costly mitigation project could be financially feasible if the community applies for and receives grant funds to supplement available community resources.
Environmental	<p>✓ Is the proposed action in a floodplain or wetland or will it indirectly impact the natural and beneficial functions of a floodplain or wetland?</p> <p>✓ How will the action affect the natural environment?</p> <p>✓ How will the action affect utility and transportation systems?</p> <p>Comment: Unless detrimental effects of a project on the natural environment can be minimized, the project under consideration may not be a good fit for the community.</p>

FEMA 386-9 Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects

10.1. Program Action Items

Each action item will include a brief description, the year the item was included in the plan, the responsible agency, a deadline, actual or estimated cost, and the benefit of the item. Action Items added to the plan during a previous update will also include a status for the item. Some of the action items will not have a specific date as a deadline as they will be ongoing and will continue through the next five years. A list of action items that have been completed or are being removed from the plan since the last update is included at the end of the chapter.

All of the original action items added in 2003 are generic in nature and most could apply to all of the participating jurisdictions. During the 2009 and 2015 updates jurisdiction added specific action items. Therefore some of the action items listed below will be generic in scope and could apply to all jurisdictions and some will be for a single jurisdiction.

Action Item 1. Building Code Improvements

Adopt the latest International series of codes, the new national standard that is being adopted throughout the country. Code revisions should be pursued to strengthen new buildings against damage by high winds, tornadoes and hail. Requiring tornado “safe rooms” in certain structures should be considered. Any code revisions should be consistent with the efforts undertaken by multi-community organizations of building department staff.

Year included in plan: 2003

Action item status: This action item is continuing.

Responsible agency: Kane County Development Department and building departments of municipalities. The organizations of building department staff should take the lead on drafting new code language.

Deadline: This action item will be continuous and each jurisdiction should adopt the latest building codes 18 months after they are published. This will allow “the bugs” to be worked out of the I-Codes, which has been a concern of many communities and will allow full review of the changes by each community.

Cost: Staff time.

Benefits: This will improve the hazard protection standards for new construction and will ensure a consistent set of building standards across the County. It will also assist communities to improve their BCEGS rating.

Action Item 2. Improved Code Enforcement

Develop and conduct training for building department staff on the natural hazards aspects of the International Codes, regulation of mobile home installation, and the County stormwater ordinance and its flood protection, wetland protection, erosion and sediment control and best management practices provisions.

Year included in plan: 2003

Responsible agency: Kane County Departments to develop training. Municipal building staff to participate.

Deadline: This action item will now be continuous. Each jurisdiction should continue to improve code enforcement by providing training to the code enforcement staff in the areas listed above. As the jurisdiction adopts the newest International series of codes; training should be provided to code enforcement staff as soon as possible.

Cost: Staff time

Benefits: A better educated staff will pay more attention to the details of factors vital to natural hazard mitigation when they review plans and inspect sites, such as ensuring that a structure is securely connected to the foundation. Training will also ensure that staffs understand new I-Code provisions, the County’s stormwater ordinance and their responsibilities under the National Flood Insurance Program. A regular training program can improve BCEGS scores, too.

Action Item 3. Review of Plans and Development Regulations

When they are up for revision, comprehensive plans, land use plans, and zoning and subdivision ordinances should incorporate mitigation provisions, especially:

- Open space provisions that will protect properties from flooding, preserve wetlands, and enhance groundwater infiltration;
- Appropriate farmland preservation measures;
- Standards for streets and water systems that facilitate access and use by fire and emergency equipment;
- Requirements to bury utility lines; and
- Mandating storm shelters in new mobile home parks.

Year included in plan: 2003

Responsible agency: Kane County Departments, municipal planning, zoning, engineering and community development departments.

Deadline: This action item will be continuous and each jurisdiction should continue to incorporate mitigation provisions and strategies into plans as they are developed or updated.

Cost: Staff time

Benefits: By incorporating mitigation provisions into other plans and regulations, more offices will be implementing mitigation activities, hazardous areas will be avoided, and new developments will be better protected.

3.1 – Big Rock, Village of

The Village will adopt a *Subdivision Control Ordinance* and accompanying *Standard Specifications*.

Year included in plan: 2009

Responsible Agency: The Village of Big Rock's Plan Commission, Board of Trustees, and Administrative Office.

Deadline: January 1, 2010

Cost: Estimated \$5 – \$10,000 in legal and engineering review fees and staff time.

Benefits: The new Ordinance and Specifications will incorporate mitigation provisions, especially:

- Open space provisions that will protect properties from flooding, preserve wetlands, and enhance groundwater infiltration;
- Appropriate farmland preservation measures;
- Standards for streets and water systems that facilitate access and use by fire and emergency equipment;

- Requirements to bury utility lines; and
- Mandating storm shelters in new mobile home parks.

2015 Status Update: Currently the Village does not have any funding for this project. The Village is looking for grants so that we can move forward on our project's

3.2 – South Elgin, Village of

South Elgin has received free local assistance from CMAP to develop a Unified Development Ordinance. This Ordinance will include open space, floodplain, and other mitigation provisions.

Year included in plan: 2015

Responsible agency: South Elgin Community Development

Deadline: 2017

Cost: \$5,000

Benefits: The Unified Development Ordinance will identify areas subject to special flood hazards as well as special flood hazard regulations thereby keeping future development safer during a flood.

Action Item 4. Retrofitting Incentives

Establish a program of technical assistance and financial incentives to encourage property protection measures on private property, such as:

- Surface and subsurface drainage improvements,
- Swales and regrading for shallow surface flooding,
- Sewer backup protection
- Relocating furnaces and water heaters out of basements
- Tornado safe rooms
- Installing lightning rods

Year included in plan: 2003

Responsible agency: Kane County Departments. Municipal offices to be designated by the community's adopting resolution.

Deadline: Each jurisdiction is encouraged to develop and implement incentive programs. It is understood that funding is limited, however when funding becomes available jurisdictions should consider implementing an incentive program.

Cost: The level of effort depends upon the size of the community but a 5/100 of 1% of the municipality's budget (0.0005) would be a good target.

Benefits: Using a 25% rebate level, for every dollar spent by the community, \$4 will be spent to protect a property from damage. Communities have found this approach to protect against local drainage and sewer backup problems to be a real cost saver compared to public works projects to control drainage or replace sewer pipes.

4.1 – Big Rock, Village of

The Village is planning to work with homeowners on a property protection program for surface and subsurface drainage improvements.

Year included in plan: 2009

Responsible Agency: The Village Board of Trustees with the advice and administrative assistance from the Drainage Committee.

Deadline: Ongoing program

Cost: Unknown and Incremental.

Benefits: While certain subdivisions in the Village do not currently have access to drainage systems, other developed areas (Timberview and Welton Subdivisions) can access limited drainage tiles. The Village will work with the residents to identify small local projects on a cost share basis that will alleviate localized flooding without the necessity to undertake a major drainage project.

2015 Status Update: Currently the Village does not have any funding for this project. The Village is looking for grants so that we can move forward on our project's

4.2 – North Aurora, Village of

The village of North Aurora has identified a project to help residents install overhead sewer lines to prevent sewer backup. Overhead sewer means there are no direct openings to the sanitary sewer in the basement. All of the wastewater that is collected in the basement is discharged into a separate sump pit and pumped into the sanitary service line. The basement drainage is dependent on a pump and a continuous electric power supply. Generally, the plumbing from the fixtures on the main floor is installed just below the basement ceiling (hence, the term “overhead”), and is routed to the outside service line through an opening high up on the basement wall. Converting the plumbing to an overhead sewer is one of the most expensive ways to prevent basement backups. Nevertheless, it is generally considered to be the best method available. Only the residents who have experienced sewer back-ups and are concerned with taking an active role in resolving the problem will use the cost sharing program.

Year included in plan: 2009

Responsible Agency: Public Works

Deadline: This will be an ongoing project for a minimum of 11 years.

Cost: The average cost to install an overhead is between \$5,000 and \$8,000. The Village will pay half, or a maximum \$4,000 per household.

Benefits: The Overhead will help prevent back-ups into basements during all rain events and other sewer blockages. This program will be offered on a Village-wide basis and therefore has the potential of helping the largest number of residents.

2015 Status Update: The village reviewed this action item for the 2015 update and updated the cost of installation. Current plans are to continue the program for a minimum of 11 years.

Action Item 5. Repetitive Loss Projects

Protect the buildings in repetitive loss areas 7, 8, 9, 12 and 14. These are the top priority areas based on the flood hazard and type of construction, as explained in the criteria on page 5-12. Acquisition is the recommended property protection approach for areas 7, 8, 9, and 12 and elevation is recommended for areas 9, 12 and 14. Properties in the other repetitive loss areas could be protected by retrofitting measures that could be funded for much less under the cost share program proposed in action item 4.

The specific measure to use on each property should be determined by an audit of the building and the owner's preferences. In each case, no action should be taken without the owner's full willing cooperation.

Year included in plan: 2003

Responsible agency: Kane County Departments (repetitive loss areas 8 and 9) and the appropriate office in Elgin (area 7) and Montgomery (areas 12 and 14).

Deadline: The Kane County Departments are continuing to work with IEMA and FEMA on the repetitive loss areas in the county.

Cost: Costs depend on individual property to be elevated or acquired. Staff time.

Benefits: FEMA and IEMA only fund projects where the benefits are shown to exceed the costs. A benefit/cost analysis must be run for each property in order to qualify for FEMA funds.

Action Item 6. Drainage Maintenance

Implement a formal and regular drainage system maintenance program. This would involve mapping the local drainage system, determining which areas can be accessed for inspection and maintenance, preparing procedures modeled on CRS program guidance, conducting an annual inspection and removing debris as needed. It would include

educating and working with homeowner associations and other non-governmental entities responsible for maintenance on their own properties.

The procedures would treat natural streams different from drainage ditches and developed areas different from vacant lands. Enforcing stream and wetland dumping regulations should also be a part of the program.

Year included in plan: 2003

Responsible agency: Municipal public works departments, township road districts, drainage districts. The Kane County Division of Transportation to be responsible for maintenance of roadside ditches under its jurisdiction

Deadline: Each jurisdiction is encouraged to develop and implement a drainage maintenance program and ensure that current maintenance programs are up to date and appropriate.

Cost: Staff time

Benefits: An obstruction to a channel, such as a plugged culvert, can result in overbank flooding during a small rainstorm. By inspecting and maintaining the drainage system, potential flood problems can be identified and corrected before the next big rain. A proactive preventive activity like this can prevent \$1,000's in flood damage, closed streets and threat to people.

6.1 - Algonquin, Village of

Dixie Creek Streambank Stabilization & Lake Braewood Naturalization. The existing channel of this creek is subject to high velocities and severe erosion has occurred in the open stream. This has caused Lake Braewood to silt in considerably and it no longer maintains its original stormwater storage capacity. This causes Gaslight Drive, the adjacent park and an adjacent homeowner to flood.

Year included in the plan: 2015

Responsible Agency: Public Works Department

Deadline: Currently funding for this project is not available. When funding becomes available the project should be completed in 3 years

Estimated Cost: \$700,000

Benefits: The proposed improvements will stabilize Dixie Creek, open up Lake Braewood for additional stormwater capacity and ultimately protect Gaslight Drive and both Village and private property.

6.2 – Carpentersville, Village of

Lake Marian Watershed - Alt. B1 Keith Andres Park Stream Maintenance Debris Removal and Vegetation Management

Year included in plan: 2009

Responsible Agencies: Village Public Works Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. This will be ongoing annual program, starting within months of funding being made available. Debris and brush removal has taken place on an annual basis.

Cost: \$200,000

Benefits: Reduce debris clogging of downstream drainage structures, maintain optimal hydraulic capacity of the creek channel, and improve water quality.

2015 Status Update: Due to funding restrictions no action has been taken on this project.

6.3 – North Aurora, Village of

The village of North Aurora has identified a need to install Cured-in-place Piping (C.I.P.P.). C.I.P.P. is formed by the insertion of a resin-impregnated flexible tube into the existing pipe. The tube is expanded to fit against the original conduit, and then heated to cure the resin. The finish product is a joint (less structural) pipe that is formed to the existing pipe. The cured-in-place pipe shall be chemically resistant to domestic sewage. Over the next (3) years the Village will also be entering into a manhole sealing program to help eliminate additional Inflow and Infiltration into the system.

Year included in plan: 2015

Responsible agency: Public Works

Deadline: 3 years to finish the entire community.

Cost: The cost per budget year is roughly \$200,000 to \$250,000

Benefits: Eliminate Inflow and Infiltration into the Sanitary Sewer System. This in return will eliminate backups into the homes.

Action Item 7. Urban Forestry

Implement an urban forestry program that qualifies the municipality to become a Tree City, USA. To qualify for Tree City USA, a city or village must meet four standards, which are explained in more detail on page 6-10:

- A tree board or department
- A tree care ordinance
- A community forestry program with an annual budget of at least \$2 per capita
- An Arbor Day observance and proclamation

Year included in plan: 2003

Responsible agency: To be designated by the municipality's adopting resolution.

Deadline: Each jurisdiction is encouraged to implement an urban forestry program and work towards Tree City USA designation as funding allows.

Cost: \$2 per capita, staff time

Benefits: In addition to improving a community's appearance, an active urban forestry program will address the major problems caused by winter storms and high winds – loss of power, telephone and cable services and damage to vehicles and buildings due to falling trees or limbs.

7.1 – Burlington, Village of

The Village of Burlington would like to establish a tree program (urban forestry) for the Village for maintenance and tree planting/conservation.

Year included in plan: 2009

Responsible agency: Village of Burlington

Deadline: Some work has been completed on this project but currently the village has no funding to finish or expand this project.

Cost: Approximately \$10,000 annually

Benefits: To mitigate potential damage during winter and spring summer storms due to high winds and or ice.

2015 Status Update: Installation of several trees around the main detention pond has been completed. As additional funds or grant funding becomes available this project will be expanded further.

7.2 – Lily Lake, Village of

The Village of Lily Lake has identified a need for a program to identify and estimate the age of prominent trees along Village roads and right-of-ways and investigate forestry maintenance programs suited to the needs of the Village. The program should also draft guidelines to the maintenance of trees within the Village and draft a tree maintenance

booklet addressing the care and maintenance of trees within the community. Review existing Village tree ordinances and offer amended ordinances, where required, for review by Village Board members. Establish an action plan to maintain trees and forested areas of Village property. Arbor Day will be observed through the planting of a tree species native to northern Illinois at a designated location within the Village Park.

Year included in plan: 2009

Responsible agency: The Lily Lake Plan Commission will appoint members to be part of the Village Tree Board. The Village Tree Board will review programs suited to urban forestry and recommend actions to the Plan Commission and the Village Board.

Deadline: Once funding is established implementation will be about one year.

Cost: A small budget, meeting the Tree City, USA requirements will be established for the distribution of information associated with the care of trees within the Village and community. A portion of the budget will be allocated to amending present tree ordinances. Estimated cost about \$2 per capita and staff time.

Benefits: Improvement of Village appearance as well as identifying trees that are possible hazards and could create additional problems during emergencies and disasters.

2015 Status Update: The Village currently does not have funding for this project but will continue to look for funding in order to become a Tree City USA recipient.

7.3 – West Dundee, Village of

The neighborhood tree trimming project has been ongoing under the supervision of the Public Works Department. This project, on a seven to eight year cycle, allows for every parkway tree within West Dundee to be examined, preventatively maintained (i.e. removal of dead or broken branches, obstructions removed and structural integrity analyzed) and hazardous trees to be identified and removed as needed. The program enhances the vitality of the urban tree canopy and limits the amount of roadway obstructions, debris and potential to damage property through branches being damaged in storm/ice events. The previous budgeted amount to conduct this program was \$50,000 a year. However, under the fiscally constrained budget, this program is no longer being funded. A limited amount is available to remove hazardous trees by a contractor in the event that staff cannot safely remove the tree. In the event that funding becomes available, this program will resume its scheduled activities.

Year included in plan: 2009

Responsible agency: Village of West Dundee Public Works Department

Deadline: Currently the village has no funding for this project. Once funding is identified the project will be incorporated into the Public Works department.

Cost: \$50,000 annually

Benefits: It maintains a healthy, green canopy of municipal, parkway trees. The Preventative Maintenance removes dead/broken/weak branches under controlled circumstances. Limits storm/severe weather breakage and roadway debris.

2015 Status Update: Program is ongoing. \$55,000 was approved for forestry related expenditures for the new/current fiscal year. Tree trimming by contract and by staff is a part of that in addition to tree removals, tree planting and stump grinding by contract and by staff.

7.4 – Pingree Grove, Village of

The Village is adding a tree/forestry program and in 2015 will be working towards a “Tree City USA” designation.

Year included in plan: 2015

Responsible Agency: Village of Pingree Grove

Deadline: The Village plans to have the Village designated as a “Tree City USA” community by the end of the year.

Cost: \$12,000

Benefits: To mitigate some of the potential problems during high wind incidents and ice storms.

Action Item 8. Flood Threat Recognition

Continue current funding of rain and stream gages throughout county. Review the gauging network, especially the western rural areas, to determine if additional rain and stream gages are necessary. This work would identify any potential new sites where gages would be most productive and estimate the cost of installing and maintaining them. Participate in the annual Stream Gage Cooperators’ meeting through the USGS, Fox River Coordinating Group with IDNR, and develop gaging capabilities as funding permits and projects call for additional capabilities.

Year included in plan: 2003

Responsible agency: Kane County Departments.

Deadline: Continue to monitor gage needs in Kane County, Participate in annual Stream Gage Cooperators’ Meetings, and evaluate gaging needs upon onset of all new hydrologic and hydraulic modeling projects.

Cost: Staff time

Benefits: Early recognition of an impending flood can save lives and prevent property damage. For example, 10 minutes of lead time could allow evacuation of a parking lot or installation of emergency protection measures. The data collected would also help in evaluating watershed plans and models and designing storm drainage works.

8.1 – Elburn, Village of

The Blackberry Creek Subdivision, located south of Keslinger Road and east of Rout 47, contains wetlands of considerable size. These wetlands are part of the natural drainage for the water from rain events for an area roughly bounded by Route 47 on the west, Pouley Road on the east, and Route 38 on the north. During very heavy rain events, this area can be taxed to the point of overflowing, and threaten flooding of homes at the far south end of Blackberry Creek Subdivision. To help mitigate the flooding threat, a dam was built during the initial construction phase of the subdivision. A spillway runs under Patriot Parkway. The water height at the dam is monitored by an electronic flood gage. The flood gage has been damaged by ice, and is no longer functioning, and needs to be replaced.

Year Included in plan: 2009

Responsible Agency: The Village of Elburn Public Works Department.

Deadline: Currently, the Village has no funding available for this project. Once funding is secured, the project should be completed within one year.

Cost: Unknown at this time. No quotes for replacement have been received.

Benefits: Monitoring of water levels at the dam in the wetlands area, would allow those residents living in the southern flood zone to receive adequate warning of potential flooding during heavy rain events.

2015 Status Update: This project is still viable, however, due to budgetary constraints, there is no funding available for FY 2015-2016. The project will be re-evaluated during the budgeting process for FY 2016-2017.

8.2 – Montgomery, Village of

There is a recurrent flooding problem in the Parkview Estates neighborhood in Montgomery from Waubonsie Creek. The Village would like to install a flood warning station to warn the Village of rising flood water and allow the Village to evacuate residents when necessary. The warning station would include a monitoring station and a SCADA (radio control) system to transmit data to the Village emergency responders.

Responsible Agencies: Village of Montgomery, Village of Montgomery Police Department, Illinois Department of Natural Resources, and U.S. Geologic Survey.

Deadline: Once the Village secures funding for this project the warning station could be set up within a year. Village staff will continue to look for funding sources and include this item in our annual budget proposal process.

Cost: \$25,000 to purchase and install the warning station and then yearly maintenance and operation costs of \$13,000.

Benefits: Establishing the Parkview Estates Warning Station would allow the Village to warn residents in advance of flooding events. This will allow evacuation of people and property in a timely manner to prevent harm to people and reduce damage to property.

2015 Status Update: The village does not currently have funding for this project but will actively look for available funding options.

Action Item 9. Improved Emergency Response

Conduct a review of emergency response plans and programs to:

- Ensure that each municipality has an emergency management coordinator or liaison.
- Identify where additional activities are needed to respond to natural hazards, especially activities that can be undertaken after a flood warning and before the flood arrives.
- Ensure there is adequate and current information on critical facilities.
- Incorporate post-disaster procedures for public information, reconstruction regulation and mitigation project identification.
- Conduct a table top exercise at least once a year
- Identify what rural areas could use additional warning capabilities.

Year included in plan: 2003

Responsible agency: Kane County Office of Emergency Management. Municipal leads to be designated by the municipality's adopting resolution.

Deadline: This action item will be continuous and should be reviewed annually by each jurisdiction. Jurisdictions should strive to improve overall emergency response to natural hazards.

Cost: Depends on project and Staff time

Benefits: Some communities have no plan and others are revising theirs. Very few have special procedures for natural hazards. An emergency response plan that has been

carefully prepared, that utilizes all available data on the hazards and their potential impact, and that is regularly exercised will greatly improve local disaster response capabilities.

9.1 – Batavia, City of

The City of Batavia has identified the need to replace the Wastewater utility SCADA system. The system provides day-to-day operating information. The system also provides emergency and system alarms. The system was partially installed in 2014 and will be completed with ongoing treatment plant improvements in 2017. The system is vital to ensure the safe and efficient operation of the City's wastewater utility.

Year included in plan: 2009

Responsible Agency: City of Batavia

Deadline: Fiscal year 2017

Cost: \$200,000

Benefits: Ensure safe and efficient operation of the City's wastewater utility.

2015 status: This action item originally included also replacing the electric and water utility systems. The electric system was completed in 2013 and the water system was completed in 2014. The Wastewater system is to be completed in combination with ongoing treatment plant improvements in 2017

9.2 – Big Rock, Village of

The Village will draft an Emergency Operations Plan

Year included in plan: 2009

Responsible Agency: The Village Board of Trustees will appoint a public safety committee. The committee will research, draft, and recommend a plan to the Board.

Deadline: December 31, 2012 depending on availability of staff and funding.

Cost: Estimated \$5 – 10,000 in legal and consultant review fees and staff time.

Benefits: Since the Village has discovered through the recent responses during flood conditions that the responses have been disorganized, the residents would be better served during emergencies if the Village adopted and followed an Emergency Operations Plan. The Village would

- Appoint an emergency management coordinator or liaison.

- Identify where additional activities are needed to respond to natural hazards, especially activities that can be undertaken after a flood warning and before the flood arrives.
- Ensure there is adequate and current information on critical facilities.
- Incorporate post-disaster procedures for public information, reconstruction regulation and mitigation project identification.
- Conduct a table top exercise at least once a year

2015 Status Update: Currently the Village does not have any funding for this project. The Village is looking for grants so that we can move forward on our project's

9.3 Campton Hills, Village of

There currently is no tornado warning siren system in the Village of Campton Hills. The village would like to install a warning system for the purpose of alerting the residents of approaching tornados. Several sirens will need to be installed to cover the Villages 17 square miles.

During the spring of 2015, the Village will complete the installation of the first early warning siren at Wasco Elementary School. The project will be completed with the assistance of School District 303, the Fox River and Countryside Fire/Rescue District, and the Cities of Service Grant provided to the Village through Bloomberg Philanthropies. The siren, valued at \$10,000, will be donated by Fulton Technologies and the installation, estimated at \$12,000-\$15,000, will be funded through the Cities of Service Grant. The siren is expected to serve well over 1,000 residents, two elementary schools, one Fire Station, the combined Village Hall/Police Station, and downtown Campton Hills businesses.

Fulton Technologies has agreed to donate the remaining sirens necessary to cover the entire 17 square miles of the Village. Due to funding constraints, the Village will not be able to complete the installation of these sirens in the immediate future but will continue its pursuit of grant funds to do so.

Year included in plan: 2015

Responsible Agency: Village of Campton Hills

Deadline: The first siren should be installed in the spring of 2015 with other sirens added to the system as funding becomes available.

Cost: \$15,000 for installation of each siren

Benefits: The warning system benefits the residents of Campton Hills by alerting them in advance of a tornado allowing them to seek shelter.

9.4 – Elgin, City of

Due to new annexations, identify and install all areas without storm siren coverage.

- Ensure that all areas are included when storm sirens are activated.
- Identify what areas are without coverage.
- Upgrade/retrofit older technology 7,000’ diameter siren buffer sirens with new 11,000’ diameter buffer technology sirens providing better coverage while reducing the overall number of sirens to maintain.
- Add solar and battery backup to all existing warning sirens and include same for new sirens.
- Purchase and install sirens in needed areas.

Year included in plan: 2009

Responsible agency: Elgin Fire Department has identified the locations and how many storm sirens are needed.

Deadline: 2015, pending budget allocations

Cost: Estimated to be over \$250,000.

Benefits: Currently, new annexations are not within coverage of storm sirens. By identifying the locations and installing storm sirens, citizens in those areas will be included in storm siren activation. By replacing some existing warning siren heads, pockets of housing previously not covered in the older parts of town will now receive sufficient warning coverage and overlap without cost of tower infrastructure.

2015 status update: This project was updated to include upgrading older technology and adding solar and battery backups. Cost estimates have also been updated.

9.5 – Elgin, City of

The City of Elgin EOC is located in the basement of city hall. Currently there is no radio signal in the EOC, there is no Wi-Fi access, and there is no technology for displaying critical display information in the room. The room is small and congested and is furnished with some folding tables and chairs. The EOC will be remodeled to include all new furnishings with computer classroom style tables and electric and Cat. 5 capabilities at every seat. A wall will be removed to enlarge the EOC by 260 square feet and 12 computers will be installed so the room can be utilized for training purposes. Four 42” monitors will be mounted to display weather status, police CAD, fire CAD, and other display information. A state of the art Smartboard will be installed at the front of the room and there will be 4 “consolettes” installed to provide direct communications with emergency dispatch center and the Incident Command Post. An additional 500 square foot room adjacent to the EOC will be set up as conference/breakout room.

Year included in plan: 2015

Responsible Agency: Fire Department will oversee the renovation through the Office of Emergency Management.

Deadline: Early 2015

Cost: Estimated to be approximately \$30,000

Benefits: the City of Elgin has been fortunate that it has not had to stand up an EOC yet. Part of the reason for this is that it lacked an adequately equipped facility. By enhancing the room with technology and communications capabilities the room will be activated when appropriate. The new design will allow the room to be utilized by all of City Hall as a functional classroom and Emergency Management training will be scheduled on a quarterly basis. These improvements will result in a safer and more efficient response to all hazards disaster responses.

9.6 – Gilberts, Village of

The McCornack Bridge allows light traffic over the Tyler Creek. It is not rated for heavy truck traffic including fire department apparatus. At this time, there are six occupied homes on this road. There is proposed a 600 unit residential and commercial development around this bridge, however the fire protection district is not in favor without an upgrade for the bridge. The village plans to upgrade the bridge to allow for heavier truck traffic including the fire departments vehicles.

Year included in plan: 2009

Responsible agency: Public Works Department

Deadline: The Village currently has no funding for this project. Once funding is established the project should take about two years.

Cost: \$600,000

Benefits: With an improved bridge, responding emergency vehicles could use McCornack Road without having additional response times to locations south of the bridge on Big Timber Road corridor.

2015 Status Update: The Village has not been able to fund this project but would still like to complete the work once funding is available.

9.7 – Hampshire, Village of

Establish a Citizens Emergency Response Team (CERT) to assist first responders with lower priority tasks such as staffing telephone banks, messaging, traffic control,

transportation (snowmobiles, small boats, canoes and pickup trucks) etc. as required by the first responders.

Year included in plan: 2009

Responsible agency: Village of Hampshire's Public Safety Committee, Hampshire Police Department, and the Hampshire Fire Protection District.

Deadline: Start the project in 2010 and have an on-going program

Cost: The start-up cost would be approximately \$ 5,000 to \$ 10,000 with an annual expense of between \$ 5,000 and \$ 10,000. Currently, due to economic constraints, there is no local funding available.

Benefits: The benefits of establishing a CERT program will provide citizens the training and knowledge to assist in a coordinated effort following large emergencies and disasters thereby reducing the overall effect of the incident.

2015 Status Update: The Village board is currently working with the Village Police Department and the Hampshire Fire Protection District to create the CERT program. the Village hopes to have a formal program established by the end of 2015.

9.8 – Hampshire, Village of

Install a solar and battery powered early warning siren for the purpose of alerting the Hampshire residents in the Northeast corner of the Village of tornado, severe storms and other potential weather related conditions.

Year included in plan: 2009

Responsible agency: The Village of Hampshire and to be radio signal activated by the Hampshire police department.

Deadline: The Village currently has no funding for this project. Once funding is established the project should take about a year.

Cost: \$17,211.00

Benefits: This will allow both the new Hampshire High School and the Gary D. Wright Elementary School at the intersection of Big Timber and Ketchum Roads as well as the residents of the Lakewood subdivision maximum audio volume from this warning device. There currently is a warning siren on the North/East side of the toll way but depending on prevailing wind conditions the toll way's height blocks the full effect of that siren.

2015 Status Update: Due to funding restrictions no action has been taken on this project.

9.9 – Montgomery, Village of

The village of Montgomery has identified the need for a third outdoor weather/emergency warning siren to cover newer residential areas on the west side of the community. There are currently two village-owned sirens in operation that work in conjunction with the City of Aurora emergency warning system to cover most of the village. With the expansion of residential areas to the west and south over the past decade, it was determined that our current mapped coverage area did not include all Montgomery properties. The new siren will be placed at 2525 Dickson Road at the Dickson-Murst Farm property, and will cover an area bordered generally by Lakewood Creek Drive, U.S. Route 30, IL Route 47, and the BNSF railroad in Bristol, IL.

Year included in plan: 2014

Responsible agency: Village of Montgomery

Deadline: The village has identified funding for the installation of the siren, and is working with vendors and contractors to initiate construction in 2014. The Village anticipates having the siren operational in 2015.

Cost: \$45,000

Benefits: The additional siren will provide coverage to all Montgomery properties and will work in conjunction with the existing sirens and City of Aurora system to provide early weather and emergency warnings to Montgomery residents.

9.10 – St. Charles, City of

The current Emergency Operations Center for the City of St. Charles is located in the basement of City Hall. It is cramped and floods during heavy rain events. Adequate space is not available for all radios, computers and other technology required to operate a functional center. The City is currently constructing a new Central Administrative Headquarters Fire Station and room was made available for an EOC. Money was allocated for basic construction costs to finish the space, however additional funding will be needed for outfitting the center.

Year included in Plan: 2009

Responsible Agency: Fire Department

Deadline: Upon completion of the building, approximately two budget years will be needed to acquire the radio equipment and antennas.

Cost: Total cost for construction and equipment is approximately \$325,000

Benefits: A new EOC will function as the command center during any emergency impacting the community. It will have dispatching capabilities and will be able to act as a back-up to Tri Com when called to do so. This will have the effect of providing seamless response during large scale events.

2015 Status Update: The building has been completed and some of the necessary communication and technology equipment has been purchased. Due to budget constraints there remains another year to complete the purchases of the necessary communication and technology equipment to realize the EOC's full potential.

9.11 – St. Charles, City of

The City of St. Charles plays host to a number of festivals, concerts, and other large gatherings in the downtown area. The largest of these can bring tens of thousands of people into the downtown during any particular day. Currently, there is no rapid method of disseminating information concerning impending severe weather or other threats to public health. The city would like to install an AM Radio Station in the EOC and the EOC can be staffed during these events and information can be passed rapidly to the vendors and attendees.

Year included in plan: 2009

Responsible agency: Fire Department

Deadline: about one year once funding is available.

Cost: \$35,000

Benefits: The Emergency Management Agency would be able to provide rapid information to those in attendance for festivals, concerts, and other gatherings on impending severe weather, sheltering locations, lost children and need for evacuation when called for. Other uses could be for the dissemination of general information in the broadcast area.

2015 Status Update: This project is still viable, however, due to budget constraints there is no funding available for Fiscal 2015/2016. The project will be re-evaluated during the budgeting process for Fiscal 2016/2017.

9.12 – Sugar Grove, Village of

The Village purchased a Federal Government FEMA Surplus Trailer that can be converted to a moveable temporary EOC Center. The Village intends to equip the trailer with communications equipment, emergency supplies, and other equipment.

Year included in plan: 2009

Responsible agency: Police Department

Deadline: About one year once funding is available.

Cost: \$25,000

Benefits: This trailer, once fully equipped will give the village flexibility in coordinating the village's response to natural hazards.

2015 Status Update: The Village has not been able to fund the communication equipment part of this project. Once funding is available it should take about a year to outfit the trailer.

9.13 – Virgil, Village of

There currently is no tornado warning siren in the Village of Virgil. The village would like to install a warning siren for the purpose of alerting the residents of approaching tornados. The siren would be radio signal activated by a member of the Virgil Village Board or by a Committee member.

Year included in plan: 2009

Responsible agency: The Village of Virgil

Deadline: Currently the village has no funding for this project. Installation should take about one year once funding is available.

Cost: \$25,000

Benefits: This will allow the residents of the Village of Virgil to be alerted in the event there is a tornado approaching the village area.

2015 Status Update: The village would still like to have a tornado siren but currently no funding is available for this project.

9.14 – Wayne, Village of

Currently, the Village Hall, Police Department, and Emergency Operations Center (EOC) are housed in one building. The structure is in the area of 100 years old and the largest room can hold no more than 15 people. There is no Village public building that can hold more than 15 people safely during a natural hazard incident, or the village's ability to address such an incident at the EOC. The village has identified the need for a new Police Station and EOC building.

Year included in plan: 2009

Responsible agency: Village of Wayne, Wayne Police Department

Deadline: Currently the village has no funding for the construction or outfitting of either facility. Once funding is acquired the project should be completed in two years

Cost: \$750,000

Benefits: By the Village building a new EOC and increasing the size of the facility the village will be more capable of providing command and control functions during incidents.

2015 Status Update: The Village reviewed this project and would still like to have a new facility for the Police Department and EOC. However funding has not been available for such a project.

Action Item 10. Flood Control Projects

Implement flood control projects, including farm drainage improvements and projects to improve bridges and culverts, where they prove to be the most appropriate approach to reduce flood damage. Such projects need to meet the criteria listed in Section 8.8, especially the first two – ensuring no adverse impacts on other properties and coordinating projects on a watershed basis.

Responsible agency: Kane County Departments, municipal public works departments, State, County and township transportation departments.

Year included in plan: 2003

Deadline: Each jurisdiction is encouraged to continue to implement and improve flood control projects.

Cost: The cost of each project will vary. This action item calls for ensuring the projects meet the criteria set in Section 8.8.

Benefits: The benefits of each project will vary. This action item calls for ensuring the projects meet the criteria set in Section 8.8. Several of those criteria assure that adverse impacts will not be transferred on to neighboring or downstream properties.

10.1 Aurora, City of

Woodlawn Avenue, Prairie Street, and Highland Avenue Storm Sewer Improvement Project – 5000 lineal feet of storm sewers ranging in size from 12” to 36” in diameter.

Year included in plan: 2014

Responsible Agencies: Public Works Department

Deadline: Work should be completed in 2015

Benefits: Completed project should reduce frequency of sewage backup into homes and businesses along with overflows into the Fox River and Indian Creek.

Cost: As bid cost: \$2,212,956.00

10.2 Aurora, City of

Charles – Harrison Sewer Separation Project - 2900 lineal feet of storm sewers ranging in size from 12” to 30” in diameter.

Year included in plan: 2014

Responsible Agencies: Public Works Department

Deadline: Work should be completed in 2015

Benefits: Completed project should reduce frequency of sewage backup into homes and businesses along with overflows into the Fox River and Indian Creek.

Cost: As bid cost: \$998,198.00

10.5 – Big Rock, Village of and Kane County

The Village is collaborating with Kane County’s Water Resource Department to conceptually study the drainage/flooding issues plaguing the Tenerelli Subdivision. The Village will determine a course of action upon reviewing the results of that study.

Year included in plan: 2009

Responsible Agency: The Village is the lead agency for the study/project. Kane County’s Water Resources is the coordinating agency. The Village’s Waste/Stormwater Committee is the contact and administrative agency.

Deadline: An RFP for the conceptual study will be submitted to consulting firms by September of 2009. The deadlines for actions resulting from the study are not known at this time.

Cost: The conceptual study is expected to cost \$5,000. The costs for actions identified by the study are not known but expected to be beyond the Village’s funding means.

Benefits: The Tenerelli Subdivision was developed prior to the adoption of the Kane County Stormwater Ordinance. The residents suffer with habitual ponding of water that jeopardizes the proper function of septic leach fields. During storm events, some residents cannot access their homes until the rising water recedes. The subdivision is bordered by undeveloped land with channel drainage that is choked with vegetation. This drainage channel empties into a deteriorating and undersized agricultural drain tile which carries the water from a 2,000 acres watershed to Welch Creek. On another side, the subdivision’s drainage system must accommodate the run-off from a major pass through highway with inadequate right of way drainage provisions.

The conceptual study will be performed by a licensed engineer approved by the Village and County. Any action taken as a result of the study will meet the criteria set in Section 8.8 designed to assure that adverse impacts will not be transferred to neighboring or downstream properties.

2015 Status Update: Currently the Village does not have any funding for this project. The Village is looking for grants so that we can move forward on our project's

10.6 – Big Rock, Village of

After the installation of the Water Reclamation Facility, the Village is researching the feasibility of assuming responsibility for and improving the existing tile line on the south side of the town center to mitigate drainage/flooding conditions in that section of town versus developing a separate nuisance flow system and improved roadway drainage.

Year included in plan: 2009

Responsible Agency: The Village Board of Trustees with the advice and administrative assistance from the Drainage Committee.

Deadline: The Water Reclamation Facility will not be operational until 2011. A study will be performed shortly thereafter to determine the feasibility of each action.

Cost: Unknown

Benefits: The South Side of Big Rock is currently underserved by the Rhodes Ave. trunk sewer line which has the capacity to accommodate additional lateral lines for road right of way run-off. The area is also served by an inadequate and deteriorating nuisance flow drainage system. But the system may be able to be replaced on a sectional basis over a period of years to drain flooded and ponding areas on the South Side.

2015 Status Update: Currently the Village does not have any funding for this project. The Village is looking for grants so that we can move forward on our project's

10.7 – Big Rock, Village of

Two subdivisions, Bergman Estates and Raymond Woods, have been newly annexed to the Village (April 2009). The road ways and yards of these residential areas suffer from severe ponding during heavy rains or storm events. The culverts and drainage ways are deteriorating and undersized. Since an adjacent area has been subdivided in preparation for residential development, the Village would like to extend the drainage measures that will be installed for the developing area to serve the adjacent areas.

Year included in plan: 2009

Responsible Agency: The Village Board of Trustees with the advice and administrative assistance from the Drainage Committee.

Deadline: At this time the village does not have funding for this project and a deadline can not be specified until funding is established.

Cost: Preliminary estimate, \$250,000 – \$500,000 for the initial phase.

Benefits: The roadways and driveways in these residential areas are often impassable during and after storm events. Further, ponding on residential property negatively impacts septic field function. A properly sized and functioning system would eliminate these ponding issues and the associated health risks. By coordinating the drainage measures with the adjacent developing property, a more comprehensive solution will be implemented that considers the needs for all of the residents in that area.

2015 Status Update: Currently the Village does not have any funding for this project. The Village is looking for grants so that we can move forward on our project's

10.8 – Big Rock, Village of

The residences and school on the North Side of Big Rock drain to an inadequate and deteriorating agricultural drain tile system. Because the cost to separate these “urbanized” drainage requirements from the agricultural drain tiles is currently prohibitive, an effort has been made to re-organize the drainage district that once regulated the tile system. However, Big Rock will eventually need to create a separate drainage plan for the residential, commercial, and institutional uses for the Route 30 corridor.

Year included in plan: 2009

Responsible Agency: The Village Board of Trustees with the advice and administrative assistance from the Drainage Committee.

Deadline: At this time the village does not have funding for this project and a deadline can not be specified until funding is established.

Cost: A preliminary engineering estimate placed the projects costs in excess of \$1.5 million dollars.

Benefits: The school property as the land locked depressional area holds water during any wet season and floods excessively in heavy rains and storm events. The residential properties and roadways flood in moderate to severe events. A properly sized and functioning system would eliminate these ponding issues and the associated health risks.

Additional Item: An alley behind homes on Main Street would flood when there were heavy rains. After televising the drain tile it was determined that the installation of a new manhole 25 to 30 years ago, damaged the drain tile and was not connected to the current drainage system. Removal of the damaged drain tile and installation of proper drainage lines have alleviated standing water and flooding issues previously experienced by the residents in this block of Main Street.

2015 Status Update: Currently the Village does not have any funding for this project. The Village is looking for grants so that we can move forward on our project's

10.9 – Carpentersville, Village of and East Dundee, Village of

L W Besinger Drive Stormwater Detention Facility. The current Meadowdale Mall was constructed in the late 1950's, prior to any stormwater detention requirements. The tributary area is about 90% impervious surface with fairly steep slopes, leading to intense stormwater runoff with no attenuation. This runoff has severely eroded the downstream drainage channel, in areas downcutting exists up to 10 feet deep and beginning to encroach near existing residential properties.

Year included in plan: 2009

Responsible Agencies: Village of Carpentersville and Village of East Dundee

Deadline: Currently, neither village has funding for this project and a deadline will depend on when funding becomes available. Estimated at 2 years after funding approval, for design, environmental permitting, land acquisition, and construction

Cost: \$2,000,000 estimated, including 4 acre land acquisition of vacant land, design, permitting, and construction costs

Benefits: The construction of a proposed 25-30 acre-feet stormwater detention basin will bring this site into compliance with current stormwater regulations, to significantly reduce or eliminate downstream channel erosion.

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.10 – Carpentersville, Village of

Sioux Avenue to IL RT 62 and along RT 62 Stormwater Detention and Storm Sewer Project The current drainage system is severely undersized, resulting in roadway overtopping of Sioux Avenue in a 2 to 5 year interval, and severe stormwater ponding on residential property in both the Village of Carpentersville and the Village of Barrington Hills. The existing storm sewer system is in an advance state of deterioration, resulting in a court ordered twice-annually cleaning and jetting program.

Year included in plan: 2009

Responsible Agencies: Village of Carpentersville Engineering and Public Works Departments

Department Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Estimated at 4 years after funding approval, for design, environmental permitting, land acquisition and construction.

Cost: \$1,670,000

Benefits: Benefits will include improved drainage, construction of stormwater detention facilities to reduce downstream discharge rates, and restoration of eroded areas.

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.11 – Carpentersville, Village of

Lake Marian Watershed - Alt. C1 Alameda Avenue Culvert Replacement and channel improvement (Alameda and Kings culvert replacements and channel improvements are part of same drainage issue, can be combined if funding available for both) The existing cast in place triple box cell culvert is in an advance state of deterioration. Severe erosion has occurred in the open stream, resulting in nearly vertical banks and near-undermining of an existing Village watermain. With the existing culvert, Alameda Avenue currently overtops at between the 25 and 50 year interval.

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Estimated at 2 years after funding approval, for design, environmental permitting, land acquisition and construction

Cost: \$251,000

Benefits: The acquisition of one home (included in cost estimate), the replacement of this culvert, and channel improvement upstream to the RT 25 storm sewer outfall will address condition, roadway overtopping, and streambank stabilization and naturalization issues

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.12 – Carpentersville, Village of

Lake Marian Watershed - Alt. C1 Kings Avenue Culvert Replacement (Alameda and Kings culvert replacements and channel improvements are part of same drainage issue, can be combined if funding available for both) Severe erosion has occurred in the open stream, resulting in nearly vertical banks, encroaching near residential properties. With the existing culvert, Kings Road currently overtops at between the 50 and 100 year interval.

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. *Estimated at 2 years after funding approval, for design, environmental permitting, and construction*

Cost: \$183,000

Benefits: The replacement of this culvert, and channel improvement upstream to Alameda Avenue culvert outfall will address condition, roadway overtopping, and streambank stabilization and naturalization issues

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.13 – Carpentersville, Village of

Lake Marian Watershed - Alt. C1 Algonquin Avenue Culvert Replacement Severe erosion has occurred in the open stream, resulting in downcutting and nearly vertical banks. Debris clogging of the existing undersized culvert resulted in roadway overtopping, roadway closure, and partial roadway washout in August 2007 storm event. With the existing culvert, Algonquin Road currently overtops at between the 25 and 50 year interval.

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. *Estimated at 2 years after funding approval, for design, environmental permitting, and construction*

Cost: \$342,000

Benefits: Severe erosion has occurred in the open stream, resulting in downcutting and nearly vertical banks. Debris clogging of the existing undersized culvert resulted in roadway overtopping, roadway closure, and partial roadway washout in August 2007 storm event. With the existing culvert, Algonquin Road currently overtops at between the 25 and 50 year interval. The replacement of this culvert will provide adequate drainage capacity to prevent overtopping and closure of the roadway

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.14 – Carpentersville, Village of

Lake Marian Watershed - Alt. S2 Keith Andres Park Check Dams Create 5 check dams and over 23 ac-ft of storage to reduce downstream runoff impacts, create stream crossing locations that would allow a more extensive network of trails within this 25 acre park

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Estimated at 2 years after funding approval, for design, environmental permitting, and construction

Cost: \$570,000

Benefits: Create 5 check dams and over 23 ac-ft of storage to reduce downstream runoff impacts, create stream crossing locations that would allow a more extensive network of trails within this 25 acre park

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.15 – Carpentersville, Village of

Lake Marian Watershed - Alt. B2 Keith Andres Park Riffle Pool Restoration / Enhancement

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Estimated at 2 years after funding approval, for design, environmental permitting, and construction

Cost: \$130,000

Benefits: Allow stream to reach dynamic stability by dissipating and distributing energy throughout the channel, reduce continued erosion of existing stream system.

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.16 – Carpentersville, Village of

Lake Marian Watershed - Alt. B3 or Z1 Keith Andres Park J-Hook Vanes (or) In-stream Grade Control Structures

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Estimated at 2 years after funding approval, for design, environmental permitting, and construction

Cost: \$295,000

Benefits: Improve creek sinuosity at desired locations by utilizing erosive velocities and reduce continued erosion of existing stream system.

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.17 – Carpentersville, Village of

Lake Marian Watershed - Alt. Z2 Skyline Avenue Gabion Embankment Stabilization

Year included in plan: 2009

Responsible Agencies: Village Engineering Department and Dundee Township Highway Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Estimated at 2 years after funding approval, for design, environmental permitting, and construction

Cost: \$253,000

Benefits: Protect Skyline Avenue embankment and structural stability of roadway from erosion and damage due to poor orientation of creek related to the outlet structure

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.18 – Carpentersville, Village of

Lake Marian Watershed - Alt. Z3 Skyline Avenue Debris Control Structure to improve protection of existing creek outlet structure under Skyline Avenue

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Estimated at 1 year after funding approval, for design, environmental permitting, and construction

Cost: \$50,000

Benefits: Prevent debris clogging and roadway overtopping problems

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.19 – Carpentersville, Village of

Four Winds Way Creek - FEMA restudy to determine new accurate flood elevations

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Study could begin within months after funding becomes available, with approximate study duration of 18 months, including FEMA concurrence

Cost: \$40,000

Benefits: This project is necessary due to massive erosion from 2007 storm event which significantly widened drainage channel, very likely resulting in lowered flood elevations and possibly remapping to remove some or all of the existing 22 homes from the floodplain.

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.20 – Carpentersville, Village of

Four Winds Way Creek - Riversview Drive culvert replacement

Year included in plan: 2009

Responsible Agencies: Village Engineering Department

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. Estimated at 2 years after funding approval, for design, environmental permitting, and construction

Cost: \$100,000

Benefits: Culvert was massively overtopped in 2007 storm event, resulting in some roadway damage and road closure for over a week. Culvert replacement to pass 100 year storm under roadway will address overtopping and closure issues

2015 Status Update: Due to funding restrictions no action has been taken on this project.

10.21 - Carpentersville, Village of

Carpenter Creek Reach #2 – Stabilization and Runoff Storage Project

Year included in plan: 2014

Responsible Agencies: Village of Carpentersville

Deadline: The Village recently received funding through the IEPA Section 319 grant program for bank stabilization and water quality improvements to a 1,500 linear foot stretch directly north of Maple Avenue of Carpenter Creek. The project is currently scheduled to commence in the spring of 2015 pending the design, environmental permitting, and land acquisition.

Cost: \$1,111,500

Benefits: This project will improve and stabilize the stream banks along Carpenter Creek as well as to enhance water quality in the area. In addition, the Village also desires to improve the channel conveyance and floodplain storage along a portion of this reach to potentially remove approximately 40 structures from the regulatory floodplain. The project was listed as the highest BOD reduction project within the Jelkes Creek-Fox River Watershed Action Plan.

10.22 - Carpentersville, Village of

Washington Street Bridge Culvert Replacement Project

Year included in plan: 2014

Responsible Agencies: Village of Carpentersville

Deadline: Currently the village has no funding for this project and a deadline will depend on when funding becomes available. However, a floodplain study has been completed and will need to be updated.

Cost: \$1,200,000

Benefits: This project is necessary to improve the conveyance of Carpenter Creek through the culvert as well as to reduce the regulatory floodplain adjacent to the project. Approximately 6 structures would be removed from the regulatory floodplain.

10.23 – East Dundee, Village of

The Village of East Dundee has experienced significant flooding adjacent to the McIntosh Creek watershed. All of the major crossings upstream from Van Buren Street experience frequent overtopping of the roadway causing a significant erosion control problems. The village has identified two areas where storm water detention facilities would greatly improve the quality of life for downstream residents and reduce the likelihood of property damage during exceptional rain events.

Year included in plan: 2009

Responsible Agencies: East Dundee Public Works

Deadline: Presently there is insufficient funding in the village budget to complete this project.

Cost: The estimated cost of construction including engineering is \$750,000. The estimate does not include land acquisition, which would be necessary. The village would need significant funding assistance to move forward on this project. It is recommended that the downstream detention area be constructed first as funding becomes available.

Benefits: The completion of this project will prevent or reduce flooding for the residents downstream.

2015 Status update: This Project has not moved forward do to the lack of funding resources. This is still a viable project for the Village of East Dundee.

10.24 – East Dundee, Village of

The Village of East Dundee has experienced significant flooding in the Terrace and Fox River Bluff Subdivisions. This area of the village has been developed in a bowl with no gravity storm sewer release. The storm water is infiltrated by drywell throughout the subdivisions. Since the drywells have limited infiltration rate the higher intensity storms result in much of the water bypassing the drywells and ending up in the lowest part of the bowl. This area is the rear yard of several homes and a park. The proposed project is to build a detention/infiltration pond to efficiently collect the excess storm water and hold it until the infiltration rate can exceed the inflow rates.

Year included in plan: 2009

Responsible Agencies: East Dundee Public Works

Deadline: Presently there is insufficient funding in the village budget to complete this project.

Cost: The estimated cost of construction including engineering is \$200,000. The estimate does not include land acquisition but the Dundee Park District has been contacted and they seem agreeable in concept and would likely grant an easement to the village. The village would need significant funding assistance to move forward on this project.

Benefits: The completion of this project will prevent or reduce flooding Terrace and Fox River Bluff Subdivisions.

2015 Status update: Currently the Village of East Dundee is working on Phase II design engineering with FEMA grant process. Final funding has not been awarded to the Village. The Village should receive notification on FEMA funding during the winter of 2015.

10.25 – Elburn, Village of

The northwest quadrant of Elburn (north of the Union Pacific Railroad Tracks and west of Route 47) is one of the oldest sections of the Village. The existing storm water drainage system is old. It was not built to handle storm water runoff from the number of residences and businesses that are tied into it. This means that the system is easily overwhelmed during, even moderately heavy, rain events. Adding to this problem are the existing drainage channels that run under the Union Pacific Railroad tracks. These channels are not large enough to completely accommodate the storm water runoff in the quadrant. The Elburn Public Works Department keeps the channels open as much as possible by regularly removing debris and blockages.

Responsible Agency: The Village of Elburn Public Works Department.

Deadline: When the property immediately south of the Union Pacific Railroad tracks is developed, the Village will require an improved storm water drainage and retention system.

Cost: Unknown at this time. The cost will ultimately have to be part of any future development of the area immediately adjacent to the south side of the Union Pacific Railroad tracks.

Benefits: Flooding of streets and basements in the northwest quadrant of the Village will be reduced significantly. The existing storm water drainage system will not be overwhelmed by moderately heavy rain events.

2015 Status update: This project is still viable, however, due to budgetary constraints for, and lack of commercial development in area, it is doubtful that any action can be taken on this project for FY 2015-2016. This project will be re-evaluated during the budgeting process for FY 2015-2016.

10.26 – Gilberts, Village of

The Village of Gilberts annexed land in 2005 on the north side of Binnie Road extending east from Galligan Road for approximately 2000'. This annexation included the previous township road known as Binnie Road. At the extreme east end of the annex roadway is a dip (depression in the roadway that will hide a vehicle for a few seconds) in Binnie Road that is bordered by a restrictive wetlands area prone to flooding in spring with snow melt and during significant rain events. The village continually asphalt patches the lowest point to keep a reasonable roadway surface. There exist field tile on the south side near the wetlands that is compromised at times and requires excavation and mechanical pumping to help alleviate the standing water.

The village would like to remove the existing roadway surface, install a series of engineered culverts, place road rock to an engineered height and then pave the new roadway raising the roadway out of the dip and out of the flood way.

Year included in plan: 2009

Responsible Agencies: Public Works Department

Deadline: The Village currently has no funding for this project. Once funding is established the project should take about a year.

Cost: \$450,000

Benefits: This would eliminate the roadway surface being submerged under flood water for any period of time. Emergency vehicles and normal traffic will be able to use the roadway at all times and travel much safer without the blind dip in the road.

2015 Status Update: The Village has not been able to fund this project but would still like to complete the work once funding is available.

10.27 – Maple Park, Village of

The Village of Maple Park is working on flooding issues, on the North side of Maple Park, near the water tower and the Heritage Hills Subdivision. Village engineers have begun mapping these areas where flooding occurs. The Village proposes to install new storm water sewer lines and catch basins in these areas; the water on the north side of town will then flow to a detention pond to the west or to the drainage ditch to the south, to allow the water to flow away from these areas. In the Heritage Hills subdivision, increase the size of the existing storm sewers to the north, add a new storm sewer line and catch basin to the south, this water will then flow out to Union drainage ditch #2

Year included in plan: 2009

Responsible Agencies: Village of Maple Park

Deadline: Presently there is no funding in the village budget to complete this project.

Cost: The estimated cost of this project is over \$500,000. At this time the Village does not have the resources to fund this project. Once funding is secured, the Village Engineer's will develop a specific plan for the project to go forward.

Benefits: This project will be beneficial to the surrounding homeowners that suffer basement flooding when heavy rainfall occurs. It will also benefit and alleviate flooding at the Well Pumping Station and Sanitary Sewer Lift Station.

2015 Status Update: In 2012, the village installed a storm drain at the NE corner of Elm & Broadway and also increased the size of the existing storm sewers in the Heritage Hills

subdivision. In 2013, the village installed a new storm drain at the NW corner of Broadway and Willow. In 2014, the village installed a new storm sewer line on Willow Street from Liberty to Green. Although this is a large amount of improvements for the area this will not completely solve the flooding issue. Currently the village does not have any funds allocated in the current budget for any additional improvements. As funding becomes available the village will continue to implement improvements in this area.

10.28 - Montgomery, Village of

The Montgomery Overflow of Blackberry Creek conveys flood water from Blackberry Creek to the Fox River in large flooding events. In normal conditions the area is drained by a 12 inch agricultural drain tile which is currently in disrepair and there is standing water through much of the overflow route. The Village proposes to replace the drain tile and restore drainage to the area allowing the soils to drain and restoring their water holding and infiltration capacity allowing the Overflow to function better in flooding events.

Responsible Parties: Village of Montgomery and Kane County

Deadline: Currently the Village has no funding for this project and a deadline will depend on when funding becomes available. The project can be constructed in phases with the first phase starting after funding is secured and the whole project completed within two years of funding.

Cost: \$100,000 for replacement of approximately 4500 feet of 12 inch drain tile

Benefits: By replacing the drain tile normal drainage can be restored to the Montgomery Overflow area. This will restore the capacity of the soils for infiltration allowing the Overflow to function better in flooding events. Restoring normal drainage to the area will also allow the agricultural lands to be farmed and reduce the impacts that high water tables have had on surrounding residential areas.

2015 Status Update: The Village has looked at this project during the 2015 update and decided that the project is still a good project but currently no funding is available for the project.

10.29 – Montgomery, Village of

In the spring of 2013, residents of the Lakewood Creek West subdivision whose homes back up to a large parcel of ComEd right-of-way experienced basement flooding after a 5.5” rain event within 24 hours. During heavy rains the low-lying ComEd depressional filled with storm water runoff which rose to within 6” – 12” of ground level door thresholds. Although water did not flow directly into the homes, the high water levels and increased burden placed on sump pumps caused basement flooding in adjacent homes. The Village Engineer and Public Works staff developed a 3 phase plan for reducing the elevation of stored storm water. Phase I will include the upsizing of detention basin restrictor plates at downstream detention basins to allow improved

passage of storm water. Phase II will be the installation of a 24 inch storm sewer to bypass the ComEd depressional storage area and transmit the storm water to the existing Lakewood West detention basin system. Phase III will be the construction of a secondary storm sewer outfall through the adjoining Lakewood Creek storm sewer/detention system.

Year included in plan: 2014

Responsible agency: Village of Montgomery

Deadline: The village Public Works staff completed the Phase I improvements in the Fall of 2013 for \$15,000. The Village will monitor the area to determine the level of improvement achieved by the Phase I changes, and will look to secure funding for Phase II and Phase III improvements, with installation to take place in the appropriate budget year following fund appropriation.

Cost: Phase I: \$15,000, Phase II: \$115,000, Phase III: \$22,000, Total \$152,000

Benefits: Phase I improvements increased detention release rates without causing downstream high water issues, which allowed for a larger volume of available detention within the Lakewood West basin system. Phase II and III improvements will allow positive drainage paths that will greatly reduce or eliminate the storage of storm water runoff in the ComEd right-of-way.

10.30 – Sleepy Hollow, Village of

The village has experienced flooding in the area along Sleepy Creek between Winmoor Drive on the west and Locust on the east and Sycamore on the north and Willow on the south. Correcting this situation will require re-grading of existing swale and storm drainage as well as possible repair, replacement or removal of existing dams.

Year included in plan: 2009

Responsible Agencies: Board of Trustees/Village Engineers and Public Works

Deadline: The Village does not currently have funding for this project.

Cost: \$750,000

Benefits: resolve repeated flooding of property within the described boundaries.

2015 Status Update: The Village does not have the funding, but still desires to complete this project.

10.31 – Sleepy Hollow, Village of

The village has experienced flooding in the area along Jelkes Creek between Sleepy Hollow Road on the west and Bullfrog Lane on the east and Route 72 on the north and Boncosky Road on the south. Critical facilities in this area, which experience flooding, include the Village Hall, Village Police Department, Village Public Works and the Rutland-Dundee Fire Protection District fire station. This will require possible remeandering of the creek along with increasing the height of the bank downstream as well as establishing additional detention/retention along with swale and drainage re-engineering.

Year included in plan: 2009

Responsible Agencies: Board of Trustees/Village Engineers and Public Works

Deadline: The Village does not currently have funding for this project.

Cost: \$1,250,000

Benefits: resolve repeated flooding of property within the described boundaries including the critical facilities listed above.

2015 Status Update: The Village does not have the funding for this project but still desires to complete this project.

10.2. Public Information Strategy

Action Item 11. Hazard Mitigation Materials

Prepare background information, articles, and other explanations of hazard mitigation topics, including:

- The natural hazards that threaten Kane County
- What the sirens and warnings mean
- Safety and health precautions
- What government agencies are doing and how they can help
- The hazard mitigation benefits of preventive measures
- The procedures that should be followed to ensure that new developments do not create new problems.
- The need to protect streams and wetlands from dumping and inappropriate development.
- The hazard mitigation benefits of restoring agricultural drainage and rivers, wetlands and other natural areas.

These materials are to be provided to County, municipal, school, and private offices for use in presentations, newsletter articles, webpages, brochures and other outreach projects.

Year included in plan: 2003

Responsible agency: Kane County Office of Emergency Management, Water Resources Department, and municipalities. The Red Cross should provide technical advice.

Deadline: Each jurisdiction is encouraged to continue to develop materials for the public on natural hazard mitigation strategies and then use the materials for action item 12. Outreach Projects, listed below.

Cost: Staff time

Benefits: By preparing a master set of locally pertinent articles and materials, each interested office only has to select the most appropriate media and distribute the messages. By simply inserting an article in a newsletter or putting it on the website, the local level of effort is greatly reduced, which increases that likelihood that the messages will get out. The messages will also be technically correct and consistent throughout the County.

Action Item 12. Outreach Projects

Prepare and disseminate mitigation information based on the materials provided under action item 11. Such projects should include articles in newsletters, news releases, directed mailings, handouts, websites, and displays. Different media should be used for the following audiences:

- The general public
- Floodplain residents
- Developers and builders
- Farm owners and operators
- Decision makers
- Schools and teachers

Provide building departments, libraries and other interested offices with a list of references on property protection. Include a request that they make the references available for public use. A special effort should be made to identify references on insurance, flood proofing and other methods of flood protection.

Year included in plan: 2003

Responsible agency: Kane County Office of Emergency Management. Municipal leads to be designated by the municipality's adopting resolution. The Red Cross should also participate.

Deadline: Each jurisdiction is encouraged to continue implementing outreach projects and provide mitigation information to the public

Cost: Most projects will only cost staff time, such as newsletter articles and websites. Others, such as directed mailings and brochures, will have printing and/or postage expenses.

Benefits: There are many benefits to having a well-informed public. For example, deaths from lightning have steadily decreased over the years because people are more aware of what they should and should not do. More self-help and self-protection measures will be implemented if people know about them and are motivated to pursue them.

10.3. Administrative Action Items

This section reviews the additional action items that are needed to administer and support the recommendations of the two previous sections.

Action Item 13. Plan Adoption

Adopt this *Natural Hazards Mitigation Plan* by passing a resolution. The County's resolution creates the Mitigation Coordinating Committee which is described in the next action item. The municipal resolutions adopt each action item that is pertinent to the community and assigns a person responsible for it.

Year included in plan: 2003

Responsible agency: County Board, Village Boards and City Councils

Deadline: With each update of the plan the county and participating jurisdictions will need to adopt or re-adopt the updated plan within one year of tentative plan approval from FEMA.

Cost: Staff time

Benefits: Formal adoption of the plan ensures that County and municipal staffs are authorized and instructed to implement the action items. Adoption is also a requirement for recognition of the plan by mitigation funding programs and the Community Rating System.

Action Item 14. Mitigation Coordinating Committee

The Natural Hazards Mitigation Planning Committee has been converted to a permanent advisory body in the County's original resolution to adopt this *Plan*. The Committee:

- Act as a forum for hazard mitigation issues,
- Disseminate hazard mitigation ideas and activities to all participants,
- Monitor implementation of this Action Plan, and

- Report on progress and recommended changes to the County Board and each municipality.

The Committee does not have any powers over staff or the municipalities. It is purely an advisory body. Its primary duty is to collect information and report to the County Board, the municipalities, and the public on how well this *Plan* is being implemented. Other duties include reviewing mitigation proposals, hearing resident concerns about flood protection and related matters, and passing the concerns on to the appropriate entity.

The Mitigation Committee is, in effect, Kane County's hazard mitigation conscience, reminding the member agencies and municipalities that they are all stakeholders in the plan's success. The resolution charges it with seeing the *Plan* carried out and recommending changes that may be needed. While it has no formal powers, its work should act as a strong incentive for the offices responsible for the action items to meet their deadlines.

Year included in plan: 2003

Responsible agency: The Kane County Development and Community Services Department, Division of Transportation, Environmental and Water Resources Division, GIS Technology Department, and the Office of Emergency Management as well as a representative from each participating jurisdiction.

Deadline: The yearly report is due to the County Board in December of each year. The reports should also be made available to all participating jurisdictions. An annual evaluation of the plan's implementation is required for credit under the Community Rating System. A five year update is required for continuing credit of this *Plan* under the Community Rating System and FEMA's mitigation funding programs.

Cost: Staff time.

Benefits: Those responsible for implementing the various recommendations have many other jobs to do. A monitoring system helps ensure that they don't forget their assignments or fall behind in working on them. The *Plan* should be evaluated in light of progress, changed conditions, and new opportunities.

Action Item 15. Community Rating System

Host a workshop to review floodplain management activities currently undertaken and those recommended by this *Plan* (see the paragraphs on CRS credit at the end of the discussion of each mitigation measure in chapters 4 – 9). Participants will determine whether to apply for a Community Rating System flood insurance premium rate discount. If so, they would submit an application.

Year included in plan: 2003

Responsible agency: Kane County Departments. Municipal leads to be designated by the municipality's adopting resolution. Technical support and a workshop can be provided by the Insurance Services Office.

New Deadline: This action item will be continuous.

Cost: Staff time.

Benefits: There are many benefits to CRS participation, as explained in the document, *CRS Application*. In addition to saving residents money, it has been shown to provide an effective incentive to implement and maintain floodplain management activities, even during times of drought.

10.4 Action Items Completed Since the 2009 Update

Mitigation projects completed from Action Item 1. Building Code Improvements

1. Geneva, City of

The City of Geneva will review the 2009 I-codes for amendments and adoption.

Benefits: Benefits will include improved construction of facilities, consistent application of the codes.

The City of Geneva adopted the 2009 International Building Code in June of 2011.

Mitigation projects completed from Action Item 9. Improved Emergency Response

1. Batavia, City of

The City of Batavia has identified the Public Works facility as being vital to emergency operations. The existing emergency backup generator within the facility is insufficient to support all tasks necessary for emergency operations. The existing generator will be replaced with a larger natural gas powered unit.

Benefits: Provide backup power source for Public Works facility in support of emergency operations.

The City completed this work in 2011

2. Carpentersville, Village of

Currently the village Emergency Operations Center (EOC) is located in the Police Department and doubles as the Departments Roll Call room. Anytime the room is activated, phones, computers, tables, chairs, and other supplies are assembled. The Village has plans for a new Public Works facility where an EOC will be added to the basement area. Currently the Village collects approximately \$5,000/year for the ESDA operating budget. Any grant money would be used to supplement this amount.

Benefits: Reduce the impact of natural and man-made disasters and emergencies to the community due to increased response capability. The EOC can be a vital resource in coordinating the Village's response to provide the highest level of service to the community. The EOC will then be fully outfitted with radios, computers, phones, and other supplies in a "ready" state.

The Village constructed the public works facility and established an EOC within the facility in 2013.

3. Geneva, City of and all municipal jurisdictions in the county.

The county had a committee of building department officials from each municipality. For the most part this committee has ceased to exist. The committee worked on common building department issues including mutual aid of building officials for emergencies and disasters. The lead agency for this committee has been the city of Geneva Building Department. It has been determined that this committee should be resurrected.

Benefits: Benefits will be unified structure for requesting and receiving help from other communities in the event of natural hazards.

The local municipalities started to meet again monthly back in 2012. Starting in February of 2015 all local municipalities are reviewing the 2015 I codes as a group for possible adoption.

4. Pingree Grove, Village of

The village of Pingree grove has identified a need for outdoor warning sirens within the village. In 2008 the village installed its first warning siren on Reinking Rd to serve the residents of the Heritage District and Cambridge Lakes South area of the village. A second siren is needed for the Cambridge Lakes North area. This area is bordered by Rt. 47, Rt. 72, and Big Timber Rd. The planned siren would be consistent with the specifications of the current siren and would be installed based on the Village Engineer's recommendations for maximum coverage.

Benefits: This type of warning system greatly benefits the residents of Pingree Grove by alerting them in advance of severe weather allowing them to seek shelter and a place of safety

The Village of Pingree Grove installed the storm sirens in 2013

5. South Elgin, Village of

The Village of South Elgin has had several major flooding events affect its residents in the past several years. The village would like to improve the response time for sandbagging operations and increases the overall sandbagging effort for the residents. The village has identified a need to purchase a four-chute sandbagging machine to address this issue.

Benefits: The purchase of this sandbagging machine should expedite the filling of sandbags for residents and it is expected the response time of filled sandbags to the affected area will improve.

The Village of South Elgin purchased the four-chute sandbagging equipment in 2010.

6. West Dundee, Village of

Historically, the Village of West Dundee has provided itself with a part-time Emergency Management Agency (EMA) Coordinator. This position was incorporated into the job description of the Deputy Fire Chief, which also was a part-time position. Due to fiscal restraints and the current state of economic affairs with the Village, the position of Deputy Chief has been eliminated and not replaced. However the village would like to establish an EMA coordinator as soon as the financial situation allows.

Benefits: The position would be responsible for the coordination of the Village's Emergency Operations Plan with the departments of Administration, Community Development & Building, Fire, Police and Public Works. The Part-Time EMA Coordinator would be tasked with the revision and development of a Village of West Dundee Emergency Operations Plan, incorporating the guidelines and practices of the National Incident Management System. The function of the EMA Coordinator would be the preparation of all Village Departments in the event of a natural and/or man-made disaster; and to coordinate the efforts with the surrounding municipalities of Carpentersville, East Dundee, Elgin, Gilberts, Sleepy Hollow as well as the Kane County Office of Emergency Management.

The Village has secured a part-time EMA Coordinator; however not at the proposed compensation rate.

7. West Dundee, Village of and Carpentersville, Village of

Administrative staff has met with our equivalents from Carpentersville to discuss the possibility of a water system interconnect. Carpentersville's west water tower is in need of routine maintenance, including cleaning and painting. However, without that tower, their water distribution system would have a difficult time maintaining adequate water

pressure through the western half of their Village. West Dundee will face similar obstacles when the Randall Road Water Tower is serviced in the future. A resolution for both communities needs would be to interconnect each Village's water systems. This would allow for one community's tower to be taken out of service and then utilize the other community's tower to maintain their system's pressures. The interconnect would be utilized only during times of tower maintenance, high fire volume flows or in response to a catastrophic event. Pending approval by the two communities, construction would be in 2010 with the interconnect available for use by spring, 2011. The estimated cost for this project would be split between the two communities.

Benefits: This project will provide emergency access to adjacent community's water supply in the event of extended high fire flows, catastrophic event of reservoir supply (tower failure) or extended disruption of water production capability. Also, this project will enhanced the ability to perform preventative maintenance on existing water distribution/production system with little to no impact on maintaining current and required water system pressures.

This project has been completed.

Mitigation projects completed from Action Item 10. Flood Control Projects

1. Algonquin, Village of

Ratt Creek Tributary adjacent to Edgewood Drive. The existing channel is subject to high velocities and severe erosion has occurred in the open stream resulting in severely sloped banks and potential undermining of Edgewood Drive and Harper Drive. The Village has developed Streambank Stabilization plans for the above reach of Ratt Creek Tributary to stabilize the channel and protect adjacent roadways.

Benefits: The proposed improvements will stabilize the Ratt Creek Tributary streambank and ultimately protect Edgewood Drive and Harper Drive.

The Village of Algonquin has completed this project.

2. Aurora, City of

The City of Aurora has experienced flooding upstream of Illinois Avenue in a drainage from Greenfield Lake to Orchard Lake. The city has identified the cause of this flooding to be undersized culverts under Illinois Avenue. The undersized culverts need to be replaced.

Benefits: Replacement of the undersized culvert should alleviate the flooding.

Completed on 08-27-11 with a final cost of \$228,972.00

3. Aurora, City of

The City of Aurora is proposing to construct storm sewers within sewer basins 5, 6, and 13. The improvements are as follows:

2.1 Basin 6 Fulton, Smith, and Fenton St. Storm and Sanitary Sewer Improvements – which consists of approximately 6,800 lineal feet of storm sewers ranging in size from 12” to 42” in diameter.

Completed on 4-21-11 with a final cost of \$1,452,066.81

2.2 Basin13 River St Sub Basin Storm Sewer Improvements Phase 2 - which consists of approximately 3,900 lineal feet of storm sewer ranging in size from 6” to 27” in diameter.

Completed on 10-5-10 with a final cost of \$307,436.86

2.3 Basin13 River St Sub Basin Storm Sewer Improvements Phase 3 - which consists of approximately 7,800 lineal feet of storm sewer ranging in size from 12” to 26” in diameter.

Completed on 12-10-10 with a final cost of \$2,046,580.07

4. Aurora, City of

The City is in the process of preparing a CSO LTCP that will be used as a planning tool to decrease the frequency of combined sewage overflows into the Fox River and Indian Creek. The plan is a requirement listed in the City’s CSO NPDES permit.

Benefits: Completed project should reduce frequency of sewage overflows into the Fox River and Indian Creek.

The preparation and review of the LTCP was completed in July of 2010.

5. Batavia, City of, Geneva, City of & Kane County

Kane County and the cities of Batavia and Geneva have identified that flooding occurs near and along the Braeburn Marsh during heavy rain events. The City has contracted with a consultant to model the watershed and identify flood mitigation projects for the area. Once the mitigation projects have been identified the city will prioritize the projects and start construction; assuming funding will be available from the city or grants are obtained.

Benefits: To prevent or reduce future flooding in the Braeburn and Crestview Subdivisions.

The study for this item was completed in 2010/2011 and the construction was completed in 2012/2013

6. Batavia, City of

The City of Batavia has identified the need to reconstruct the Carriage Crest sanitary lift station. The station serves approximately three hundred acres with a flow of 2,100+/- P.E. The station was constructed in 1968 and is nearing the end of its useful life. Failure of the lift station would result in sanitary sewer overflows. The Carriage Crest Lift Station is located within the Crestview subdivision. Depending on the results of the ongoing Braeburn March drainage study, the lift station may be reconstructed to include a separate storm water lift station.

Benefits: To prevent sanitary sewer overflows. To reduce groundwater levels.

The construction for this action item was completed in 2010/2011

7. Burlington, Village of

To alleviate flooding on the east side of the Village of Burlington wants to improve the drainage from the south side of the railroad tracks to the north side of the railroad tracks. This work would involve replacing drainage tile that has been in place under the railroad since the late 1890's and replace the section of tile on the north side of the tracks, going under the abandoned grain mill and continuing to the north east that is collapsing.

During 2008 the Village undertook steps to assess the condition of the drainage tile after experiencing backup flooding in the eastern area of the Village. Portions of this tile were televised and the collapsing state of the tile was seen. Further improvements would include a grate over the opening of the tile on the south side of the tracks and drainage improvements/replacement of drainage tile.

Benefits: to alleviate damages to businesses, homes, well and property in the Village of Burlington.

In 2013, the Village of Burlington completed this project using grant money.

8. Campton Hills, Village of

During extended wet weather or major storms extensive flooding occurs along Denker Road in the area of the Vestuto property. This flooding creates a wash –out of Denker Road closing the road to traffic affecting 750 vehicles per day. The adjacent property is also being flooded. To elevate these problem 2-24 inch culverts will need to be placed to increase conveyance of 345 cfs of flow. Additional re-grading of Denker Road and the driveway approach to the private residence and ditch grading will also need to be completed.

Benefits: This project would eliminate additional ongoing costs needed to keep the road open, allow access to emergency vehicles and the citizens of the village, and prevent or reduce flooding to the adjacent property.

This project was completed and the Village has not had any more issues up to the present, within this area causing road closures or flooding of nearby residences.

9. Sleepy Hollow, Village of

The village has identified Saddle Club subdivision and Deer Creek subdivision water shed area as having flooding problems. The village would like to Re-engineer and re-grad swales and storm drainage along with resizing and replacement of culverts.

Benefits: Resolve repeated flooding of streets and property within the described boundaries.

This project was completed in 2012.

10. South Elgin, Village of

Within the Village of South Elgin the area in and near the Renee Detention Pond floods during large rain events. During the September 13, 2008 rain event, the village received 9.38 inches of rain and as a result of this event the village initiated an immediate storm water study in the area resulting of a regional solution to the problem. The village will install a 36 inch storm sewer on Kane Street to carry the storm water from the Kane Street Detention Pond straight to the Fox River thereby avoiding the nearby neighborhood. Rear yard storm sewers will be constructed on Martin Drive between Spring Street and Kane Street. Residents will be allowed to hook up to the new storm sewers once constructed. Other area improvements such as more inlets on the area streets for drainage will be constructed as well as improvements on the Renee Detention Pond.

Benefits: By installing the 36 inch storm sewer and other improvements in the area the amount of storm water moved out of the area directly to the Fox River will be increased, thereby preventing or reducing future flooding in the area.

The Village of South Elgin completed the 36" storm sewer in 2011. This sewer has greatly improved the capacity of the storm sewer system as well as making several neighborhoods safer during storm events due to the elimination of street flooding.

10.5 Action Items Removed at the Jurisdictions Request since the 2009 Update

Action Items removed from Action Item 11. Flood Control Projects

1. Carpentersville, Village of

Lake Marian Watershed - Alt. S1 Keith Andres Park Class II Dam Installation

Plan Maintenance Checklist

We are in the process of conducting our annual evaluation/status update for our Multi-Jurisdictional Hazard Mitigation Plan. Please review the following tasks and complete and return this checklist along with the necessary forms. If you have any questions, please let us know.

Jurisdiction: _____

Prepared By: _____

Title: _____ Date: _____

TASK 1: DAMAGE INFORMATION

Has your jurisdiction sustained any natural hazard-related damages to critical facilities and infrastructure within the last year?

☐ Yes ☐ No ☐ Don't Know

If Yes, please complete and return the attached critical facilities damages questionnaire.

TASK 2: STATUS OF EXISTING PROJECTS/ACTIVITIES

Please look over the attached Mitigation Action Tables for your jurisdiction and determine whether any of the mitigation projects/activities listed have been completed or are in progress (in the planning stages.)

Does your jurisdiction have any mitigation projects/activities in progress (in the planning stages) or completed?

☐ Yes ☐ No

If Yes, please fill out and return the attached Mitigation Action Progress Report for each project/activity that has been completed or is in progress.

Has your jurisdiction undergone any changes in priorities within the last 12 months that would impact the implementation of the listed mitigation projects/activities?

☐ Yes ☐ No

If yes, please detail the changes in priorities.

Plan Maintenance Checklist

TASK 3: IDENTIFICATION OF NEW PROJECTS/ACTIVITIES

Are there any new mitigation projects/activities your jurisdiction would like to see add to the Plan? (Remember, only projects included in the Plan are potentially eligible for federal mitigation projects funding.)

☐ Yes ☐ No

If yes, please complete and return the attached New Mitigation Project Form.

TASK 4: JURISDICTION EVALUATION

Have there been any significant changes in development in your jurisdiction within the last 12 months (i.e. expansion of existing businesses, siting of new businesses, new subdivision development, or expansion of existing subdivisions, demolition of businesses/residents to create green spaces, etc.)

☐ Yes ☐ No

If yes, please specify the type of development changes.

Has your jurisdiction adopted any new/updated policies, plans, regulations, or reports (i.e., comprehensive plans, building codes, zoning ordinance, etc.) that could be incorporated into this Plan?

☐ Yes ☐ No

If yes, please provide the name of the policy, plan, regulation, or report and its purpose.

Were any components of the Hazard Mitigation Plan (i.e., mitigation actions, vulnerability analyses, etc.) integrated into any new/updated policies, plans, regulations, or reports (i.e., comprehensive plans, building codes, zoning ordinance, etc.)?

☐ Yes ☐ No

If yes, please provide the name of the policy, plan, regulation, or report and what component(s) of the hazard mitigation plan were integrated.

Plan Maintenance Checklist

TASK 4: JURISDICTION EVALUATION CONTINUED...

Do any new critical facilities or infrastructure need to be added to your jurisdiction's Critical Facilities Survey?

☐ Yes ☐ No

If yes, please provide the name and address of the facility.

What are your plans for sharing information on the Plan and its annual progress with your jurisdiction and constituents (i.e., informal presentation at board/council meeting, posting update to social media or website, etc.)?

Critical Facilities Damage Questionnaire

Supplemental information about ***damages to critical infrastructure/facilities*** (i.e., government buildings, schools, communication towers and radio equipment, water & sewer treatment facilities, hospitals, medical centers, etc.) that have ***taken place*** in the participating jurisdictions and County is needed for the risk assessment/vulnerability analysis portion of the Plan. If you could take a moment and think about the critical infrastructure damages caused by past natural hazard occurrences and provide any available information in the form below, it would be greatly appreciated.

Please complete one record for each natural hazard event that damaged a critical facility. Do not combine multiple events on one record. Additional forms are located on the back of this page. Please return the completed form(s) to Andrea or Zak. Thank you!

Jurisdiction: _____

Prepared By: _____ Date: _____

1.) Date of Event (month/day/year if possible): _____

2.) Critical Facility Damaged: _____

3.) Type of Hazard:

- | | | |
|--|---|--|
| <input type="checkbox"/> thunderstorm
(straight-line winds) | <input type="checkbox"/> tornado | <input type="checkbox"/> landslide |
| <input type="checkbox"/> hail | <input type="checkbox"/> snow storm | <input type="checkbox"/> sinkhole |
| <input type="checkbox"/> lightning strike | <input type="checkbox"/> ice storm | <input type="checkbox"/> mine subsidence |
| <input type="checkbox"/> heavy rain | <input type="checkbox"/> extreme cold | <input type="checkbox"/> earthquake |
| <input type="checkbox"/> flood | <input type="checkbox"/> drought | <input type="checkbox"/> levee failure |
| | <input type="checkbox"/> excessive heat | <input type="checkbox"/> dam failure |

4.) Types of Damages: _____

5.) Estimate of Damages: \$ _____

Mitigation Action Progress Report

As part of the Plan Maintenance “monitoring” phase, the implementation status of each project and activity listed in the Plan for the participating jurisdictions needs to be identified.

- 1) Please review the Mitigation Action Tables provided for your jurisdiction to determine whether any of the projects/activities listed have been **“Completed”** or are **“In Progress”** (in the planning stages.)
- 2) For each project or activity that is **“Completed”** or **“In Progress”**, please fill out the following Progress Report.

Jurisdiction: _____

Prepared By: _____

Title: _____ Date: _____

Progress Report Period	From Date:	To Date:
Project/Activity Description		
Responsible Agency		
Project Status	<input type="checkbox"/> In Progress <ul style="list-style-type: none"> <input type="checkbox"/> Approved by Council/Board <input type="checkbox"/> Included in Capital Improvement Plan/Slated for Construction & Implementation <input type="checkbox"/> Grant Completed & Submitted <input type="checkbox"/> Letting/Contractor Selected <input type="checkbox"/> Notice to Proceed Issued <input type="checkbox"/> Construction Underway <ul style="list-style-type: none"> <input type="checkbox"/> Anticipated Completion Date: _____ <input type="checkbox"/> Other (please specify): _____ <input type="checkbox"/> Completed <input type="checkbox"/> Project Delayed <input type="checkbox"/> Project Cancelled	

SUMMARY OF PROJECT PROGRESS FOR THIS REPORT PERIOD

What was accomplished during this reporting period for this project?

Were any obstacles, problems or delays encountered? ☐ Yes ☐ No ☐ Don't Know

If Yes, please describe:

If the project was delayed, is it still relevant? ☐ Yes ☐ No ☐ Don't Know

If Yes, should the project be changed/revised?

Other comments:

New Hazard Mitigation Projects Form

Multi-Jurisdictional Hazard Mitigation Plan

Participating Jurisdiction _____

Prepared by: _____

Title _____ Date: _____

	Project Description	Position/Organization Responsible for Implementation & Administration of the Project <i>(i.e. Mayor / City Council; Public Works Director; Fire Chief / Board of Trustees)</i>	Time Frame to Complete the Project <i>(i.e. 1 year; 5 years; 2-5 years)</i>
1.			
2.			
3.			
4.			

