CARROLL COUNTY

MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN



CARROLL COUNTY
BOGARD
CARROLLTON
DEWITT
HALE
NORBORNE
CARROLLTON R-VIII
TINA-AVALON R-II

CONTRIBUTORS

Carroll County Hazard Mitigation Planning Committee

Jurisdictional Representatives

Name	Title	Department	Jurisdiction
Charles Pence	Carroll County Commissioner	County Commission	Carroll County
Chris Jacobs	Mayor	City Government/School District	City of Hale/Hale R-I School District
Stan Falke	Carroll County Presiding Commissioner	County Commission	Carroll County
Keith Higgins	Mayor	City Government	Carrollton
Bill Jackson	Citizen	City Government	City of DeWitt/MiDe Levee District
Jennifer Courtney	Superintendent	School District	Norborne R-VIII School District
Dr. Tinna Croy	Superintendent	School District	Carrollton R-VII School District
Carroll Stevens	Clerk	City Government	City of Norborne

Stakeholder Representatives

Name	Title	Agency/Organization
Charles Pence	Associate Commissioner	Carroll County
Chris Jacobs	Employee	City of Hale/Hale R-I School District
Nick Wilson	Mayor	City of Hale/Hale R-I School/Hale Fire Protection
Stan Falke	Presiding Commissioner	Carroll County
Petal Stanley	County Clerk	Carroll County
Keith Higgins	Mayor	City of Carrollton
Glen Briggs	Carroll County EMD	Carroll County
Bill Jackson	Citizen	DeWitt/ MiDe Levee District
Wayne Their	Employee	MiDe Levee District
Richard Mounts	Planning & Zoning	City of Carrollton
Jennifer Courtney	Superintendent	Norborne R-VIII School District
Carol Stevens	City Clerk	City of Norborne
Charles Pence	Associate Commissioner	Carroll County
Everett Shields	Employee	Carroll County
Lonnie Sensenich	Employee	Carrollton Fire
Jack Vantramp	Employee	City of Carrollton
Dr. Tinna Croy	Superintendent	Carrollton R-VII School District

TABLE OF CONTENTS

CONTRIBUTORS.....*i*
Carroll County Hazard Mitigation Planning Committee i
Stakeholder Representatives.....i

TABLE OF CONTENTS .....*ii*

EXECUTIVE SUMMARY.....*ii*

PREREQUISITES.....*xi*
Model Resolution xii

1 Introduction and Planning Process 1.1

2 Planning Area Profile and Capabilities.....2.1

3 Risk Assessment 3.1

4 Mitigation Strategy 4.1

5 Plan Maintenance Process.....5.1

Appendix A: References
Appendix B: Planning Process Documentation
Appendix C: Questionnaires, Surveys, and STAPLEE Worksheets
Appendix D: List of Critical Facilities (Redacted from Public Version)
Appendix E: Resolutions of Adoption, Floodplain Ordinances

EXECUTIVE SUMMARY

The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Carroll County and participating jurisdictions and school/special districts developed this multi-jurisdictional local hazard mitigation plan update to reduce future losses from hazard events to Carroll County and its communities and school/special districts. This plan is an update of the previous plan that was approved by FEMA on May 3, 2021. The plan and the update were prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 to result in eligibility for the Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance Grant Programs.

The Carroll County Multi-Hazard Mitigation Plan is a multi-jurisdictional plan that covers the following jurisdictions that participated in the planning process:

- Unincorporated Carroll County

- City of Bogard
- Carrollton
- City of De Witt
- City of Hale
- City of Norborne
- Carrollton R-VII
- Hale R-I
- Norborne R-VIII
- Tina-Avalon R-II

The City of Bosworth and the Village of Tina were invited to participate in the update of the Carroll County Hazard Mitigation Plan. They did not attend meetings or fulfill any of the other requirements to be a plan participant. These jurisdictions will be invited to participate in the next plan update.

Carroll County and the entities listed above followed a plan update process using a methodology in accordance with FEMA guidance, which began with the formation of a Mitigation Planning Committee (MPC) comprised of representatives from Carroll County and participating jurisdictions. The MPC updated the risk assessment that identified and profiled hazards that pose a risk to Carroll County and analyzed jurisdictional vulnerability to these hazards. The MPC also examined the capabilities in place to mitigate the hazard damages, with emphasis on changes that have occurred since the previously approved plan was adopted. The MPC determined that the planning area is vulnerable to several hazards that are identified, profiled, and analyzed in this plan. Riverine and flash flooding, winter storms, severe thunderstorms (hail, lightning, high winds), and tornados are among the hazards that historically have had a significant impact.

Based upon the risk assessment, the MPC updated goals for reducing risk from hazards. The goals are listed below:

- Goal 1: Eliminate loss of life, minimize injuries and reduce property damage caused by tornadoes, severe thunderstorms including high winds, hail, and lightning.
- Goal 2: Minimize property damage due to flooding, levee failure, and dam failure; including high hazard potential dams (HHPD)
- Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures, and wildfire.
- Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather.
- Goal 5: Minimize injuries and property damage due to seismic and/or geological events.

To advance the identified goals, the MPC developed recommended mitigation actions, as summarized in the table on the following pages. The MPC developed an implementation plan for each action, which identifies priority level, background information, ideas for implementation, responsible agency, timeline, cost estimate, potential funding sources, and more. These additional details are provided in Chapter 4.

Table I. Mitigation Action Matrix

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
Structure and Infrastructure Projects								
County 2025.6	Road and bridge upgrades to reduce flood risk	Carroll Co	High	2	Flooding	x	x	
County 2025.7	Levee incident data collection	Carroll Co	High	2	Flooding	x	x	
County 2025.10	Critical facilities backup power and communication systems	Carroll Co	Low	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
County 2025.11	Debris removal, Brush clearing, and Tree trimming	Carroll Co	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x	x	
County 2025.15	Upgrade and replace culverts	Carroll Co	High	2	Flooding	x	x	
CB 2025.2	Critical facilities backup power and communication systems	Bogard	Low	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CB 2025.3	Debris removal	Bogard	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CB 2025.5	Storm shelters and safe rooms	Bogard	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	X	
CB 2025.7	Installation of warning siren	Bogard	High	1	Severe thunderstorms, Tornado,	x	X	
CC 2025.1	Weather Alerts, Sirens	Carrollton	High	1,2,3,4	Severe thunderstorms, Tornado	x	x	
CC 2025.2	Critical facilities backup power and communication systems	Carrollton	High	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CC 2025.3	Debris removal	Carrollton	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x		
CC 2025.5	Storm shelters and safe rooms	Carrollton	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CD 2025.1	Weather Alerts, Sirens	DeWitt	High	1,2,3,4	Severe thunderstorms, Tornado	x	x	
CD 2025.2	Critical facilities backup power and communication systems	DeWitt	High	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CD 2025.3	Debris removal	DeWitt	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x	x	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
CD 2025.5	Storm shelters and safe rooms	DeWitt	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CH 2025.1	Weather Sirens	Hale	High	1,2,3,4	Severe thunderstorms, Tornado	x	x	
CH 2025.2	Critical facilities backup power and communication systems	Hale	High	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CH 2025.3	Debris removal	Hale	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x		
CH 2025.5	Storm shelters and safe rooms	Hale	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CN 2025.1	Weather Siren	Norborne	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CN 2025.2	Critical facilities backup power and communication systems	Norborne	High	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CN 2025.3	Debris removal	Norborne	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x		
CN 2025.8	Flood reduction projects	Norborne	Medium	2	Flooding	x	x	x
CN 2025.5	Storm shelters and safe rooms	Norborne	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CN 2025.10	Storm drain system	Norborne	Medium	2	Flooding	x	x	
CN 2025.12	Tree trimming maintenance	Norborne.	High	1,4	Severe thunderstorms, Severe winter weather, Tornado	X	X	
CSD 2025.2	Generators	Carrollton R-VII	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CSD 2025.3	Storm shelters and safe rooms	Carrollton R-VII	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
HSD 2025.2	Generators	Hale R-I	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
HSD 2025.3	Storm shelters and safe rooms	Hale R-I	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
NSD 2025.2	Weather Alerts, Sirens and education	Norborne R-VIII	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
NSD 2025.3	Storm shelters and safe rooms	Norborne R-VIII	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
NSD 2025.2	Generators	Norborne R-VIII	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
TASD 2025.2	Storm shelters and safe rooms	Tina-Avalon R-II	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
Natural Systems Protection								
County 2025.18	Participation in the NFIP	Carroll Co	High	2	Flooding	x	x	x
County 2025.19	Revised Flood plain ordinance	Carroll Co	High	2	Flooding	x	x	x
CC 2025.7	Participation in the NFIP	Carrollton	High	2	Flooding	x	x	x
CN 2025.7	Participation in the NFIP	Norborne	High	2	Flooding	x	x	x
CN 2025.8	Flood reduction projects	Norborne	Medium	2	Flooding	x	x	x
Planning and Regulation								
County 2025.5	Monitor repetitive loss properties	Carroll Co.	High	2	Flooding			x
County 2025.9	Survey of flood plain areas	Carroll Co	Low	2	Flooding	x	x	x
County 2025.18	Participation in the NFIP	Carroll Co	High	2	Flooding	x	x	x
County 2025.19	Revised Flood plain ordinance	Carroll Co	High	2	Flooding	x	x	x
CC 2025.7	Participation in the NFIP	Carrollton	High	2	Flooding	x	x	x
CN 2025.7	Participation in the NFIP	Norborne	High	2	Flooding	x	x	x
CN 2025.8	Flood reduction projects	Norborne	Medium	2	Flooding	x	x	x
CN 2025.9	Survey of flood plain areas	Norborne	Low	2	Flooding	x	x	x
CN 2025.11	County level steering committee	Norborne	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
Education and Outreach								
County 2025.2	Mitigation education	Carroll Co	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
County 2025.3	Weather Alerts, Sirens and education	Carroll Co	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
County 2025.8	Hazard audits of facilities	Carroll Co	Low	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x		
County 2025.16	Safety audits of facilities	Carroll Co	Low	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x		
County 2025.17	County level steering committee	Carroll Co	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CB 2025.1	Weather Alerts, Sirens and education	Bogard	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CB 2025.4	Mitigation education	Bogard	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CC 2025.1	Weather Alerts, Sirens and education	Carrollton	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CC 2025.4	Mitigation education	Carrollton	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CC 2025.6	Weather spotter training	Carrollton	High	1	Severe thunderstorm, Tornado	X	X	
CD 2025.4	Mitigation education	DeWitt	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
CD 2025.6	Vulnerable population identification	DeWitt	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CH 2025.4	Mitigation education	Hale	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CH 2025.6	Vulnerable population identification	Hale	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CN 2025.4	Mitigation education	Norborne	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CN 2025.6	Vulnerable population identification	Norborne	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CN 2025.11	County level steering committee	Norborne	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CSD 2025.1	Mitigation education	Carrollton R-VII	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
HSD 2025.1	Mitigation education	Hale R-I	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
NSD 2025.1	Mitigation education	Norborne R-VIII	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
NSD 2025.2	Weather Alerts, Sirens and education	Norborne R-VIII	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
TASD 2025.1	Mitigation education	Tina-Avalon R-II	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
Emergency Services								
County 2025.1	County-wide inventory of shelters and safe rooms	Carroll Co	High	1,2,3,4,5	Flooding, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x		
County 2025.4	Disaster drills and exercises	Carroll Co	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
County 2025.12	Mutual aid agreements	Carroll Co	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CB 2025.6	Vulnerable population identification	Bogard	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CD 2025.1	Weather Alerts, Sirens and education	DeWitt	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CD 2025.6	Vulnerable population identification	DeWitt	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CH 2025.1	Weather sirens	Hale	High	1,2,3,4	Severe Thunderstorms, Tornadoes	X	x	
CH 2025.6	Vulnerable population identification	Hale	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CN 2025.1	Weather Sirens	Norborne	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
CN 2025.6	Vulnerable population identification	Norborne	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	

PREREQUISITES

44 CFR requirement 201.6(c)(5): The local hazard mitigation plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan. For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

This plan has been reviewed by and adopted with resolutions or other documentation of adoption by all participating jurisdictions and schools/special districts. The documentation of each adoption is included in Appendix E, and a model resolution is included on the following page.

The jurisdictions listed in the Executive Summary participated in the development of this plan and have adopted the multi-jurisdictional plan.

Model Resolution

(*LOCAL GOVERNING BODY/SCHOOL DISTRICT*), Missouri RESOLUTION NO. _____

A RESOLUTION OF THE (*LOCAL GOVERNING BODY /SCHOOL DISTRICT*) ADOPTING THE (*PLAN NAME*)

WHEREAS the (local governing body/school district) recognizes the threat that natural hazards pose to people and property within (local government); and

WHEREAS the (*local government/school district*) has prepared a multi-hazard mitigation plan, hereby known as (*title and date of mitigation plan*) in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS (*title and date of mitigation plan*) identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in (*local government/school district*) from the impacts of future hazards and disasters; and

WHEREAS adoption by the (*local governing body/school district*) demonstrates its commitment to hazard mitigation and achieving the goals outlined in the *Plan*.

NOW THEREFORE, BE IT RESOLVED BY THE (*LOCAL GOVERNMENT/SCHOOL DISTRICT*), in the State of Missouri, THAT:

Section 1. In accordance with (*local rule for adopting resolutions*), the (*local governing body/school district*) adopts the (title and date of mitigation plan). While content related to (*local government/school district*) may require revisions to meet the plan approval requirements, changes occurring after adoption will not require (*local government/school district*) to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

ADOPTED by a vote of_____in favor and__against, and__abstaining, this_____day of _____,_____.

By (Sig): _____
Print name: _____

ATTEST:
By (Sig.): _____
Print name: _____

APPROVED AS TO FORM:
By (Sig.): _____
Print name: _____

1 INTRODUCTION AND PLANNING PROCESS

1 INTRODUCTION AND PLANNING PROCESS 1.1
1.1 Purpose *1.1*
1.2 Background and Scope *1.1*
1.3 Plan Organization *1.2*
1.4 Planning Process *1.4*
1.4.1 Multi-Jurisdictional Participation 1.6
1.4.2 The Planning Steps 1.7

1.1 PURPOSE

Hazard mitigation is defined as “any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards”. While natural hazards will continue to occur and at their worst will result in death and destruction of both property and infrastructure, this plan was undertaken to minimize the impact that these hazards will have on the people and property of Carroll County. Carroll County and the participating jurisdictions and school districts developed this multi-jurisdictional local hazard mitigation plan update to reduce future losses from inevitable hazardous events.

The jurisdictions participating in this plan are the unincorporated areas of Carroll County, Carrollton, Bogard, DeWitt, Hale, Norborne, Carrollton R-VII, Hale R-I, Norborne R-VIII, and Tina-Avalon R-II. The jurisdictions participating in this plan understand that adopting the plan is a prerequisite for mitigation grant eligibility and understand that failure to adopt this plan will make them ineligible for mitigation grants.

The following legislation gives FEMA authority to require these plans: Robert T Stafford Disaster and Emergency Act (Public Law 93-288) as amended by the Disaster Mitigation Act of 2000 (Public Law 106-390), The implementing regulations set forth by the Interim Final Rule published in the *Federal Register* on February 26, 2002, (44 CFR §201.6) and finalized on October 31, 2007.

The following publications from FEMA were used as guidance in the development of this hazard mitigation plan for Carroll County. FEMA’s Local Mitigation Planning Handbook, May 2023, FEMA’s Local Mitigation Plan Review Guide, October 1, 2011, and the Local Mitigation Planning Policy Guide April 19, 2023. The previous Carroll County Hazard Mitigation Plan, which was approved on May 3, 2021, was also used in the development of this update.

1.2 BACKGROUND AND SCOPE

The Carroll County Hazard Mitigation Plan is the update of a plan that was approved on May 3, 2021. Hazard Mitigation Plans must be renewed every five years and then must be adopted by the participating jurisdictions within the plan. Both the plan and the update were prepared pursuant to the requirements of the Disaster Mitigation Act of 2000. This plan once completed and adopted will result in eligibility for the Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance Grant Programs.

The following local governments and school districts participated in both the original plan as well as the plan updates. This will allow them to adopt the plan and secure eligibility for Hazard Mitigation Grant Funding.

- Carroll County
- Bogard
- Carrollton
- DeWitt
- Hale
- Norborne
- Carrollton R-VII
- Hale R-I
- Norborne R-VIII
- Tina-Avalon R-II

Carroll County and the participating entities listed above developed a Multi-Jurisdictional Hazard Mitigation Plan that was approved by FEMA in May of 2021 (hereafter referred to as the 2021 Hazard Mitigation Plan). This current planning effort serves to update that previously approved plan.

The information that is contained in the Carroll County Hazard Mitigation Plan will be used to help guide and coordinate mitigation activities for local land use policy and decisions in the future.

1.3 PLAN ORGANIZATION

The latest (2025) updated version of the Carroll County Hazard Mitigation Plan involves review, evaluation, and amendment of the existing plan. It addresses the same natural hazards that were addressed in the original plan, with changes outlined in the table below (See Table 1.1 below). Following is a breakdown of the organization of the 2025 Carroll County Hazard Mitigation Plan Update.

- Chapter 1: Introduction and Planning Process
  This section of the plan provides an introduction to the multi-jurisdictional planning process and a detailed look at the participation of the local jurisdictions and school districts. It also detailed the purpose of local hazard mitigation planning and outlined the requirements enacted by the Federal Emergency Management Agency.
- Chapter 2: Planning Area Profile and Capabilities
  This section of the plan provides general background information and demographic statistics for Carroll County and its various jurisdictions as well as the disaster response and recovery capabilities found in the county. This section identifies key personnel, organizational leaders, and outlines existing emergency plans. Additionally, it provides a brief assessment of each municipality's readiness regarding hazard mitigation.
- Chapter 3: Risk Assessment
  This section of the plan, the risk assessment, identifies and explores the types of natural hazards that pose a risk to the county, and the likelihood that each hazard will occur. It provides a profile of identified hazards and explains the impact to the County and the various jurisdictions should such hazards occur.
- Chapter 4: Mitigation Strategy
  This section of the plan presents the multi-jurisdiction mitigation strategies in response

to the risk assessment. This chapter outlines the overall goals to reduce a disaster's impact, specific objectives toward achieving those goals, and implementation plans for the county to complete.

- Chapter 5: Plan Implementation and Maintenance
  The final chapter outlines the Hazard Mitigation Plan maintenance procedures.
- Appendix A: Sources
- Appendix B: Planning Documentation & Invitations
- Appendix C: Questionnaires, Surveys, Public Comment, and STAPLEE Worksheets
- Appendix D: List of Critical Facilities (Redacted from Public View)
- Appendix E: Resolutions of Adoptions, Floodplain Ordinances

The following table identifies significant changes in the 2026 update of the Hazard Mitigation Plan for Carroll County.

Table 1.1. Changes Made in Plan Update

Plan Section	Summary of Updates
Executive Summary	• Added Mitigation Action Matrix Table • Revised the executive summary and resolution to match order of template • Updated goals from previous plan to better reflect hazards mitigated by current proposed actions
Chapter 1 - Introduction and Planning Process	• Updated members of the Mitigation Planning Committee (MPC) and participating jurisdictions formally adopted the MPC.
Chapter 2 - Planning Area Profile and Capabilities	• Changes include updating maps, identifying most current state plan, and updating demographic data using 2020 Census and American Community Survey Information • Inviting neighboring jurisdictions to participate. • Updated charts, graphs, tables, maps, and other information where necessary
Chapter 3 - Risk Assessment	• Combined extreme heat and extreme cold into one hazard: extreme temperatures. • Updated section with current Census information, agricultural summary, and confirming that current data is correct. • Incorporated information from the current 2023 Missouri State Hazard Mitigation Plan • Previous events updated for each hazard
Chapter 4 - Mitigation Strategy	• 2021 mitigation goals and strategies reviewed by planning committee and updated • The mitigation category of each action was added to the action worksheets
Chapter 5 - Plan Implementation and Maintenance	• Updated the MPC meeting for evaluating and updating the plan to annually

1.4 PLANNING PROCESS

44 CFR Requirement 201.6(c)(1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Carroll County, Missouri contracted with the Green Hills Regional Planning Commission (GHRPC) to facilitate and coordinate the update of the multi-jurisdictional, local hazard mitigation plan. In fulfillment of the role, GHRPC:

- Assisted in establishing a Mitigation Planning Committee (MPC) as defined by the Disaster Mitigation Act (DMA),
- Assessed whether there was adherence to the process set forth in the previously approved plan for maintenance (example, did the MPC meet regularly as specified in the previously approved plan), and explain how adherence occurred, and/or why it did not occur,
- Ensured the updated plan meets the DMA requirements as established by federal regulations and follows the most current planning guidance of the Federal Emergency Management Agency (FEMA),
- Facilitated the entire plan development process,
- Identified the data that MPC participants could provide and conduct the research and documentation necessary to augment that data,
- Assisted in soliciting public input,
- Produced the draft and final plan update in a FEMA-approvable document and coordinate the Missouri State Emergency Management Agency (SEMA) and (FEMA) plan reviews.

This plan was developed after the release of *FEMA's Local Mitigation Planning Policy Guide, Effective 2025*.

The following table (**Table 1.2)** shows the MPC members and the entities they represent, along with their titles. Each of the following representatives participated directly with the development of the plan. They attended the meetings and actively participated in the development of the plan. The MPC was comprised of representatives from each jurisdiction on a voluntary basis rather than as an official act by any of the jurisdictions. Each member of the MPC was actively involved in the meetings and the decisions for the Hazard Mitigation Plan. These members were either present at the public meetings or met individually with the GHRPC staff member in charge of developing the plan. All jurisdictions met their responsibilities for the planning process by:

- Attending at least one meeting
- Completing the Data Questionnaire to the best of their ability
- Reviewing and returning the Action Worksheets
- Returning the Adoption Resolution (Found in Appendix E)

Table 1.2. Jurisdictional Representatives of Carroll County Mitigation Planning Committee

Name	Title	Department	Jurisdiction
Charles Pence	Commissioner	County Government	Carroll County
Chris Jacobs	City Employee/School Employee	City Government/ School District	City of Hale / Hale R-I
Nick Wilson	City Employee/ Volunteer	City Government/Hale Fire District	City of Hale/Fire District
Stan Falke	Presiding Commissioner	County Government	Carroll County
Petal Stanley	County Employee	County Government	Carroll County
Keith Higgins	Mayor	City Government	Town of Carrollton
Glen Briggs	E.M.D	County Government	Carroll County
Bill Jackson	Employee	Levee District	DeWitt / MiDe
Wayne	Employee	Levee District	DeWitt / MeDe
Richard Mounts	City Employee	Carrollton Public Works	City of Carrollton
Jennifer Courtney	Superintendent	School District	Norborne R-VIII
Keith Brock	Mayor	City Government	City of Bogard

Table 1.3. MPC Capability with Six Mitigation Categories

Community Department/Office	Preventive Measures	Structure and Infrastructure Projects		Natural Resource Protection	Public Information	Emergency Services
		Property Protection	Structural Flood Control Projects			
County Commission	x	x	x	x	x	
City of Hale	x	x	x	x	x	
Hale R-I School	x	x	x	x	x	
Town of Carrollton	x	x	x	x	x	x
MiDe Levee district		x	x	x	x	x
City of DeWitt	x	x	x	x	x	
Norborne R-VIII	x	x	x	x	x	
City of Bogard	x	x	x	x	x	

Table 1.4. Participants of the Carroll County Hazard Mitigation Plan

Name	Title	Jurisdiction/Agency/Organization
Charles Pence	Commissioner	Carroll County
Chris Jacobs	City Employee / School Employee	City of Hale / Hale R-I
Nick Wilson	City Employee/Volunteer	City of Hale/Hale fire district
Stan Falke	Commissioner	Carroll County
Petal Stanley	County Clerk	Carroll County
Keith Higgins	Mayor	City of Carrollton
Glen Briggs	EMD	Carroll County
Bill Jackson	Employee	DeWitt / MiDe Levee District
Wayne	Employee	DeWitt / MiDe Levee District
Richard Mounts	Employee	City of Carrollton
Jennifer Courtney	Superintendent	Norborne R-VIII
Keith Brock	Mayor	City of Bogard
Jeremy Olivera	City Council	City of Bogard
Richard Isaacs	City Council	City of Bogard
Jack Gray	City Council	City of Bogard
Phyllis Pennington	City Treasurer	City of Bogard

1.4.1 Multi-Jurisdictional Participation

44 CFR Requirement §201.6(a)(3): Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan.

The Disaster Mitigation Act requires that each jurisdiction participate in the planning process and officially adopt the plan. Minimum criteria for participation were determined at the planning meeting that each jurisdiction must attend one meeting to be considered a "participant." These plan participation requirements include:

- Designation of a representative to serve on the MPC;
- Participation in at least one meeting, including planning, MPC meetings, by either direct participation or authorized representation, or one-on-one with planning staff;
- Provision of sufficient information to support plan development by completion and return of Data Collection Questionnaires and validating/correcting critical facility inventories;
- Provision of progress reports on mitigation actions from the previously approved plan and identified additional mitigation actions for the plan;
- Eliminate from further consideration those actions from the previously approved plan that were not implemented because they were impractical, inappropriate, not cost-effective, or were otherwise not feasible;
- Review and comment on plan drafts;
- Actively solicit input from the public, local officials, and other interested parties about the planning process and provide an opportunity for them to comment on the plan;
- Provide documentation to show time donated to the planning effort; and
- Formally adopt the mitigation plan.

Data for the plan was gathered in part through a series of meetings held within Carroll County. The planning process for the Carroll County Hazard Mitigation Plan began during the summer of 2025, with discussions involving elected officials, community members, and other interested parties, and the planning committee was formed. (See Table 1.2 and Table 1.4).

Participants that were involved were asked to identify critical infrastructure, rank the likelihood of disaster occurrence, perform a susceptibility analysis based on these factors, and determine appropriate mitigation strategies for each individual disaster. This data was recorded and assimilated into this plan by GHRPC staff. The MPC membership showed a range of knowledge and abilities to address the mitigation categories shown in Table 1.3.

In accordance with Missouri's "sunshine law" (RSMo 610.010, 610.020, 610.023, and 610.024), the public was notified each time the plan was presented for review. Input from each public official (city and county) was solicited by email or mailing an explanatory letter with notice of the posted draft on the Green Hills Planning Commission's website. These were disbursed on a schedule that allowed officials sufficient time to review the draft prior to the next public County Commission or City Council meeting. Participation was solicited by letter or email from each of the following jurisdictions:

- Carroll County
- City of Carrollton
- City of Bogard
- City of DeWitt
- City of Hale
- City of Norborne

- Village of Tina
- Bosworth R-V
- Carrollton R-VII
- Hale R-I
- Norborne R-VIII
- Tina-Avalon R-II

Finally, city and county officials were encouraged to invite others from any county, state, or federal agency as well as local businesses that had interest in contributing to the planning process. Input from the public was solicited through reminders at public gatherings, press releases, letters to various businesses and community organizations, and a Public Survey. Surrounding and participating jurisdictions were invited to review the county's plan draft via the GHRPC website. The plan draft was available for review for 30 days. There were no comments made on the plan draft.

Table 1.5 below shows the representation of each participating jurisdiction at the planning meetings, the provision of responses to the Data Collection Questionnaire, and update or development of mitigation actions. Sign-in sheets and other documentation for participation are in Appendix B.

Table 1.5. Jurisdictional Participation in Planning Process

Jurisdiction	Meeting #1	Meeting #2	Meeting #3	Data Collection Questionnaire Response	Update/Develop Mitigation Actions
Carroll County	X	X	X		X
City of Bogard	Special: Phone Call				X
City of Carrollton	X	X	X		X
City of De Witt	X			X	X
City of Hale	X	X	X	X	X
City of Norborne		X		X	X
Carrollton R-VII			X	X	X
Hale R-I	X	X	X	X	X
Norborne R-VIII	X			X	X
Tina-Avalon R-II	Special: Phone Call			X	X

1.4.2 The Planning Steps

The sources utilized for the plan and development process used the following: FEMA's Local Mitigation Planning Handbook (May 2023), Local Mitigation Plan Review Guide (October 1, 2011), Local Mitigation Planning Policy Guide (April 19, 2023), and Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials (March 1, 2013). The United States Census Bureau, the United States Geological Society, the United States Army Corps of Engineers, the Missouri Department of Natural Resources, the Missouri Department of Conservation, the Center for Agriculture, Resources and Environmental Systems at the University of Missouri-Columbia, Carroll County HAZUS data, the National Climatic Data Center, and the Missouri State Hazard Mitigation Plan provided additional information regarding severe thunderstorm and winter weather, wildfire, tornado, earthquake, and flood hazards effecting Carroll County. Other sources

utilized for this plan are included in Section 3.

The development of this plan update followed the 10-step planning process adapted from FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs, so to ensure funding eligibility requirements for the Hazard Mitigation Grant Program, Building Resilient Infrastructure and Communities, Community Rating System, and Flood Mitigation Assistance Program.

Table 1.6. County Mitigation Plan Update Process

Community Rating System (CRS) Planning Steps (Activity 510)	Local Mitigation Planning Handbook (2023) Tasks (44 CFR Part 201)
Step 1. Organize	Task 1: Determine the Planning Area and Resources
	Task 2: Build the Planning Team 44 CFR 201.6(c)(1)
Step 2. Involve the public	Task 3: Create an Outreach Strategy 44 CFR 201.6(b)(1)
Step 3. Coordinate	Task 5: Review Community Capabilities 44 CFR 201.6(b)(2) & (3)
Step 4. Assess the hazard	Task 4: Conduct a Risk Assessment 44 CFR 201.6(c)(2)(i) 44 CFR 201.6(c)(2)(ii) & (iii)
Step 5. Assess the problem	
Step 6. Set goals	Task 6: Develop a Mitigation Strategy 44 CFR 201.6(c)(3)(i); 44 CFR 201.6(c)(3)(ii); and 44 CFR 201.6(c)(3)(iii)
Step 7. Review possible activities	
Step 8. Draft an action plan	
Step 9. Adopt the plan	Task 8: Review and Adopt the Plan
Step 10. Implement, evaluate, revise	Task 7: Keep the Plan Current
	Task 9: Create a Safe and Resilient Community 44 CFR 201.6(c)(4)

Step 1: Organize the Planning Team
(Handbook Tasks 1, 2, and 5)

- Both initial "Meeting #1" in Carroll County occurred in the City of Carrollton as follows:
  - City of Carrollton: July 28th, 2025, in the Carrollton Commissioner's Office from 2pm-3pm.
  - The first virtual meeting for Carroll County occurred over zoom. Carroll County HMP Meeting (Virtual) from 2pm-2:30pm July 29th, 2025.
- Both the in-person and the virtual meeting #1 covered the basics of hazard mitigation planning, which needs updates every 5 years, and the requirements for HMGP Grants. The planning process was outlined, detailing 3 in-person meetings and 3 virtual meetings, with the first meeting focused on outreach and hazard identification. The requirement for the jurisdictions to participate is to fill out the Jurisdictional Questionnaire, attend at least one meeting, offer suggestions, develop actions, and

adopt the plan. GHRPC had sent out letters, emails, and made phone calls to potential stakeholders, encouraging those who fill out the survey to share with the public. Each attendee was emailed a detailed copy of "Hazard Identification for Carroll County". The meeting ended with an open floor for any other existing questions. (See Appendix B for planning process documentation)

- Jurisdictional Questionnaires were distributed to jurisdictions participating in the planning process.
- Meeting #2 occurred as follows:
    - In person meeting at Carroll County Courthouse on August 20, 2025, from 2pm-3pm.
    - Virtual meeting via Zoom was held at 10AM on August 22, 2025.
- Both the in-person and virtual meeting #2 addressed hazard mitigation and risk assessment in Carroll County. Attendees from various organizations discussed prevention, protection, mitigation, response, and recovery measures. They ranked and charted regional hazards and worked on identifying vulnerable assets.
- In addition to scheduled meetings, informal communication regarding the planning process was conducted in person, by phone calls, and by emails.
- All meeting documentation can be found in Appendix B.

Table 1.7. Schedule of MPC Meetings

Meeting	Topic	Date
Planning Meeting #1	Outreach & Hazard Identification	July 28, 2025 & July 29, 2025
Planning Meeting #2	Risk Assessment & Mitigation Strategies	August 20, 2025 & August 22, 2025
Planning Meeting #3	Action Prioritization, Adopting the Plan, & Plan Maintenance	September 22, 2025 & September 23, 2025

Step 2: Plan for Public Involvement
(Handbook Task 3)

44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

During each of the planning meetings attendees were provided with time to comment on plan development.

- Meeting #1 provided attendees with the opportunity to provide information about hazards, previous events, and considerations of vulnerabilities to natural hazards.
- Meeting #2 specifically addressed the vulnerabilities of the participating jurisdictions and discussion about addressing said vulnerabilities. Additionally, meeting #2 also addressed which hazards would pose the most risk in terms of frequency, past damage, and specific risks posed to participating jurisdictions.
- Finally, meeting #3 provided opportunity for jurisdictions to discuss hazards, potential

projects, and create new actions with the intent of mitigating future damages.

A Survey Monkey public survey was created to solicit public comments. The link and the QR code were made available to all jurisdictions, published on social media, and published on the flyers that were sent to all jurisdictions.

The draft of the Carroll County Hazard Mitigation Plan was published on Green Hills Regional Planning Commission's website on November 15, 2025. Contact information was provided to any individual that wanted to make a comment on the plan and the ability to make a comment was enabled on the GHRPC website.

All participating jurisdictions were made aware that the plan was available for public comment, and were provided with, at minimum, 30 days to review and/or comment on the plan. The availability of the plan for public comment or review was advertised on local social media pages. All participants were also advised in person or via email of the review period.

The public survey received 16 responses. The survey results were made available to the MPC and can be found in Appendix C.

The plan was available for public comment after being published on GHRPC website for 30 days. Notice of the plan was published on community and GHRPC Facebook pages and a press release was issued in local outlets. (See Appendix B for documentation) The plan was published to the Green Hills Regional Planning Commission on November 15, 2025. The plan was made available for public comment from November 15 to December 15, 2025. There were no comments received on the plan.

Step 3: Coordinate with Other Departments and Agencies and Incorporate Existing Information
(Handbook Task 2)

44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process. (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

In the interest of involving stakeholders throughout the planning area, the following organizations and businesses were invited to participate in the hazard mitigation planning process for Carroll County.

In addition to the invitations sent out to various stakeholders throughout the planning area, meeting notices were provided to all jurisdictions as well as flyers and social media posts that were used to promote the meetings. The information was also made available on GHRPC's website and Facebook page. A copy of the address labels, invitations, flyers, and social media posts can be found in Appendix B of the plan.

Additionally, the neighboring communities, located outside of the county, but with populations and structures located within Carroll County were also invited to attend. (Please see Appendix B for a complete list of people and organizations invited to attend, envelop scans, and social media posts from GHRPC's Facebook account).

There are a few organizations that are multijurisdictional in nature whose interests relate to hazard mitigation planning in Carroll County. These groups were included in the invitation list for the meetings. Ideally, national organizations like the Red Cross should come to the table for this exercise, but Carroll County is too small to have a local chapter. Additionally, in small communities, local officials wear many hats out of necessity. A volunteer firefighter might also be a city clerk, or an alderman may also serve on the school board.

In the interest of involving stakeholders throughout the planning area, invitations, flyers, and the QR Code for the public survey were sent to the following organizations and businesses inviting them to participate in the hazard mitigation planning process for Carroll County, by either attending the meetings and/or completing the survey.

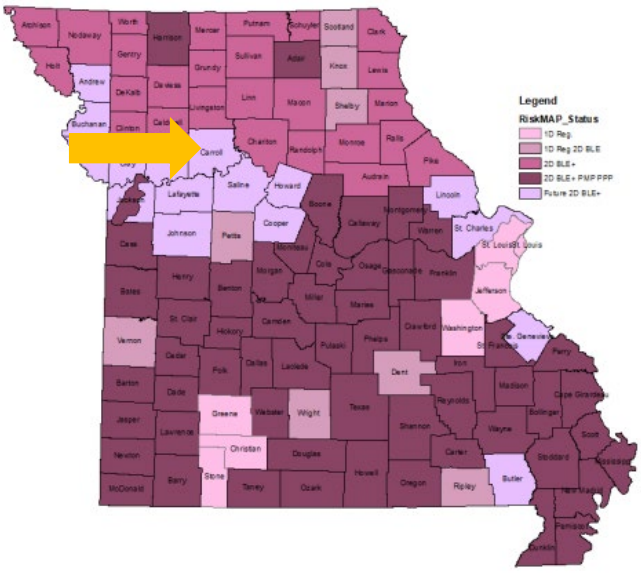
- Neighboring Communities:
    - City of Braymer
    - City of Waverly
    - City of Hardin
- Local and regional agencies involved in hazard mitigation activities
    - Carroll County Ambulance District
    - Carrollton Fire Department
    - Hale Fire Protection
    - Norborne Volunteer Fire
    - North Central Carroll Fire
    - Hale Medical Clinic
    - Reid Medical Clinic
    - HCC Network Clinic
    - Sheriff of Carroll County
- Agencies with the authority to regulate development:
    - Floodplain administrator Carroll County
    - Floodplain administrator Carrollton
    - Floodplain administrator Norborne
    - Emergency Coordinator Carrollton
    - City of Bogard
    - City of Bosworth
    - City of Carrollton
    - City of De Witt
    - City of Norborne
    - Village of Tina
    - Carroll County Public Water
    - Carroll County officials
- Businesses & Academia
    - Bosworth R-V
    - Braymer C-4

    - Carrollton R-VII
    - Hale R-I
    - Norborne R-VIII
    - Tina-Avalon R-II
    - Continental Fabrication Service
    - Stability Growers
    - Farm Bureau
    - Lock Steel Building Co
    - Eckard's Home Improvement
    - Green Ready Mix
    - Carrollton Municipal Utilities
    - American Family Insurance
    - Tractor Supply Co
- Other private and non-profit interests, including underserved/vulnerable populations
    - Carroll House (senior living)
    - Life Care Center (senior living)
    - Five Acres (group home)
    - Wright Lorna (senior living)
    - Spring Manor (group home)
    - Carroll County Senior Center
    - Carroll County Panty
    - H.E.L.P. Services (food pantry)
    - Missouri Valley Human Resources
    - The Baptist Church of Carrollton & Norborne
    - The Lutheran Church of Carrollton & Norborne
    - Carrollton United Methodist Church
    - Kingdom Hall of Jehovah's Witnesses

Coordination with FEMA Risk MAP Project

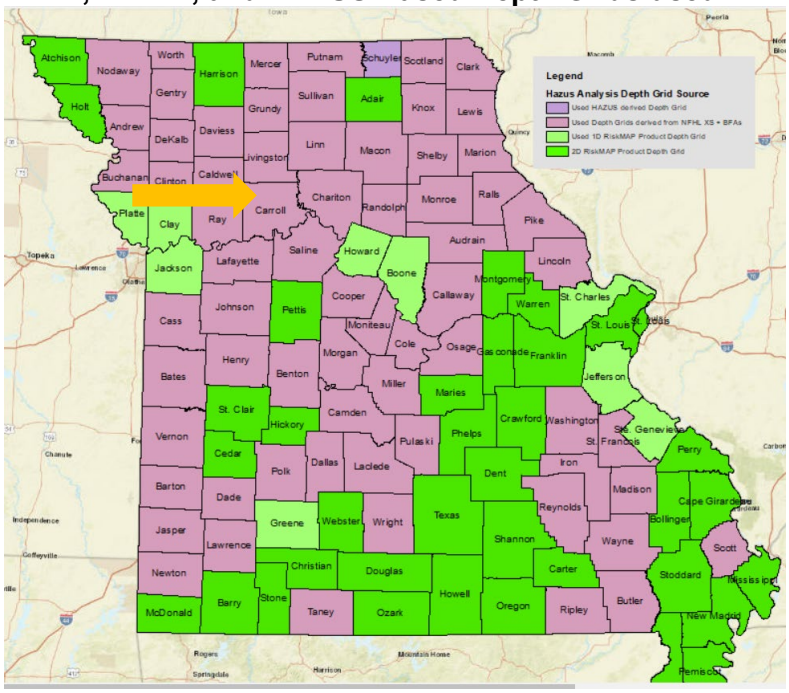
- The most current RISK Map was downloaded from FEMA's website and was available at the 2nd planning meeting.
- The following figure (Figure 1.15) was taken from the Missouri State Hazard Mitigation Plan, 2023.

Figure 1.1. RiskMAP Study Status Map



The following figure indicates which analysis was performed per county. According to the Missouri Hazard Mitigation Plan 2023, the analysis of Harrison County was conducted as follows. For counties with digital FIRMs, the regulatory special flood hazard area was utilized. Next, depth grids were generated using cross sections from the FIRM database and/or hydraulic models in combination with the terrain elevation data from which the DFIRM was derived.

Figure 1.2. RiskMAP, DFIRM, and HAZUS Based Depth Grids used in HAZUS Analysis



Integration of Other Data, Reports, Studies, and Plans

- In order to complete the Carroll County Hazard Mitigation Plan the following sources were implemented: the 2023 Missouri State Hazard Mitigation Plan, Hazard Mitigation Plans from areas near the planning area, the University of Missouri Extension Reports, Flood Insurance Studies (FIS), Flood Insurance Rate Maps (FIRMs), State Department

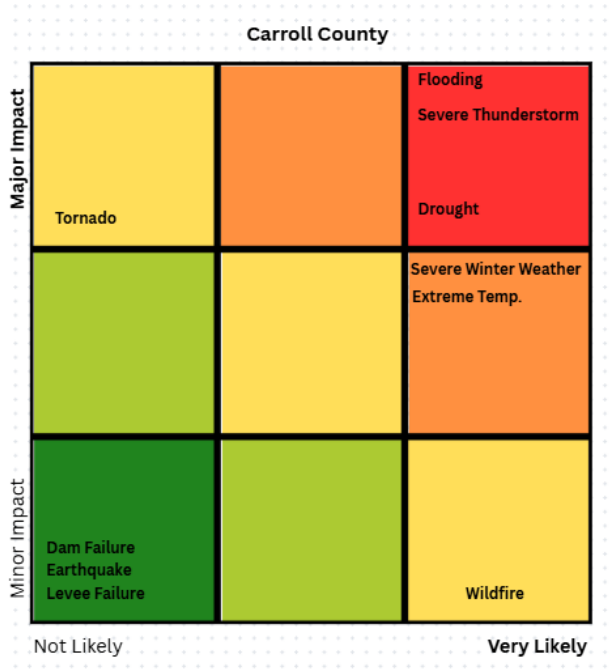
of Natural Resources (DNR) dam information, the National Inventory of Dams (NID), dam inspection reports, state fire reports, Wildland/Urban Interface and Intermix areas from the SILVIS Lab - Department of Forest Ecology and Management - University of Wisconsin, local comprehensive plans, economic development plans, capital improvement plans, US Department of Agriculture's (USDA) Risk Management Agency Crop Insurance Statistics, and local budgets.

- Relevant data from the above-mentioned sources was included in the plan where applicable. These sources were used to identify risks, previous losses, vulnerabilities, and provide additional information in the "risk assessment" for potential hazards. (See chapter 3)

Step 4: Assess the Hazard: Identify and Profile Hazards
(Handbook Task 4)

- To adequately assess the issues, resources available on the Internet, existing reports and plans, information provided by jurisdictions on the Data Questionnaires, and HAZUS Data was utilized to compile information about each identified hazard. Each of the hazards was revised to include the most recent location data, previous occurrences, probability of future occurrence, and magnitude/severity. Losses were estimated using a combination of resources, including HAZUS data and information available from local resources. The data collection questionnaires, the 2023 Missouri State Hazard Mitigation Plan, and the 2021 Carroll County Hazard Mitigation Plan were also utilized to assess the hazards.
- Meeting #1 discussed the hazards present in each jurisdiction. The MPC determined that the hazards included in the Carroll County Hazard Mitigation Plan would be natural hazards only.
- During Meeting #3 the MPC was asked to review the completed data collection questionnaires, the survey results, and additional information provided by plan participants. Any additional information provided through the questionnaires was incorporated into the plan.
- The following figure is a screenshot of a risk assessment conducted by participants and was used to help prioritize which hazards they might focus on when considering new actions. Members of the MPC agreed that hazards that were in the red and orange squares would provide the most benefit if mitigated.

Figure 1.3. Risk Assessment for Carroll County



Step 5: Assess the Problem: Identify Assets and Estimate Losses
(Handbook Task 4)

- During Meeting #2 the participants and GHRPC staff rated hazards on frequency and degree of impact. This risk assessment was used to determine which hazards had the most impact in terms of financial losses, frequency of occurrences, injuries, and/or deaths related to the hazards.
- Also, during Meeting #2 each jurisdiction was asked to provide information about vulnerable assets to said jurisdiction. Included were people, structures, economic assets, natural, historic, and cultural resources, critical facilities and infrastructure, community activities, and other assets.
- In cases where vulnerability estimates were unavailable, data from the 2023 Missouri State Hazard Mitigation Plan was utilized as the best and most recent data available SEMA was also able to share some preliminary data from the 2023 State Plan update.
- The following information was used to determine the assets and estimate losses in Carroll County: census, GIS data, HAZUS, and the Data Collection Questionnaire.
- Losses were estimated using the Missouri State Hazard Mitigation Plan and available HAZUS data for Carroll County.

Step 6: Set Goals
(Handbook Task 6)

At the 2nd planning meeting the MPC reviewed the goals of the previously approved plan, they made the determination to update the goals to better address the specific hazards to the region and make implementation and planning more efficient. The goals can be found in Section 4 of the Carroll County Hazard Mitigation Plan. They were listed as follows:

- Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorms/high winds, hail, and lightning.
- Goal 2: Minimize property damage due to flooding, levee failure, and dam failure.
- Goal 3: Minimize the impact to natural and human resources caused by drought,

extreme temperatures, and wildfire.
- Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather.
- Goal 5: Minimize injuries and property damage due to seismic and/or geological events.

Step 7: Review Possible Mitigation Actions and Activities
(Handbook Task 6)

At the #3 Meeting the MPC reviewed the mitigation strategy from the previously approved plan and the updated risk assessment and proposed new actions, if any.

- Each jurisdiction was provided with a Previous Actions Worksheet. This allowed them to report on progress made on previous actions, and determine which actions would be retained, modified, or deleted. MPC members were encouraged to continue forward only those actions that substantively addressed long-term risks identified in the risk assessment.
- Each jurisdiction was made aware that they were required to have at least one mitigation action for each identified hazard.
- The FEMA publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)* was made available to the planning committee. It was suggested that this would be a valuable resource in guiding the planning activities to mitigate hazards in the planning area.
- Participants were encouraged to focus on long-term mitigation solutions and consideration was given to the potential cost of each project in relation to the anticipated future cost savings.
- The Carroll County Hazard Mitigation Planning Committee utilized the STAPLEE method for evaluating the priority and effectiveness of each action. The completed STAPLEE worksheets can be found in Appendix C.

Step 8: Draft an Action Plan
(Handbook Task 6)

The action worksheets, including the plan for implementation, submitted by each jurisdiction for the updated Mitigation Strategy are included in Chapter 4.

Step 9: Adopt the Plan
(Handbook Task 8)

Each jurisdiction was made aware that they must adopt the plan prior to submission to SEMA. Each jurisdiction will document the adoption of the plan. This documentation can be found in Appendix E.

Step 10: Implement, Evaluate, and Revise the Plan
(Handbook Tasks 7 & 9)

At the 3rd planning meeting, where actions were scored and decided upon, the MPC along with the GHRPC Planner agreed to meet at least annually to determine if actions were ongoing or completed. It was determined that the Hazard Mitigation Committee would utilize the existing emergency committee meetings once annually to discuss any needed updates,

changes, or progress on the plan's actions. It was determined that at these meetings, any amendments that were needed in the plan would be discussed and undertaken if necessary. There is more detailed information about the strategy for plan maintenance in Chapter 5 of the Carroll County Hazard Mitigation Plan.

2 PLANNING AREA PROFILE AND CAPABILITIES

2 PLANNING AREA PROFILE AND CAPABILITIES 2.1

2.1 Carroll County Planning Area Profile 2.2

2.1.1 Geography, Geology and Topography 2.3
2.1.2 Climate 2.5
2.1.3 Population/Demographics 2.5
2.1.4 Occupations 2.7
2.1.5 Agriculture 2.8
2.1.6 FEMA Hazard Mitigation Assistance (HMA) Grants in Planning Area 2.11
2.1.7 FEMA Public Assistance (PA) Grants in Planning Area 2.11

2.2 Jurisdictional Profiles and Mitigation Capabilities 2.19

2.2.1 Unincorporated Carroll County 2.19
2.2.2 City of Bogard 2.24
2.2.3 Town of Carrollton 2.27
2.2.4 City of DeWitt 2.31
2.2.5 City of Hale 2.35
2.2.6 City of Norborne 2.39
2.2.7 Summary of Jurisdictional Capabilities 2.43
2.2.8 School District Profiles and Mitigation Capabilities 2.46

2.1 CARROLL COUNTY PLANNING AREA PROFILE

Figure 2.1. Map of Carroll County with City Names

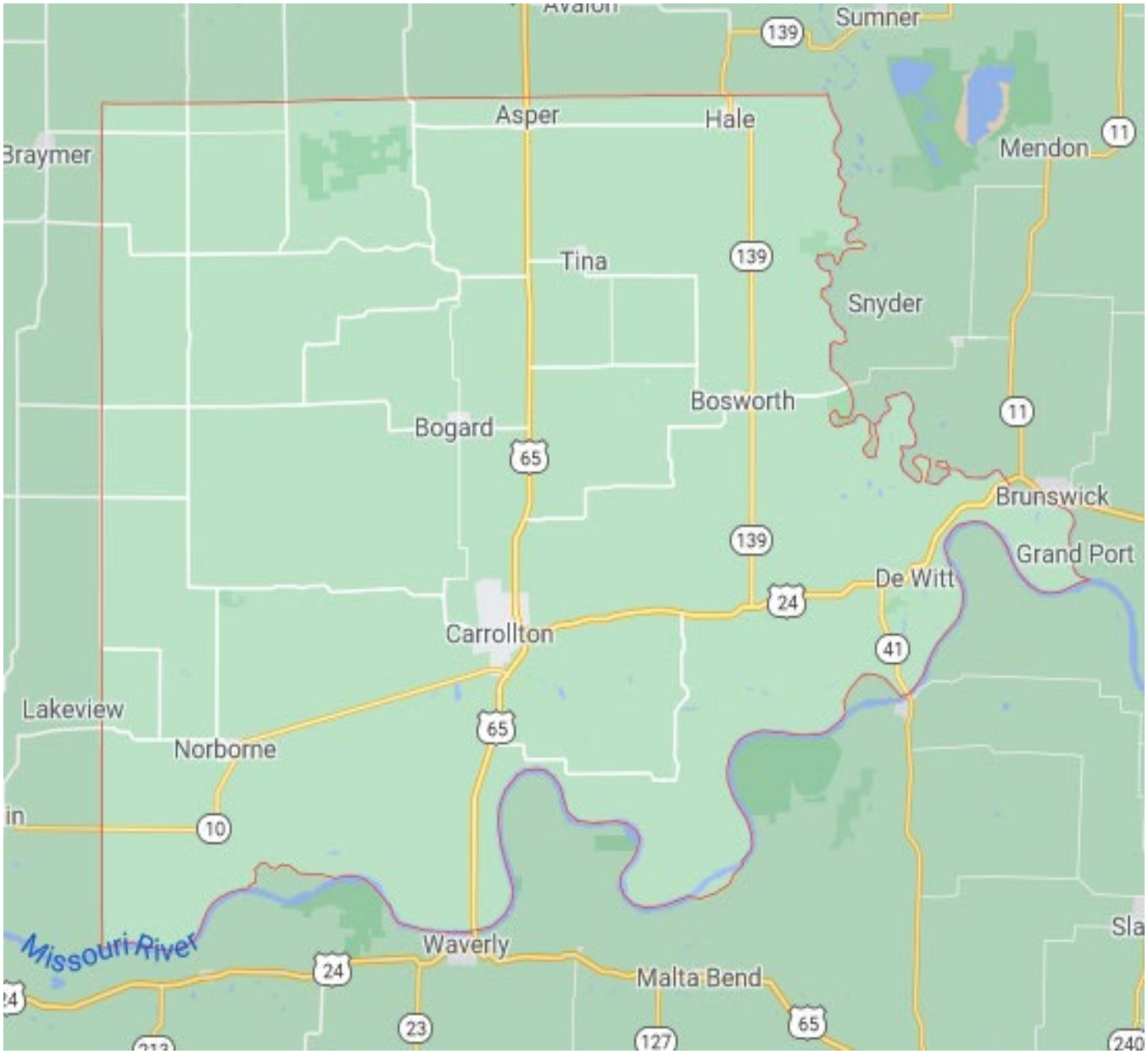


Figure 2.2. Map of Missouri with Carroll County Highlighted in Red



According to the US Census, the population estimate for Carroll County as of the American Community Survey for 2023 is 8,391 persons compared to the 2020 Census population of 8,495, which is a 1.2% decrease in the three-year estimate period.

The decrease in population falls far behind the growth estimate for the State of Missouri for the same period, which is 0.2% and the Nation's growth estimate of 0.3%. According to the 2023 American Community Survey Estimates, Carroll County has experienced a 18.3% decrease in population since the 2000 Census.

In 2010 the median household income in Carroll County was $42,582. The state of Missouri, in 2010, had a median household income of $47,764, while the national median household income was $53,482. According to the most recent Census data the median household income was: $61,712 for Carroll County, the State of Missouri $68,920, and the United States $78,538. Carroll County saw an increase in median household income of 29.20% since 2010.
In 2010 the median house value was: $80,900 for Carroll County, $136,700 for the State of Missouri, and $175,700 nationally. The latest Census data for the median house value was as follows: Carroll County $110,500, the State of Missouri $215,600, and the United States $303,400. Carroll County saw an increase in median house value of 36.59% since the 2010 Census.

2.1.1 Geography, Geology and Topography

Carroll County has a total of 695 square miles of land and approximately 6.8 square miles of water, as reported by the U.S. Census Bureau.

The County is a mix of residents living in unincorporated and incorporated areas. The City of Carrollton is the largest with a population of 3,478, the City of Norborne has a population of 630, the City of Hale has a population of 373, the Village of Tina has a population of 136, the City of Bosworth has a population of 209, the City of Bogard has a population of 163, and the City of DeWitt has a population of 82, all according to the 2023 Population Estimates Program from the U.S. Census Bureau. The remaining residents of Carroll County live in unincorporated areas. The county is rural and agriculture is the main enterprise in the county. Crops and pasture make up the bulk of the land cover, but there are some forested areas on the floodplains along major creeks and the Missouri River.

The Missouri River flows along the southern border of the County from west to east. The Grand

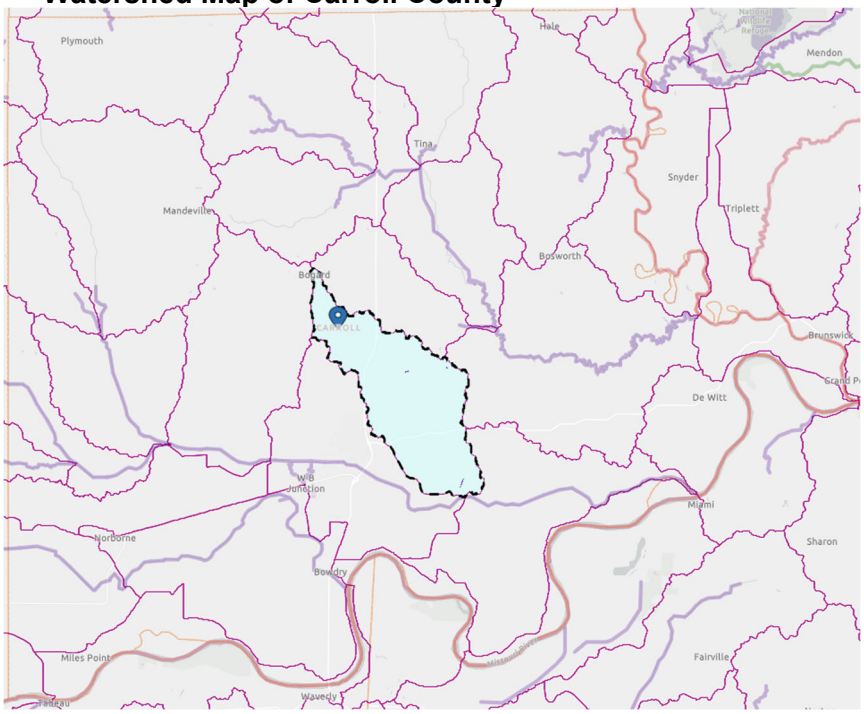
River forms the eastern border of the county, flowing north to south, meeting the Missouri River in the Southeastern corner of the county. There are two major creeks in the County. Wakenda Creek with its numerous tributaries is found north of the Missouri River and Big Creek and its numerous tributaries are found northeast of Wakenda Creek. Both creeks run from northwest to southeast.

There are six soil associations in Carroll County. The Gosport-Greenton-Sharpsburg association covers approximately 12% of the County and is characterized by moderately deep and deep, gently sloping to steep, moderately well drained and somewhat poorly drained soils that formed in shale residuum and in loess on uplands.
The Lagonda-Armster-Grundy association makes up about 40% of the County, is found on ridgetops and moderately dissected side slopes adjacent to small drainage ways and is characterized by deep, gently to strongly sloping, somewhat poorly and moderately well drained soils that formed in loess, pedisediment and glacial till.

The Colo-Nodaway association makes up about 12% of the County, is found on floodplains along the intermediate and small tributaries of the Missouri River and is characterized by deep, nearly level, poorly and moderately well drained soils that formed in alluvium. The Knox-Higginsville-Wakenda association makes up about 10% of the County, is found on narrow and moderately wide ridge tops and side slopes and is characterized by deep, gently to steep sloping, well and somewhat poorly drained soils that formed in a thick layer of loess. The Bremer-Cotter-Booker association makes up about 14% of the County, is found on the wide flood plains along the Missouri River and is characterized by deep, nearly level, well drained, poorly drained and very poorly drained soils that formed in alluvium. The Leta-Haynie-Waldron association makes up about 12% of the County, is found on the wide flood plains along the Missouri River and is characterized by deep, nearly level, somewhat poorly and moderately well drained soils that formed in calcareous alluvium.

The following figure shows the watersheds located in Carroll County. The condition of each waterbody is indicated by the color in the map. The key can be found following the figure.

Figure 2.3. Watershed Map of Carroll County





Source: Mywaterway.epa.gov

2.1.2 Climate

Carroll County, Missouri has a humid continental climate, characterized by four distinct seasons with hot, humid summers and cold, snowy winters. The average high temperature for the year is about 65°F, with an average low around 43°F. In the summer, July is typically the hottest month with an average high of 88°F and a low of 69°F. Winter is very cold, with January being the coldest month with an average low of 23°F and a high of 39°F. Temperature extremes have been recorded, with the highest on record at 114°F and the lowest at -34°F.

The county receives a significant amount of precipitation throughout the year, with an average annual rainfall of about 40-42 inches. This rainfall is not evenly distributed; the wettest months are typically in late spring and early summer. May and June see the highest rainfall, with averages of over 5 inches, while the driest months are in winter, particularly January and December, which receive less than 2 inches on average. The high humidity during the summer months contributes to frequent thunderstorms.

Carroll County also experiences seasonal snowfall, primarily during the winter months. The average annual snowfall is around 13-16 inches, with most of it occurring from December through February. December, January, and February each average several inches of snow, while November and March see much smaller amounts. It's rare to see snow outside of these months, though trace amounts can occur in late autumn or early spring.

2.1.3 Population/Demographics

Table 2.1 provides the populations for each city, village, and the unincorporated county for 2000, 2010, and latest population estimates or American Community Survey with the number and percentage change. The unincorporated area population can be estimated by subtracting the populations of the incorporated areas from the overall county population.

Table 2.1. Carroll County Population 2010-2023 by Jurisdiction

Jurisdiction	Total Population 2010	2020 Population	2023 Annual Population Estimate or ACS Population	# Change (2010-2023)	% Change (201-2023)
Carroll County	9,295	8,554	8,391	-904	-9.70%
Carroll County, Unincorporated	3,651	3,466	3,320	-331	9.1%
City of Bogard	164	164	163	-1	-0.6%
City of Bosworth	305	213	209	-96	-31.5%
City of Carrollton	3,776	3,471	3,478	-298	-7.9%
City of De Witt	121	85	82	-39	-32.2%
City of Hale	418	376	373	-45	-10.8%

City of Norborne	707	641	630	-77	-10.9%
Village of Tina	153	138	136	-17	-11.1%

Source: U.S. Bureau of the Census, Decennial Census, annual population estimates/ 5-Year American Community Survey 2023;
*population includes the portions of these cities in adjacent counties

According to the latest American Community Survey 5-year estimates, the following table shows the population of Carroll County that is under the age of 5 or 65 years of age or older. These figures are displayed with the Missouri and National information for comparison. Carroll County has a slightly lower population than the State and Nation. The 65+ population in Carroll County is more than 5% higher when compared to the national data.

Table 2.2. Vulnerable Populations in Carroll County, Missouri, and the United States

Age	Carroll County	Missouri	United States
Under 5 (%)	5.3%	5.7%	5.5%
65 and Over (%)	23.0%	18.3%	17.7%

Source: US Census Bureau

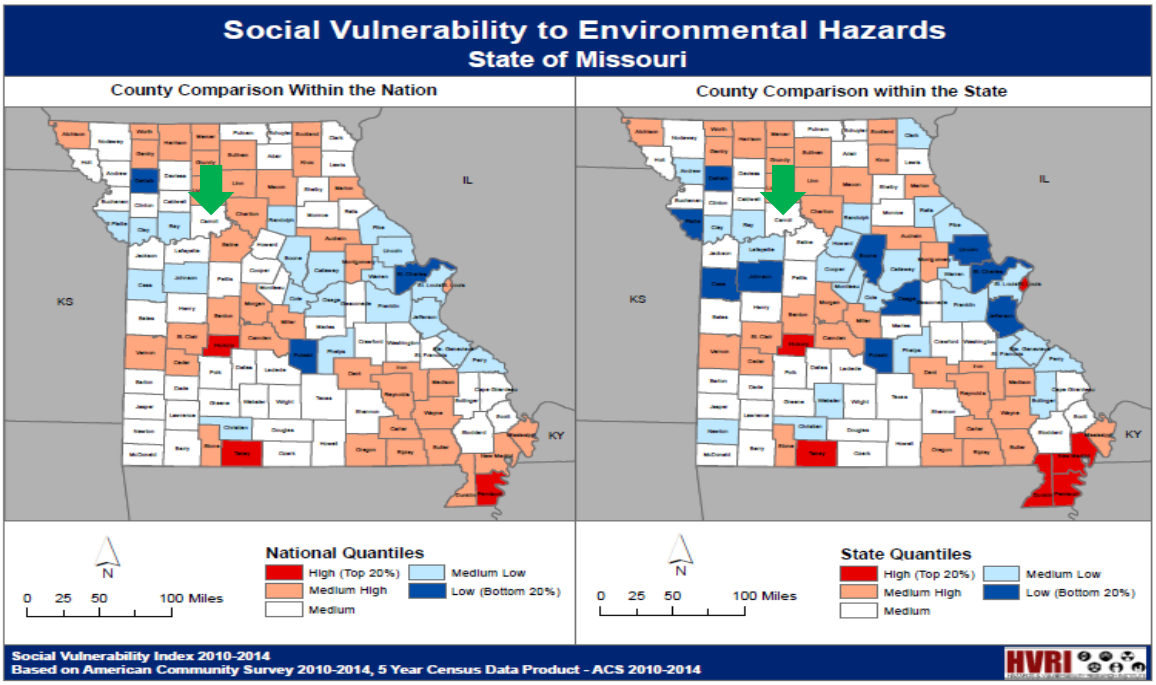
Table 2.3. Carroll County, Missouri, and US Households and Household Size

Location	# of Households	Household Size
Carroll County	3,443	2.43
Missouri	2,484,834	2.42
United States	127,482,865	2.54

Source: US Census; ACS 5-year Survey 2023

The University of South Carolina developed an index to evaluate and rank the ability to respond to, cope with, recover from, and adapt to disasters. The index synthesizes 29 socioeconomic variables which research literature suggests contribute to reduction in a community's ability to prepare for, respond to, and recover from hazards. SoVI ® data sources include primarily those from the United States Census Bureau.
To visually compare the SoVI® scores at a state and national level, they are mapped using quantiles. Scores in the top 20% of the United States are more vulnerable counties (red) and scores in the bottom 20% of the United States indicate the least vulnerable counties (blue). A low SoVI score number means that the county is more resilient to hazard events, and a high SoVI score number means the county is less resilient. Carroll County has a medium SoVI score.

Figure 2.4. Social Vulnerability to Environmental Hazards in Missouri



Source: 2023 Missouri Hazard Mitigation Plan

Table 2.4. Unemployment, Poverty, Education, and Language Percentage Demographics, Carroll County, Missouri

Jurisdiction	Total in Labor Force	Percent of Population Unemployed	Percent of Families Below the Poverty Level	Percentage of Population (High School graduate)	Percentage of Population (Bachelor's degree or higher)	Percentage of population with spoken language other than English
Carroll Couny	3,959	5.2%	14.3%	89.7%	20.2%	1.0%
City of Bogard	91	3.3%	20.1%	65.8%	17.3%	0%
City of Bosworth	90	8.2%	7.0%	46.0%	1.4%	0%
City of Carrollton	1,505	5.6%	16.4%	43.1%	22.3%	1.0%
City of De Witt	14	3.1%	34.4%	49.3%	0%	4.1%
City of Hale	224	0.4%	8.2%	49.8%	13.4%	2.1%
City of Norborne	333	1.3%	10.1%	36.1%	15.6%	0.0%
Village of Tina	65	3.2%	28.8%	61.8%	1.8%	0%
Missouri	3,195,524	3.4%	12.0%	63.3%	33.2%	7.0%%
United States	173,038,795	4.3%	12.5%	66.1%	36.2%	22.5%

Source: U.S. Census, 2023 American Community Survey, 5-year Estimates.

2.1.4 Occupations

Table 2.5. Occupation Statistics, Carroll County, Missouri

Place	Management, Business, Science, and Arts Occupations	Service Occupations	Sales and Office Occupations	Natural Resources, Construction, and Maintenance Occupations	Production, Transportation, and Material Moving Occupations

Carroll County	1,371	651	632	470	628
City of Bogard	36	12	11	22	7
City of Bosworth	17	4	2	22	33
City of Carrollton	451	393	244	168	164
City of De Witt	0	1	3	1	9
City of Hale	46	37	53	25	61
City of Norborne	126	57	52	39	31
Village of Tina	11	13	10	10	17

Source: U.S. Census, 2023 American Community Survey, 5-year Estimates.

2.1.5 Agriculture

The Carroll County Profile of the 2022 Census of Agriculture indicated that the county has a total of 960 farms with a total of 393.921 acres.

The average farm size is 410 acres, which 102 acres is above the State average of 308 acres. Land use on Carroll County farms breaks out as cropland with 79.1%, pastureland with 8.7%, woodland at 7.1% and all other uses type makeup the remaining 5.0% of use. The top crop for Carroll County is Soybeans for beans with 142,225 acres planted.

Corn is the second crop producer with 84,784 planted, followed by 24,440 planted acres of hay and all other forage. The average sales per farm is $217,937 with crop sales making up 91.5% and livestock, poultry and products making up the other 8.4% of the sales.

Figure 2.5 Census of Agriculture for Carroll County, Missouri (pg. 1)

2022 CENSUS OF AGRICULTURE *County Profile*





Carroll County Missouri

Total and Per Farm Overview, 2022 and change since 2017

	2022	% change since 2017
Number of farms	960	-6
Land in farms (acres)	393,921	-7
Average size of farm (acres)	410	-2
Total	($)	
Market value of products sold	209,220,000	+45
Government payments	11,353,000	+9
Farm-related income	9,070,000	-16
Total farm production expenses	134,180,000	+26
Net cash farm income	95,462,000	+61
Per farm average	($)	
Market value of products sold	217,937	+53
Government payments [a]	17,574	+35
Farm-related income [a]	17,408	-2
Total farm production expenses	139,771	+33
Net cash farm income	99,440	+70

1 Percent of state agriculture sales

Share of Sales by Type (%)

Crops	92
Livestock, poultry, and products	8

Land in Farms by Use (acres)

Cropland	311,649
Pastureland	34,526
Woodland	27,997
Other	19,749

Acres irrigated: 4,751
1% of land in farms

Land Use Practices (% of farms)

No till	28
Reduced till	18
Intensive till	18
Cover crop	10

Farms by Value of Sales

	Number	Percent of Total [b]
Less than $2,500	362	38
$2,500 to $4,999	58	6
$5,000 to $9,999	56	6
$10,000 to $24,999	94	10
$25,000 to $49,999	90	9
$50,000 to $99,999	67	7
$100,000 or more	233	24

Farms by Size

	Number	Percent of Total [b]
1 to 9 acres	25	3
10 to 49 acres	178	19
50 to 179 acres	344	36
180 to 499 acres	229	24
500 to 999 acres	83	9
1,000+ acres	101	11

USDA United States Department of Agriculture
National Agricultural Statistics Service
www.nass.usda.gov/AgCensus

Figure 2.6 Census of Agriculture for Carroll County, Missouri (pg. 2)

Carroll County
Missouri, 2022
Page 2

2022 CENSUS OF AGRICULTURE *County Profile*

Market Value of Agricultural Products Sold

	Sales ($1,000)	Rank in State [c]	Counties Producing Item	Rank in U.S. [c]	Counties Producing Item
Total	**209,220**	**20**	**114**	**787**	**3,078**
Crops	**191,532**	**10**	**114**	**401**	**3,074**
Grains, oilseeds, dry beans, dry peas	189,115	8	109	280	2,917
Tobacco	-	-	2	-	267
Cotton and cottonseed	-	-	7	-	647
Vegetables, melons, potatoes, sweet potatoes	146	52	112	1,599	2,831
Fruits, tree nuts, berries	(D)	(D)	112	(D)	2,711
Nursery, greenhouse, floriculture, sod	(D)	53	104	(D)	2,660
Cultivated Christmas trees, short rotation woody crops	-	-	36	-	1,274
Other crops and hay	2,070	56	114	1,414	3,035
Livestock, poultry, and products	**17,687**	**81**	**114**	**1,831**	**3,076**
Poultry and eggs	35	89	113	1,787	3,027
Cattle and calves	(D)	73	114	(D)	3,047
Milk from cows	(D)	(D)	84	(D)	1,770
Hogs and pigs	(D)	40	111	(D)	2,814
Sheep, goats, wool, mohair, milk	64	83	111	1,704	2,967
Horses, ponies, mules, burros, donkeys	185	48	113	1,170	2,907
Aquaculture	(D)	34	36	(D)	1,190
Other animals and animal products	28	52	106	1,459	2,909

Producers [d]	**1,666**
Sex	
Male	1,128
Female	538
Age	
<35	103
35 – 64	826
65 and older	737
Race	
American Indian/Alaska Native	3
Asian	-
Black or African American	9
Native Hawaiian/Pacific Islander	2
White	1,651
More than one race	1
Other characteristics	
Hispanic, Latino, Spanish origin	9
With military service	196
New and beginning farmers	351

Percent of farms that:

Have internet access	**75**
Farm organically	**(Z)**
Sell directly to consumers	**1**
Hire farm labor	**19**
Are family farms	**94**

Top Crops in Acres [e]

Soybeans for beans	142,225
Corn for grain	84,748
Forage (hay/haylage), all	24,440
Wheat for grain, all	3,887
Corn for silage/greenchop	751

Livestock Inventory (Dec 31, 2022)

Broilers and other meat-type chickens	115
Cattle and calves	24,360
Goats	150
Hogs and pigs	(D)
Horses and ponies	348
Layers	825
Pullets	150
Sheep and lambs	512
Turkeys	68

[a] Average per farm receiving. [b] May not add to 100% due to rounding. [c] Among counties whose rank can be displayed. [d] Data collected for a maximum of four producers per farm. [e] Crop commodity names may be shortened; see full names at www.nass.usda.gov/go/cropnames.pdf. [f] Position below the line does not indicate rank. (D) Withheld to avoid disclosing data for individual operations. (NA) Not available. (Z) Less than half of the unit shown. (-) Represents zero.

USDA is an equal opportunity provider, employer, and lender.

2.1.6 FEMA Hazard Mitigation Assistance (HMA) Grants in Planning Area

Inclusion of the history of previous hazard events for each identified hazard *since the last update* is a MUST that is met in Chapter 3, Section 3.1.2, with documentation of state of emergency declarations.

Table 2.6. FEMA HMA Grants in Carroll County from 1993-2024

Disaster Declaration	Project Type	Sub-Grantee	Date Approved	Project Total
DR-1253	ACQUISITION OF 7 FLOODPRONE PROPERTIES	City of Carrollton	3/10/99	$171,719
DR-995	ACQUISITION OF PROPERTIES IN FLOODPLAIN	Wakenda	9/5/95	$216,966
Total				**$825,246**

Source: Federal Emergency Management Agency, 12/20/2024

2.1.7 FEMA Public Assistance (PA) Grants in Planning Area

Table 2.7. FEMA PA Grants in Carroll County from 1993-2023

Disaster Declaration	Incident Type	Project Size	Applicant	Project Total
1403	Severe Ice Storm	Small	ICE STORM DEBRIS	17199.5
1403	Severe Ice Storm	Small	ICE STORM DEBRIS	1736
1403	Severe Ice Storm	Small	ICE STORM DEBRISREMOVAL AND DISPOSAL	15560
1403	Severe Ice Storm	Small	ICE STORM DEBRIS REMOVAL	2843.2
1403	Severe Ice Storm	Small	ICE STORM DEBRIS REMOVAL	2016
1403	Severe Ice Storm	Small	DEBRIS REMOVAL	2400
1403	Severe Ice Storm	Small	ICE STORM DEBRISREMOVAL	2440
1403	Severe Ice Storm	Small	DEBRIS REMOVAL	25899
1403	Severe Ice Storm	Small	DEBRIS REMOVAL	1370
1403	Severe Ice Storm	Small	DEBRIS REMOVAL	2890
1403	Severe Ice Storm	Small	DEBRIS REMOVAL	11186
1403	Severe Ice Storm	Small	ICE STORM DEBRIS	8891
1403	Severe Ice Storm	Large	ICE STORM UTILITY LOSSES/DAMAGES	124579.57
1403	Severe Ice Storm	Large	DEBRIS REMOVAL	54215.74
1403	Severe Ice Storm	Small	DONATED RESOURCES	532.5
1403	Severe Ice Storm	Small	DONATED RESOURCES	187.5
1403	Severe Ice Storm	Small	DEBRIS REMOVAL	17918
1412	Severe Storm	Small	ROAD WASHOUTS	11293.49
1412	Severe Storm	Small	REPAIR FLOOD-DAMAGED GRAVEL ROADS	34960.7
1412	Severe Storm	Small	REPAIR FLOOD DAMAGED GRAVEL ROADS	34764.01
1412	Severe Storm	Small	ROAD DAMAGE	23354.35
1412	Severe Storm	Small	POTABLE WATER SUPPLY	9682.43
1412	Severe Storm	Small	POTABLE WATER SYSTEM	11939.3
1412	Severe Storm	Small	REPAIR WASHED OUT ROADS	44939.55
1412	Severe Storm	Small	GRAVEL ROAD REPAIR & DITCH CLEANING	27510.2

1412	Severe Storm	Small	ROAD DAMAGE	16874.28
1412	Severe Storm	Small	ROAD DAMAGE	41513.85
1412	Severe Storm	Large	ROAD WASHOUTS/CMP DEBRIS	64312.8
1412	Severe Storm	Small	ROAD DAMAGE	1755.64
1412	Severe Storm	Small	DRAINAGE PIPE	1128.45
1412	Severe Storm	Small	ROAD DAMAGE	1242.03
1412	Severe Storm	Large	DRAINAGE DAMAGE	23317.22
1412	Severe Storm	Small	LEVEE DAMAGE	4635
1412	Severe Storm	Small	ROAD/CULVERT WASHOUT	6134.6
1412	Severe Storm	Small	ROAD DAMAGE	17259.78
1412	Severe Storm	Small	ROAD DAMAGE	14928.2
1412	Severe Storm	Small	ROAD DAMAGE	18627.6
1412	Severe Storm	Small	ROAD DAMAGE	21940.32
1412	Severe Storm	Small	ROAD DAMAGE	25932.32
1412	Severe Storm	Small	ROAD WASHOUTS	13038.53
1412	Severe Storm	Small	ROAD WASHOUT	5344.93
1412	Severe Storm	Small	ROAD WASHOUTS	51208
1412	Severe Storm	Small	ROAD DAMAGE	3183.92
1412	Severe Storm	Small	ROAD DAMAGE	8610
1412	Severe Storm	Large	ROAD DAMAGE	58650
1412	Severe Storm	Small	ROAD WASHOUTS	5713.7
1412	Severe Storm	Small	ROAD DAMAGE	48269.27
1412	Severe Storm	Large	DESTROYED BRIDGE	55468.74
1412	Severe Storm	Small	WASHED OUT ROAD	1622.71
1412	Severe Storm	Small	CULVERTS WASHED OUT & DESTROYED	8662.71
1412	Severe Storm	Small	DESTROYED BRIDGE	46362.6
1412	Severe Storm	Small	ROADS, CULVERTS, BRIDGE	37877.85
1631	Severe Storm	Small	PUBLIC UTILITIES	42292.5
1708	Severe Storm	Small	EMERGENCY PROTECTIVE MEASURES	3645.26
1708	Severe Storm	Small	FLOOD GENERATED ROAD WASHOUT	21191.31
1708	Severe Storm	Small	FLOOD GENERATED ROAD WASHOUT	26253.08
1708	Severe Storm	Small	ROAD WASHOUT	23627.69
1708	Severe Storm	Small	FLOOD GENERATED ROAD WASHOUT	42274.98
1708	Severe Storm	Small	FLOOD GENERATED ROAD WASHOUT	35591.2
1708	Severe Storm	Small	FLOOD GENERATED ROAD WASHOUT	22324.9
1708	Severe Storm	Small	ROAD WASHOUT	6122.97
1708	Severe Storm	Small	ROAD WASHOUT	20874.85
1708	Severe Storm	Small	ROAD DEBRIS	2463.36
1708	Severe Storm	Small	EMERGENCY PROTECTIVE MEASURES	4264.26
1708	Severe Storm	Small	ROAD DAMAGE	34586.81
1708	Severe Storm	Small	ROAD REPAIRS	25544.73
1708	Severe Storm	Small	CULVERT WASHOUT	4400.3

1708	Severe Storm	Small	WATERLINE SECTION SCOURED	7246
1708	Severe Storm	Small	WATER LINE DAMAGES	1347.89
1708	Severe Storm	Small	UTILITY - DAMAGED 3 INCH WATER LINE	1054.35
1708	Severe Storm	Small	DAMAGED WATER LINES	1341.04
1708	Severe Storm	Small	EMERGENCY PROTECTIVE MEASURES	5775
1708	Severe Storm	Small	ROAD WASHOUT	47658.3
1708	Severe Storm	Small	ROAD FLOODING	38098.36
1708	Severe Storm	Small	DEBRIS REMOVAL	6406.01
1708	Severe Storm	Small	ROAD/CULVERT WASHOUT	26863.67
1708	Severe Storm	Small	ROAD WASHSOUT	13210.45
1708	Severe Storm	Small	ROADS	9629.33
1708	Severe Storm	Small	ROAD/CULVERT WASHOUT	18678.91
1708	Severe Storm	Small	DITCHLINE CLEANING	7601.02
1708	Severe Storm	Small	ROAD AND DITCHLINES	7446.91
1708	Severe Storm	Small	ROADS - CR 140 AND CR 120	11720.77
1708	Severe Storm	Small	ROADS DAMAGE	26418.95
1708	Severe Storm	Small	ROAD/DITCH WASHOUT	7701.67
1708	Severe Storm	Small	ROAD WASHOUT	40747.55
1708	Severe Storm	Small	DEBRIS REMOVAL	8266.52
1708	Severe Storm	Small	DEBRIS REMOVAL	2215.18
1708	Severe Storm	Small	EMERGENCY PROTECTIVE MEASURES	8169.72
1708	Severe Storm	Small	DEBRIS REMOVAL	1074.2
1708	Severe Storm	Small	ROAD DAMAGE	26353.16
1708	Severe Storm	Small	ROAD WASHOUT	12821.33
1708	Severe Storm	Large	ROAD WASHOUTS	80496.42
1708	Severe Storm	Small	ROADWAY & CULVERT WASHOUTS	1229.4
1708	Severe Storm	Small	ROAD WASHOUT	4885.25
1708	Severe Storm	Small	ROAD WASHOUT	8376.46
1708	Severe Storm	Small	ROAD WASHOUT	1868.63
1708	Severe Storm	Small	LEVEE BREACHES	8389
1708	Severe Storm	Small	ROADS - SITES 1 & 2 CR 250 & SITE 3 - CR 240	4086.85
1708	Severe Storm	Small	ROAD - CR 230 SITES 1 & 2	2877.93
1708	Severe Storm	Small	ROAD WASHOUT	3483.92
1708	Severe Storm	Small	ROADS	12094.79
1708	Severe Storm	Small	ROAD WASHOUT	2896.8
1708	Severe Storm	Small	ROAD DAMAGE	7586.4
1708	Severe Storm	Small	ROAD DAMAGE	13046.2
1708	Severe Storm	Small	ROADS	1934.3
1708	Severe Storm	Small	GRAVEL ROAD WASHOUT	17592.6
1708	Severe Storm	Large	GRAVEL ROAD WASHOUT	89420.43
1708	Severe Storm	Small	AGGREGATE REPLACEMENT	14889.02
1708	Severe Storm	Small	GRAVEL WASHOUT	19174.75
1708	Severe Storm	Small	ROAD DAMAGE	1851.68
1708	Severe Storm	Small	ROAD WASHOUT	2457.16

1708	Severe Storm	Small	DEBRIS REMOVAL	31490
1708	Severe Storm	Small	DEBRIS REMOVAL	7470
1708	Severe Storm	Small	EMERGENCY PROTECTIVE MEASURES	29682.61
1708	Severe Storm	Small	PUMP DAMAGE	22977
1708	Severe Storm	Small	PUMP DAMAGE	4725.6
1708	Severe Storm	Small	DEBRIS REMOVAL	5341
1708	Severe Storm	Small	DEBRIS REMOVAL	5000
1708	Severe Storm	Small	DEBRIS REMOVAL	15253
1708	Severe Storm	Small	EMERGENCY PROTECTIVE MEASURES	3513.5
1708	Severe Storm	Small	DEBRIS REMOVAL	4900
1708	Severe Storm	Small	DEBRIS REMOVAL	6120
1708	Severe Storm	Small	DEBRIS REMOVAL	36250
1773	Severe Storm	Small	BRIDGE & CULVERT WASHOUT	11092.23
1773	Severe Storm	Small	ROAD / CULVERT WASHOUT	14249.88
1773	Severe Storm	Small	Road and culvert washout	13567
1773	Severe Storm	Small	ROAD WASHOUT	26022.4
1773	Severe Storm	Small	ROAD WASHOUT	60348.48
1773	Severe Storm	Small	ROAD WASHOUT	25693.32
1773	Severe Storm	Small	ROAD WASHOUT	23028.46
1773	Severe Storm	Small	ROAD WASHOUT	38087.8
1773	Severe Storm	Small	ROAD WASHOUT	25314.9
1773	Severe Storm	Small	ROAD WASHOUT	24553.79
1773	Severe Storm	Small	ROAD WASHOUT	29045.97
1773	Severe Storm	Small	ROAD WASHOUT	42343.87
1773	Severe Storm	Small	ROAD WASHOUT	7663.95
1773	Severe Storm	Small	ROAD WASHOUT	49895.15
1773	Severe Storm	Small	ROAD WASHOUT	7982.28
1773	Severe Storm	Small	ROAD WASHOUT	25869.74
1773	Severe Storm	Small	ROAD WASHOUT	48836
1773	Severe Storm	Small	ROAD WASHOUTS	48276.91
1773	Severe Storm	Small	ROAD WASHOUT	5505.82
1773	Severe Storm	Small	ROAD WASHOUT	59860.32
1773	Severe Storm	Small	ROAD WASHOUT	51960.44
1773	Severe Storm	Small	WATER SUPPLY LINE DAMAGES	10057.49
1773	Severe Storm	Large	ROAD, CULVERT & BRIDGE WASHOUTS	82304.29
1773	Severe Storm	Small	ROAD WASHOUTS	8075.83
1773	Severe Storm	Small	BRIDGE & CULVERT WASHOUT	45042.22
1934	Severe Storm	Small	C-TM04 - Hurricane Township Roads	19346.78
1934	Severe Storm	Small	C-TM07 - Hurricane Township Roads	10512.39
1934	Severe Storm	Small	C-TM08 - Hurricane Township Roads	16278.24
1934	Severe Storm	Small	CTM09- CR342	13111.2
1934	Severe Storm	Small	C-TM01-Washington Twp Roadway	6822.5
1934	Severe Storm	Small	DCS12- Debris Removal	1040

1934	Severe Storm	Small	C-TM02'Sugar Tree (Tws of) Roadways	12834.13
1934	Severe Storm	Small	DCS01- Emergency Protective Measures	59935
1934	Severe Storm	Small	DCS09 - Emergency Protective Measures	9300
1934	Severe Storm	Small	DCS13 - Emergency Protective Measures	53373.75
1934	Severe Storm	Small	C-TM06- Combs Township Roads	26782.91
1934	Severe Storm	Small	C-TM05- Combs Township Roads	42644.29
1934	Severe Storm	Small	C-TM10- Carrollton Township Roads	9986.74
1934	Severe Storm	Small	DSC10-Emergency Protective Measures	2682.5
1934	Severe Storm	Small	DSC11-Debris Removal	1340
1934	Severe Storm	Small	C-TM19 - Stokes Mound Township Roads	6889.54
1934	Severe Storm	Small	C-TM14 - Ridge Township Roads	36270.51
1934	Severe Storm	Small	C-TM13- Ridge Township Roads	21454.65
1934	Severe Storm	Small	25CACMS - Drainage Ditch	8153
1934	Severe Storm	Small	C-TM18- Ridge Township Roads	10356.13
1934	Severe Storm	Small	C-TM17 - Ridge Township Roads	12862.32
1934	Severe Storm	Small	C-TM16 - Ridge Township Roads	6164.22
1934	Severe Storm	Small	KG021- Road and Ditches	20450.63
1934	Severe Storm	Small	KG020- Road and Ditches	17003.22
1934	Severe Storm	Small	24CAFMS - Water Pipes	24845.32
1934	Severe Storm	Small	BJ-C-12 - Roads	17368.34
1934	Severe Storm	Small	BJ-C-11- Roads	18641.15
1934	Severe Storm	Small	DCS23- Donated Resources	292.5
1934	Severe Storm	Small	DCS22 - Emergency Protective Measures	13622.06
1934	Severe Storm	Small	C-TM11- Leslie Township Roads	8121.64
1934	Severe Storm	Small	C-TM12- Leslie Township Roads	13465.52
1934	Severe Storm	Small	28CAFMS - Water Distribution Pipe	8544
1934	Severe Storm	Small	C-TM15 - Carroll County Roads & Bridges	56909.07
1961	Severe Storm	Small	CRRS006 - Roads - EPM	4955.39
1961	Severe Storm	Small	CRRS004 - Roads	1541.4
1961	Severe Storm	Small	CRRS005-Roads and Culverts	1286.85
1961	Severe Storm	Small	CRRH-43-Emergency Protective Measures- 48 Hour Snow Rem	4836
1961	Severe Storm	Small	CRRH-37 - Emergency Protective Measures- 48 Hour Snow R	2507
1961	Severe Storm	Small	CRRH-39 - Emergency Protective Measures- 48 Hour Snow R	5917
1961	Severe Storm	Small	CRRH-33 - Emergency Protective Measures- 48 Hour Snow R	2632
1961	Severe Storm	Small	CRRH-40-Emergency Protective Measures- Donated Resource	2580.77
1961	Severe Storm	Small	CRRH-38-Emergency Protective Measures- Donated Resource	1229.93
1961	Severe Storm	Small	CRRH-36-Emergency Protective Measures- Donated Resource	349.28
1961	Severe Storm	Small	CRRH-35-Emergency Protective Measures-48 Hour Snow Remo	1634

1961	Severe Storm	Small	CRRS001 - Roads - EPM	8199
1961	Severe Storm	Small	CRRH-44 - Emergency Protective Measures- 48 Hour Snow R	2296
1961	Severe Storm	Small	CRRH-45 - Emergency Protective Measures- 48 Hour Snow R	2666
1961	Severe Storm	Small	CRRH-41-Emergency Protective Measures- 48 Hour Snow Rem	3751
1961	Severe Storm	Small	CRRH-42-Emergency Protective Measures- Donated Resource	854.26
1961	Severe Storm	Small	CRJG003 - EPM - 48 HOUR SNOW	2064
1961	Severe Storm	Small	CRJG001 - EMERGENCY PROTECTIVE MEASURES - 48 HOUR SNOW	3053
1961	Severe Storm	Small	CRJG002-EPM-DONATED RESOURCES	624
1961	Severe Storm	Small	CRRS003 - Roads - EPM	3597.59
1961	Severe Storm	Small	CRRH-47-Emergency Protective Measures-Donated Resources	3761.46
1961	Severe Storm	Small	CRRS010 - DONATED RESOURCES - ROADS - EPM	477.12
1961	Severe Storm	Small	CRRH-46-Emergency Protective Measures- 48 Hour Snow Rem	5536.7
1961	Severe Storm	Small	CRRS008 - EPM - Roads	6168
1961	Severe Storm	Small	CRRS011-Roads (EPM)	6158.75
1961	Severe Storm	Small	CRRS009 - Roads - DONATED RESOURCES	1433.11
1961	Severe Storm	Small	CRSS007-Roads and Culverts	1251.55
1961	Severe Storm	Small	CRJG006 - EMERGENCY PROTECTIVE MEASURES - 48 HOUR SNOW	4540
1961	Severe Storm	Small	CRJP005 - Rockford (Township of), Emergency Protective	4325.28
1961	Severe Storm	Small	CRJP001 - Carrollton (Township of), Emergency Protectio	5080.62
1961	Severe Storm	Small	CRJG004 - EPM- 48 HOUR SNOW	3334
1961	Severe Storm	Small	CRJP003-Fairfield (Township of), Emergency Protection M	5212.04
1961	Severe Storm	Small	Carrollton Emergency Protective Measures	19657.99
1961	Severe Storm	Small	Carrollton, Pickup Truck Transmission	2548.88
4012	Flood	Small	JWM-009 - Roads	52859
4012	Flood	Small	WPK-001-Emergency Protective Measures	13200
4012	Flood	Small	WPK-002-Debris Removal	8620.04
4012	Flood	Small	RJR-002 - Emergency Protective Measures	1926.38
4012	Flood	Small	RWM-030 - Donated Resources	2686.62
4012	Flood	Small	RWM-028 - Levee Debris	7928
4012	Flood	Small	RWM-026-Donated Resources	17184.73
4012	Flood	Small	RWM-025-Levee Breech Protective Measures	33538.6
4012	Flood	Small	RWM-024-Levee Debris	12139.23
4012	Flood	Small	JWM-004-Road Surface-CR-296	4157.96
4012	Flood	Small	RWM-009 - Sandbagging	4574.74
4012	Flood	Small	RWM-010 - Donated Resources	8541.04

4012	Flood	Small	RJR-004 - ROAD DAMAGE	12057.46
4012	Flood	Small	MLV-003 - Gravel Roads	24841.49
4012	Flood	Small	JWM-008-Roads	4942.9
4012	Flood	Small	JRP-009-Trotter Township Aggregate Roads	4619.34
4012	Flood	Small	WPK-013 - Donated Resources	9400.4
4012	Flood	Small	WPK-012 - Debris Removal	21074.82
4012	Flood	Small	WPK-019 - Emergency Protective Measures (Emergency Pum	28720
4012	Flood	Small	RWM-020 - Drainage Ditches	50378.4
4012	Flood	Small	RWM-031 - Drainage Ditches	19373.7
4012	Flood	Small	RJR-006-Water Control Facility'Silt Removal from Draina	8900
4012	Flood	Small	RDB-001 - Levee Debris	4952
4012	Flood	Small	TDP-020 - Debris removal from levee	18760.28
4012	Flood	Small	RJR-005 - Water Control Facility'Silt ....Ditch	9925.84
4012	Flood	Small	TDP-022 - EPM (Donated Resources)	32976.93
4012	Flood	Small	TDP-021 - Emergency Protective Measures	5071.12
4012	Flood	Small	RDB-003 - Emergency Protective Measures - Emergency Roa	8100
4012	Flood	Small	RDB-002 - Emergency Protective Measures - Structrual In	5310
4012	Flood	Small	RDB-005-Donated Resources-Emergency Protective Measures	37896.36
4012	Flood	Small	TDP-027 - Drainage Ditches	20696.79
4012	Flood	Small	RJR-011 - WATER CONTROL FACILITY - SILT REMOVAL FROM DR	13962
4012	Flood	Small	RDB-007-Drainage Ditches'Silt Removal-Water Control Fac	19935.12
4012	Flood	Small	WATER CONTROL FACILITY - SILT REMOVAL FROM DR	38636.97
4012	Flood	Small	Drainage Ditches- Silt Removal - Water Contro	3250
4435	Flood	Small	Debris Removal	14567.85
4435	Flood	Small	Township-wide Roads	90894.01
4435	Flood	Small	Emergency Work Donated Resources	20581.39
4435	Flood	Large	Emergency Protective Measures	149346
4435	Flood	Small	Emergency Protective Measures	34668.4
4435	Flood	Small	Rockford Township Roads	19764.94
4435	Flood	Small	CR 187 Damages	36847.11
4435	Flood	Small	B - Emergency Work Donated Resources	9497.08
4435	Flood	Small	Township Wide Road Damage	9021.27
4435	Flood	Small	Township-wide Roads	6657.14
4435	Flood	Small	Donated Resources	1559.18
4435	Flood	Small	Township-wide Road Damages - Work 100% Complete	7409.6
4435	Flood	Large	Emergency Protective Measures	169248
4435	Flood	Small	County Roads	11414.73

4435	Flood	Small	Egypt Twp - EPM Road Work	6371.95
4435	Flood	Small	Township Wide Roads	44047.43
4435	Flood	Small	Emergency Protective Measures	61744.18
4435	Flood	Small	Management Costs	2304.16
4451	Severe Storm(s)	Large	Township-wide Road Damages - Work to be Completed	288095.48
4451	Severe Storm(s)	Large	Emergency Work Donated Resources	195863.49
4451	Severe Storm(s)	Small	Tina Completed Roads, Ditches, and Culverts	28390.81
4451	Severe Storm(s)	Small	WTBC Roads	128393.18
4451	Severe Storm(s)	Small	Prairie Township - Carroll Management Costs	2714
4451	Severe Storm(s)	Large	Eugene Township - Roads -	253869.13
4451	Severe Storm(s)	Small	Emergency Protective Measures	12772.7
4451	Severe Storm(s)	Small	Emergency Protective Measures	10851.23
4451	Severe Storm(s)	Small	Airport Bldg and Life Vests	12355.18
4451	Severe Storm(s)	Small	Levee System - Wheeler Location	98832.5
4451	Severe Storm(s)	Small	Emergency Work Donated Resources	4835.33
4451	Severe Storm(s)	Large	WTBC Roads*	194050.03
4451	Severe Storm(s)	Small	Work to be completed, roads	65480.69
4451	Severe Storm(s)	Small	Eugene Township - Culvert Damage (Multiple)	25449.86
4451	Severe Storm(s)	Small	Township wide roads and culverts	6129.19
4451	Severe Storm(s)	Small	Township-wide Roads and Culverts	61196.61
4451	Severe Storm(s)	Small	Cat Z - Estimated Management Costs	787.18
4451	Severe Storm(s)	Small	Township-wide roads	92357.71
4451	Severe Storm(s)	Small	Work to be Completed - County-wide Road Components	19831.52
4451	Severe Storm(s)	Large	Moss Creek City Wide Roads	192107.59
4451	Severe Storm(s)	Small	Township wide roads and culverts	66498.25
4451	Severe Storm(s)	Large	Township Roads & Culverts Completed Work	175099.52
4451	Severe Storm(s)	Small	Emergency Access - Gibson Location	113992.5
4451	Severe Storm(s)	Large	Levee System - Herberger Location	299200.51
4451	Severe Storm(s)	Small	Debris Removal	9760
4451	Severe Storm(s)	Small	WC Roads	30430.19
4451	Severe Storm(s)	Small	Tina - Water Line	11310
4451	Severe Storm(s)	Small	Roads Work to be Completed	43147.52
4451	Severe Storm(s)	Large	Riverside Levee Restoration	284698.1
4451	Severe Storm(s)	Small	WTBC Culverts	12578.7
4451	Severe Storm(s)	Large	Township-Wide Roads	177625.53
4451	Severe Storm(s)	Small	Moss Creek Township - Management Costs	3610.75
4451	Severe Storm(s)	Small	Combs Township DR4451MO - Management Costs	314.67
4451	Severe Storm(s)	Small	Moss Creek - County Road 320 Damage	65917.5
4451	Severe Storm(s)	Large	Debris Removal	163170

4451	Severe Storm(s)	Small	Management Costs	12512.49
4451	Severe Storm(s)	Small	Township-wide Road Component Damages - Work to be Completed	42304.26
4451	Severe Storm(s)	Small	Culverts (Township-Wide)	30811.81
4451	Severe Storm(s)	Small	Debris	9797.85
4451	Severe Storm(s)	Small	Emergency Protective Measures	10288
4451	Severe Storm(s)	Small	Rockford Township Roads	48036.78
4451	Severe Storm(s)	Small	Estimated Management Costs	409.6
4451	Severe Storm(s)	Large	Township-wide Road Component Damages - Work 100% Completed	219659.89
4451	Severe Storm(s)	Small	Emergency Work Donated Resources	1752.83
4451	Severe Storm(s)	Small	Fairfield Township Completed Category C Work	11865.06
4451	Severe Storm(s)	Small	Donated Resources	3265.95
4451	Severe Storm(s)	Small	Township-wide Debris Removal	11899.6
4451	Severe Storm(s)	Small	Township-wide Culverts	10927.06
4451	Severe Storm(s)	Small	Debris Removal	3654.81
4451	Severe Storm(s)	Large	County-wide Road, culverts and bridge approaches	185555.44
4451	Severe Storm(s)	Small	Township wide roads and culverts - WTBC	50985.98
4612	Severe Storm(s)	Small	Township wide roads - WTBC	104068.85
4612	Severe storm(s)	Small	Township wide road damage - WC	11266.51
4612	Severe Storm(s)	Small	App Cert - County wide Road damage - WC	33916.42
4612	Severe Storm(s)	Small	Township wide Road Damage - WTBC	121622.96
4612	Severe Storm(s)	Small	App Cert - Township wide Road Damage - WC	8369.47
4612	Severe Storm(s)	Small	Administrative costs for Road and Culvert repair projects	3483.02
4612	Severe Storm(s)	Small	APP CERT - Township road damage - WC	11211.92
4612	Severe Storm(s)	Small	Township wide Road damage - WTBC	22729.28
4612	Severe Storm(s)	Small	County wide Culvert damage - WC	80439.29
4612	Severe storm(s)	Small	Prairie Township Admin Costs	5203.45
4612	Severe storm(s)	Small	Stokes Mound Township Gravel Roads 100% Complete	5979.12
Total:				**$9,197,548.57**

Source: Federal Emergency Management Agency, Date 6/2025

2.2 JURISDICTIONAL PROFILES AND MITIGATION CAPABILITIES

This section will include individual profiles for each participating jurisdiction. It will also include a discussion of previous mitigation initiatives and ongoing mitigation capabilities in the planning area. There will be a summary table indicating specific capabilities of each jurisdiction that relate to their ability to implement mitigation opportunities. The unincorporated Carroll County is profiled first, followed by the participating cities and school district.

2.2.1 Unincorporated Carroll County

Carroll County is a county located in the north-central portion of the United States, in the State of Missouri. The county seat is Carrollton. Total land area for Carroll County includes 695 square miles.

Organized January 2, 1833, from Ray County and named for Charles Carroll of Carrollton. At the organization of the county, the intention was to call it "Wakenda," after the river running through it. The bill forming the new county had passed its first and second reading by that name. When it came up for its third reading and final action, the news of the death of Charles Carroll, of Carrollton, the last surviving signer of the Declaration of Independence, had just been received in Jefferson City, and in lieu of Wakenda, it passed without a dissenting vote, and was signed the 3rd day of January, 1833.

The county was divided into townships in 1816, and sectionalized in 1817.
Carroll County planners reserved the highest point within the 80-acre grant to the county for the courthouse. The first courthouse was built in 1834 according to specifications in the County Court Record filed in 1834. The building was 18 by 20 feet, of hewn logs, 1-1/2 stories with either brick or stone chimney, and underpinned with rock and mortar. William Glaze, contractor, completed the building in November 1835, at a cost of $273.50. The building and lot sold for $450 in May 1841. The second courthouse was a 40-foot-square, two-story brick building that occupied the center of the square. Window frames, sash and staircase were to be of walnut. The floor on the east side of the first floor, for the judge’s bench, was elevated and laid with brick, the remainder of the floor laid with oak plank. Woodwork was painted white, the doors mahogany. Specifications called for four interior wood columns to be painted marble. The clerk recorded a description of the building in the County Court Record.

In 1867, $2,500 was appropriated for a new courthouse and
Henry Sloan appointed commissioner. The contract for the two-story, brick building was given to Jacobs, Farris and Co. for $12,350. They completed construction in December 1867. Funds came from the general fund and a bond issue. An illustration of the proposed building indicated a larger, more elaborate building than the one built. This building, razed in 1901, was bought for $900.

As of the census of 2020, there were 8,495 people, 3,433 households, and 2,071 families residing in the county. The population density was 12 people per square mile
There were 4,364 housing units at an average density of 6 per square mile.

The racial makeup of the county was 93.5% white, 1.1% Black or African American, 0.20% Native American, 0.17% Asian, 0.00% Pacific Islander, 5.1% from other races, and 4.4% from two or more races. Approximately 1.5% of the population were Hispanic or Latino of any race.
19.0% were of German, 9.7% Irish, 9.2% English, 5.9% American, 2.2% Scottish ancestry.

There were 3,433 households, out of which 29.4% had children under the age of 18 living with them, 51.3% were married couples living together, 22.7% had a female householder with no husband present, and 15.9% were non-families, 9.3% had someone living alone who was 65 years of age or older.

The average household size was 2.43 and the average family size was 2.96.In the county, the population was spread out, with 22% under the age of 18, 7% from 18 to 24, 33% from 15 to 44, and 22% who were 65 years of age or older. The median age was 43.7 years. For every 100 females there were 99.3 males. For every 100 females age 18 and over, there were 76.3% males.
The median income for a household in the county was $61,712

As of the census of 2010, there were 9,294 people and 3,503 households in the county. The population density was 13.4 people per square mile (6/km2). There were 4,650 housing units at an average density of 6.7 per square mile (3/km2). The racial makeup of the county was 95.9% white, 1.8% Black or African American, 0.4% Native American, 0.2% Asian, 0.1% Pacific Islander, and 1.6% from two or more races. Approximately 1.6% of the population were Hispanic or Latino of any race.

There were 3,503 households, out of which 22.5% had children under the age of 18 living with them, and 22.1% had someone living alone who was 65 years of age or older. The average household size was 2.47. The median income for a household in the county was $50,830. The per capita income for the county was $25,715.

The County is governed by an elected board of Commissioners composed of Presiding Commissioner and two Associate Commissioners. Other positions within Carroll County’s

The County is governed by an elected board of Commissioners composed of Presiding Commissioner and two Associate Commissioners. Other positions within Carroll County’s

- Assessor
- Associate Circuit Judge
- Circuit Clerk
- Community, Family & Youth Services
- Collector
- Coroner
- County Clerk
- County Library
- County Treasurer
- Emergency Management
- General Services
- Health Department
- Health Services
- Interim Coroner
- Presiding Circuit Judge
- Prosecuting Attorney
- Public Administrator
- Recorder
- Sheriff
- Treasurer
- Veteran's Affairs
- Zoning Administrator

Mitigation Initiatives/Capabilities

The County does have ordinances on flood plain management and planning and zoning. The County does have an Emergency Management Director (EMD) and Local Emergency Planning Committee (LEPC). The EMD plans and directs disaster responses or crisis management activities, provides disaster preparedness training, and prepares emergency plans and procedures for natural disasters. The County has a County Emergency Plan, County Mitigation Plan, and Mutual Aid Agreements. The EMD is also the floodplain administrator for the county and the County Surveyor is responsible for planning and zoning enforcement within the county.

The County has had limited mitigation activities due to limited capabilities. The County expanding its mitigation capabilities is unlikely, due to limited capabilities, both financially and in terms of staff availability.

Table 2.8. Unincorporated Carroll County Mitigation Capabilities

Capabilities	Status, *Including Date of Document or Policy*
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	NA
County Emergency Operations Plan	Yes – 2024
Local Recovery Plan	Noi
County Recovery Plan	No
City Mitigation Plan	unknown
County Mitigation Plan	Yes – updated in 2026
Debris Management Plan	Yes

Economic Development Plan	Yes
Transportation Plan	No
Land-use Plan	Yes
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
School Mitigation Plan	NA
Critical Facilities Plan	No
Policies/Ordinance	
Zoning Ordinance	Yes
Building Code	No
Floodplain Ordinance	Yes
Subdivision Ordinance	No
Tree Trimming Ordinance	Yes
Nuisance Ordinance	No
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	unknown
Hazard Awareness Program	unknown
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	NA
Economic Development Program	Contracted
Land Use Program	Yes
Public Education/Awareness	Yes
Property Acquisition	No
Planning/Zoning Boards	Yes
Stream Maintenance Program	No
Tree Trimming Program	Yes
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	NA
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Unknown
Evacuation Route Map	No
Critical Facilities Inventory	Limited
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	No
Building Inspector	No

Mapping Specialist (GIS)	Yes
Engineer	Contracted
Development Planner	Contracted
Public Works Official	Yes
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes
Emergency Response Team	No
Hazardous Materials Expert	No
Local Emergency Planning Committee	Yes
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	No
Economic Development Department	Contracted
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	Not locally
Salvation Army	Not locally
Veterans Groups	Yes
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	Yes, Carrollton
Community Organizations (Lions, Kiwanis, etc.)	Yes
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	NA
Impact fees for new development	No
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	Yes
Withhold spending in hazard prone areas	No

Source: Data Collection Questionnaire, 11/2025

2.2.2 City of Bogard

Bogard was originally known as Bogard's Mound, after a tumulus near the site which a pioneer citizen named Bogard used as an observation tower. The village plat was made in 1884. A post office called Bogard Mound was established in 1872, and the name was changed to Bogard in 1884.

As of the census of 2020, there were 167 people, 74 households in the city.
The population density was 303 inhabitants per square mile. There were 90 housing units at an average density of 163 per square mile.

The racial makeup of the city was 98% White. Hispanic or Latino of any race were 2% of the population. There were 74 households, of which 28.3% had children under the age of 18 living with them, 50% were married couples living together, 16.2% had a female householder with no husband present, 29.7% had a male householder with no wife present, and 16.2% were non-families. 2.7% had someone living alone who was 65 years of age or older. The average household size was 2.35 and the average family size was 3.29. The median age in the city was 40.6 years. 22.9% of residents were under 18 years of age; 18.3% of residents were over the age of 65.

The City of Bogard has a total area of 0.55 square miles, all of which is land.
There are no employers in the City of Bogard, except for the City itself which has a part time City Clerk.

The City of Bogard is governed by a City Council and Mayor. The City Council is comprised of 4 members, serving 2-year rotating terms. The City reports no past or ongoing projects or programs designed to reduce disaster losses. There have been no approved projects submitted for FEMA mitigation grants as of December 2024. The City reports no historic hazard events since the last plan update. The hazard-related concerns regarding the vulnerability of special needs populations (elderly, disabled, low-income, migrant farm workers) are those concerns associated with warning and disaster recovery and rebuilding from tornadoes and earthquakes, as well as drought and severe temperatures.

There is one outdoor warning siren in the City of Bogard. The siren is manually activated and is located at the Fire Station. The city is in need of an updated warning siren and would like to place another new siren within the city limits, but the current city budget does not support the installation of
a siren at this time. The community is alerted to severe weather by the local Fire District deploying its fire trucks with the sirens activated and driving the city streets. The city does not utilize any other warning systems, with the exception of any personal citizen subscriptions that may be in effect for National Weather Service. Some citizens utilize personal social media platforms to obtain general warnings for the area. There are no designated public tornado shelters or safe rooms in the city.

The City of Bogard reports that there has been no industrial development since the last plan update in 2014. The city does not expect any new commercial or industrial development and one residential structure to be constructed in the next five years. The city currently does not have any plans to improve the current infrastructure or construct any new facilities.

The City of Bogard does not currently participate in the National Flood Insurance Program.
The only critical or high potential loss facility noted in the city limits is the City Hall located at 305 South Campbell Street in Bogard, where the city's government offices are located.

Mitigation Initiatives/Capabilities

The City of Bogard does have ordinances on nuisances and tree trimming. These ordinances address dangerous or dilapidated buildings, prohibited materials, general nuisances, and lawn maintenance ordinances.

The city has had limited mitigation activities due to limited capabilities. The city expanding its mitigation capabilities is unlikely, due to limited capabilities, both financially and in terms of staff availability.

Table 2.9. City of Bogard Mitigation Capabilities

Capabilities	Status, *Including Date of Document or Policy*
Planning Capabilities	
Comprehensive Plan	Unknown
Builder's Plan	NA
Capital Improvement Plan	NA
City Emergency Operations Plan	Fire Deptartment
County Emergency Operations Plan	NA
Local Recovery Plan	NA
County Recovery Plan	NA
City Mitigation Plan	NA
County Mitigation Plan	NA
Debris Management Plan	NA
Economic Development Plan	NA
Transportation Plan	NA
Land-use Plan	NA
Flood Mitigation Assistance (FMA) Plan	NA
Watershed Plan	Unknown
Firewise or other fire mitigation plan	Unknown
School Mitigation Plan	NA
Critical Facilities Plan	NA
Policies/Ordinance	
Zoning Ordinance	NA
Building Code	NA
Floodplain Ordinance	NA
Subdivision Ordinance	NA
Tree Trimming Ordinance	Yes
Nuisance Ordinance	Yes
Stormwater Ordinance	NA
Drainage Ordinance	NA
Site Plan Review Requirements	NA
Historic Preservation Ordinance	NA
Landscape Ordinance	NA
Seismic Construction Ordinance	NA
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	NA
Hazard Awareness Program	NA
National Flood Insurance Program (NFIP)	NA
NFIP Community Rating System (CRS) program	NA
National Weather Service (NWS) Storm Ready	NA
Firewise Community Certification	NA
Building Code Effectiveness Grading (BCEGs)	NA
ISO Fire Rating	NA
Economic Development Program	NA
Land Use Program	NA
Public Education/Awareness	NA
Property Acquisition	NA
Planning/Zoning Boards	NA
Stream Maintenance Program	NA
Tree Trimming Program	Yes
Engineering Studies for Streams	NA

(Local/County/Regional)	
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Unknown
Hazard Analysis/Risk Assessment (County)	Unknown
Flood Insurance Maps	NA
FEMA Flood Insurance Study (Detailed)	NA
Evacuation Route Map	NA
Critical Facilities Inventory	NA
Vulnerable Population Inventory	NA
Land Use Map	NA
Staff/Department	
Building Code Official	NA
Building Inspector	NA
Mapping Specialist (GIS)	NA
Engineer	NA
Development Planner	NA
Public Works Official	NA
Emergency Management Director	NA
NFIP Floodplain Administrator	NA
Emergency Response Team	Fire
Hazardous Materials Expert	NA
Local Emergency Planning Committee	NA
County Emergency Management Commission	NA
Sanitation Department	NA
Transportation Department	NA
Economic Development Department	NA
Housing Department	NA
Historic Preservation	NA
Non-Governmental Organizations (NGOs)	
American Red Cross	NA
Salvation Army	NA
Veterans Groups	NA
Local Environmental Organization	NA
Homeowner Associations	NA
Neighborhood Associations	NA
Chamber of Commerce	County
Community Organizations (Lions, Kiwanis, etc.)	NA
Local Funding Availability	
Apply for Community Development Block	NA
Fund projects through Capital	NA
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	NA
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	NA
Withhold spending in hazard prone areas	Yes

Source: Data Collection Questionnaire, 11/2025

2.2.3 Town of Carrollton

The Town of Carrollton is the County seat of Carroll County and was named for the estate of Charles Carroll, who was a signer of the Declaration of Independence.
John Standley was the first settler, made the first improvements, and donated the site for the County courthouse. George W. Folger, who located there in 1832, was the first physician, and the first school teacher was Mrs. Nancy Folger. Joseph Dickson was appointed the first postmaster in 1834. The town was laid out in 1833, incorporated in 1847 and the charter under which it now operates bears the date of March 20, 1871.

At the 2023 census estimates, there were 3,335 people, 1,337 households in the town. The population density was 802.6 inhabitants per square mile. There were 1,825 housing units at an average density of 436.6 per square mile.

The racial makeup of the town was 96.3% White, 2.4% African American, 0.1% Native American, 0.3% Asian, Hispanic or Latino of any race was 2.2%.

Of the 1,337 households 31.7% had children under the age of 18 living with them, 44.4% were married couples living together, 33.6% had a female householder with no spouse present, 16.3% had a male householder with no spouse present, 21.3% of households were one person and 34.4% were one person aged 65 or older. The average household size was 2.42 and the average family size was 3.03. The median age was 39.6 years. 75.6% of residents were over the age of 18 and 23.9% were 65 or older**.**

The town is made up of 4.18 square miles, of which 4.17 square miles are land and 0.01 square miles is water.

The town reported a few major employers in the city limits. These include Carroll County Memorial Hospital with over 240 employees, Carrollton R-VII School District with over 80 employees, Mulch's County Mart with over 25 employees and C-4 Medical Marijuana with over 50 employees. The town of Carrollton is governed by a town Council and a Mayor. The town Council is comprised of 8 elected members, serving rotating terms.

The town reports no past or ongoing projects or programs designed to reduce disaster losses. There have been no approved projects submitted for FEMA mitigation grants as of December 2024.

The town reports three historic hazard events since the last plan update. In 2016, 2017, 2018, and 2019, the town experienced flooding from Wakenda Creek and the City received funds from FEMA for minor street repair in 2020. In 2019, the town experienced flooding from Brush Creek Tributary due to excessive amounts of rain and the town received funds from FEMA for culvert and street repair. In March of 2017, the town was hit by an EF-1 tornado in which 2 businesses were damaged but did not receive FEMA funds.

The hazard-related concerns regarding the vulnerability of special needs populations (elderly, disabled, low-income, migrant farm workers) are those concerns associated with warning and disaster recovery, temporary housing needs and rebuilding from tornadoes and earthquakes, as well as providing shelter and resources due to drought and severe temperatures.

There are five outdoor warning sirens in the town of Carrollton. All five operable sirens are activated by Carroll County 911 with backup activation by Carrollton Fire Department staff. The town currently utilizes a Nixel warning system and social media platforms to warn and alert community members of severe weather or tornadoes. The town does not utilize any other warning systems, with the exception of any personal citizen subscriptions that may be in effect for National Weather Service.

Some individual citizens utilize multiple social media platforms or individual NOAA Weather Radios to obtain general warnings for the area. There is one known designated public tornado shelter or safe room in the town of Carrollton. The shelter is located in the basement of the City Library at 1 North Folger Street. It is unknown if the shelter was built according to FEMA standards. The town is in need of more community tornado shelter or safe room but the current town budget does not support construction of a shelter or saferoom.

The town of Carrollton reports 3 new residential constructions since the last plan update. Commercial and Industrial growth include businesses include 2 new Medical Marijuana growth and production facilities, one new bank building and a new aquatic center in the town's park.
There were no industrial developments reported since the last plan update.
The town does not expect any new residential, commercial or industrial development in the next five years. The town is not currently planning any new developments to its critical facilities or infrastructure in the next 5 years.

The town of Carrollton currently participates in the National Flood Insurance Program. The town attends the annual NFIP meeting and it enforces compliance with the NFIP with floodplain ordinances, planning and zoning ordinances and through building permits.

The town has identified critical facilities that include the Carroll County Memorial Hospital, Carrollton Police and Fire Departments and the Carroll County 911 Center. High Potential Loss facilities identified by the town include Carrollton Municipal Utility, Power and Waterworks, Head Start Daycare, Carrollton Wastewater Treatment Plant, Life Care Center of Carrollton, Carroll House Nursing Home, CCMH Daycare and Preschool, Carrollton City Hall and the Carroll County Courthouse. Transportation and lifelines identified include Carrollton Municipal Airport, Carrollton Municipal Utility Water Waterworks, BNSF Railroad, Norfolk Southern Railroad, BP-Amoco Pipeline, AT&T Hub location, Highway 10 and Highways 65/24.

The town has designated the town Clerk to be the designated Planning Committee Member. The town Clerk agreed, with the endorsement of the town Council to participate in the County Planning Committee.

Mitigation Initiatives/Capabilities

The Town of Carrollton does have ordinances that address dangerous and dilapidated buildings, Planning and zoning, code and nuisance enforcement, as well as flood plain management.

The town has had limited mitigation activities due to limited capabilities. The town expanding its mitigation capabilities is unlikely due to limited capabilities, both financially and in terms of staff availability.

Some of the limited actions undertaken are providing weather alerts, offering accessible contact information, debris removal, Storm spotter training, participation in the NFIP, and mutual aid agreements with other communities and agencies.

Table 2.10. Town of Carrollton Mitigation Capabilities

Capabilities	Status, *Including Date of Document or Policy*
Planning Capabilities	
Comprehensive Plan	Unknown
Builder's Plan	Unknown
Capital Improvement Plan	Unknown
City Emergency Operations Plan	Unknown
County Emergency Operations Plan	Unknown
Local Recovery Plan	Unknown
County Recovery Plan	Unknown
City Mitigation Plan	Unknown
County Mitigation Plan	Yes
Debris Management Plan	Unknown
Economic Development Plan	Unknown
Transportation Plan	Unknown
Land-use Plan	Unknown
Flood Mitigation Assistance (FMA) Plan	Unknown
Watershed Plan	Unknown
Firewise or other fire mitigation plan	Unknown
School Mitigation Plan	Unknown
Critical Facilities Plan	Unknown
Policies/Ordinance	
Zoning Ordinance	Yes
Building Code	Yes
Floodplain Ordinance	Yes
Subdivision Ordinance	Unknown
Tree Trimming Ordinance	Unknown
Nuisance Ordinance	Yes
Stormwater Ordinance	Unknown
Drainage Ordinance	Unknown
Site Plan Review Requirements	Unknown
Historic Preservation Ordinance	Unknown
Landscape Ordinance	Unknown
Seismic Construction Ordinance	Unknown
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	Unknown
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	Unknown
National Weather Service (NWS) Storm Ready	Unknown
Firewise Community Certification	Unknown
Building Code Effectiveness Grading (BCEGs)	Unknown
ISO Fire Rating	4
Economic Development Program	Unknown
Land Use Program	Unknown
Public Education/Awareness	Unknown
Property Acquisition	Unknown
Planning/Zoning Boards	Yes
Stream Maintenance Program	Unknown
Tree Trimming Program	Yes
Engineering Studies for Streams (Local/County/Regional)	Unknown
Mutual Aid Agreements	Yes

Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Unknown
Hazard Analysis/Risk Assessment (County)	Unknown
Flood Insurance Maps	Unknown
FEMA Flood Insurance Study (Detailed)	Unknown
Evacuation Route Map	Unknown
Critical Facilities Inventory	Unknown
Vulnerable Population Inventory	Unknown
Land Use Map	Unknown
Staff/Department	
Building Code Official	Full Time
Building Inspector	Full Time
Mapping Specialist (GIS)	Unknown
Engineer	Unknown
Development Planner	Unknown
Public Works Official	Full Time
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes
Emergency Response Team	Yes
Hazardous Materials Expert	Unknown
Local Emergency Planning Committee	Yes
County Emergency Management Commission	Unknown
Sanitation Department	Yes
Transportation Department	Unknown
Economic Development Department	Yes
Housing Department	Unknown
Historic Preservation	Unknown
Unknownn-Governmental Organizations (NGOs)	
American Red Cross	Unknown
Salvation Army	Unknown
Veterans Groups	Unknown
Local Environmental Organization	Unknown
Homeowner Associations	Unknown
Neighborhood Associations	Unknown
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes, Lions and Kiwanis
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Unknown
Fees for water, sewer, gas, or electric services	Unknown
Impact fees for new development	Unknown
Ability to incur debt through general obligation bonds	Unknown
Ability to incur debt through special tax bonds	Unknown
Ability to incur debt through private activities	Unknown
Withhold spending in hazard prone areas	Unknown

Source: Data Collection Questionnaire, 11/2025

2.2.4 City of DeWitt

In the early days the town of Elderpost was platted on the spot where the town of DeWitt is now built, but no dates are preserved as to the arrival of the promoters of the town or its settlement. Eli Guthrie was at the head of the enterprise and in 1837 disposed of his interest in the town to Henry

Root, who continued the sale of lots.
John Jones located in 1821 where the town now stands, Jonathan Eppler having the only residence in the place. Eppler established a landing place on the Missouri River which was known as the Eppler's Landing. John Milligan located in 1831, building a house and opening up the first stock of goods.

For several years improvements were made slowly, but in 1851 the town site was bought by a company called the DeWitt Town Company and the city was changed from DeWitt to Winsor City in honor of one of the trustees.
On July 8, 1856, the citizens of the town of Winsor City presented a petition, signed by a majority of the taxable inhabitants thereof praying that the town be incorporated under the name and style "of the town of Winsor City." The town then was re-incorporated under this act. For some reason the company did not meet with the success they anticipated and the town site passed out of their control, the name being again changed to DeWitt. It was named for DeWitt Clinton, former Governor of New York.

As of the 2023 census estimates, there were 61 people and 32 households in the city. The population density was 254 inhabitants per square mile. There were 48 housing units at an average density of 200 per square mile.

The racial makeup of the city was 100% White.

There were 32 households, of which 0% had children under the age of 18 living with them, 37.5% were married couples living together, 21.8% had a female householder with no spouse present, 31.2% had a male householder with no spouse present 9.3%
of all households were made up of individuals, and 68.7% had someone living alone who was 65 years of age or older. The average household size was 1.91 and the average family size was 2.53.

The median age was 66.1 years. 0% of residents were under the age of 18 and 62.2% were 65 years of age or older.

The City of DeWitt has a total area of 0.24 square miles, all of which is land.

There are no employers in the City of De Witt , with the exception of the Post Office which has 2 employees.
The City of DeWitt is governed by a City Council and Mayor. The City Council is comprised of 4 members, serving rotating terms.

The City reports no past or ongoing projects or programs designed to reduce disaster losses. There have been no approved projects submitted for FEMA mitigation grants as of Decembe 2024. The City reports no historic hazard events since the last plan update.

The hazard-related concerns regarding the vulnerability of special needs populations (elderly, disabled, low-income, migrant farm workers) are those concerns associated with warning and disaster recovery and rebuilding from tornadoes and earthquakes, as well as drought and severe temperatures.

There are no outdoor warning sirens in the City of DeWitt. The City is in need of a warning siren , but the current city budget does not support the installation of a siren at this time. The City does not utilize any other warning systems, with the exception of any personal citizen subscriptions that may be in effect for National Weather Service. Some citizens utilize personal social media platforms to

obtain general warnings for the area.

There are no designated public tornado shelters or safe rooms in the City.
The City of DeWitt reports that there have been no commercial, residential or industrial developments since the last plan update in 2021. The City does not expect any new commercial or industrial development and one residential structure to be constructed in the next five years. The City currently does not have any plans to improve the current infrastructure or construct any new facilities.

The City of DeWitt does not currently participate in the National Flood Insurance Program and has been sanctioned since September 6, 1975.
The City did not identify any critical or high potential loss facilities in the city limits
The City has designated the Mayor to be the designated Planning Committee Member. The Mayor agreed, with the endorsement of the City Council to participate in the County Planning Committee.

Mitigation Initiatives/Capabilities

The City of DeWitt does have ordinances that address nuisance enforcement. This ordinance address dangerous and dilapidated buildings, prohibited materials, general nuisances, and lawn maintenance ordinances.

The city has had limited mitigation activities due to limited capabilities. The city expanding its mitigation capabilities is unlikely due to limited capabilities, both financially and in terms of staff availability.

Table 2.11. City of De Witt Mitigation Capabilities

Capabilities	Status, *Including Date of Document or Policy*
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	No
County Emergency Operations Plan	No
Local Recovery Plan	No
County Recovery Plan	No
City Mitigation Plan	Part of County plan
County Mitigation Plan	Yes
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	No
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
School Mitigation Plan	No
Critical Facilities Plan	No
Policies/Ordinance	
Zoning Ordinance	No
Building Code	No
Floodplain Ordinance	No

Subdivision Ordinance	No
Tree Trimming Ordinance	No
Nuisance Ordinance	Yes, 11-20-2021A
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	No
Codes Building Site/Design	No
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System (CRS) program	No
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	No
Economic Development Program	No
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	No
Staff/Department	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	No
Engineer	No
Development Planner	No
Public Works Official	No
Emergency Management Director	No
NFIP Floodplain Administrator	No
Emergency Response Team	No
Hazardous Materials Expert	No
Local Emergency Planning Committee	No
County Emergency Management Commission	No
Sanitation Department	Contract with Carroll County solid waste
Transportation Department	No

Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	No
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	No
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	No
Impact fees for new development	No
Ability to incur debt through general obligation bonds	No
Ability to incur debt through special tax bonds	No
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	No

Source: Data Collection Questionnaire, 11/2025

2.2.5 City of Hale

The town of Hale was located by the Town Lot Company of the Chicago, Burlington and Kansas City or Burlington & Southwestern R. R., when the road was built into Carroll County and was named in honor of Congressman John B. Hale of Carrollton. It was plannted on November 20, 1883 March 4, 1884, on petition of some fifty citizens of the village of Hale City, it was incorporated under the name and style of "the inhabitants of Hale City."
James B. Hooper and four others were appointed trustees. At this time (1910) Hale supports three banks, churches of all the leading denominations and mercantile establishments representing all lines of trade which carry large and valuable stocks of goods.

As of the census of 2023 estimates, there were 535 people, 233 households in the city. The population density was 972 people per square mile. There were 189 housing units at an average density of 343 per square mile. The racial makeup of the city was 92% White, 7% were Black or African American.

There were 233 households, of which 21.9% had children under the age of 18 living with them, 45.9% were married couples living together, 28.7% were male householders with no spouse

present, 21.8% were female householders with no spouse present, and 21% had someone living alone who was 65 years of age or older. The average household size was 2.30 and the average family size was 3.19.

In the city the population was spread out, with 16% under the age of 18 and 24% who were 65 years of age or older. The median age was 42.5 years.

The City of Hale has a total area of 0.55 square miles, all of which is land.

There are no employers in the City of Hale, only small businesses that employ no more than 5 people each.

The City of Hale is governed by a City Council and Mayor. The City Council is comprised of 4 members, serving 2-year rotating terms. The City reports no ongoing projects or programs designed to reduce disaster losses. The City does report past projects have included demolition grants, of which FEMA funds were received.

There have been no approved projects submitted for FEMA mitigation grants as of December 2024. The City reports no historic hazard events since the last plan update.

The hazard-related concerns regarding the vulnerability of special needs populations (elderly, disabled, low-income, migrant farm workers) are those concerns associated with warning and disaster recovery and rebuilding from tornadoes and earthquakes, as well as drought and severe temperatures.

There is one outdoor warning siren in the City of Hale. The siren is manually activated and is located at the Fire Station. The City is in need of an updated warning siren or new siren, but the current city budget does not support the installation of a siren at this time. The City does not utilize any other warning systems, with the exception of any personal citizen subscriptions that may be in effect for National Weather Service. Some citizens utilize personal social media platforms to obtain general warnings for the area.

There are no designated public tornado shelters or safe rooms in the City. The City did report that the Churches in town do open their basements for public sheltering during tornadoes.

The City of Hale reports that there has been no industrial development since the last plan update in 2021. The City does not expect any new commercial or industrial development and one residential structure to be constructed in the next five years. The City currently does not have any plans to improve the current infrastructure or construct any new facilities.

The City of Hale does not currently participate in the National Flood Insurance Program. It has been sanctioned since February 21, 1976.

The only essential critical facilities reported in the city limits of Hale are City Hall, located at 121 East 3rd Street where the city’s government offices are located and the Fire Station. High potential loss facilities in the city limits were reported to include the Sunset Apartment Complex, Hale Community Hall, and the Post Office. Transportation and lifelines were reported to be J Highway, Highway 139, and the railroad.

The City has designated the Mayor to be the designated Planning Committee Member. The Mayor

agreed, with the endorsement of the City Council to participate in the County Planning Committee.

Mitigation Initiatives/Capabilities

The City of Hale does have ordinances that address nuisance enforcement, as well as flood plain management. These ordinances address dangerous or dilapidated buildings, prohibited materials, general nuisances, and lawn maintenance ordinances. They currently contract with GHRPC to provide code enforcement services.

The city has had limited mitigation activities due to limited capabilities. The city expanding its mitigation capabilities is unlikely due to limited capabilities, both financially and in terms of staff availability.

Some of the limited actions undertaken are providing weather alerts, offering accessible contact information, debris removal, Storm spotter training, and mutual aid agreements with other communities and agencies.

Table 2.12. City of Hale Mitigation Capabilities

Capabilities	Status, *Including Date of Document or Policy*
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	Yes, 7/2025
County Emergency Operations Plan	Yes
Local Recovery Plan	In development
County Recovery Plan	Unknown
City Mitigation Plan	In Development
County Mitigation Plan	Unknown
Debris Management Plan	Yes, 7/2025
Economic Development Plan	No
Transportation Plan	In Development
Land-use Plan	In Development
Flood Mitigation Assistance (FMA) Plan	In Development
Watershed Plan	No
Firewise or other fire mitigation plan	Yes
School Mitigation Plan	Yes
Critical Facilities Plan	In Development
Policies/Ordinance	
Zoning Ordinance	No
Building Code	No
Floodplain Ordinance	No
Subdivision Ordinance	No
Tree Trimming Ordinance	No
Nuisance Ordinance	Yes, 7/2025
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No

Program	
Zoning/Land Use Restrictions	No
Codes Building Site/Design	No
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System	Unknown
National Weather Service (NWS) Storm Ready	Yes
Firewise Community Certification	Unknown
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	Yes
Economic Development Program	No
Land Use Program	No
Public Education/Awareness	Yes
Property Acquisition	No
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Unknown
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Unknown
FEMA Flood Insurance Study (Detailed)	Unknown
Evacuation Route Map	Unknown
Critical Facilities Inventory	Yes
Vulnerable Population Inventory	Yes
Land Use Map	Yes
Staff/Department	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	No
Engineer	No
Development Planner	No
Public Works Official	Full Time
Emergency Management Director	Part Time
NFIP Floodplain Administrator	No
Emergency Response Team	Yes
Hazardous Materials Expert	Yes, Chillicothe Fire
Local Emergency Planning Committee	No
County Emergency Management Commission	Yes
Sanitation Department	Yes
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	Yes
Salvation Army	Yes
Veterans Groups	Yes
Local Environmental Organization	Yes
Homeowner Associations	No
Neighborhood Associations	No

Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	Yes
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	Unknown
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	Unknown

Source: Data Collection Questionnaire, 11/2025

2.2.6 City of Norborne

Norborne was founded in 1868 by Norborne B. Coates, a civil engineer for the North Missouri Railroad. The plat of the original town was filed on April 8, 1874 by John Dieterich, the owner of the town site. On April 20, 1874, the town of Norborne was incorporated.

The City is mostly an agricultural community. Norborne is the self-proclaimed Soybean Capital of the World and holds a Soybean Festival every year during the weekend of the second Saturday in August.
As of the 2023 census estimates, there were 682 people, 307 households in the city. The population density was 1049 inhabitants per square mile. There were 351 housing units at an average density of 540 per square mile.

The racial makeup of the city was 95% White, 5% African American, 1% Native American. Hispanic or Latino of any race were 1.5% of the population.

There were 307 households, of which 29.6% had children under the age of 18 living with them, 46.9% were married couples living together, 26.7% had a female householder with no spouse present, 17.3% had a male householder with no spouse present, and 13.3% had someone living alone who was 65 years of age or older. The average household size was 2.22 and the average family size was 2.64.

The median age in the city was 41.0 years. 17% of residents were under the age of 18 and 16% were 65 years of age or older.

The City of Norborne has a total area of 0.65 square miles, all of which is land.
There are only a few employers in the City of Norborne that include a gas station and convenience store, a bank and a public school.

The City of Norborne is governed by a City Council and Mayor. The City Council is comprised of 5 members, serving rotating terms.

The City reports no ongoing projects or programs designed to reduce disaster losses. The City does report past projects have included demolition grants, of which FEMA funds were received. There have been no approved projects submitted for FEMA mitigation grants as of December 2024.

The City reports no historic hazard events since the last plan update.

The hazard-related concerns regarding the vulnerability of special needs populations (elderly, disabled, low-income, migrant farm workers) are those concerns associated with warning and disaster recovery and rebuilding from tornadoes and earthquakes, as well as drought and severe temperatures.

There is one outdoor warning siren in the City of Norborne. The siren is manually activated and is located at the Fire Station. The City is in need of an updated warning siren or new siren, but the current city budget does not support the installation of a siren at this time. The City does not utilize any other warning systems, with the exception of any personal citizen subscriptions that may be in effect for National Weather Service. Some citizens utilize personal social media platforms to obtain general warnings for the area.

There are no designated public tornado shelters or safe rooms in the City. The City is in need of public shelters and/or saferooms but the current city budget does not support construction at this time.
The City of Norborne reports that there has been no industrial development since the last plan update in 2021. The City does not expect any new commercial or industrial development and one residential structure to be constructed in the next five years. The City currently does not have any plans to improve the current infrastructure or construct any new facilities.

The City of Norborne currently participates in the National Flood Insurance Program, however the current city budget and city resources do not support enforcement of ordinances, rules and regulations within the program.

The only essential critical facilities reported in the city limits of Norborne are a part time Medical Clinic and the Fire Station. No high potential loss facilities in the city limits were reported with the exception of the public school. No critical transportation and lifelines were reported. The City has designated the City Clerk to be the designated Planning Committee Member. The City Clerk agreed, with the endorsement of the City Council to participate in the County Planning Committee.

Mitigation Initiatives/Capabilities

The City of Norborne does have ordinances that address dangerous and dilapidated buildings, Planning and zoning, code and nuisance enforcement, as well as flood plain management and storm water drainage.

The city has had limited mitigation activities due to limited capabilities. The city expanding its mitigation capabilities is unlikely due to limited capabilities, both financially and in terms of staff availability.

Some of the limited actions undertaken are providing weather alerts, offering accessible contact information, debris removal, participation in the NFIP, and mutual aid agreements with other communities and agencies.

Table 2.13. City of Norborne Mitigation Capabilities

Capabilities	Status, *Including Date of Document or Policy*
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	No
County Emergency Operations Plan	No
Local Recovery Plan	No
County Recovery Plan	No
City Mitigation Plan	Yes, included in Carroll Co. plan
County Mitigation Plan	Yes, Carroll County plan
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	No
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
School Mitigation Plan	No
Critical Facilities Plan	No
Policies/Ordinance	
Zoning Ordinance	Yes
Building Code	Yes
Floodplain Ordinance	Yes
Subdivision Ordinance	No
Tree Trimming Ordinance	No
Nuisance Ordinance	Yes
Stormwater Ordinance	Yes
Drainage Ordinance	Yes
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	No
Codes Building Site/Design	No
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System (CRS) program	No
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	No
Economic Development Program	No
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	Yes
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes, MPUA, Others

Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	No
Engineer	Contracted
Development Planner	No
Public Works Official	Yes
Emergency Management Director	No
NFIP Floodplain Administrator	Yes
Emergency Response Team	No
Hazardous Materials Expert	No
Local Emergency Planning Committee	No
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	Yes, American Legion Aux
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	Lions, 4h, Norborne betterment and others
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes, vote required
Fees for water, sewer, gas, or electric services	Yes, Water & Sewer
Impact fees for new development	No
Ability to incur debt through general obligation bonds	Yes, vote required
Ability to incur debt through special tax bonds	Yes, vote required
Ability to incur debt through private activities	Yes, vote required
Withhold spending in hazard prone areas	No

Source: Data Collection Questionnaire, 11/2025

2.2.7 Summary of Jurisdictional Capabilities

Table 2.14. Mitigation Capabilities Summary Table

CAPABILITIES	Uninc. Carroll County	City of Bogard	Town of Carrollton	City of DeWitt	City of Hale	City of Norborne
Planning Capabilities						
Comprehensive Plan	No	Unknown	Unknown	No	No	No
Builder's Plan	No	NA	Unknown	No	No	No
Capital Improvement Plan	No	NA	Unknown	No	No	No
City Emergency Operations Plan	NA	Fire Department	Unknown	No	Yes	No
County Emergency Operations Plan	Yes	NA	Unknown	No	Yes	No
Local Recovery Plan	No	NA	Unknown	No	Development	No
County Recovery Plan	No	NA	Unknown	No	Unknown	No
City Mitigation Plan	unknown	NA	Unknown	Yes	Development	Yes
County Mitigation Plan	Yes	NA	Yes	Yes	Unknown	Yes
Debris Management Plan	Yes	NA	Unknown	No	Yes	No
Economic Development Plan	Yes	NA	Unknown	No	No	No
Transportation Plan	No	NA	Unknown	No	Development	No
Land-use Plan	Yes	NA	Unknown	No	Development	No
Flood Mitigation Assistance (FMA) Plan	No	NA	Unknown	No	Development	No
Watershed Plan	No	Unknown	Unknown	No	No	No
Firewise or other fire mitigation plan	No	Unknown	Unknown	No	Yes	No
School Mitigation Plan	NA	NA	Unknown	No	Yes	No
Critical Facilities Plan	No	NA	Unknown	No	Development	No
Policies/Ordinance						
Zoning Ordinance	Yes	NA	Yes	No	No	Yes
Building Code	No	NA	Yes	No	No	Yes
Floodplain Ordinance	Yes	NA	Yes	No	No	Yes
Subdivision Ordinance	No	NA	Unknown	No	No	No
Tree Trimming Ordinance	Yes	Yes	Unknown	No	No	No
Nuisance Ordinance	No	Yes	Yes	Yes	Yes	Yes
Stormwater Ordinance	No	NA	Unknown	No	No	Yes
Drainage Ordinance	No	NA	Unknown	No	No	Yes
Site Plan Review Requirements	No	NA	Unknown	No	No	No
Historic Preservation Ordinance	No	NA	Unknown	No	No	No
Landscape Ordinance	No	NA	Unknown	No	No	No
Seismic Construction Ordinance	No	NA	Unknown	No	No	No
Program						
Zoning/Land Use Restrictions	Yes	Yes	Yes	No	No	No

CAPABILITIES	Uninc. Carroll County	City of Bogard	Town of Carrollton	City of DeWitt	City of Hale	City of Norborne
Codes Building Site/Design	unknown	NA	Yes	No	No	No
Hazard Awareness Program	unknown	NA	Unknown	No	No	No
National Flood Insurance Program (NFIP)	Yes	NA	Yes	No	No	No
NFIP Community Rating System (CRS) program	No	NA	Unknown	No	Unknown	No
National Weather Service (NWS) Storm Ready	No	NA	Unknown	No	Yes	No
Firewise Community Certification	No	NA	Unknown	No	Unknown	No
Building Code Effectiveness Grading (BCEGs)	No	NA	Unknown	No	No	No
ISO Fire Rating	NA	NA	4	No	Yes	No
Economic Development Program	Contracted	NA	Unknown	No	No	No
Land Use Program	Yes	NA	Unknown	No	No	No
Public Education/Awareness	Yes	NA	Unknown	No	Yes	No
Property Acquisition	No	NA	Unknown	No	No	No
Planning/Zoning Boards	Yes	NA	Yes	No	No	Yes
Stream Maintenance Program	No	NA	Unknown	No	No	No
Tree Trimming Program	Yes	Yes	Yes	No	No	No
Engineering Studies for Streams (Local/County/Regional)	No	NA	Unknown	No	No	No
Mutual Aid Agreements	Yes	Yes	Yes	Yes	Yes	Yes
Studies/Reports/Maps						
Hazard Analysis/Risk Assessment (Local)	NA	Unknown	Unknown	Yes	Unknown	Yes
Hazard Analysis/Risk Assessment (County)	Yes	Unknown	Unknown	Yes	Yes	Yes
Flood Insurance Maps	Yes	NA	Unknown	Yes	Unknown	Yes
FEMA Flood Insurance Study (Detailed)	Unknown	NA	Unknown	Yes	Unknown	Yes
Evacuation Route Map	No	NA	Unknown	No	Unknown	No
Critical Facilities Inventory	Limited	NA	Unknown	No	Yes	No
Vulnerable Population Inventory	No	NA	Unknown	No	Yes	No
Land Use Map	Yes	NA	Unknown	No	Yes	Yes
Staff/Department						
Building Code Official	No	NA	Full Time	No	No	No
Building Inspector	No	NA	Full Time	No	No	No
Mapping Specialist (GIS)	Yes	NA	Unknown	No	No	No
Engineer	Contracted	NA	Unknown	No	No	Contracted
Development Planner	Contracted	NA	Unknown	No	No	No
Public Works Official	Yes	NA	Full Time	No	Full Time	Yes
Emergency Management Director	Yes	NA	Yes	No	Part Time	No
NFIP Floodplain Administrator	Yes	NA	Yes	No	No	Yes
Emergency Response Team	No	Fire	Yes	No	Yes	No
Hazardous Materials Expert	No	NA	Unknown	No	Yes	No
Local Emergency Planning Committee	Yes	NA	Yes	No	No	No
County Emergency Management Commission	No	NA	Unknown	No	Yes	No
Sanitation Department	No	NA	Yes	Contracted	Yes	No
Transportation Department	No	NA	Unknown	No	No	No
Economic Development Department	Contracted	NA	Yes	No	No	No
Housing Department	No	NA	Unknown	No	No	No

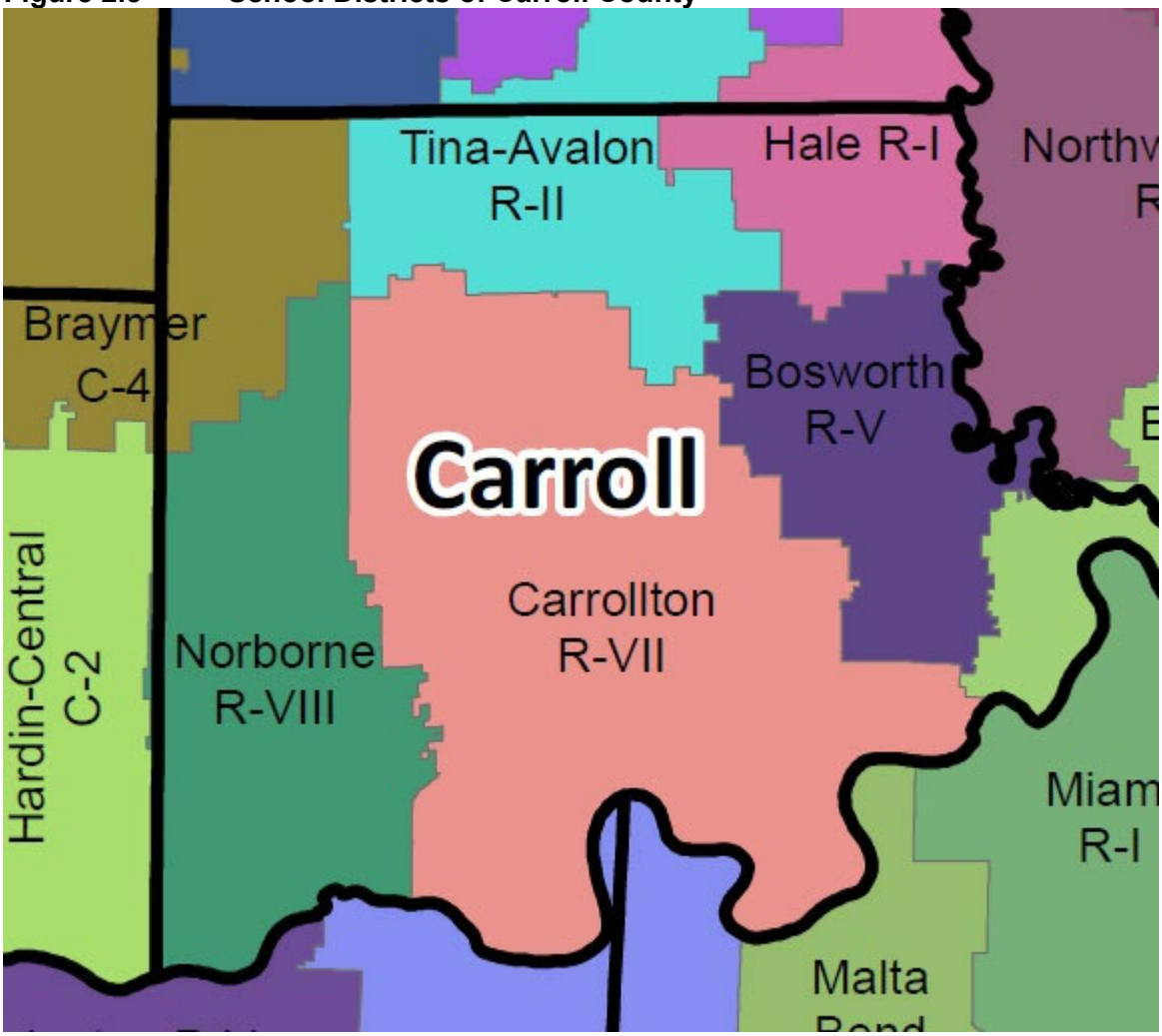
CAPABILITIES	Uninc. Carroll County	City of Bogard	Town of Carrollton	City of DeWitt	City of Hale	City of Norborne
Historic Preservation	No	NA	Unknown	No	No	No
Non-Governmental Organizations (NGOs)						
American Red Cross	Not locally	NA	Unknown	No	Yes	No
Salvation Army	Not locally	NA	Unknown	No	Yes	No
Veterans Groups	Yes	NA	Unknown	No	Yes	Yes
Local Environmental Organization	No	NA	Unknown	No	Yes	No
Homeowner Associations	No	NA	Unknown	No	No	No
Neighborhood Associations	No	NA	Unknown	No	No	No
Chamber of Commerce	Yes, Carrollton	County	Yes	No	No	No
Community Organizations (Lions, Kiwanis, etc.)	Yes	NA	Yes	No	Yes	Yes
Financial Resources						
Apply for Community Development Block Grants	Yes	NA	Yes	Yes	Yes	Yes
Fund projects through Capital Improvements funding	Yes	NA	Yes	No	Yes	Yes
Authority to levy taxes for a specific purpose	Yes	Yes	Unknown	Yes	Yes	Yes
Fees for water, sewer, gas, or electric services	NA	Yes	Unknown	No	Yes	Yes
Impact fees for new development	No	NA	Unknown	No	Unknown	No
Ability to incur debt through general obligation bonds	Yes	Yes	Unknown	No	Yes	Yes
Ability to incur debt through special tax bonds	Yes	Yes	Unknown	No	Yes	Yes
Ability to incur debt through private activities	Yes	NA	Unknown	No	No	Yes
Withhold spending in hazard prone areas	No	Yes	Unknown	No	Unknown	No

Source: Local questionnaire 12/2025

2.2.8 School District Profiles and Mitigation Capabilities

Carroll County contains 5 public school districts. There are no private schools in Carroll County. Figure 2.3 shows a map of the public school districts and their boundaries within Carroll County.

Figure 2.5 School Districts of Carroll County



The previous map illustrates the school districts within Carroll County. The school districts of Hale R-I, Tina-Avalon R-II, Bosworth R-V, Norborne R-VIII, and Carrollton R-VII have school buildings located within the county. The school districts that are not listed have students that reside in Carroll County, but the location of the school buildings is outside of Carroll County. Currently, the school districts of Carrollton R-VII, Hale R-I, Norborne R-VIII, and Tina-Avalon R-II participated in the Carroll County Hazard Mitigation Plan Update. Bosworth R-V did not attend meetings or participate in the plan update. They will be invited to participate during the next plan update.

Table 2.15. Carroll County School Districts Buildings and Enrollment Data, 6/2025

District Name	Building Name	Building Enrolment
District Name	**Building Name**	**Building Enrolment**
Hale R1		98
	Hale Elementary	35
	Hale High	63

Tina-Avalon R-II		137
	Elementary	70
	High	67
Bosworth R-V		50
	Elementary	36
	High	14
Carrollton R-VII		856
	Elementary	327
	Middle	281
	High	248
	Career Center	N/A
Norborne R-VIII		145
	Elementary	97
	High School	48

Source: https://dese.mo.gov/school-data, October 20, 2025

Carrollton R-VII School District

Carrollton R-VII School district has facilities located at 103 E. 9th Street, 305 E. 10th Street, 300 E. 9th Street, 207 E. 9th Street, and 204 East 10th Street all in Carrollton, MO

Table 2.16. Carrollton R-VII Buildings and Enrollment Data, 9/20/2025

District Name	Building Name	Building Enrollment
Carrollton R-VII	Elementary	327
	Middle	281
	High	248
	Career Center	N/A
Total:		**856**

Source: https://dese.mo.gov/school-data, 11/30/2025

The school conducts severe weather and evacuation drills. Each school building is equipped with a PA system used for emergency announcements and staff also receive alerts through internal radio and phone systems. The school buildings have a designated interior shelter area, while they do not meet FEMA standards, they do meet the state safety standards.

The school conducts regular maintenance to prevent wind and water damage due to natural hazards.

The district is governed by a Board of Education consisting of the Board President and six elected board members.

The district has done little to expand mitigation capabilities since the last plan update due to limited capabilities and has little planned in the way of expanding mitigation capabilities due to limited budget and resources.

Hale R-I School District

Hale R-I School district has facilities located at 518 Main Street Hale, MO 64643.

Table 2.17. Hale R-I Buildings and Enrollment Data, 9/20/2025

District Name	Building Name	Building Enrollment
Hale R-I	Hale Elementary	35
	Hale High	63
Total:		**98**

Source: https://dese.mo.gov/school-data, 11/30/2025

The school conducts severe weather and evacuation drills. Each school building is equipped with a PA system used for emergency announcements and staff also receive alerts through internal radio and phone systems. The school buildings have a designated interior shelter area, while they do not meet FEMA standards, they do meet the state safety standards.

The school conducts regular maintenance to prevent wind and water damage due to natural hazards.

The district is governed by a Board of Education consisting of the Board President and six elected board members.

The district has done little to expand mitigation capabilities since the last plan update due to limited capabilities and has little planned in the way of expanding mitigation capabilities due to limited budget and resources.

Norborne R-VIII School District

Norborne R-VIII School district has facilities located at 405 Pirate Lane Norborne, MO 64668

Table 2.18. Norborne R-VIII Buildings and Enrollment Data, 9/20/2025

District Name	Building Name	Building Enrollment
Norborne R-VIII	Elementary	97
	High School	48
Total:		**145**

Source: https://dese.mo.gov/school-data, 11/30/2025

The school conducts severe weather and evacuation drills. Each school building is equipped with a PA system used for emergency announcements and staff also receive alerts through internal radio and phone systems. The school buildings have a designated interior shelter area, while they do not meet FEMA standards, they do meet the state safety standards.

The school conducts regular maintenance to prevent wind and water damage due to natural hazards.

The district is governed by a Board of Education consisting of the Board President and six elected board members.

The district has done little to expand mitigation capabilities since the last plan update due to limited capabilities and has little planned in the way of expanding mitigation capabilities due to limited budget and resources.

Tina-Avalon R-II School District

Tina-Avalon R-II School district has facilities located at 11896 Hwy 65 Tina, MO 64682

Table 2.19. Tina-Avalon R-II Buildings and Enrollment Data, 9/20/2025

District Name	Building Name	Building Enrollment
Tina-Avalon R-II	Elementary	70
	High	67
Total:		**137**

Source: https://dese.mo.gov/school-data, 11/30/2025

The school conducts severe weather and evacuation drills. Each school building is equipped with a PA system used for emergency announcements and staff also receive alerts through internal radio and phone systems. The school buildings have a designated interior shelter area, while they do not meet FEMA standards, they do meet the state safety standards.

The school conducts regular maintenance to prevent wind and water damage due to natural hazards.

The district is governed by a Board of Education consisting of the Board President and six elected board members.

The district has done little to expand mitigation capabilities since the last plan update due to limited capabilities and has little planned in the way of expanding mitigation capabilities due to limited budget and resources.

Table 2.20. **Summary of Mitigation Capabilities-Carroll County School Districts**

Capability	Carrollton R-VII	Hale R-I	Norborne R-VIII	Tina-Avalon R-II
Planning Elements				
Master Plan	Yes, 8/2025	Yes, 2025	Yes, 2024-2028	No
Capital Improvement Plan	No	Yes, 2025	Yes. 2024	No
Emergency Plan	Yes, 8/2025	Yes, 2025	Yes, 8/2025	Yes, 8/2025
Weapons Policy	No	Yes, 2025	Yes, 7/2025	Yes, 8/2025
Personnel Resources				
Full-Time Building Official	Yes superintendent	Yes, superintendent	Yes, Superintendent	Yes, Superintendent
Emergency Manager	Yes, SRO	Yes	Yes	Yes, Superintendent
Grant Writer	No	Yes	Yes	Yes, Superintendent
Public Information Officer	Yes, superintendent	Yes	Yes	Yes, Superintendent
Financial Resources				
Capital improvements Project fund	Yes	Yes	Yes	Yes
Local Funds	Yes	Yes	Yes	Yes
General Obligation Bond	No	Yes	Yes	Yes
Special Tax Bonds	No	No	No	Yes
Private Activities/Donations	Yes	Yes	No	Yes
State and Federal Funds	Yes	Yes	Yes	Yes
Other				

Source: Data Collection Questionnaire, November 2025

3 RISK ASSESSMENT

3 RISK ASSESSMENT 1

3.1 HAZARD IDENTIFICATION 3

3.1.1 Review of Existing Mitigation Plans 3

3.1.2 Review Disaster Declaration History 3

3.1.3 Research Additional Sources 5

3.1.4 Hazards Identified 7

3.1.5 Hazards Excluded and Why 8

3.1.6 Multi-Jurisdictional Risk Assessment 8

3.2 ASSETS AT RISK 8

3.2.1 Total Exposure of Population and Structures 8

Unincorporated County and Incorporated Cities 8

3.2.2 Critical and Essential Facilities and Infrastructure 10

3.2.3 Other Assets 14

3.3 LAND USE AND DEVELOPMENT 19

3.3.1 Development Since Previous Plan Update 19

3.3.2 Future Land Use and Development 19

3.4 HAZARD PROFILES, VULNERABILITY, AND PROBLEM STATEMENTS 21

Hazard Profiles 21

Vulnerability Assessments 22

Problem Statements 23

3.4.1 Flooding (Riverine and Flash) 24

Hazard Profile 24

Vulnerability 40

Problem Statement 42

3.4.2 Levee Failure 43

Hazard Profile 43

Vulnerability 50

Problem Statement 52

3.4.3 Dam Failure 53

Hazard Profile 53

Vulnerability 56

Problem Statement 58

3.4.4 Earthquakes 59

Hazard Profile 59

Vulnerability 64

Problem Statement 66

3.4.5 Drought 67

Hazard Profile 67

Vulnerability 72

Problem Statement 76

3.4.6 Extreme Temperatures 77

Hazard Profile 77

Vulnerability 82

Problem Statement 85

3.4.7 Severe Thunderstorms Including High Winds, Hail, and Lightning 86

Hazard Profile 86
Vulnerability 95
Problem Statement 97
3.4.8 Severe Winter Weather 98
Hazard Profile 98
Vulnerability 102
Problem Statement 105
3.4.9 Tornado 106
Hazard Profile 106
Vulnerability 111
Problem Statement 113
3.4.10 Wildfire 114
Hazard Profile 114
Vulnerability 118
Problem Statement 120

44 CFR Requirement §201.6(c)(2): [The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

The goal of the risk assessment is to estimate the potential loss in the planning area, including loss of life, personal injury, property damage, and economic loss, from a hazard event. The risk assessment process allows communities and school/special districts in the planning area to better understand their potential risk to the identified hazards. It will provide a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

This chapter is divided into four main parts:

- **Section 3.1 Hazard Identification** identifies the hazards that threaten the planning area and provides a factual basis for elimination of hazards from further consideration;
- **Section 3.2 Assets at Risk** provides the planning area's total exposure to natural hazards, considering critical facilities and other community assets at risk;
- **Section 3.3 Land Use and Development** discusses development that has occurred since the last plan update and any increased or decreased risk that resulted. This section also discusses areas of planned future development and any implications on risk/vulnerability;
- **Section 3.4 Hazard Profiles and Vulnerability Analysis** provides more detailed information about the hazards impacting the planning area. For each hazard, there are three sections: 1) Hazard Profile provides a general description and discusses the threat to the planning area, the geographic location at risk, potential Strength/Magnitude/Extent, previous occurrences of hazard events, probability of future occurrence, risk summary by jurisdiction, impact of future development on the risk; 2) Vulnerability Assessment further defines and quantifies populations, buildings, critical facilities, and other community/school or special district assets at risk to natural hazards; and 3) Problem Statement briefly summarizes the problem and develops possible solutions.

3.1 HAZARD IDENTIFICATION

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type…of all natural hazards that can affect the jurisdiction.

Natural hazards can be complex, occurring with a wide range of intensities. Some events are instantaneous and offer no window of warning, such as earthquakes. Some offer a short warning in which to alert the public to take actions, such as tornadoes or severe thunderstorms. Others occur less frequently and are typically more expensive, with some warning time to allow the public time to prepare, such as flooding.

Each year there are increases in human-caused incidents, which can be just as devastating as natural disasters. For the purpose of this plan "human-caused hazards" are technological hazards and terrorism. These are distinct from natural hazards primarily in that they originate from human activity. In contrast, while the risks presented by natural hazards may be increased or decreased as a result of human activity, they are not inherently human-induced. The term "technological hazards" refers to the origins of incidents that can arise from human activities such as the manufacture, transportation, storage, and use of hazardous materials. For the sake of simplicity, this guide assumes that technological emergencies are accidental and that their consequences are unintended.

3.1.1 Review of Existing Mitigation Plans

The Hazard Mitigation Planning Committee (HMPC) reviewed data and discussed the impacts of each hazard of prime concern that are included and profiled in the most recent State of Missouri Hazard Mitigation Plan (2023) and the 2021 Carroll County Multi-Jurisdictional Local Hazard Mitigation Plan. The natural hazards of prime concern for Missouri and Carroll County were determined to be the following:

- Flooding (Riverine & Flash)
- Levee Failure
- Dam Failure
- Earthquake
- Drought
- Extreme Temperatures
- Severe Thunderstorms
- Severe Winter Weather
- Tornadoes
- Wildfires

3.1.2 Review Disaster Declaration History

Missouri State of Emergencies are Executive Orders (E.O.) signed by the Governor. For disasters, a State of Emergency could lead to a Federal Disaster Declaration. Since the last plan update, no non-federally declared events resulted in a significant event impacting the planning area

Table 3.1. FEMA Disaster Declarations that included Carroll, Missouri, 1965-Present

Disaster Number	Description	Declaration Date Incident Period	Individual Assistance (IA) Public Assistance (PA)
203	Severe Storms & Flooding	7/27/1965	IA, PA
372	Heavy Rains, Tornadoes, & Flooding	4/19/1973	IA, PA
407	Severe Storms & Flooding	11/1/1973	IA, PA
439	Severe Storms & Flooding	6/10/1974	IA, PA
535	Tornadoes & Flooding	5/1/1977	IA, PA
995	Severe Storms & Flooding	6/10/1993 – 10/251993	IA, PA
1054	Severe Storms, Tornadoes, Hail, & Flooding	5/13/1995 – 6/23/1995	IA, PA
1253	Severe Storms, Flooding, & Tornadoes	10/4/1998 – 10/11/1998	IA, PA
1403	Severe Winter Ice Storm	1/29/2002 – 2/13/2002	IA, PA
1412	Severe Storms, Tornadoes, & Flooding	4/24/2002 – 6/10/2002	PA
1524	Severe Storms, Tornadoes, & Flooding	5/18/2004 – 5/31/2004	IA
1631	Severe Storms, Tornadoes, & Flooding	3/8/2006 – 3/13/2006	IA, PA
1773	Severe Storms & Flooding	6/1/2008 – 8/13/2008	PA
3017	Drought	9/24/1973	PA
3232	Hurricane Katrina Evacuation	8/29/2005 – 10/1/2005	PA
3281	Severe Winter Storms	12/8/2007 – 12/15/2007	PA
3303	Severe Winter Storm	1/26/2009 – 1/28/2009	PA
3317	Severe Winter Storm	1/31/2011 – 2/5/2011	PA
3325	Flooding	6/1/2011 – 8/1/2011	PA
3482	Biological	1/20/2020 – 5/11/2023	PA
3325	Flood	6/1/2011 – 8/1/2011	PA
3317	Severe Winter Storm	1/31/2011 – 2/5/2011	IA, PA
1708	Severe Storms & Flooding	5/5/2007 – 5/18/2007	IA, PA
1934	Severe Storms, Flooding, & Tornadoes	6/12/2010 – 7/31/2010	PA
1961	Severe Winter Storm & Snowstorm	1/31/2011 – 2/5/2011	PA
4012	Flooding	6/1/2011 – 8/1/2011	PA
4612	Severe Storms, Straight-line winds, tornadoes, & Flooding	6/24/2021 – 7/1/2021	IA, PA

4490	Covid-19 Pandemic	1/20/2020 – 5/11/2023	IA, PA
4451	Severe Storms, Tornadoes, & Flooding	4/29/2019 – 7/5/2019	IA, PA

Source: Federal Emergency Management Agency, https://www.fema.gov/data-visualization-summary-disaster-declarations-and-grants

3.1.3 Research Additional Sources

List the additional sources of data on locations and past impacts of hazards in the planning area:

- Missouri Hazard Mitigation Plans (2010, 2013, 2018, and 2023)
- Previously approved planning area Hazard Mitigation Plan (May 3, 2021)
- Federal Emergency Management Agency (FEMA)
- Missouri Department of Natural Resources
- National Drought Mitigation Center Drought Reporter
- US Department of Agriculture's (USDA) Risk Management Agency Crop Insurance Statistics
- National Agricultural Statistics Service (Agriculture production/losses)
- Data Collection Questionnaires completed by each jurisdiction
- State of Missouri GIS data
- Environmental Protection Agency
- Flood Insurance Administration
- Hazards US (Hazus)
- Missouri Department of Transportation
- Missouri Division of Fire Marshal Safety
- Missouri Public Service Commission
- National Fire Incident Reporting System (NFIRS)
- National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI);
- County and local Comprehensive Plans to the extent available
- County Emergency Management
- County Flood Insurance Rate Map, FEMA
- Flood Insurance Study, FEMA
- SILVIS Lab, Department of Forest Ecology and Management, University of Wisconsin
- U.S. Army Corps of Engineers
- U.S. Department of Transportation
- United States Geological Survey (USGS)
- Various articles and publications available on the internet, sources will be cited throughout the plan

The only centralized source of data for many of the weather-related hazards is the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI). Although it is usually the best and most current source, there are limitations to the data which should be noted. The NCEI documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. In addition, it is a partial record of other significant meteorological events, such as record maximum or minimum temperatures or precipitation that occurs in connection with another event. Some information appearing in the NCEI may be provided by or gathered from sources outside the National Weather Service (NWS), such as the

media, law enforcement and/or other government agencies, private companies, individuals, etc. An effort is made to use the best available information but because of time and resource constraints, information from these sources may be unverified by the NWS. Those using information from NCEI should be cautious as the NWS does not guarantee the accuracy or validity of the information.

The NCEI damage amounts are estimates received from a variety of sources, including those listed above in the Data Sources section. For damage amounts, the NWS makes a best guess using all available data at the time of the publication. Property and crop damage figures should be considered as a broad estimate. Damages reported are in dollar values as they existed at the time of the storm event. They do not represent current dollar values.

The database currently contains data from January 1950 to March 2014, as entered by the NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The following timelines show the different time spans for each period of unique data collection and processing procedures.

1. Tornado: From 1950 through 1954, only tornado events were recorded.
2. Tornado, Thunderstorm Wind and Hail: From 1955 through 1992, only tornado, thunderstorm wind and hail events were keyed from the paper publications into digital data. From 1993 to 1995, only tornado, thunderstorm wind and hail events have been extracted from the Unformatted Text Files.
3. All Event Types (48 from Directive 10-1605): From 1996 to present, 48 event types are recorded as defined in NWS Directive 10-1605.

Note that injuries and deaths caused by a storm event are reported on an area-wide basis. When reviewing a table resulting from an NCEI search by county, the death or injury listed in connection with that county search did not necessarily occur in that county.

3.1.4 Hazards Identified

The hazards that significantly impact the planning area and that were chosen for further analysis are listed in Table 3.3 in alphabetical order. Not all hazards impact every jurisdiction. The following table utilizes the following symbol for hazard analysis. The symbol **"x"** indicates that the jurisdiction is impacted by the hazard, and a **"- "**indicates that the hazard in question is not applicable to that jurisdiction. However, there are some hazards that affect the entire planning area.

Natural hazards in North Missouri vary dramatically in regard to intensity, frequency, and the scope of impact. Some hazards, like earthquakes, happen without warning and do not provide any opportunity to warn the public. Other hazards, such as tornadoes, flooding, or severe winter storms provide a period of warning which allows for public preparation prior to their occurrence. The following natural hazards have been identified as potential threats for Carroll County:

Table 3.2. Hazards Identified for Each Jurisdiction

Jurisdiction	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flooding (River and Flash)	Land Subsidence/ Sinkholes	Levee Failure	Severe Winter Weather	Thunderstorm/Lightning/ Hail/High Wind	Tornado	Wildfire	
Carroll County	x	x	x	x	x	x	x	x	x	x	x	-
Cities & Villages of Carroll County												
City of Bogard	x	x	x	x	x	-	-	x	x	x	x	x
City of Bosworth	x	x	x	x	x	-	x	x	x	x	x	x
City of Carrollton	x	x	x	x	x	-	x	x	x	x	x	x
City of DeWitt	-	x	x	x	-	-	x	x	x	x	x	x
City of Hale	x	x	x	x	x	-	-	x	x	x	x	x
City of Norborne	-	x	x	x	x	-	x	x	x	x	x	x
Village of Tina	x	x	x	x	x	-	-	-	x	x	x	x
Schools and Special Districts												
Hale R-I School District	-	-	x	x	-	-	-	x	x	x	x	x
Bosworth R-V School District	-	-	x	x	-	-	-	x	x	x	x	x
Carrollton R-VII School District	-	-	x	x	-	-	-	x	x	x	x	x
Norborne R-VIII School District	-	-	x	x	-	-	-	x	x	x	x	x

3.1.5 Hazards Excluded and Why

Landslides and land subsidence/sinkholes, according to the USGS website, are not likely to occur in Carroll County due to the type of soil and substructure in Northern Missouri. There are no known instances of sinkholes in Carroll County at this time, so the likelihood of sinkholes occurring in the planning area is less than 1%, and therefore this hazard was excluded from the plan.

Fires: Urban/Structural were not included in the Carroll County plan. The rural nature of the county led to this decision to exclude this type of hazard.

Coastal Storms, Hurricanes, and Tsunamis were excluded, for obvious reasons.

3.1.6 Multi-Jurisdictional Risk Assessment

For this multi-jurisdictional plan, the risks are assessed for each jurisdiction where they deviate from the risks facing the entire planning area. The planning area is fairly uniform, in terms of climate and topography, as well as building construction characteristics. Accordingly, the geographic areas of occurrence for weather-related hazards do not vary greatly across the planning area for most hazards. Carrollton is slightly more urbanized within the planning area and has more assets that are vulnerable to the weather-related hazards and varied development trends impact the future vulnerability. Similarly, more rural areas have more assets (crops/livestock) that are vulnerable to extreme temperature, drought, and severe storms. These differences are discussed in greater detail in the vulnerability sections of each hazard.

The hazards that vary across the planning area in terms of risk include dam failure, levees, flash flood, and grass or wildland fire. The difference in hazards is explained in each hazard profile under a separate heading.

3.2 ASSETS AT RISK

This section of the plan assesses the planning area population, structures, critical facilities, and infrastructure, and other important assets that may be at risk from hazards. All structures within the planning area are visible on high resolution imagery and have been analyzed and classified. This offers the ability to display those structures by their type and purpose, which makes identifying critical infrastructure much easier. This was done on the last hazard mitigation plan for Carroll County. There have been no significant changes in the planning area since the last plan update.

3.2.1 Total Exposure of Population and Structures

For the 2023 State Plan, SEMA utilized a structure inventory dataset developed by the University of Missouri GIS Department (MSDIS) to determine the number of structures exposed to risks. MSDIS created a point and/or footprint dataset for every roof line in every county in the state of Missouri. This dataset is attributed with the type of structure such as Residential, Commercial, etc. This dataset, along with additional State Mitigation Planning Resources, is available on Google Drive in both GIS and Excel format and organized by County:

Unincorporated County and Incorporated Cities

In the following three tables, population data is based on 2010 Census Bureau data. Building counts and building exposure values are based on parcel data developed by the State of Missouri Geographic Information Systems (GIS) database. This data, organized by County, is available on Google Drive through the link provided on the previous page. Contents exposure values were calculated by factoring a multiplier to the building exposure values based on usage type. The multipliers were derived from the Hazus and are defined below in **Table 3.3**. Land values have been purposely excluded from consideration because land remains following disasters, and subsequent market devaluations are frequently short term and difficult to quantify. Another reason for excluding land values is that state and federal disaster assistance programs generally do not address loss of land (other than crop insurance). It should be noted that the total valuation of buildings is based on county assessors' data which may not be current. In addition, government-owned properties are usually taxed differently or not at all and so may not be an accurate representation of true value. Note that public school district assets and special districts assets are included in the total exposure tables assets by community and county.

Table 3.3 shows the total population, building count, estimated value of buildings, estimated value of contents and estimated total exposure to parcels for the unincorporated county and each incorporated city. For multi-county communities, the population and building data may include data on assets located outside the planning area. **Table 3.4** that follows provides the building value exposures for the county and each city in the planning area broken down by usage type. Finally, **Table 3.5** provides the building count total for the county and each city in the planning area broken out by building usage types (residential, commercial, industrial, and agricultural).

Table 3.3. Maximum Population and Building Exposure by Jurisdiction

Jurisdiction	2020 Annual Population Estimate	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)
Bogard	163	125	$55,066	$36,971	$55,066
Bosworth	209	162	$53,811	$30,108	$53,811
Unincorporated Carroll	3,320	10,870	$586,531	$266,487	$586,531
Carrollton	3478	1787	$738,471	$458,238	$738,471
De Witt	82	36	$9,614	$4,299	$9,614
Hale	373	230	$97,063	$61,673	$97,063
Norborne	630	391	$154,615	$96,184	$154,615
Tina	136	74	$22,568	$12,027	$22,568
Totals	**8,391**	**13,675**	**$1,717,741**	**$965,987**	**$1,717,741**

Source: U.S. Bureau of the Census, Annual population estimates/ 5-Year American Community Survey 2023; Building Count and Building Exposure, Missouri GIS Database from SEMA Mitigation Management; Contents Exposure derived by applying multiplier to Building Exposure based on Hazus 6.0 standard contents multipliers per usage type as follows: Residential (50%), Commercial (100%), Industrial (150%), Agricultural (100%). For purposes of these calculations, government, school, and utility were calculated at the commercial contents rate.

Table 3.4. Building Values/Exposure by Usage Type

Jurisdiction	Agriculture	Commercial	Education	Government	Industrial	Residential	Total
Carroll County	$28,551	$107,347	$4,371	$21,627	$67,803	$356,832	$586,066
Bogard	$34	$33,180	$0	$0	$0	$21,851	$55,056
Bosworth	$31	$21,469	$0	$386	$0	$31,538	$53,811
Carrollton	$197	$376,690	$6,557	$14,675	$1,541	$338,810	$738,471
DeWitt	$3	$1,952	$0	$0	$0	$7,659	$9,614

Hale	$100	$54,649	$4,371	$772	$0	$31,170	$97,063
Norborne	$141	$81,974	$4,371	$772	$0	$67,357	$154,615
Tina	$22	$7,807	$0	$722	$0	$13,967	$22,568
Total	**$29,081**	**$685,069**	**$19,671**	**$39,392**	**$69,344**	**$875,184**	**$1,717,741**

Source: Missouri GIS Database, SEMA Mitigation Management Section

Table 3.5. Building Counts by Usage Type

Jurisdiction	Agriculture	Commercial	Education	Government	Industrial	Residential	Total
Carroll County	9,111	55	4	28	88	1,584	10,870
Bogard	11	17	-	-	-	97	125
Bosworth	10	11	-	1	-	140	162
Carrollton	63	193	6	19	2	1,504	1,787
DeWitt	1	1	-	-	-	34	36
Hale	32	28	4	1	-	165	230
Norborne	45	42	4	1	-	299	391
Tina	7	4	-	1	-	62	74
Grand Total	**9,280**	**351**	**18**	**51**	**90**	**3,885**	**13,675**

Source: Missouri GIS Database, SEMA Mitigation Management Section; Public School Districts and Special Districts

Even though schools and special districts' total assets are included in the tables above, additional discussion is needed, based on the data that is available from the districts' completion of the Data Collection Questionnaire and district-maintained websites. The number of enrolled students at the participating public-school districts is provided in **Table 3.6** below. Additional information includes the number of buildings, building values (building exposure) and contents value (contents exposure). These numbers will represent the total enrollment and building count for the public-school districts regardless of the county in which they are located.

Table 3.6. Population and Building Exposure by Jurisdiction-Public School Districts

Public School District	Enrollment	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)
Bosworth R-V School District	50	2	$7,758,411	$796,028	$8,554,439
Carrollton R-VII School District	856	4	$40,573,440	$7,284,447	$47,857,887
Hale R-I School District	98	2	$7,240,497	$1,040,598	$8,281,095
Norborne R-VIII School District	164	2	$11,845,345	$$1,808,943	$13,654,288
Tina-Avalon R-II School District	137	2	$9,456,108	$1,560,127	$11,016,235

Source: MCDS Portal | Missouri Department of Elementary and Secondary Education - MCDS (mo.gov), select the file for the most recent year called "20xx Building Enrollment PK-12", filter the spreadsheet by selecting only the public school districts in the planning area. The Building Exposure, Contents Exposure, and Total Exposure amounts come from the completed Data Collection Questionnaires from Public School Districts. In general, the school districts obtain this information from their insurance coverage amounts.

3.2.2 Critical and Essential Facilities and Infrastructure

This section will include information from the Data Collection Questionnaire and other sources concerning the vulnerability of participating jurisdictions' critical, essential, high potential loss, and transportation/lifeline facilities to identified hazards. Definitions of each of these types of facilities are provided below.

- Critical Facility: Those facilities are essential in providing utility or direction either during the response to an emergency or during the recovery operation.

- Essential Facility: Those facilities that, if damaged, would have devastating impacts on disaster response and/or recovery.
- High Potential Loss Facilities: Those facilities that would have a high loss or impact on the community.
- Transportation and lifeline facilities: Those facilities and infrastructure critical to transportation, communications, and necessary utilities.

Table 3.7 includes a summary of the inventory of critical and essential facilities and infrastructure in the planning area. The list was compiled from the Data Collection Questionnaire as well as the following sources:

- 2023 Missouri State Hazard Mitigation Plan and Hazard Mitigation Viewer http://bit.ly/MoHazardMitigationPlanViewer2023
- Interviews with County Emergency Management Director
- Interviews with City Government Employees
- Local Emergency Planning Committees (LEPC) Addresses (mo.gov)
- Hazus contains an inventory of critical facilities that can be exported for each jurisdiction.

Table 3.7. Inventory of Critical/Essential Facilities and Infrastructure by Jurisdiction

Jurisdiction	Airport Facility	Bus Facility	Childcare Facility	Communications Tower	Electric Power Facility	Emergency Operations	Fire Service	Government	Housing	Shelters	Highway Bridge	Hospital/Health Care	Military	Natural Gas Facility	Nursing Homes	Police Station	Potable Water Facility	Rail	Sanitary Pump Stations	School Facilities	Stormwater Pump Stations	Tier II Chemical Facility	Wastewater Facility	TOTAL
Carroll County	1	-	-	1	1	2	2	1	-	-	80	-	-	6	-	1	1	-	-	-	-	6	-	102
City of Bogard	-	-	-	-	-	1	1	1	-	-	-	-	-	2	-	-	1	-	-	-	-	3	-	9
City of Bosworth	-	-	-	-	-	1	1	1	-	1	-	-	-	-	-	-	1	1	-	2	-	2	-	10
City of Carrollton	-	-	5	-	1	1	2	1	3	1	6	6	-	2	5	1	1	1	1	14	1	16	2	73
City of Dewitt	-	-	-	-	-	1	1	1	-	-	1	-	-	-	-	1	1	1	-	-	-	-	-	7
City of Hale	-	-	-	-	1	1	1	1	1	2	-	1	-	1	-	1	1	-	-	3	-	3	1	18
City of Norborne	-	-	-	-	-	1	1	1	1	2	-	1	-	1	-	1	1	1	-	3	-	5	-	19
Village of Tina	-	-	-	-	-	-	-	1	-	-	1	-	-	2	-	-	1	1	1	5	-	3	-	15
Totals	**1**	**0**	**8**	**1**	**3**	**8**	**9**	**8**	**5**	**6**	**88**	**8**	**0**	**14**	**5**	**5**	**8**	**5**	**2**	**27**	**1**	**38**	**3**	**253**

Source: Missouri 2023 State Hazard Mitigation Plan and Hazard Mitigation Viewer; Data Collection Questionnaires; Hazus, etc.

The term “scour critical” refers to one of the database elements in the National Bridge Inventory. This element is quantified using a “scour index”, which is a number indicating the vulnerability of a bridge to scour during a flood. Bridges with a scour index between 1 and 3 are considered “scour critical”, or a bridge with a foundation determined to be unstable for the observed or evaluated scour condition.

The following figures show the bridges located within Carroll County. They are identified by the following characteristics. Green circles indicate bridges within the county if “good” condition; yellow circles indicate bridges within the county in “fair” condition; and red circles indicate bridges within the county in “poor” condition. The data was obtained from the National Bridge Inventory and the map was generated using Esri ArcGIS Pro.

There are currently 10 structurally deficient or scour critical bridges in Carroll County. There are none located within city boundaries, all are in unincorporated areas of Carroll County as seen in the figure below. (Scour Critical bridges are indicated by a red arrow). There are some bridges in poor condition in the city limits of Carrollton, but none are considered scour critical.

Table 3.8. Carroll County Bridges

# of Bridges	Good Condition	Fair Condition	Poor condition	Scour Critical
371	96	208	67	10

Source: National Bridge Inventory FHWA

http://www.fhwa.dot.gov/bridge/nbi/no10/county.cfm

Figure 3.1. Carroll County Bridges

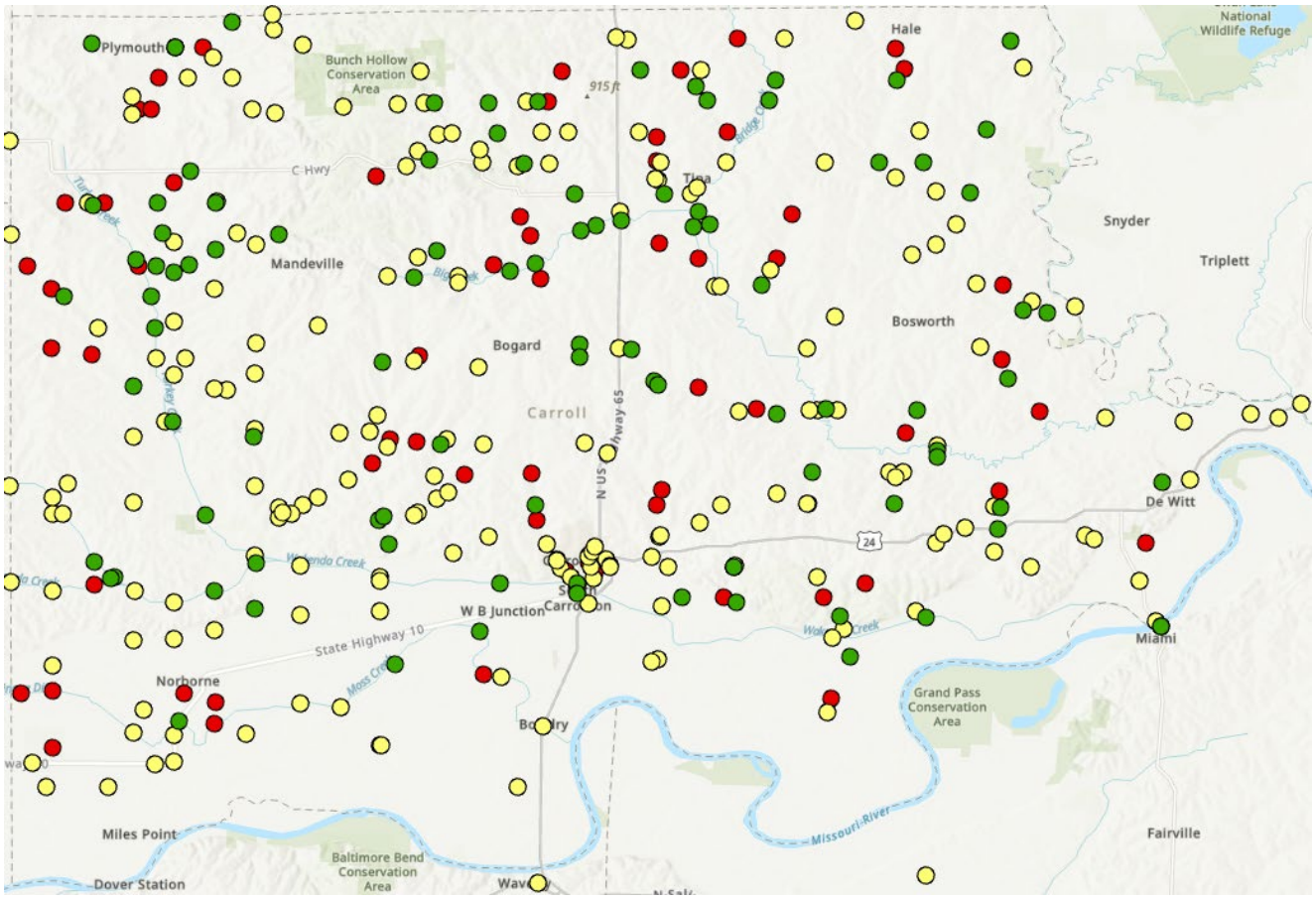
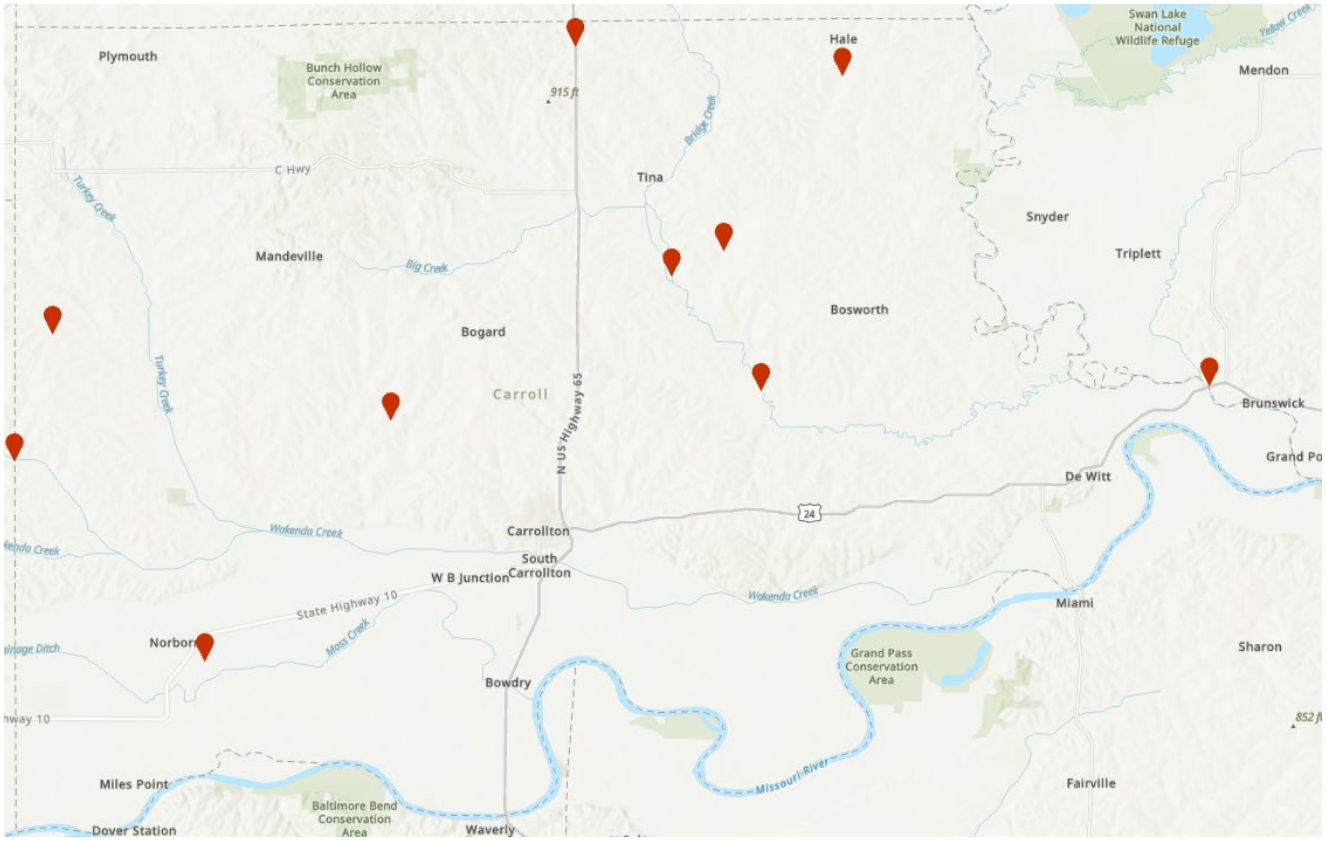


Figure 3.2. Carroll County Structurally Deficient (Scour Critical) Bridges



3.2.3 Other Assets

Assessing the vulnerability of the planning area to disaster also requires data on the natural, historic, cultural, and economic assets of the area. This information is important for many reasons.

- These types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- Knowing about these resources in advance allows for consideration immediately following a hazard event, which is when the potential for damages is higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- The presence of natural resources can reduce the impacts of future natural hazards, such as wetlands and riparian habitats which help absorb floodwaters.
- Losses to economic assets like these (e.g., major employers or primary economic sectors) could have severe impacts on a community and its ability to recover from disaster.

Table 3.9. Threatened and Endangered Species in Carroll County

Common Name	Scientific Name	Status
Lake Sturgeon	Acipenser Fulvescens	Endangered
American Bittern	Botaurus Lentiginosus	Endangered
Northern Harrier	Circus Hudsonius	Endangered
Indiana Myotis	Myotis Sodalis	Endangered
Flathead Chub	Platygobio Gracilis	Endangered

Pallid Sturgeon	Scaphirhynchus Albus	Endangered

Source: U.S. Fish and Wildlife Service, Listed Species (fws.gov); see also https://ecos.fws.gov/ipac/ and select 'Get Started" > Step '1 Find Location', choose select by state or county and enter the county name, selecting the appropriate community > follow remaining on-screen instructions.

Natural Resources: The Missouri Department of Conservation (MDC) provides a database of lands the MDC owns, leases, or manages for public use. Use **Table 3.10** to provide the names and locations of parks and conservation areas in the planning area.

Table 3.10. Parks/Conservation Areas in Carroll County

Park / Conservation Area	Address	City
Bosworth Access	3 miles east of Bosworth on Route M, entrance on the south side of road	Bosworth
Bunch Hollow CA	10 miles north of Carrollton on Highway 65 to Route Z, west and north 7 miles to CR 130 then west miles	Carrollton area
Little Compton Lake CA	4 mi. south on Highway 139 from Hale, CR 140, east 3 mi to CR 361 then south	Hale area
McKinney CA	1 mile south from DeWitt on Highway 41	DeWitt
Schifferdecker (WL) Mem	10 miles east of Carrollton on Route E, south on Route D ½ mile	Carrollton area

Source: http://mdc7.mdc.mo.gov/applications/moatlas/AreaList.aspx?txtUserID=guest&txtAreaNm=s
The best source for park information is usually county and community websites.

Historic Resources: The National Register of Historic Places is the official list of registered cultural resources worthy of preservation. It was authorized under the National Historic Preservation Act of 1966 as part of a national program. The purpose of the program is to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. The National Register is administered by the National Park Service under the Secretary of the Interior. Properties listed in the National Register include districts, sites, buildings, structures and objects that are significant in American history, architecture, archeology, engineering, and culture.

Table 3.11. Carroll County Properties on the National Register of Historic Places

Property	Address	City	Date Listed
Carroll County Court House	Courthouse Square	Carrollton	07/21/1995
Carroll County Sheriff's Quarters and Jail	101 Washington Street	Carrollton	10/11/1979
Farmers Bank Building	114 South Pine Street	Norborne	07/07/1994
US Post Office	101 North Folger Street	Carrollton	05/12/1977
Wilcoxson and Company Bank	1 West Washington Avenue	Carrollton	01/21/1983
Wright II Archaeological Site	Address restricted	Restricted	05/27/1971

Source: Missouri Department of Natural Resources – Missouri National Register Listings by County
http://dnr.mo.gov/shpo/mnrlist.htm

Economic Resources: Below is a table showing the major non-government employers in the planning area.

Table 3.12. Major Non-Government Employers in Carroll County

Employer Name	Main Locations	Product or Service	Employees
Carroll County Memorial Hospital	Carrollton, MO	Healthcare	210
Brunswick Agri-Services	Carrollton, MO	Agriculture	160
Carrollton R-VII School District	Carrollton, MO	Education	143
C-Orr	Carrollton, MO	Agriculture	100
TCCI Construction	Carrollton, MO	Construction	60-80
Continental Fabrication Services	Carrollton, MO	Trades, Welding	50
Show-Me Ethanol, LLC	Carrollton, MO	Propane	40

Carroll County	Carrollton, MO	Government	40
Mulch's Country Mart	Carrollton, MO	Retail Sales	40
Ray-Carroll Grain Growers	Carrollton, MO	Agriculture	30
MoDOT	Carrollton, MO	Government/Road Bridge	20
Ag-Power	Carrollton, MO	Farm Equipment Dealer	15
Sinclair Pipeline	Carrollton, MO	Natural Gas	12

Source: Data Collection Questionnaires; local Economic Development Commissions

Agriculture plays an important role in the Carroll County economy. According to the 2023 ACS 5-year estimates 348 jobs in Carroll County were in the industry of Agriculture, Forestry, Fishing and Hunting, and Mining, or 9.3% of employed persons 16 years of age or older. The following figures provide a summary of the agriculture-related jobs in Carroll County and were obtained from the Census of Agriculture in 2022.

Table 3.13. Agriculture Related Jobs in Carroll County

Farm Workers Sex		Farm Workers Age		
Male	**Female**	**<35**	**35-64**	**65+**
1,128	538	103	826	737

Source: USDA Census of Agriculture, 2022

Table 3.14. Top Crops in Acres in Carroll County

Soybeans for Beans	Corn for Grain	Forage (hay, haylage)	Wheat for Grain	Corn for Silage or Greenchop
142,225	84,748	24,440	3,887	751

Source: USDA Census of Agriculture, 2022

Sales of Livestock, Poultry, & Products Produced in Carroll County (by $1000)

Cattle & Calves	Horses, Ponies, Mules, Burros, Donkeys	Sheed, Goats, Wool, Mohair, Milk	Poultry & Eggs
Withheld	$185	$64	$35

Source: USDA Census of Agriculture, 2022

Table 3.15. Census of Agriculture for Carroll County (page 1)

2022 CENSUS OF AGRICULTURE *County Profile*





Carroll County Missouri

Total and Per Farm Overview, 2022 and change since 2017

	2022	% change since 2017
Number of farms	960	-6
Land in farms (acres)	393,921	-7
Average size of farm (acres)	410	-2
Total	($)	
Market value of products sold	209,220,000	+45
Government payments	11,353,000	+9
Farm-related income	9,070,000	-16
Total farm production expenses	134,180,000	+26
Net cash farm income	95,462,000	+61
Per farm average	($)	
Market value of products sold	217,937	+53
Government payments [a]	17,574	+35
Farm-related income [a]	17,408	-2
Total farm production expenses	139,771	+33
Net cash farm income	99,440	+70

1 Percent of state agriculture sales

Share of Sales by Type (%)

Crops	92
Livestock, poultry, and products	8

Land in Farms by Use (acres)

Cropland	311,649
Pastureland	34,526
Woodland	27,997
Other	19,749

Acres irrigated: 4,751
1% of land in farms

Land Use Practices (% of farms)

No till	28
Reduced till	18
Intensive till	18
Cover crop	10

Farms by Value of Sales

	Number	Percent of Total [b]
Less than $2,500	362	38
$2,500 to $4,999	58	6
$5,000 to $9,999	56	6
$10,000 to $24,999	94	10
$25,000 to $49,999	90	9
$50,000 to $99,999	67	7
$100,000 or more	233	24

Farms by Size

	Number	Percent of Total [b]
1 to 9 acres	25	3
10 to 49 acres	178	19
50 to 179 acres	344	36
180 to 499 acres	229	24
500 to 999 acres	83	9
1,000+ acres	101	11

USDA United States Department of Agriculture
National Agricultural Statistics Service
www.nass.usda.gov/AgCensus

Source: USDA Census of Agriculture 2017

Table 3.16. Census of Agriculture for Carroll County (page 2)

Carroll County
Missouri, 2022
Page 2

2022 CENSUS OF AGRICULTURE *County Profile*

Market Value of Agricultural Products Sold

	Sales ($1,000)	Rank in State [c]	Counties Producing Item	Rank in U.S. [c]	Counties Producing Item
Total	**209,220**	**20**	**114**	**787**	**3,078**
Crops	**191,532**	**10**	**114**	**401**	**3,074**
Grains, oilseeds, dry beans, dry peas	189,115	8	109	280	2,917
Tobacco	-	-	2	-	267
Cotton and cottonseed	-	-	7	-	647
Vegetables, melons, potatoes, sweet potatoes	146	52	112	1,599	2,831
Fruits, tree nuts, berries	(D)	(D)	112	(D)	2,711
Nursery, greenhouse, floriculture, sod	(D)	53	104	(D)	2,660
Cultivated Christmas trees, short rotation woody crops	-	-	36	-	1,274
Other crops and hay	2,070	56	114	1,414	3,035
Livestock, poultry, and products	**17,687**	**81**	**114**	**1,831**	**3,076**
Poultry and eggs	35	89	113	1,787	3,027
Cattle and calves	(D)	73	114	(D)	3,047
Milk from cows	(D)	(D)	84	(D)	1,770
Hogs and pigs	(D)	40	111	(D)	2,814
Sheep, goats, wool, mohair, milk	64	83	111	1,704	2,967
Horses, ponies, mules, burros, donkeys	185	48	113	1,170	2,907
Aquaculture	(D)	34	36	(D)	1,190
Other animals and animal products	28	52	106	1,459	2,909

Producers [d]	**1,666**
Sex	
Male	1,128
Female	538
Age	
<35	103
35 – 64	826
65 and older	737
Race	
American Indian/Alaska Native	3
Asian	-
Black or African American	9
Native Hawaiian/Pacific Islander	2
White	1,651
More than one race	1
Other characteristics	
Hispanic, Latino, Spanish origin	9
With military service	196
New and beginning farmers	351

Percent of farms that:

Have internet access	75
Farm organically	(Z)
Sell directly to consumers	1
Hire farm labor	19
Are family farms	94

Top Crops in Acres [e]

Soybeans for beans	142,225
Corn for grain	84,748
Forage (hay/haylage), all	24,440
Wheat for grain, all	3,887
Corn for silage/greenchop	751

Livestock Inventory (Dec 31, 2022)

Broilers and other meat-type chickens	115
Cattle and calves	24,360
Goats	150
Hogs and pigs	(D)
Horses and ponies	348
Layers	825
Pullets	150
Sheep and lambs	512
Turkeys	68

[a] Average per farm receiving. [b] May not add to 100% due to rounding. [c] Among counties whose rank can be displayed. [d] Data collected for a maximum of four producers per farm. [e] Crop commodity names may be shortened; see full names at www.nass.usda.gov/go/cropnames.pdf. [f] Position below the line does not indicate rank. (D) Withheld to avoid disclosing data for individual operations. (NA) Not available. (Z) Less than half of the unit shown. (-) Represents zero.

USDA is an equal opportunity provider, employer, and lender.

Source: USDA Census of Agriculture 2017

3.3 LAND USE AND DEVELOPMENT

3.3.1 Development Since Previous Plan Update

The population data listed in the following table below shows a significant and steady loss of population in all jurisdictions within the planning area.

Table 3.17. County Population Growth, 2010-2023

Jurisdiction	Total Population 2010	Total Population 2023	2010-2023 # Change	2000-2023 % Change
Carroll	9,295	8,391	-904	-9.70%
Carroll County, Unincorporated	3,651	3,320	-331	-9.1%
City of Bogard	164	163	-1	-0.6%
City of Bosworth	305	209	-96	-31.5%
City of Carrollton	3,776	3,478	-298	-7.9%
City of DeWitt	121	82	-39	-32.2%
City of Hale	418	373	-45	-10.8%
City of Norborne	707	630	-77	-10.9%
Village of Tina	153	136	-17	-11.1%

Source: U.S. Bureau of the Census, Decennial Census, Annual Population Estimates, American Community Survey 5-year Estimates; Population Statistics are for entire incorporated areas as reported by the Census bureau

Population growth or decline is generally accompanied by increases or decreases in the number of housing units. The following table provides the change in numbers of housing units in the planning area from 2010 to 2022. The American Community Survey 2022 5-year Estimates was used as the most recent data available. This information was compared to the 2010 decennial census to show the change in both number (#) and percent (%). The decline in housing units in the planning area does correspond with the decline in population.

Table 3.18. Change in Housing Units, 2010-2023

Jurisdiction	Housing Units 2010	Housing Units 2020	2010-2023 # Change	2000-2023 % Change
Carroll County	4,630	4,402	-228	-4.9%
City of Bogard	94	90	-4	-4.3%
City of Bosworth	158	130	-28	-17.7%
City of Carrollton	1886	1825	-61	-3.2%
City of DeWitt	56	34	-22	-39.3%
City of Hale	209	212	3	1.4%
City of Norborne	367	342	-25	-6.8%

Source: U.S. Bureau of the Census, Decennial Census, American Community Survey 5-year Estimates; Population Statistics are for entire incorporated areas as reported by the U.S. Census Bureau

There has been little in the way of development in Carroll County and the participating jurisdictions since the last update of the plan.

3.3.2 Future Land Use and Development

Carroll County and the participating jurisdictions are in a rural area of northern Missouri. It is difficult to attract new development due to the inability to attract new employers to the area. The

population of the region has been declining for decades, and there is no planned development in the jurisdictions that would lead to an increase in risk or vulnerability to hazards.

3.4 HAZARD PROFILES, VULNERABILITY, AND PROBLEM STATEMENTS

Each hazard will be analyzed individually in a hazard profile. The profile will consist of a general hazard description, location, strength/magnitude/extent, previous events, future probability, a discussion of risk variations between jurisdictions, and how anticipated development could impact risk. At the end of each hazard profile will be a vulnerability assessment, followed by a summary problem statement.

Hazard Profiles

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the…location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

The level of information presented in the profiles will vary by hazard based on the information available. With each update of this plan, new information will be incorporated to provide better evaluation and prioritization of the hazards that affect the planning area. Detailed profiles for each of the identified hazards will be included in the plan. The plan will include a description of how development in hazard-prone areas has either increased or decreased the vulnerability to hazards within the jurisdictions since the last plan update. The plan will Include information categorized as follows:

- **Hazard Description: This** section consists of a general description of the hazard and the types of impacts it may have on a community or school/special district.
- **Geographic Location:** This section describes the geographic areas in the planning area that are affected by the hazard. Where available, use maps to indicate the specific locations of the planning area that are vulnerable to the subject hazard. For some hazards, the entire planning area is at risk.
- **Strength/Magnitude/Extent:** This includes information about the strength, magnitude, and extent of a hazard. For some hazards, this is accomplished with a description of a value on an established scientific scale or measurement system, such as an EF2 tornado on the Enhanced Fujita Scale. This section should also include information on the typical or expected strength/magnitude/extent of the hazard in the planning area. Strength, magnitude, and extent can also include the speed of onset and the duration of hazard events. Describing the strength/magnitude/extent of a hazard is not the same as describing its potential impacts on a community. Strength/magnitude/extent defines the characteristics of the hazard regardless of the people and property it affects.
- **Previous Occurrences:** This section includes available information on historic incidents and their impacts. Historic event records form a solid basis for probability calculations.
- **Probability of Future Occurrence: The** frequency of recorded past events is used to estimate the likelihood of future occurrences. Probability can be determined by dividing the number of recorded events by the number of years of available data and multiplying by 100. This gives the percentage chance of the event happening in any given year. For events occurring more than once annually, the probability should be reported as 100% in any given year, with a statement of the average number of events annually. For hazards such as drought that may have gradual onset and extended duration, probability can be based on the number of months in drought in a given time-period and expressed as the probability for any given month to be in drought.
- **Changing Future Conditions Considerations and the Impacts of Climate Change:** The

probability of future occurrence and changing future conditions will also be considered, including the effects of long-term changes in weather patterns and climate on the identified hazards.

Vulnerability Assessments

Requirement §201.6(c)(2)(ii):[The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Requirement §201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Requirement §201.6(c)(2)(ii)(B):[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Requirement §201.6(c)(2)(ii): (As of October 1, 2008) [The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged in floods.

Following the hazard profile for each hazard will be the vulnerability assessment. The "vulnerability assessment" further defines and quantifies populations, buildings, critical facilities, and other community assets at risk to damages from natural hazards. The vulnerability assessments should be based on the best available data. The vulnerability assessments can also be based on data that was collected for the 2023 State Hazard Mitigation Plan Update. With the 2023 Hazard Mitigation Plan Update, SEMA is pleased to provide online access to the risk assessment data and associated mapping for the 114 counties in the State, including the independent City of St. Louis. Through the web-based Missouri Hazard Mitigation Viewer, local planners or other interested parties can obtain all State Plan datasets. This effort removes from local mitigation planners a barrier to performing all the needed local risk assessments by providing the data developed during the 2023 State Plan Update.

The Missouri Hazard Mitigation Viewer includes a Map Viewer with a legend of clearly labeled features, a north arrow, a base map that is either aerial imagery or a street map, risk assessment data symbolized the same as in the 2023 State Plan for easy reference, search and query capabilities, ability to zoom to county level data and capability to download PDF format maps. The Missouri Hazard Mitigation Viewer can be found at this link: http://bit.ly/MoHazardMitigationPlanViewer2023.

The vulnerability assessments in the County A plan will also be based on:

- Written descriptions of assets and risks provided by participating jurisdictions;
- Existing plans and reports;
- Personal interviews with planning committee members and other stakeholders; and
- Other sources as cited.

Explain that within the Vulnerability Assessment, the following sub-headings will be addressed:

- **Vulnerability Overview:**
  The plan must provide an overall summary of each jurisdiction's vulnerability to the identified hazards. The overall summary of vulnerability identifies structures, systems, populations or other community assets as defined by the community that are susceptible to damage and loss for hazard events.

- **Potential Losses to Existing Development:**
  (including types and numbers, of buildings, critical facilities, etc.) For each participating jurisdiction, the plan must describe the potential impacts of the hazard. Impact means the consequences of the effect of the hazard on the jurisdiction and its assets. Assets are determined by the community and include, for example, people, structures, facilities, systems, capabilities, and/or activities that have value to the community. For example, impacts could be described by referencing historical disaster impacts and/or an estimate of potential future losses.

- **Previous and Future Development:**
  This section will include information on how changes in development have impacted the community's vulnerability to this hazard. Describe how any changes in development that occurred in known hazard prone areas since the previous plan have increased or decreased the community's vulnerability. Describe any anticipated future development in the county, and how that would impact hazard risk in the planning area.

- **Hazard Summary by Jurisdiction:**
  For hazard risks that vary by jurisdiction, this section will provide an overview of the variation and the factual basis for that variation.

Problem Statements

Each hazard analysis must conclude with a brief summary of the problems created by the hazard in the planning area, and possible ways to resolve those problems. Include jurisdiction-specific information in those cases where the risk varies across the planning area. The focus of the problem statements sub-section is to synthesize the "problems" revealed through the risk assessment and then through the process of updating the mitigation strategy, develop mitigation actions that are aimed at "solving" the identified problems. Problem statements should be as specific as possible relating to specific jurisdictions as well as specific assets or areas of the planning area that are problematic. This will in turn prompt development of specific mitigation actions.

3.4.1 Flooding (Riverine and Flash)

Hazard Profile

Hazard Description

A flood is partial or a complete inundation of normally dry land areas. Riverine flooding is defined as the overflow of rivers, streams, drains, and lakes due to excessive rainfall, rapid snowmelt, or ice. There are several types of riverine floods, including headwater, backwater, interior drainage, and flash flooding. Riverine flooding is defined as the overflow of rivers, streams, drains, and lakes due to excessive rainfall, rapid snowmelt or ice melt. The areas adjacent to rivers and stream banks that carry excess floodwater during rapid runoff are called floodplains. A floodplain is defined as the lowland and relatively flat area adjoining a river or stream. The terms "base flood" and "100- year flood" refer to the area in the floodplain that is subject to a one percent or greater chance of flooding in any given year. Floodplains are part of a larger entity called a basin, which is defined as all the land drained by a river and its branches.

Flooding caused by dam and levee failure is discussed in Section 3.4.2 and Section 3.4.3 respectively. It will not be addressed in this section.

A flash flood occurs when water levels rise at an extremely fast rate because of intense rainfall over a brief period, sometimes combined with rapid snowmelt, ice jam release, frozen ground, saturated soil, or impermeable surfaces. Flash flooding can happen in Special Flood Hazard Areas (SFHAs) as delineated by the National Flood Insurance Program (NFIP) and can also happen in areas not associated with floodplains.

Ice jam flooding is a form of flash flooding that occurs when ice breaks up in moving waterways and then stacks on itself where channels narrow. This creates a natural dam, often causing flooding within minutes of dam formation.

In some cases, flooding may not be directly attributable to a river, stream, or lake overflowing its banks. Rather, it may simply be the combination of excessive rainfall or snowmelt, saturated ground, and inadequate drainage. With no place to go, the water will find the lowest elevations – areas that are often not in a floodplain. This type of flooding, often referred to as sheet flooding, is becoming increasingly prevalent as development outstrips the ability of the drainage infrastructure to properly carry and disburse the water flow.

Most flash flooding is caused by slow-moving thunderstorms or thunderstorms repeatedly moving over the same area. Flash flooding is a dangerous form of flooding which can reach full peak in only a few minutes. Rapid onset allows little or no time for protective measures. Flash flood waters move at very fast speeds and can move boulders, tear out trees, scour channels, destroy buildings, and obliterate bridges. Flash flooding can result in higher loss of life, both human and animal, than slower developing river and stream flooding.

In certain areas, aging storm sewer systems are not designed to carry the capacity currently needed to handle the increased storm runoff. Typically, the result is water backing into basements, which damages mechanical systems and can create serious public health and safety concerns. This combined with rainfall trends and rainfall extremes all demonstrate the high probability, yet generally unpredictable nature of flash flooding in the planning area.

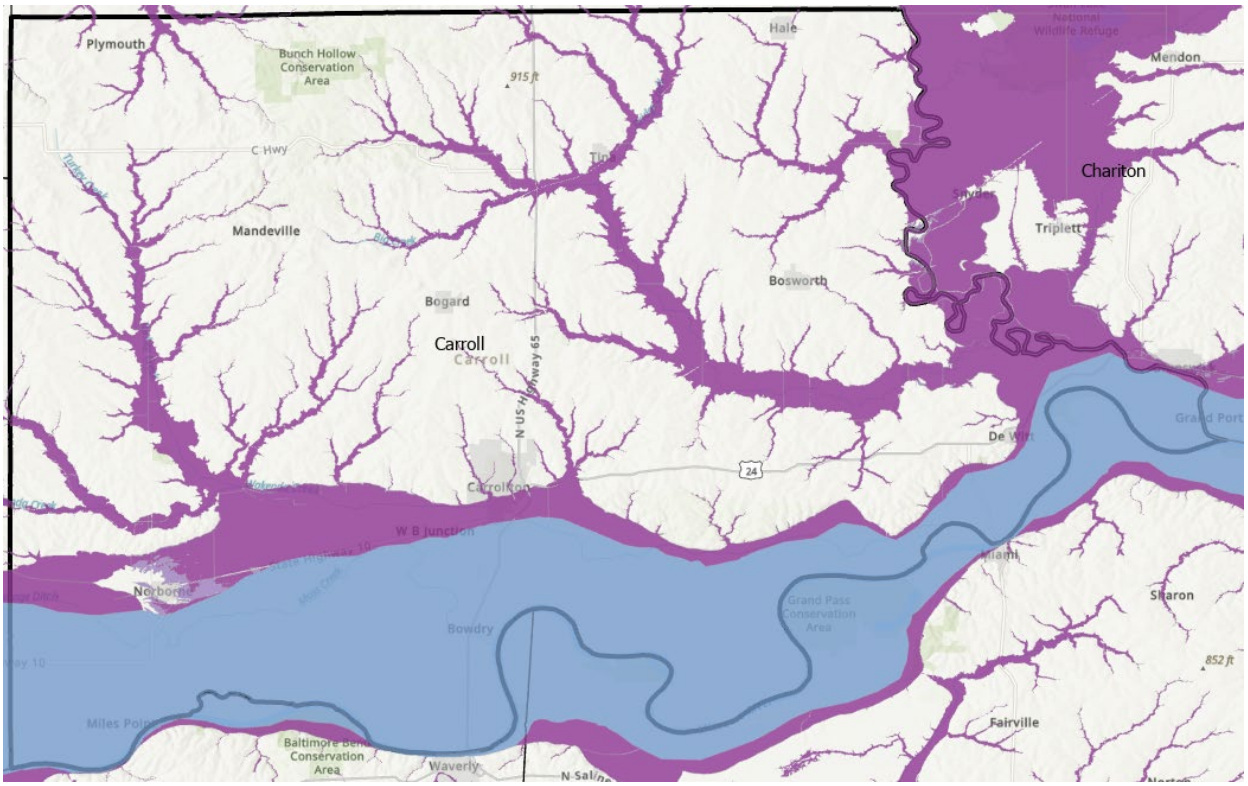
Although flash floods are somewhat unpredictable, there are factors that can point to the likelihood of flash floods occurring. Weather surveillance radar is being used to improve monitoring capabilities of intense rainfall. This, along with knowledge of the watershed characteristics, modeling techniques, monitoring, and advanced warning systems has increased the warning time for flash floods.

Geographic Location

Riverine flooding is most likely to occur in Special Flood Hazard Areas (SFHAs). Flash flooding occurs in SFHAs and those locations in the planning area that are low-lying. They also occur in areas without adequate drainage to carry away the amount of water that falls during intense rainfall events.

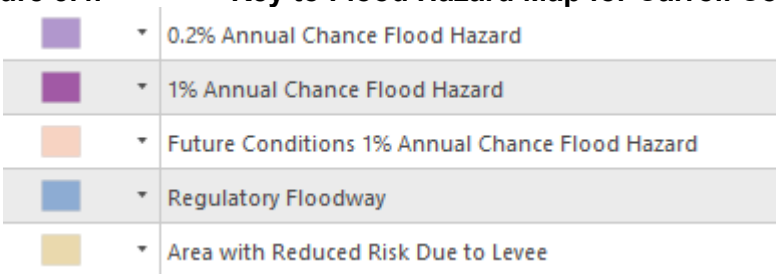
Riverine flooding is most likely to occur in SFHAs. The following maps are from the most recent information from FEMA's National Flood Layer of Carroll County.

Figure 3.3. Flood Hazard Map for Carroll County, Missouri



Source: ArcPRO GIS Map of USA_Flood_Hazard

Figure 3.4. Key to Flood Hazard Map for Carroll County, Missouri



Source: ArcPRO GIS Map of USA_Flood_Hazard

The Key in **Figure 3.5** is the flood map key for all jurisdiction's flood maps. Each jurisdiction's current Flood Map, obtained from the FEMA Map Service Center, uses this key.

Figure 3.5. Flood Map Key

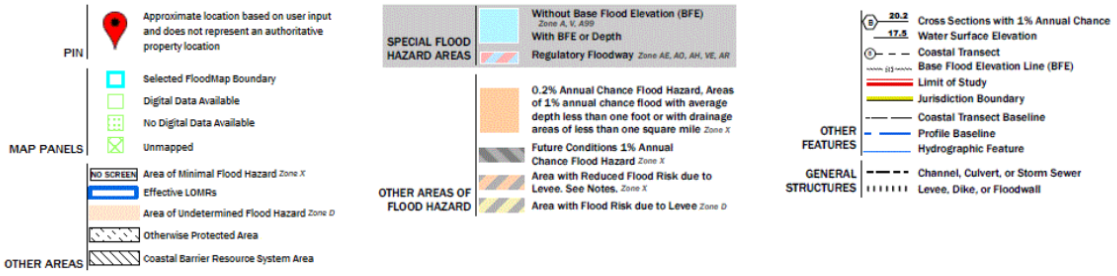


Figure 3.6. City of Carrollton

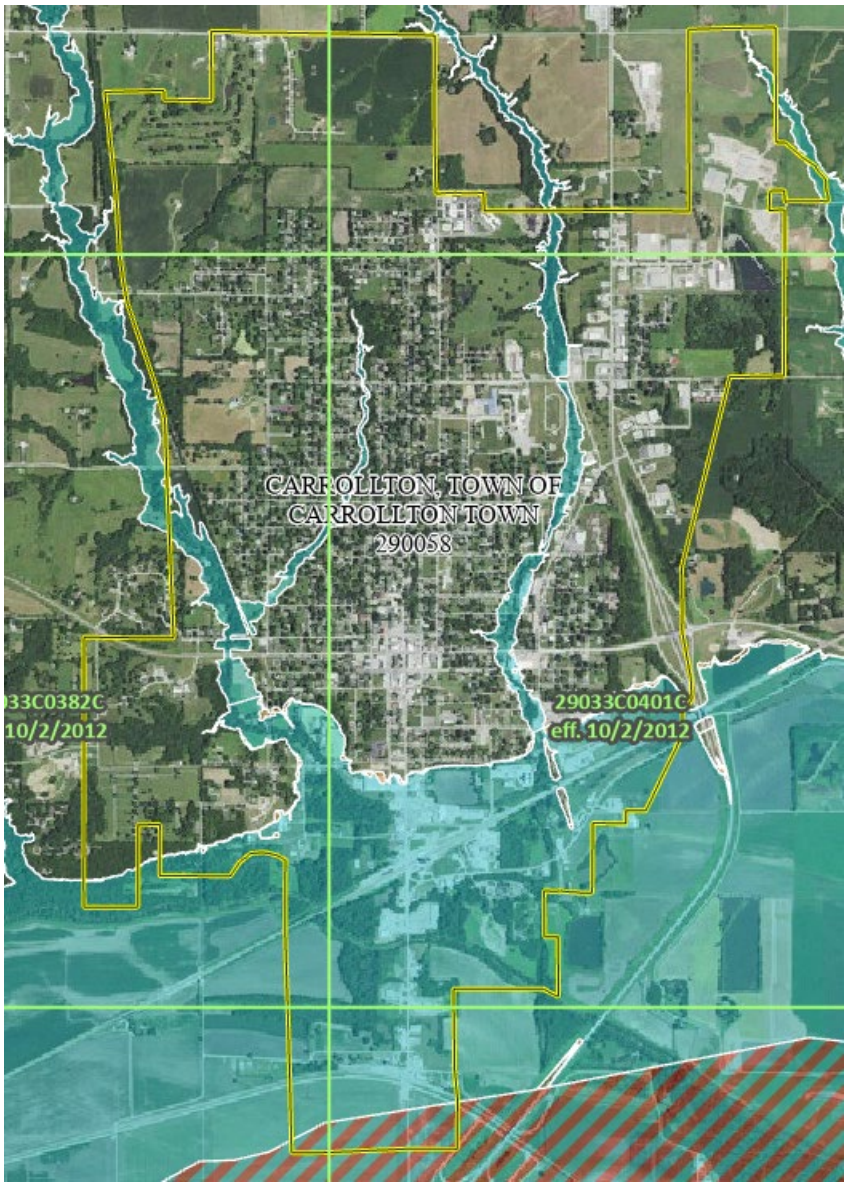


Figure 3.7. City of Carrollton (North Incorporated Area)



Figure 3.8. **City of Carrollton**

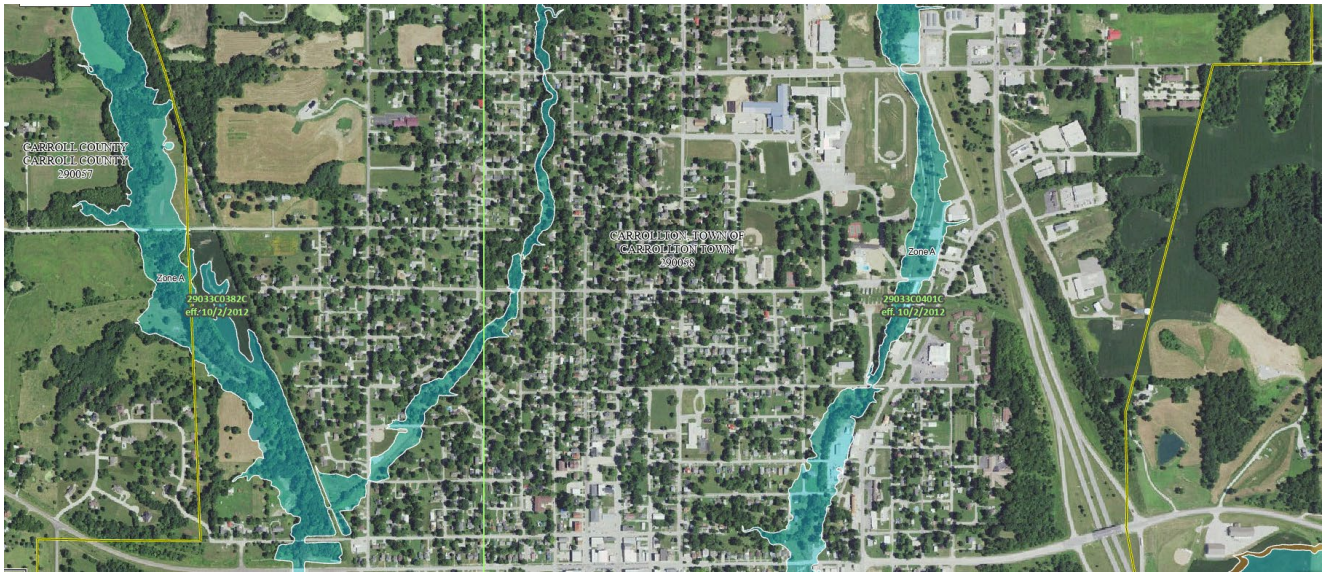


Figure 3.9. **City of Carrollton**

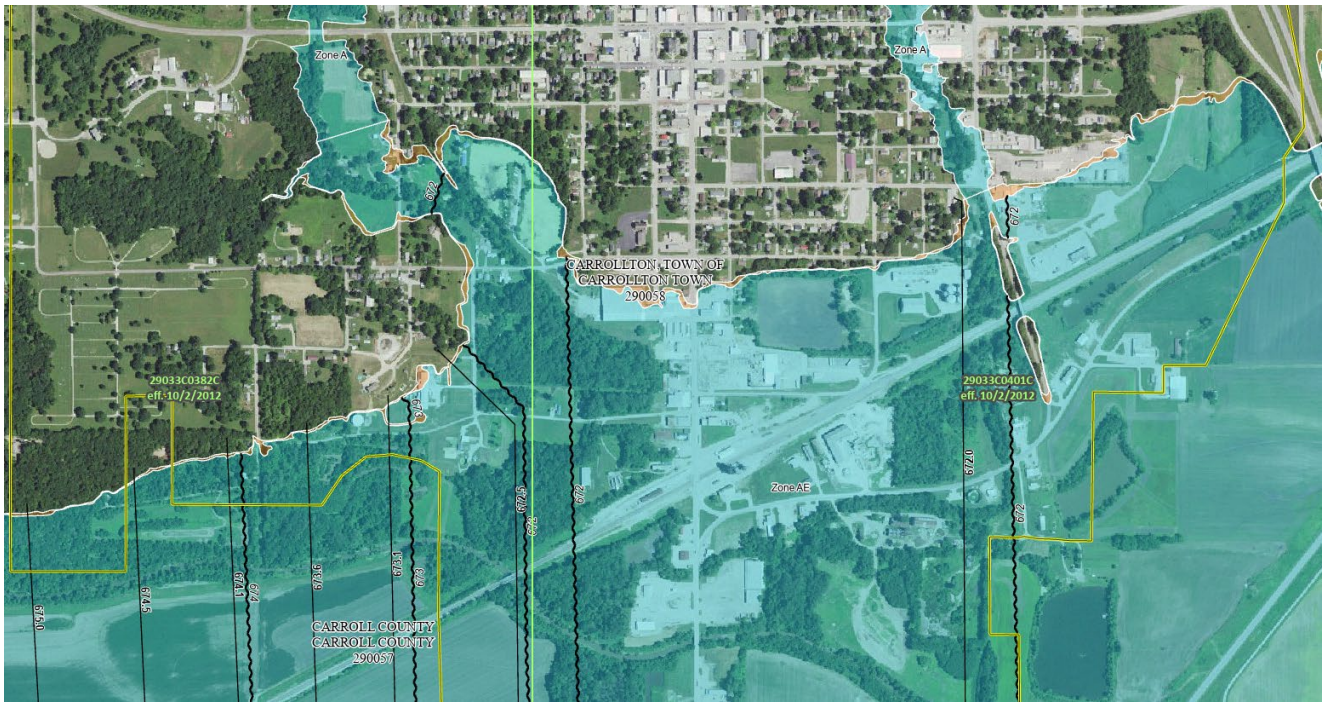


Figure 3.10. City of Carrollton (South)



Figure 3.11. City of Bogard



Figure 3.12. Village of Tine



Figure 3.13. City of Hale



Figure 3.14. City of Bosworth



Figure 3.15. City of DeWitt

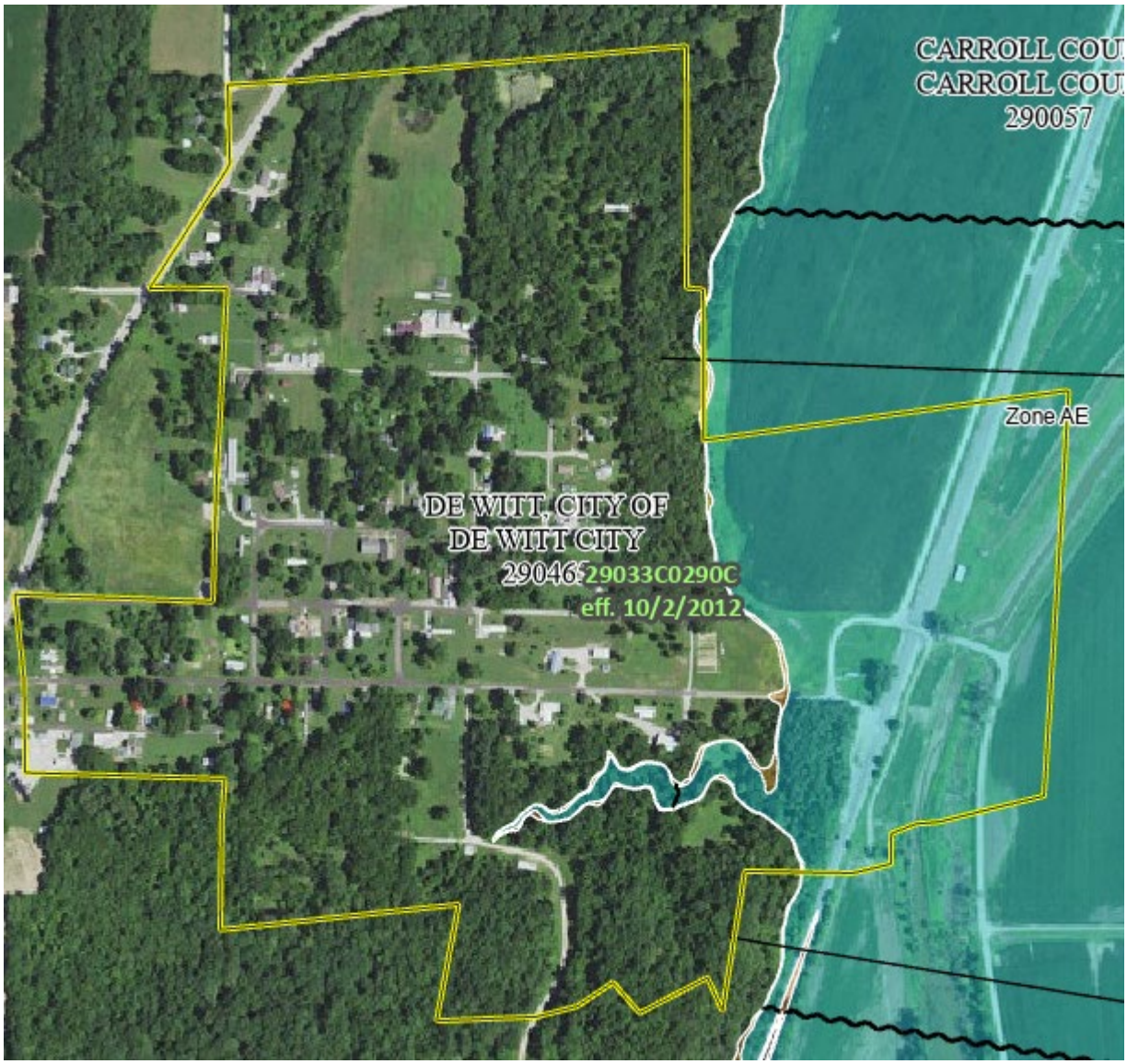


Figure 3.16. City of Norborne



Table 3.19. Carroll County NCEI Flood Events by Location, 2005-2025

Location	# of Events
Unincorporated Carroll County	12
-Unincorporated County (unspecified)- 7 flood events	
-Unincorporated County (Plymouth)- 2 flood events	
-Unincorporated County (Standish)- 1 flood events	
-Unincorporated County (Sugartree)- 2 flood events	
City of Norborne	2
-City of Norborne (unspecified)- 2 flood events	
City of Wakenda	1
-City of Wakenda (unspecified)- 1 flood events	
Total Flood Events in Carroll County	**15**

Source: National Centers for Environmental Information, Date 5/16/2025

Flash flooding occurs in SFHAs and those locations in the planning area that are low-lying. They also occur in areas without adequate drainage to carry away the amount of water that falls during intense rainfall events. The following table contains information about flash flooding in the planning area from 2005 to the present. The NCEI database was used to determine which jurisdictions are most prone to flash flooding during a 20-year period. The following table shows the number of flash flood events by location recorded in the NCEI database.

Table 3.20. Carroll County NCEI Flash Flood Events by Location, 2005-2025

Location	# of Events
Unincorporated Carroll County	5
-Unincorporated Carroll County (Coloma)- 1 flood events	
-Unincorporated Carroll County (Standish)- 2 flood events	
-Unincorporated Carroll County (Sugartree)- 1 flood events	
-Unincorporated Carroll County (Mandeville)- 1 flood events	
City of Bosworth	3
-City of Bosworth (unspecified)- 3 flood events	
City of Carrollton	3
-City of Carrollton (unspecified)- 3 flood events	
City of Hale	1
-City of Hale (unspecified)-1 flood events	
City of Norborne	3
-City of Norborne (unspecified)- 3 flood events	
City of Tina	1
-City of Tina (unspecified)- 1 flood events	
Total Flash Flood Events in Carroll County	**16**

Source: National Centers for Environmental Information, 5/16/2025

Strength/Magnitude/Extent

Missouri has a long and active history of flooding over the past century, according to the 2023 State Hazard Mitigation Plan. Flooding along Missouri's major rivers generally results in slow-moving disasters. River crest levels are forecast several days in advance, allowing communities downstream sufficient time to take protective measures, such as sandbagging and evacuations. Nevertheless, floods exact a heavy toll in terms of human suffering and losses to public and private property. By contrast, flash flood events in recent years have caused a higher number of deaths and major property damage in many areas of Missouri.
According to the U.S. Geological Survey, two critical factors affect flooding due to rainfall: rainfall duration and rainfall intensity – the rate at which it rains. These factors contribute to a flood's height, water velocity and other properties that reveal its magnitude.

National Flood Insurance Program (NFIP) Participation

The following table illustrates the participants in the NFIP. Participation in the NFIP has the goal of reducing the impact of flooding on private and public structures. The NFIP does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. The jurisdictions that participate in the NFIP in Carroll County are listed below. The floodplain ordinance of participating jurisdictions can be found in Appendix E, if provided for the plan.

Table 3.21. NFIP Participation in Carroll County – Ordinance and Enforcement Information

Community ID #	Community Name	NFIP Participant (Y/N/Sanctioned)	Floodplain Administrator and/or Agency	Phone # for Floodplain Administrator
290057	Carroll County	Y	Glen Briggs	660-359-5636
Unknown	Bogard	N	n/a	n/a
290463	Bosworth	N	n/a	n/a
290057	Carrollton	Y	Richard Mounts	660-542-0400
290465	Dewitt	N	n/a	n/a

290597	Hale	N	n/a	n/a
290059	Norborne	Y	Jacob DeMint	660-593-3514
295435	Tina	N	n/a	n/a

Source: NFIP Community Status Book, 12-17-2024; PIVOT (information from STATE) Community Status Book | FEMA.gov; M= No elevation determined – all Zone A, C, and X: NSFHA = No Special Flood Hazard Area; E=Emergency Program

Table 3.22. NFIP Participation in Carroll County- Mapping Information

Community ID #	Community Name	Current Effective Map Date	Regular- Emergency Program Entry Date
290057	Carroll County	10/2/2012	1/17/1976
290463	Bosworth	10/2/2012	10/17/1986
290057	Carrollton	10/2/2012	12/18/1984
290465	Dewitt	10/2/2012	9/6/1975
290597	Hale	10/2/2012	2/21/1976
290059	Norborne	10/2/2012	5/1/1994
295435	Tina	10/2/2012	10/2/2013

Source: NFIP Community Status Book, 6/4/2025; PIVOT (information from STATE) Community Status Book | FEMA.gov; M= No elevation determined – all Zone A, C, and X: NSFHA = No Special Flood Hazard Area; E=Emergency Program

Table 3.23. NFIP Policy and Claim Statistics as of Date

Community Name	Policies in Force	Insurance in Force	Closed Losses	Total Payments
Carroll County	36	$5,881,000	93	$1,593,535.16
Carrollton	4	$1,408,000	81	$2,056,940.18
Norborne	1	$350,000	1	$3,728.56
Wakenda	0	0	5	$81,264.64

Source: NFIP Community Status Book, [August 2025]; PIVOT (information from STATE), Community Status Book | FEMA.gov
*Closed Losses are those flood insurance claims that resulted in payment. Loss statistics are for the period from January 1975 to June 2025.

As per the previous table, the unincorporated areas of Carroll County have the most policies and claims. Wakenda had 5 previous claims, but there is currently no NFIP insurance in this jurisdiction.

The jurisdictions that participate in the NFIP have adopted Floodplain Ordinances that establish regulations for construction, development, and substantial improvements within floodplain areas. These regulations mandate the acquisition of floodplain development permits and elevation certificates to ensure that all projects comply with these standards. Records and documentation for all floodplain development is kept in adherence to FEMA regulations and the designated floodplain administrator of each jurisdiction maintains these records.

Substantial improvements/ substantial damage provisions are implemented after an event through the Floodplain Ordinance of participating jurisdictions. Each jurisdiction that participates in the NFIP has addressed the specific requirements of FEMA regarding substantial damage/substantial improvement provisions and development in SFHA.

Repetitive Loss/Severe Repetitive Loss Properties

Repetitive Loss Properties are those properties with at least two flood insurance payments of $1,000 or more in a 10-year period. According to the Flood Insurance Administration, jurisdictions included in the planning area have a combined total of 29 repetitive loss properties. As of June 12, 2025, 4 properties have been mitigated, leaving 25 un-mitigated repetitive loss properties.

Table 3.24. Carroll County Repetitive Loss Properties

Jurisdiction	# of Properties	Type of Property	# Mitigated	Building Payments	Content Payments	Total Payments	Average Payment	# of Losses
Carroll County	18	Commercial 6 Residential 12	1	$961,695.09	$46,274.79	$1,007,969.88	$24,584.63	41
Carrollton	11	Commercial 9 Residential 2	3	$738,943.76	$741,768.23	$1,480,711.99	$44,870.06	33

Source: Flood Insurance Administration as of December 27,2024

Severe Repetitive Loss (SRL): A SRL property is defined it as a single family property (consisting of one-to-four residences) that is covered under flood insurance by the NFIP; and has (1) incurred flood-related damage for which four or more separate claims payments have been paid under flood insurance coverage with the amount of each claim payment exceeding $5,000 and with cumulative amounts of such claims payments exceeding $20,000; or (2) for which at least two separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property.

There are no Severe Repetitive Loss (SRL) properties in the planning area.

Previous Occurrences

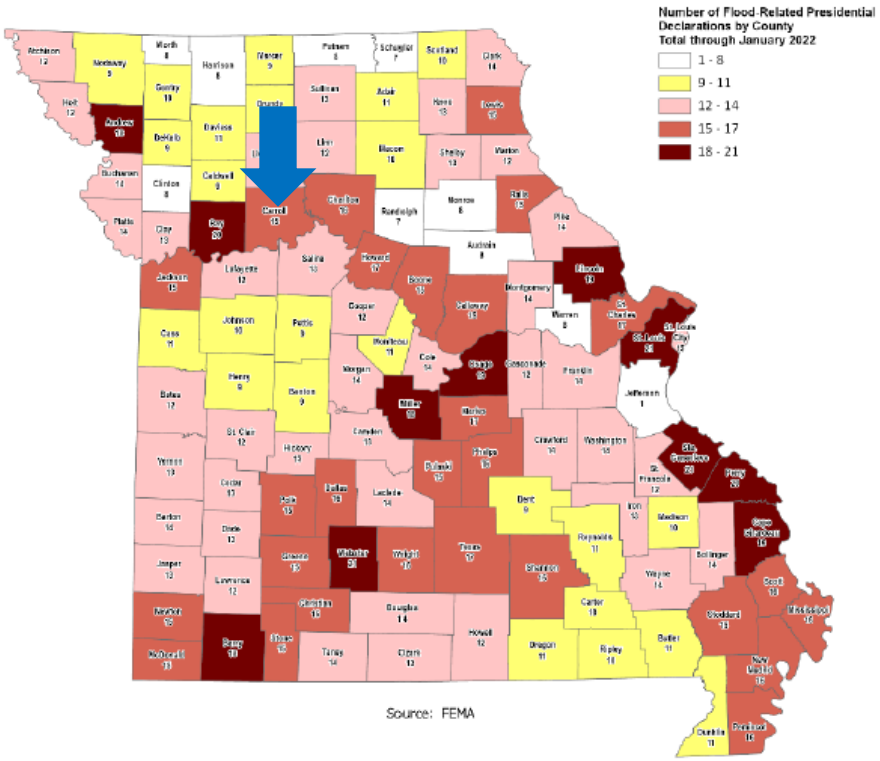
Table 3.25. Flooding Disaster Declarations in Carroll County (1973-2025)

Disaster Number	Declaration Date	Incident Subcategory
203	8/27/1965	Severe Storms, Flooding
372	4/19/1973	Severe Storms
407	11/1/1973	Severe Storms, Flooding
439	6/10/1974	Severe Storms, Flooding
535	5/7/1977	Flooding, Tornadoes
995	6/10/1993	Flooding, Severe Storms
1054	5/13/1995	Severe Storm, Tornadoes, Flooding, and Hail
1253	10/4/1998	Severe Storms, Tornadoes, and Flooding
1524	5/18/2004	Severe Storms, Tornadoes, and Flooding
1631	5/8/2006	Severe Storms, Tornadoes, and Flooding
1708	5/5/2007	Severe Storms and Flooding
1773	6/1/2008	Severe Storms and Flooding
1934	9/11/2008	Severe Storms, Flooding, and Tornadoes
3325	6/11/2011	Flooding
4012	6/1/2011	Flooding
4451	4/29/2019	Flooding, Severe Storms, Tornadoes
4612	6/24/2021	Severe Storms, Straight-line Winds, Tornadoes, and Flooding

Source: FEMA.gov/es/disaster/

Figure 3.17. Number of Flood-Related Presidential Declarations for Carroll County (1973-

2025)



Source: 2023 Missouri Hazard Mitigation Plan

Table 3.26. NCEI Carroll County Flash Flood Events Summary, 2004 to 2024

Year	# of Events	# of Deaths	# of Injuries	Property Damages	Crop Damages
2004	1	0	0	0	0
2005	7	0	0	0	0
2006	2	0	0	0	0
2007	1	0	0	0	0
2016	3	0	0	0	0
2017	0	0	0	0	0
2018	2	0	0	0	0
2019	0	0	0	0	0
2021	1	0	0	0	0

Source: NCEI, data accessed 12/17/2024]

The following table provides historic information of crop insurance claims paid between 2014 and 2024 in Carroll County.

Table 3.27. Crop Insurance Claims Paid in Carroll County due to Flood: 2014-2024

Crop Year	Crop Name	Cause of Loss	Insurance Paid ($)
2014	Corn	Flood	$70,251
	Soybeans		$32,424
2015	Corn	Flood	$64,645
	Soybeans		$10,499
2016	Corn	Flood	$80,184.26
	Soybeans		$255,209.10
2017	Wheat	Flood	$1,362.45
	Corn		$23,454.50
	Soybeans		$98,876.00
2018	Corn	Flood	$7,130
	Soybeans		$165,754.50
2019	Wheat	Flood	$9,958
	Corn		$7,021,541.05
	Soybeans		$2,077,583.90
2020	Wheat	Flood	$2,779.50
	Corn		$627,624.71
	Soybeans		$137,267.25
2021	Corn	Flood	$1,456,266
	Soybeans		$738,435.10
2022	No Claims		
2023	No Claims		
2024	Wheat	Flood	$570.75
	Corn		$3,445.00
	Soybeans		$24,866
Total			**$12,910,136.07**

Source: USDA Risk Management Agency http://www.rma.usda.gov/data/cause

Table 3.28. NCEI Carroll County Riverine Flood Events Summary, 2004-2024

Year	# of Events	# of Deaths	# of Injuries	Property Damages	Crop Damages
2004	8	0	0	0	0
2005	3	0	0	0	0
2006	0	0	0	0	0
2007	2	0	0	0	0
2008	3	0	0	0	0
2016	3	0	0	0	0
2019	4	0	0	0	0

Source: NCEI, 12/17/2024

Table 3.29. Flash Flood Events (2014-2025)

Begin Date	Event Narrative
7/13/2016	Road UU was closed due to running water.
8/1/2016	Flash flooding washed out a basement, causing a house to come off the foundation. The cost of this damage is unknown.
8/1/2016	During the long duration heavy rain event across Carroll County several area roads flooded. In the city of Carrolton a few businesses had water running up and causing water to move into these businesses. The extent or cost of the damage is unknown.
8/31/2018	Route E near Stet was closed due to running water over the road.
8/31/2018	Route UU near Bosworth was closed due to running water over the road.
6/25/2021	Numerous roads in Carroll County, including some in Carrollton were impassible due to running water.

Source: NCEI Database – Narrative of weather events 2014-6/4/2025

Table 3.30. Flood Events in Carroll County (2014-2025)

Begin Date	Event Narrative
9/13/2016	Route N east of Braymer was closed due to flooding. While the damage was largely minimal the amount of damage was unknown.
9/14/2016	Route N was closed along Shoal Creek due to flooding. While the damage was largely minimal the amount of damage was unknown.
9/14/2016	Route E along Turkey Creek was closed due to flooding. While the damage was largely minimal the amount of damage was unknown.
4/1/2019	Ongoing flooding along the Missouri River continued through the month of April and into May. Several roads were closed near the banks of the Missouri River. This flooding began in mid-March and due to upstream releases and continued periods of heavy rain the flooding continued into May. Monetary damages are unknown despite the entry indicating 0 dollars of damages.
5/1/2019	Heavy spring rains caused ongoing flooding along the Missouri River to Continue through the month. Some locations along the Missouri River experienced major flooding at times during the month. Damage estimates from roads washed out and crop damage are unknown at this time.
5/21/2019	Route UU was closed in both directions near Bosworth.
6/1/2019	Heavy spring rains caused ongoing flooding along the Missouri River to Continue through the month. Some locations along the Missouri River experienced major flooding at times during the month. Damage estimates from roads washed out and crop damage are unknown at this time.

Source: NCEI Database – Narrative of weather events 2014-2025

Probability of Future Occurrence

Probability of Flood Event

The probability of the planning area experiencing a flood event in any given year was calculated by dividing the number of flash floods in the last 20 years by the number of years (20). The answer was multiplied by 100 to provide the probability of a flood occurring in any given year.

$$Probability\ of\ Flood = \frac{15}{20}(100) = \mathbf{75\%\ chance\ of\ flood\ in\ any\ given\ year}$$

Probability of Flash Flooding

The probability of the planning area experiencing a flash flood in any given year was calculated by dividing the number of flash floods in the last 20 years by the number of years (20). The answer was multiplied by 100 to give the percent chance of a flash flood occurring in any given year.

$$Probability\ of\ Flash\ Flood = \frac{16}{20}(100) = \mathbf{80\%\ chance\ of\ flash\ flood\ in\ any\ given\ year}$$

Changing Future Conditions Considerations

According to the 2023 Missouri State Hazard Mitigation Plan, “frequency of floods in Missouri is likely to increase,” and “over the last half century, average annual precipitation in most of the Midwest has increased by 5 to 10 percent.” Missouri has experienced above average precipitation since 1990. It is likely that the frequency and intensity of rainfall events will increase. As the number of these heavy rain events increases, more flooding and pooling water is to be expected.

The expected increases in rainfall frequency and intensity are also likely to put additional stress on natural hydrological systems and community stormwater systems. Heavier snowfalls in the winter will

lead to intensified spring flooding, and groundwater levels will remain high.

These changes in climate patterns could potentially lead to the development of compounding events that could interact and cause extreme conditions. Other environmental impacts of flooding could include erosion, surface and groundwater contamination, and reduced water quality.

Vulnerability

Vulnerability Overview

According to the State of Missouri Hazard Mitigation Plan, SEMA used the most recent release of Hazus, version 4.0 to model flood vulnerability and estimate flood losses for all 114 counties and the City of St. Louis due to depth of flooding. Additional hazard data inputs were utilized, as available, to perform Hazus Level 2 analyses. Mercer County's analysis was based on the available RiskMAP for the County.

To conduct the analysis and address limitations from the previous plan SEMA enhanced the Hazus analysis with a structure inventory dataset developed by the University of Missouri GIS Department (MSDIS) to indicate the number of structures exposed to the risk. MSDIS created a point and/or footprint dataset for every roof line in every county in the state of Missouri. This dataset is attributed with the type of structure i.e. Residential, Commercial, Etc.

Flooding presents a danger to life and property, often resulting in injuries, and in some cases, fatalities. Floodwaters themselves can interact with hazardous materials. Hazardous materials stored in large containers could break loose or puncture as a result of flood activity. Examples are bulk propane tanks. When this happens, the evacuation of citizens is necessary.

Public health concerns may result from flooding, requiring disease and injury surveillance. Community sanitation to evaluate flood-affected food supplies may also be necessary. Private water and sewage sanitation could be impacted, and vector control (for mosquitoes and other entomology concerns) may be necessary.

When roads and bridges are inundated by water, damage can occur as the water scours materials around bridge abutments and gravel roads. Floodwaters can also cause erosion, undermining roadbeds. In some instances, steep slopes that are saturated with water may cause mud or rockslides onto roadways. These damages can cause costly repairs for state, county, and city road and bridge maintenance departments. When sewer back-up occurs, this can result in costly clean-up for home and business owners as well as present a health hazard.

Scour critical bridges have been identified and are discussed in Section 3.2.2 Critical and Essential Facilities and Infrastructure. Maps of Carroll County with the location of bridges and scour critical bridges can be found in Figures 3.1 and 3.2 of Section 3.2.2.

Potential Losses to Existing Development

The 2023 Missouri Hazard Mitigation Plan used HAZUS data to analyze the county's vulnerability to flooding. A summary of the information is shown in the following tables.

Table 3.31. HAZUS Estimates of Potential Losses for Carroll County

Data From State Plan	Carroll County
Countywide Building Exposure	$1,458,861,868
Structural Damage	$37,370,646
Loss Ratio	2.56%
Contents Loss	$45,044,650
Inventory Loss	$4,172,557
Total Direct Loss	$86,587,853
Total Income Loss	$115,499
Total Direct & Income Loss	$86,703,353
#HAZUS Building Risk	20
# Substantially Damaged	0
# Displaced People	686
# Shelter Needs	81

Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.32. HAZUS Estimates of Potential Loss by Building Type for Carroll County

Residential		Agriculture		Commercial		Education		Government		Industrial	
#	$	#	$	#	$	#	$	#	$	#	$
164	$39,831,344	1,437	$1,129,038,074	12	$9,607,993	0	0	21	$19,720,237	25	$35,723,326

Source: *2023 Missouri State Hazard Mitigation Plan*

Impact of Previous and Future Development

Any future development in floodplains would increase risk in those areas. For the communities participating in the National Flood Insurance Program, enforcement of the floodplain management regulations will ensure mitigation of future construction in those areas. However, even if structures are mitigated, evacuation may be necessary due to rising waters. In addition, floods that exceed mitigated levels may still cause damage. There is no future development planned in floodplains in Carroll County at this time.

Hazard Summary by Jurisdiction

Vulnerability to flooding varies by jurisdiction as each community has a different layout. The southern border of the county is along the Missouri River, and as such, is vulnerable when the river is high. The town of Carrollton and the county have several repetitive loss properties and would be more vulnerable to loss in the future.

The floodplain maps in the Geographic Location section depict the flood area in each jurisdiction.

Problem Statement

Local governments should make a strong effort to improve emergency warning systems to ensure future deaths and injuries do not occur. Local governments should consider making improvements to roads and low water crossings that consistently flood by placing them on a hazard mitigation projects list and actively seeking funding to successfully complete the projects.

3.4.2 Levee Failure

Hazard Profile

Hazard Description

Levees are earth embankments constructed along rivers and coastlines to protect adjacent lands from flooding. Floodwalls are concrete structures, often components of levee systems, designed for urban areas where there is insufficient room for earthen levees. When levees and floodwalls and their appurtenant structures are stressed beyond their capabilities to withstand floods, levee failure can result in injuries and loss of life, as well as damages to property, the environment, and the economy.

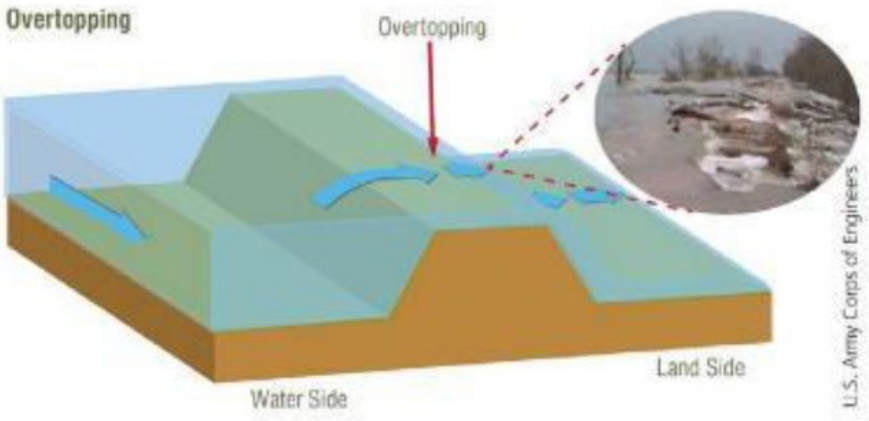
Levees can be small agricultural levees that protect farmland from high-frequency flooding. Levees can also be larger, designed to protect people and property in larger urban areas from less frequent flooding events such as the 100-year and 500-year flood levels. For purposes of this discussion, levee failure will refer to both overtopping and breach as defined in FEMA's Publication "So You Live Behind a Levee" (http://mrcc.isws.illinois.edu/1913Flood/awareness/materials/SoYouLiveBehindLevee.pdf).

Following are the FEMA publication descriptions of different kinds of levee failure.

Overtopping: When a Flood Is Too Big

Overtopping occurs when floodwaters exceed the height of a levee and flow over its crown. As the water passes over the top, it may erode the levee, worsening the flooding and potentially causing an opening, or breach, in the levee.

Figure 3.18. Overtopping: When a Flood is Too Big

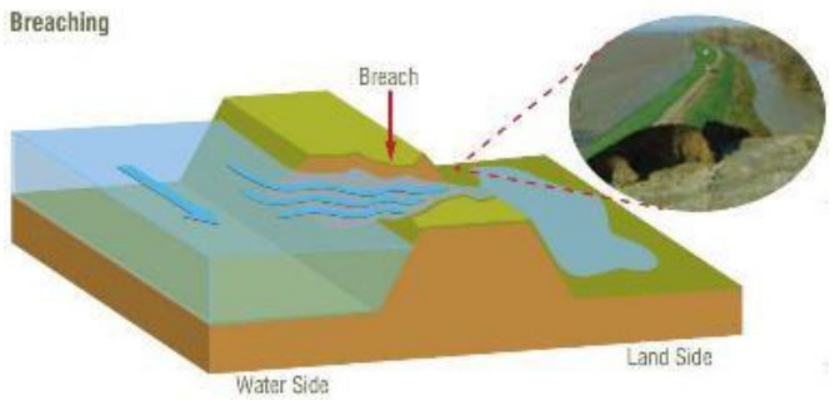


Source: 2023 Missouri State Hazard Mitigation Plan

Breaching: When a Levee Gives Way

A levee breach occurs when part of a levee gives way, creating an opening through which floodwaters may pass. A breach may occur gradually or suddenly. The most dangerous breaches happen quickly during periods of high water. The resulting torrent can quickly swamp a large area behind the failed levee with little or no warning.

Figure 3.19. Breaching: When a Levee Gives Way



Source: 2023 Missouri State Hazard Mitigation Plan

Earthen levees can be damaged in several ways. For instance, strong river currents and waves can erode the surface. Debris and ice carried by floodwaters—and even large objects such as boats or barges—can collide with and gouge the levee. Trees growing on a levee can blow over, leaving a hole where the root wad and soil used to be. Burrowing animals can create holes that enable water to pass through a levee. If severe enough, any of these situations can lead to a zone of weakness that could cause a levee breach. In seismically active areas, earthquakes and ground shaking can cause a loss of soil strength, weakening a levee and possibly resulting in failure. Seismic activity can also cause levees to slide or slump, both of which can lead to failure.

Geographic Location

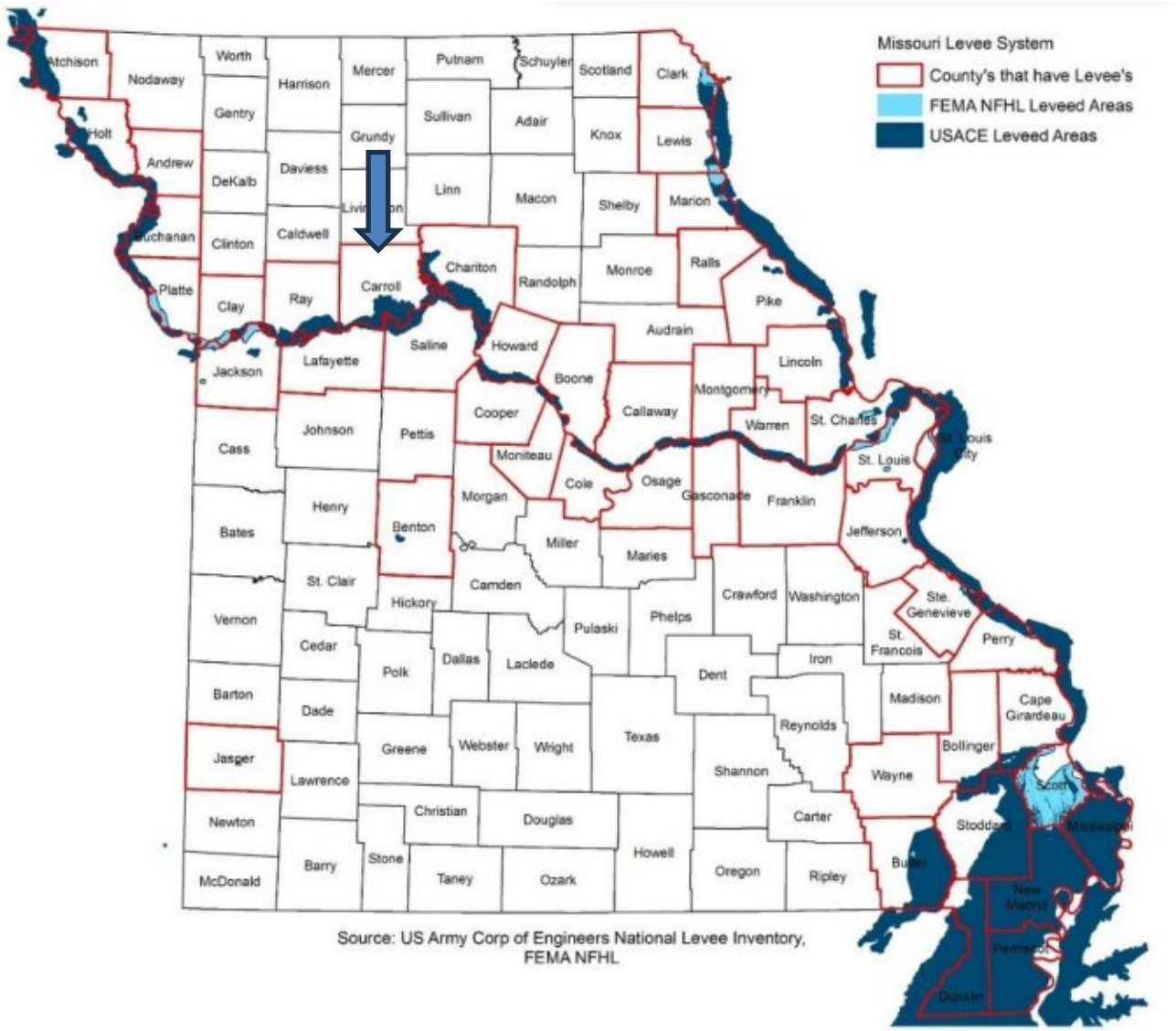
Missouri is a state with many levees. Currently, there is no single comprehensive inventory of levee systems in the state. Levees have been constructed across the state by public entities and private entities with varying levels of protection, inspection oversight, and maintenance. The lack of a comprehensive levee inventory is not unique to Missouri.

There are two concurrent nation-wide levee inventory development efforts, one led by the United State Army Corps of Engineers (USACE) and one led by Federal Emergency Management Agency (FEMA). The National Levee Database (NLD), developed by USACE, captures all USACE related levee projects, regardless of design levels of protection. The Midterm Levee Inventory (MLI), developed by FEMA, captures all levee data (USACE and non-USACE) but primarily focuses on levees that provide 1% annual-chance flood protection on FEMA Flood Insurance Rate Maps (FIRMs).

It is likely that agricultural levees and other non-regulated levees within the planning area exist that are not inventoried or inspected. These levees that are not designed to provide protection from the 1-percent annual chance flood would overtop or fail in the 1-percent annual chance flood scenario. Therefore, any associated losses would be taken into account in the loss estimates provided in the Flood Hazard Section.

For purposes of the levee failure profile and risk assessment, those levees indicated on the Preliminary DFIRM as providing protection from at least the 1-percent annual chance flood will be discussed and further analyzed. It is noted that increased discharges are being taken into account in revision of the flood maps as part of the RiskMap efforts. This may result in changes to the flood protection level that existing levees are certified as providing.

Figure 3.20. Missouri Counties Impacted by Levees



Source: 2023 Missouri State Hazard Mitigation Plan

The Levee Safety Action Classification (LSAC) is based on a combination of the flood hazard frequency, the anticipated levee performance, and the potential consequences. The Low-Risk classification given to the below levee systems is mainly driven by the estimated population and structures at risk that are low in comparison to other levees across the nation in the USACE levee safety program. Descriptions of each levee are provided when data is available.

Ray Carroll Consolidated Levee District of Carroll

USACE evaluates risk as a combination of the flood hazard frequency, the anticipated levee performance, and the potential consequences. The 2014 USACE screening level risk assessment estimated the likelihood of a flood overtopping this levee in any given year at approximately 10%, or a 1 chance in 10. This levee was overtopped in 1993, 2007, 2010, and 2019. In these floods water flowing over the top of the levee eroded the slope and led to a breach of the levee. Although the screening found overtopping to be the highest risk driver, it was also noted that the condition of

drainage pipes in the levee is unknown because they have not been video inspected and a history of seepage. Seepage and aging or damaged pipes increase the chance of a levee breaching prior to water reaching the top. Warning times for breaches that happen prior to water reaching the top of the levee are often shorter than for water overtopping the levee. Flooding of the levee could lead to flood depths up to 15 feet, which could result in life loss and economic consequences. The area behind the levee is mainly agricultural. However, it does contain portions of the city of Hardin in the northernmost section. The 2014 USACE screening level risk assessment estimated the leveed area population to be approximately 627 people and the property value to be approximately $77.7 million. Most of the population and property are in the area surrounding Hardin that would experience shallow flooding depths. Water would be deepest in the agricultural areas. The USACE screening did not estimate the agricultural product grown in the leveed area, but with over 13,000 acres of farmland, there would be significant crop losses if the leveed area were to flood.

Wakenda Levee District

USACE evaluates risk as a combination of the flood hazard frequency, the anticipated levee performance, and the potential consequences. The 2014 USACE screening level risk assessment estimated the likelihood of a flood overtopping this levee in any given year at approximately 10%, or a 1 chance in 10. This levee overtopped and breached in 1993 and 2011. The levee was significantly loaded in 1995, 1997, 2007, and 2019 but did not overtop. Although the screening found overtopping to be the highest risk driver, it also noted that the condition of drainage pipes in the levee is unknown because they have not been video inspected. Aging or damaged pipes increase the chance of a levee breaching prior to water reaching the top. Warning times for breaches that happen prior to water reaching the top of the levee are often shorter than for water overtopping the levee. Flooding of the levee could lead to flood depths up to 15 feet, which could result in life loss and economic consequences. The area behind the levee is predominately agricultural with associated farm structures. Other development includes residential, commercial and infrastructure. A portion of the City of Carrollton, Missouri is also located in the leveed area. The 2014 USACE levee screening estimated the leveed area population to be approximately 304 people, the property value to be approximately $116 Million, and the agricultural product value to be an additional $12 Million.

Mi-De Levee District

USACE evaluates risk as a combination of the flood hazard frequency, the anticipated levee performance, and the potential consequences. The 2014 USACE screening level risk assessment estimated the likelihood of a flood overtopping this levee in any given year at approximately 5%, or a 1 chance in 20. This levee was overtopped in 1993 and 2019. In these floods water flowing over the top of the levee eroded the slope and led to a breach of the levee. The screening found overtopping to be the highest risk driver. Warning times for breaches that happen prior to water reaching the top of the levee are often shorter than for water overtopping the levee. Flooding of the levee could lead to flood depths of 6-15 feet, which could result in life loss and economic consequences. The area behind the levee is predominately agricultural with associated farm structures. The 2014 USACE screening level risk assessment estimated the leveed area population at less than 10 people, the property value at approximately $11.8 Million, and the agricultural product at approximately $2.3 Million.

Dewitt D&L District of Carroll County, Section 1

USACE evaluates risk as a combination of the flood hazard frequency, the anticipated levee performance, and the potential consequences. The 2014 USACE screening level risk assessment estimated the likelihood of a flood overtopping this levee in any given year at approximately 20%, or a 1 chance in 5. This levee was overtopped in 1993 and 2019. In these floods water flowing over the top of the levee eroded the slope and led to a breach of the levee. Although the screening found overtopping to be the highest risk driver, it also noted that the condition of drainage pipes in the levee

is unknown because they have not been video inspected. Aging or damaged pipes increase the chance of levee breaching prior to water reaching the top. There are also unrepaired areas from 2011 where water was seeping under the levee and forming sand boils on the landside levee toe. Sand boils can become a serious issue when they start to move large amounts of material from under the levee, however flood fighting efforts are often successful in preventing or reducing the damage from sand boil. Because these areas were not repaired it is likely that sand boils would form again in this area and may require flood fighting efforts. Warning times for breaches that happen prior to water reaching the top of the levee are often shorter than for water overtopping the levee. Flooding of the levee could lead to flood depths up to 15 feet, which could result in life loss and economic consequences. The area behind the levee is predominately agricultural with associated farm structures. The 2014 USACE screening level risk assessment estimated a leveed area population of less than 10, a property value of less than $1 million, and an agricultural product value of approximately $62,000.

Dewitt D&L District of Carroll County, Section 2

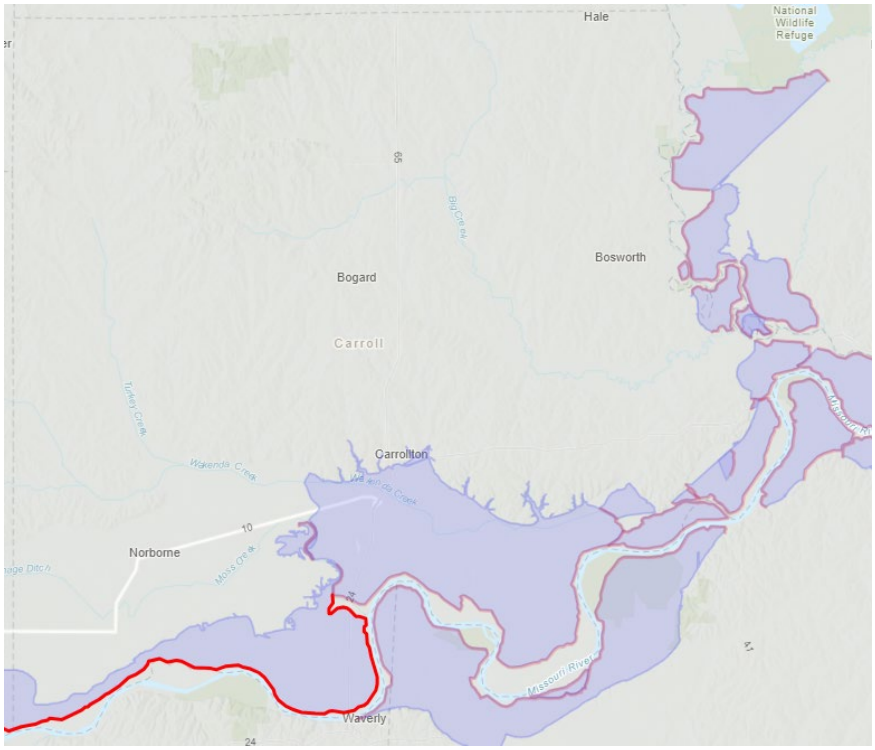
USACE evaluates risk as a combination of the flood hazard frequency, the anticipated levee performance, and the potential consequences. The 2014 USACE screening level risk assessment estimated the likelihood of a flood overtopping this levee in any given year at approximately 10%, or a 1 chance in 10. This levee was overtopped in 1993, 2007, and 2019. In these floods water flowing over the top of the levee eroded the slope and led to a breach of the levee. In 2008, 2011 and 2013 the levee overtopped breaching. Overtopping in 1993, 2007, 2011 and 2019 occurred due to Missouri River flooding. Overtopping in 2007, 2008, and 2013 occurred due to Grand River flooding. Although the screening found overtopping to be the highest risk driver, it also noted that the condition of drainage pipes in the levee is unknown because they have not been video inspected and that this levee has a history of poor performance in regard to slope stability. Although it did not breach, the levee had multiple slides on the landside slope in 2010 and again in 2013 in the same area. Aging or damaged pipes increase the chance of levee breaching prior to water reaching the top. Warning times for breaches that happen prior to water reaching the top of the levee are often shorter than for water overtopping the levee. Flooding of the levee could lead to flood depths greater than 15 feet, which could result in life loss and economic consequences. The area behind the levee is predominately agricultural with some residential and commercial development. The 2014 USACE screening level risk assessment estimated a leveed area population of less than 10, a property value of approximately $3.9 million, and an agricultural product value of approximately $1.9 million.

Big Bend Levee District

USACE evaluates risk as a combination of the flood hazard frequency, the anticipated levee performance, and the potential consequences. The 2015 USACE screening level risk assessment estimated the likelihood of a flood overtopping this levee in any given year at approximately 5%, or a 1 chance in 20. This levee was overtopped in 1993 and 2019. In both floods water flowing over the top of the levee eroded the slope and led to a breach of the levee. Although the screening found overtopping to be the highest risk driver, it also noted that the condition of drainage pipes in the levee is unknown because they have not been video inspected. Aging or damaged pipes increase the chance of a levee breaching prior to water reaching the top. Warning times for breaches that happen prior to water reaching the top of the levee are often shorter than for water overtopping the levee. Flooding of the levee could lead to flood depths up to 19 feet, which could result in life loss and economic consequences. The area behind the levee is predominately agricultural with some residences and associated farm structures. The 2015 USACE screening level risk assessment estimated a leveed area population of less than 10, a property value of less than $1 million, and an agricultural product value of approximately $880,000.

Figure 3.21. County Levees Shown on DFIRM as Providing Protection from

the 1-Percent Annual Chance Flood



Source: National Levee Database, 6/13/2025

Strength/Magnitude/Extent

Levee failure is typically an additional or secondary impact of another disaster such as flooding or earthquake. The main difference between levee failure and losses associated with riverine flooding is magnitude. Levee failure often occurs during a flood event, causing destruction in addition to what would have been caused by flooding alone. In addition, there would be an increased potential for loss of life due to the speed of onset and greater depth, extent, and velocity of flooding due to levee breach.

As previously mentioned, agricultural levees and levees that are not designed to provide flood protection from at least the 1-percent annual chance flood likely do exist in the planning area. However, none of these levees are shown on the Preliminary DFIRM, nor are they enrolled in the USACE Levee Safety Program. As a result, an inventory of these types of levees is not available for analysis. Additionally, since these types of levees do not provide protection from the 1-percent annual chance flood, losses associated with overtopping or failure are captured in the Flood Section of this plan.

Previous Occurrences

According to the National Levee Database, the levees located within Carroll County have overtopped 18 times. On 9 occasions, the overtopping eroded the levee and led to a breach. The following table breaks down the previous overtopping and breaches within Carroll County levees.

Table 3.33. Levee Overtopping and Breaches in Carroll County (1993-2025)

Levee Name	Overtopping Occurrences	Years of Overtopping	Overtopping & Breach Occurrences	Years of Overtopping & Breach Occurrences
Ray Carroll Consolidated Levee District	4	1993, 2007, 2010, 2019	0	n/a
Wakenda Levee District	2	1993, 2011	2	1993, 2011
Mi-De Levee District	2	1993, 2019	0	n/a
DeWitt D&L District of Carroll County, Section 1	2	1993, 2019	2	1993, 2019
DeWitt D&L District of Carroll County, Section 2	6	1993, 2007, 2008, 2011, 2013, 2019	3	1993, 2007, 2019
Big Bend Levee District	2	1993, 2019	2	1993, 2019

Probability of Future Occurrence

According to data from the National Levee Database there have been a total of 18 overtopping occurrences since 1993. Using this data, the probability of a levee overtopping occurring in the planning area could be calculated as follows:

$$Probability\ of\ Levee\ Overtopping = \frac{\#\ of\ occurrences}{\#\ of\ years} = \frac{18}{33} = 55\%\ probability$$

From this same database there have been a total of 9 overtopping and breach occurrences since 1993. Using this data, the probability of a levee overtopping and breaching in the planning area can be calculated as follows:

$$Probability\ of\ Overtopping\ and\ Breach = \frac{\#\ of\ occurrences}{\#\ of\ years} = \frac{9}{33} = 27.3\%\ probability$$

With this data, it is reasonable to assume that there will be some type of levee failure within the county within the next five years. However, historically, the levee failure (both breach and overtopping) have occurred when the Missouri River or the Grand River has flooded.

Changing Future Conditions Considerations

The impact of changing future conditions on levee failure will most likely be related to changes in precipitation and flood likelihood. Climate change projections suggest that precipitation may increase and occur in more extreme events, which may increase risk of flooding, putting stress on levees and increasing likelihood of levee failure. Furthermore, aging levee infrastructure and a lack of regular maintenance (including checking for seepage and removing trees, roots and other vegetation that can weaken a levee) coupled with more extreme weather events may increase risk of future levee failure.

Vulnerability

Vulnerability Overview

The USACE regularly inspects levees within its Levee Safety Program to monitor their overall condition, identify deficiencies, verify that maintenance is taking place, determine eligibility for federal rehabilitation assistance (in accordance with P.L. 84-99), and provide information about the levees on which the public relies. Inspection information also contributes to effective risk assessments and supports levee accreditation decisions for the National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA).

The USACE now conducts two types of levee inspections. Routine Inspection is a visual inspection to verify and rate levee system operation and maintenance. It is typically conducted each year for all levees in the USACE Levee Safety Program. Periodic Inspection is a comprehensive inspection led by a professional engineer and conducted by a USACE multidisciplinary team that includes the levee sponsor. The USACE typically conducts this inspection every five years on the federally authorized levees in the USACE Levee Safety Program.

Both Routine and Periodic Inspections result in a rating for operation and maintenance. Each levee segment receives an overall segment inspection rating of Acceptable, Minimally Acceptable, or Unacceptable. **Figure 3.222** below defines the three ratings.

Figure 3.22. Definitions of the Three Levee System Ratings

Levee System Inspection Ratings	
Acceptable	All inspection items are rated as Acceptable.
Minimally Acceptable	One or more levee segment inspection items are rated as Minimally Acceptable or one or more items are rated as Unacceptable and an engineering determination concludes that the Unacceptable inspection items would not prevent the segment/system from performing as intended during the next flood event.
Unacceptable	One or more levee segment inspection items are rated as Unacceptable and would prevent the segment/system from performing as intended, or a serious deficiency noted in past inspections (previous Unacceptable items in a Minimally Acceptable overall rating) has not been corrected within the established timeframe, not to exceed two years.

None of the Levees located in Carroll County have been rated as minimally acceptable or unacceptable during routing inspections. There are reports that the condition of drainage pipes in the levees are unknown because they have not been video inspected. However, the majority of the area behind the levees in Carroll County is agricultural in nature.

Potential Losses to Existing Development

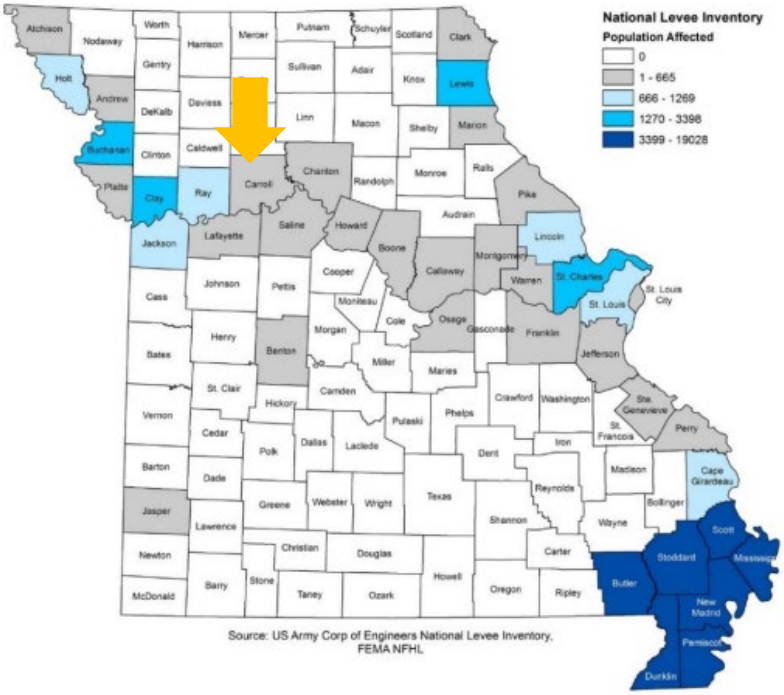
According to the National Levee Database, risk assessments were reported for the following levee districts and, if available, the number of people, structure, and property value at risk in the event of levee failure are listed in the following table.

Table 3.34. Potential Risks to Carroll County in the Event of Levee Failure (if available)

Levee District	People	Structures	Property Value
Ray Carroll Consolidated Levee District	627	372 Buildings; 6 Critical Structures	$77,000,000
Wakenda Levee District	304	507 Buildings; 8 Critical Structures	$120,000,000
Mi-De Levee District	0	17 Buildings; 0 Critical Structures	$11,000,000
DeWitt D&L District of Carroll County, Section 1	0	0	$54,000
DeWitt D&L District of Carroll County, Section 2	7	22 Buildings; 0 Critical Structures	$3,000,000
Big Bend Levee District	0	0	No Financial Risk

National Levee Database

Figure 3.23. Population Exposure: Missouri Levees in USACE National Levee Inventory Providing 100-year or Greater Flood Protection



Source: 2023 Missouri State Hazard Mitigation Plan

Impact of Previous and Future Development

The areas protected by the levees are expected to remain largely undeveloped agricultural land with no new structures or development planned that would increase the risk of levee failure.

Hazard Summary by Jurisdiction

Carroll County has rural areas that could be affected by a levee failure. The majority of the damage would be to agricultural assets and crops. However, there are some residents of the unincorporated

areas of Carroll County that could be affected as well.

Problem Statement

The levees in Carroll County could present a risk to residents and agriculture in the path due to levee failure. Lack of flood warning systems in parts of Carroll County limits the ability to effectively evacuate residents and businesses before a potential levee failure, increasing the risk of loss of life and property damage.

3.4.3 Dam Failure

Hazard Profile

Hazard Description

A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams are typically constructed of earth, rock, concrete, or mine tailings. Dam failure is the uncontrolled release of impounded water resulting in downstream flooding, affecting both life and property. Dam failure can be caused by any of the following:

1. Overtopping: Inadequate spillway design, debris blockage of spillways or settlement of the dam crest.
2. Piping: Internal erosion caused by embankment leakage, foundation leakage and deterioration of pertinent structures appended to the dam.
3. Erosion: Inadequate spillway capacity causing overtopping of the dam, flow erosion, and inadequate slope protection.
4. Structural Failure: Caused by an earthquake, slope instability or faulty construction.

Table 3.35. MoDNR Dam Hazard Classification Definitions

Hazard Class	Definition
Class I	Contains 10 or more permanent dwellings or any public buildings
Class II	Contains 1 to 9 permanent dwellings or 1 or more campgrounds with permanent water, sewer, and electrical services or 1 or more industrial buildings
Class III	Everything else

Source: Missouri Department of Natural Resources, http://dnr.mo.gov/env/wrc/docs/rules_reg_94.pdf

Table 3.36. NID Dam Hazard Classification Definitions

Hazard Class	Definition
Low Hazard	A dam located in an area where failure could damage only farm or other uninhabited buildings, agricultural or undeveloped land including hiking trails, or traffic on low volume roads that meet the requirements for low hazard dams.
Significant Hazard	A dam located in an area where failure could endanger a few lives, damage an isolated home, damage traffic on moderate volume roads that meet certain requirements, damage low-volume railroad tracks, interrupt the use or service of a utility serving a small number of customers, or inundate recreation facilities, including campground areas intermittently used for sleeping and serving a relatively small number of persons
High Hazard	A dam located in an area where failure could result in any of the following: extensive loss of life damage to more than one home, damage to industrial or commercial facilities, interruption of a public utility serving a large number of customers, damage to traffic on high-volume roads that meet the requirements for hazard class C dams or a high-volume railroad line, inundation of a frequently used recreation facility serving a relatively large number of persons, or two or more individual hazards described for significant hazard dams.

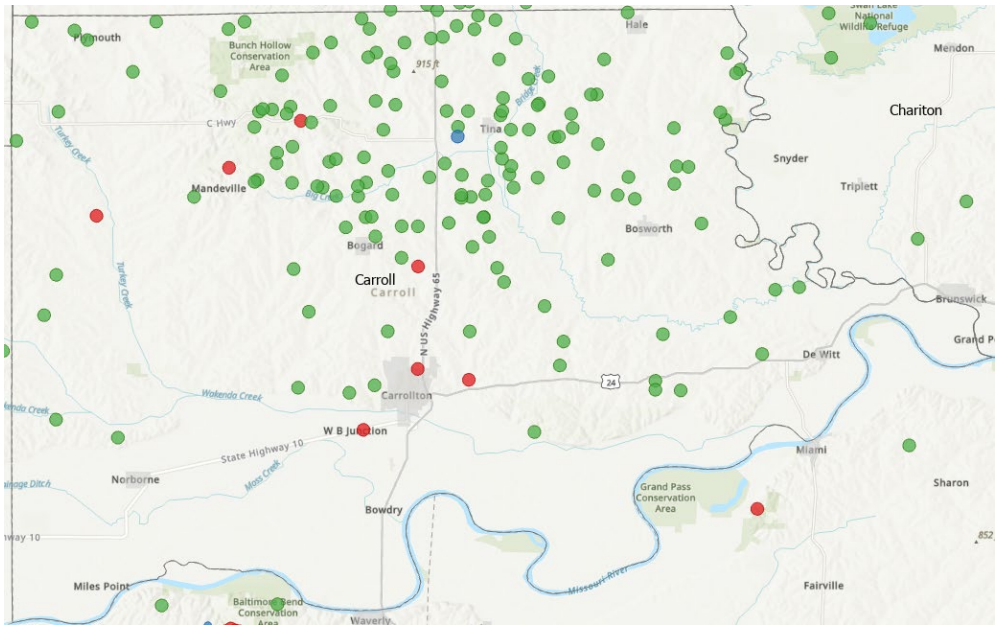
Source: National Inventory of Dams

Geographic Location

Dams Located Within the Planning Area

The following tables and figures provide the names, locations, and other pertinent information for high hazard dams within the planning area.

Figure 3.24. Dams Located in Carroll County



Source: National Inventory of Dams

Key:
- High
- Significant
- Low

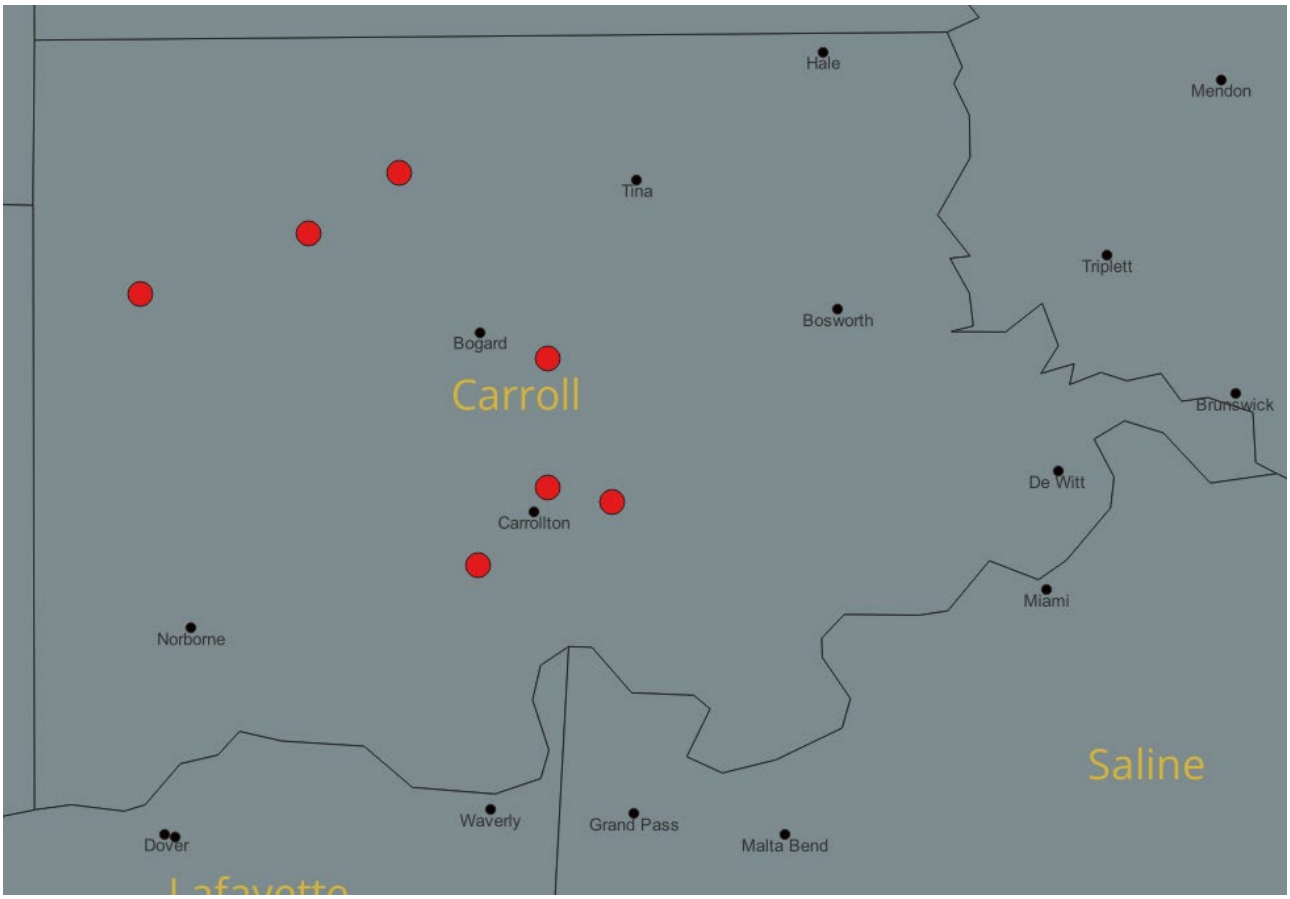
Table 3.37. High Hazard Dams in the Carroll County Planning Area

Dam Name	Emergency Action Plan (EAP)AP	Dam Height (Ft)	Normal Storage (Acre-Ft)	Last Inspection Date	River	Nearest Downstream City	Distance To Nearest City (Miles)	Dam Owner
Henry Lake Dam	Not Required	30	18	unknown	TR-TATER HILL CREEK	COLOMA	0	LELAND+GARY HENRY
Carrollton Recreation Lake	Not Required	10	293	unknown	TR OLD CHNL WAKENDA	WAKENDA	10	CARROLLTON REC CLUB INC
Anderson Lake Dam	Not Required	15	100	unknown	TR-COTTONWOOD	WAKENDA	0	LOWELL ANDERSON
Amery Lake Dam	Not Required	25	25	unknown	TR-TURKEY CREEK	CARROLLTON	0	DONALD AMERY
Mandeville Lake Dam	Not Required	25	133	unknown	TR-TURKEY CREEK	CARROLTON	22	RUDY RUECHEL
Johnson Lake Dam	Not Required	25	54	7/1/80	OFFSTREAM STANDLEY BRANCH	CARROLTON	1	E.C. JOHNSON CORP.
Big Creek-Hurricane Creek S- 12	Yes	27	39	unknown	TR-BIG CREEK	NONE	0	BIG CREEK WATERSHED

Sources: Missouri Department of Natural Resources, https://dnr.mo.gov/geology/wrc/dam-safety/damsinmissouri.htm

and National Inventory of Dams, http://nid.usace.army.mil/cm_apex/f?p=838:12. Contact the MoDNR Dam and Reservoir Safety Program at 800-361-4827 to request the inundation maps for your county to show geographic locations at risk, extent of failure and to perform GIS analysis of those assets at risk to dam failure.

Figure 3.25. High Hazard Dam Locations in Carroll County



Source: U.S. Army Corps of Engineers, Missouri Department of Natural Resources

Upstream Dams Outside the Planning Area

The Missouri DNR was consulted regarding upstream dams outside the planning area that could pose a hazard to Carroll County. Per Missouri DNR there are no upstream dams located outside of the county that pose a risk to Carroll County.

Strength/Magnitude/Extent

The strength/magnitude of dam failure would be similar in some cases to flood events (see the flood hazard vulnerability analysis and discussion). The strength/magnitude/extent of dam failure is related to the volume of water behind the dam as well as the potential speed of onset, depth, and velocity. Note that for this reason, dam failures could flood areas outside of mapped flood hazards.

Previous Occurrences

Information from Stanford University's National Performance of Dams Program shows no known instance of dam incidents have been reported in Carroll County.

Probability of Future Occurrence

There are currently no regulated high hazard dams in Carroll County. There are no USACE-regulated dams in the planning area. According to the information from Stanford University's National Performance of Dams Program database there are no known incidents.

It should be considered that within Missouri historical dam failures and incidents include events from all hazard classes and all dams; regulated or not. Failures and incidents for regulated dams that have higher inspection frequencies should be less probable. The non-regulated dams do not have a regular inspection schedule nor requirement.

If we base the probability upon past events:

$$Probability\ of\ Dam\ Failure = \frac{0}{20}$$

With no previous occurrences of dam failure, the probability of such an event occurring is unlikely in the planning area.

However, if we consider the instances of dam incidents:

$$Probability\ of\ Dam\ Incident = \frac{0}{20} = 0.00$$

The probability of the planning area experiencing any type of dam incident, if based on past occurrences, would be less than 5% in any given year.

Changing Future Conditions Considerations

According to the 2023 Missouri State hazard mitigation plan "Studies have been conducted to investigate the impact of climate change scenarios on dam safety. Dam failure is already tied to flooding and the increased pressure flooding places on dams. The impacts of changing future conditions on dam failure will most likely be those related to changes in precipitation and flood likelihood. Changing future conditions projections suggest that precipitation may increase and occur in more extreme events, which may increase risk of flooding, putting stress on dams and increasing likelihood of dam failure"

Vulnerability

Vulnerability Overview

According to the US Army Corps of Engineers (USACE) National Inventory of Dams (NID) there are a total of 155 dams located in the planning area. There are 7 high hazard dams, 1 significant hazard dams, and 147 low hazard dams in Carroll County.

Within Carroll County, none of the high hazard dams are state regulated. Only 1 of the high hazard dams is reported to have been inspected, that was the Johnson's Lake dam, which was inspected in

1980. None of the high hazard dams have a condition rating available from the Missouri department of natural resources.

There are currently some structures of both agricultural and residential varieties. The 2023 Missouri State Hazard Mitigation Plan contains the following information about the vulnerability of Carroll County to dam failure.

Table 3.38. Number and Types of Dams in Carroll County

Numbers and Types of Dams in Carroll County															
Count of NID Dams				Count of State Regulated Dams				Count of Federally Regulated Dams				Count of Un-Regulated Dams			
H	S	L	Total	1	2	3	Total	H	S	L	Total	H	S	L	Total
7	1	147	155	0	0	0	0	0	0	0	0	7	1	147	155

Source: 2023 Missouri hazard mitigation plan

Potential Losses to Existing Development:
(including types and numbers, of buildings, critical facilities, etc.)

Table 3.39. Estimated Number and Values of Structures & Population Vulnerable to Failure of State-Regulated Dams with Available Inundation Areas

Type of Structure	Value of Structures	Number of Structures	Population
Agriculture	$1,723,806,216	2,194	0
Commercial	$90,475,267	113	0
Education	$5,321,334	4	0
Government	$24,415,532	26	0
Industrial	$61,444,120	43	0
Residential	$275,419,172	1,134	2,812
Total	**$2,180,881,641**	**3,514**	**2,812**

Source: 2023 Missouri State Hazard Mitigation Plan

Impact of Previous and Future Development

Any growth within Carroll County, downstream from a known dam, would lead to increased risks and potential losses due to an incident. However, there are no current plans for significant development for any of the jurisdictions within the county, and therefore, there are no increased risks that must be considered in the next five years.

Hazard Summary by Jurisdiction

There is a substantial number of structures in Carroll County at risk for inundation from a dam incident with significant losses to property likely to occur in the event of a dam incident.

The 2023 Missouri hazard mitigation plan lists no state regulated dams in Carroll County. The only High hazard dam in Carroll with any known inspection is the Johnson Lake dam which was inspected in 1980. All current high hazard dams have no information available as their current condition rating according to the National inventory of dams.

Problem Statement

Some entities in Harrison County that own and control dams do not properly inspect and maintain them to ensure the safety of people and property that lie within the inundation area of a dam breach. Jurisdictions and residents should be informed of the proper way to inspect a dam and look for initial problems.

3.4.4 Earthquakes

Hazard Profile

Hazard Description

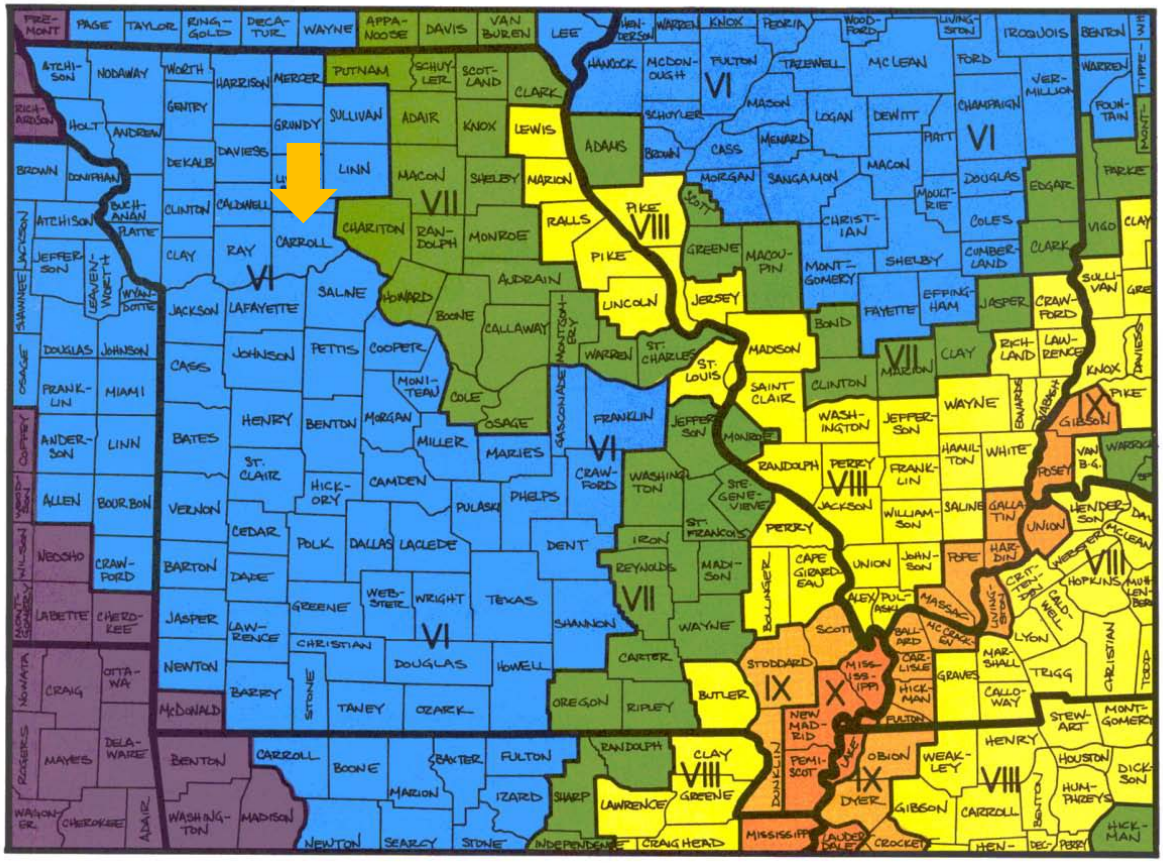
An earthquake is a sudden motion or trembling that is caused by a release of energy accumulated within or along the edge of the earth's tectonic plates. Earthquakes occur primarily along fault zones and tears in the earth's crust. Along these faults and tears in the crust, stresses can build until one side of the fault slips, generating compressive and shear energy that produces the shaking and damage to the built environment. Heaviest damage generally occurs nearest the earthquake epicenter, which is that point on the earth's surface directly above the point of fault movement. The composition of geologic materials between these points is a major factor in transmitting the energy to buildings and other structures on the earth's surface.

Missouri holds the record for the most devastating earthquake in the history of post-settlement North America. The New Madris 1811-1812 earthquake series included five earthquakes of magnitude 8.0 (Modified Mercalli Intensity Scale) or higher occurring in the period of December 16, 1811, through February 7, 1812. These earthquakes affected an estimated 600,000 square kilometers. Movement was felt as far away as Quebec, and damage was reported in Charleston, South Caroline, and Washington D.C.

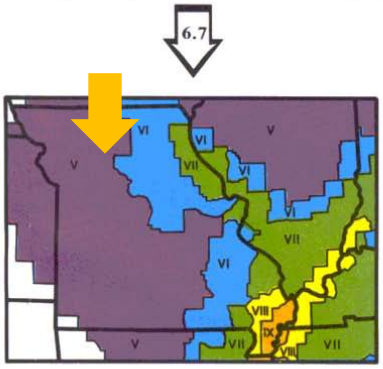
Geographic Location

While the history of the New Madrid fault line and its potential for another major earthquake is well known and much studied, that threat lies far enough away from Carroll County that the effects of such an event would be negligible and would not vary much throughout the planning area. The most likely outcome for Carroll County would be as follows: everyone would feel movement, poorly built buildings would be damaged slightly, considerable quantities of dishes, glassware, and some windows would be broken, people would have trouble walking, pictures would fall off walls, plaster walls might crack, and furniture could be overturned.

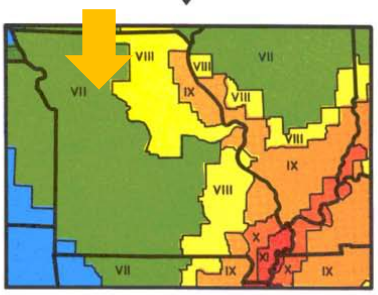
Figure 3.26. Impact Zones for Earthquake Along the New Madrid Fault



This map shows the highest projected Modified Mercalli intensities by county from a potential magnitude – 7.6 earthquake whose epicenter could be anywhere along the length of the New Madrid seismic zone.



This map shows the highest projected Modified Mercalli intensities by county from a potential magnitude – 6.7 earthquake whose epicenter could be anywhere along the length of the New Madrid seismic zone.



This map shows the highest projected Modified Mercalli intensities by county from a potential magnitude – 8.6 earthquake whose epicenter could be anywhere along the length of the New Madrid seismic zone.

Source: https://sema.dps.mo.gov/docs/EQ_Map.pdf

Figure 3.27. Projected Earthquake Intensities

MODIFIED MERCALLI INTENSITY SCALE

I People do not feel any Earth movement.

II A few people might notice movement.

III Many people indoors feel movement. Hanging objects swing.

IV Most people indoors feel movement. Dishes, windows, and doors rattle. Walls and frames of structures creak. Liquids in open vessels are slightly disturbed. Parked cars rock.

V Almost everyone feels movement. Most people are awakened. Doors swing open or closed. Dishes are broken. Pictures on the wall move. Windows crack in some cases. Small objects move or are turned over. Liquids might spill out of open containers.

VI Everyone feels movement. Poorly built buildings are damaged slightly. Considerable quantities of dishes and glassware, and some windows are broken. People have trouble walking. Pictures fall off walls. Objects fall from shelves. Plaster in walls might crack. Some furniture is overturned. Small bells in churches, chapels and schools ring.

VII People have difficulty standing. Considerable damage in poorly built or badly designed buildings, adobe houses, old walls, spires and others. Damage is slight to moderate in well-built buildings. Numerous windows are broken. Weak chimneys break at roof lines. Cornices from towers and high buildings fall. Loose bricks fall from buildings. Heavy furniture is overturned and damaged. Some sand and gravel stream banks cave in.

VIII Drivers have trouble steering. Poorly built structures suffer severe damage. Ordinary substantial buildings partially collapse. Damage slight in structures especially built to withstand earthquakes. Tree branches break. Houses not bolted down might shift on their foundations. Tall structures such as towers and chimneys might twist and fall. Temporary or permanent changes in springs and wells. Sand and mud is ejected in small amounts.

IX Most buildings suffer damage. Houses that are not bolted down move off their foundations. Some underground pipes are broken. The ground cracks conspicuously. Reservoirs suffer severe damage.

X Well-built wooden structures are severely damaged and some destroyed. Most masonry and frame structures are destroyed, including their foundations. Some bridges are destroyed. Dams are seriously damaged. Large landslides occur. Water is thrown on the banks of canals, rivers, and lakes. Railroad tracks are bent slightly. Cracks are opened in cement pavements and asphalt road surfaces.

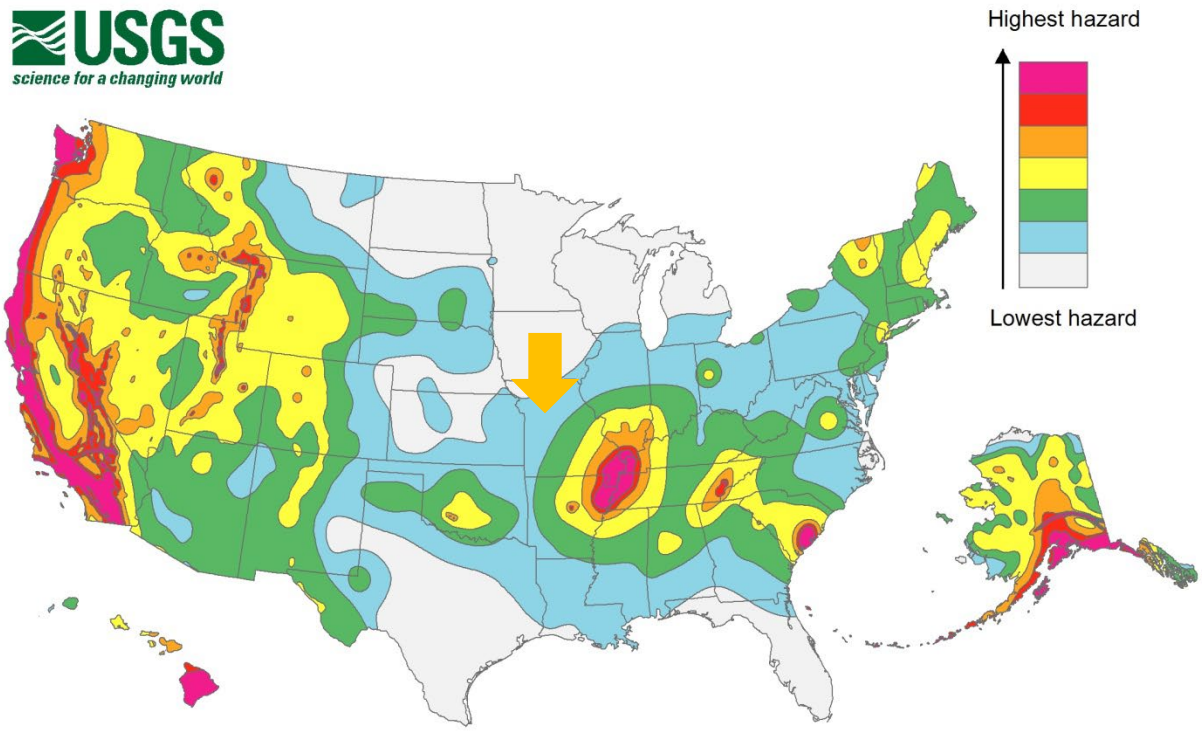
XI Few if any masonry structures remain standing. Large, well-built bridges are destroyed. Wood frame structures are severely damaged, especially near epicenters. Buried pipelines are rendered completely useless. Railroad tracks are badly bent. Water mixed with sand, and mud is ejected in large amounts.

XII Damage is total, and nearly all works of construction are damaged greatly or destroyed. Objects are thrown into the air. The ground moves in waves or ripples. Large amounts of rock may move. Lakes are dammed, waterfalls formed and rivers are deflected.

Intensity is a numerical index describing the effects of an earthquake on the surface of the Earth, on man, and on structures built by man. The intensities shown in these maps are the highest likely under the most adverse geologic conditions. There will actually be a range in intensities within any small area such as a town or county, with the highest intensity generally occurring at only a few sites. Earthquakes of all three magnitudes represented in these maps occurred during the 1811 - 1812 "New Madrid earthquakes." The isoseismal patterns shown here, however, were simulated based on actual patterns of somewhat smaller but damaging earthquakes that occurred in the New Madrid seismic zone in 1843 and 1895.

Prepared and distributed by
THE MISSOURI STATE
EMERGENCY MANAGEMENT AGENCY
P.O. BOX 116
JEFFERSON CITY, MO 65102
Telephone: 573-526-9100

Figure 3.28. United States Seismic Hazard Map



Source: United States Geological Survey at https://www.usgs.gov/programs/earthquake-hazards/hazards

Strength/Magnitude/Extent

The extent or severity of earthquakes is generally measured in two ways: 1) the Richter Magnitude Scale is a measure of earthquake magnitude; and 2) the Modified Mercalli Intensity Scale is a measure of earthquake severity. The two scales are defined as follows.

Richter Magnitude Scale

The Richter Magnitude Scale was developed in 1935 as a device to compare the size of earthquakes. The magnitude of an earthquake is measured using a logarithm of the maximum extent of waves recorded by seismographs. Adjustments are made to reflect the variation in the distance between the various seismographs and the epicenter of the earthquakes. On the Richter Scale, magnitude is expressed in whole numbers and decimal fractions. For example, comparing a 5.3 and a 6.3 earthquake shows that the 6.3 quake is ten times bigger in magnitude. Each whole number increase in magnitude represents a tenfold increase in measured amplitude because of the logarithm. Each whole number step in the magnitude scale represents a release of approximately 31 times more energy.

Modified Mercalli Intensity Scale

The intensity of an earthquake is measured by the effect of the earthquake on the earth's surface. The intensity scale is based on the responses to the quake, such as people awakening, movement of furniture, damage to chimneys, etc. The intensity scale currently used in the United States is the

Modified Mercalli (MM) Intensity Scale. It was developed in 1931 and is composed of 12 increasing levels of intensity. They range from imperceptible shaking to catastrophic destruction, and each of the twelve levels is denoted by a Roman numeral. The scale does not have a mathematical basis, but is based on observed effects. Its use gives the laymen a more meaningful idea of the severity.

Previous Occurrences

Carroll County, Missouri has a very low earthquake risk, with a total of 0 earthquakes since 1931.

Probability of Future Occurrence

Additionally, this same website also projects the probability of Carroll County having a 5.0 Earthquake within the next 50 years at 0.21%. There is a "Very Low" risk level for Carroll County.

2% Probability of Exceedance

The State Hazard Mitigation Plan ran a scenario, based on an event with a 2% probability of exceedance in 50 years, in order to determine the worst-case scenario. This scenario was equivalent to the 2,500-year earthquake scenario in HAZUS-MH. This methodology is based on the probabilistic seismic hazard shaking grids that were developed by the US Geological Survey (USGS) for the National Seismic Hazard Maps that are included with HAZUS-MH. The USGS maps provide estimates of peak ground acceleration and spectral acceleration at periods of 0.3 seconds and 0.1 seconds, respectively, which have a 2% probability of exceedance in the next 50 years. The most severe shaking is around the New Madrid Fault in Missouri. The following figure represents the potential for damage in areas with soils potentially susceptible to liquefaction.

Figure 3.29. HAZUS-MH Earthquake 2% Probability of Exceedance in 50-years – Ground

Shaking and Liquefaction Potential

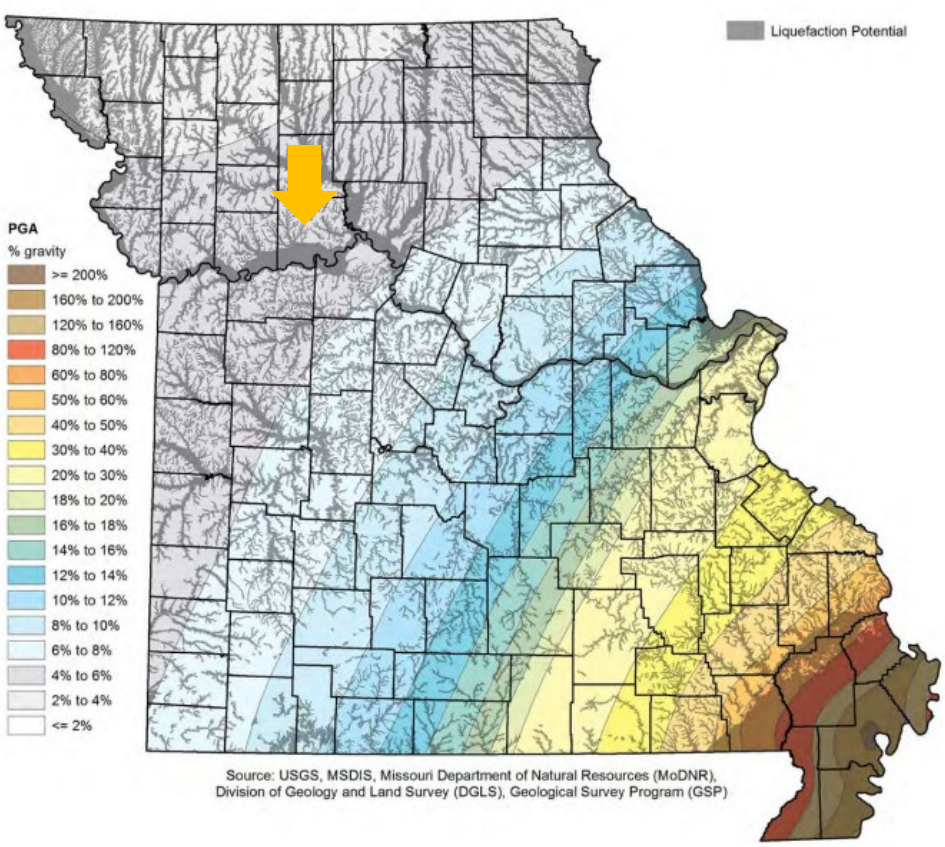


Table 3.40. HAZUS-MH Earthquake Loss Estimation 2% Probability of Exceedance in 50-years Scenario Direct Economic Losses Results for Carroll County (All Values in Thousands)

County	Cost Structural Damage	Cost Non-structural Damage	Cost Contents Damage	Inventory Loss	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Carroll County	$1,588	$3,304	$1,070	$45	0.41	$981	$211	$381	$349

Source: 2023 Missouri State Hazard Mitigation Plan

Changing Future Conditions Considerations

- According to the 2023 Missouri State Hazard Mitigation plan, scientists are beginning to believe that there may be a connection between changing climate conditions and earthquakes. Changing ice caps and sea-level redistribute weight over fault lines, which could potentially have an influence on earthquake occurrences. However, currently no studies quantify the relationship to a high level of detail, so recent earthquakes should not be linked with climate change. While not conclusive, early research suggests that more intense earthquakes and tsunamis may eventually be added to the adverse consequences that are caused by changing future conditions.

Vulnerability

Vulnerability Overview

The 2023 Missouri State Hazard Mitigation Plan provided an earthquake loss estimation for each county. The annualized loss scenario from the 2023 State Hazard Mitigation Plan for Carroll County is provided in the following table.

Table 3.41. HAZUS-MH Earthquake Loss Estimation: Annualized Loss Scenario for Carroll County

County	Total Losses, in $ Thousands	Loss Per Capita, in $ Thousands	Loss Ratio, in $ per Million
Carroll	$11	$0.0012	$14

Source: Missouri Hazard Mitigation Plan 2023

According to the Overview of Residential Earthquake Insurance in 2023,

Table 3.42. Earthquake Coverage in Carroll County, Missouri in 2023

Earthquake Exposures	Homeowners, Farm, Mobile Home Exposures	% With Earthquake Endorsement	Average Premium, All Earthquake	Average Premium, $110k-$140k Coverage
122	1,511	8.1%	$93	$62

Source: Missouri Department of Commerce & Insurance "overview of Residential Earthquake Insurance 2023"

Potential Losses to Existing Development

Potential losses to existing development were estimated using FEMA's loss estimation software, HAZUS 6.0. The HAZUS building inventory counts are based on the 2020 census data and primarily 2022 economic values. Population counts are 2019 estimates from the US Census Bureau.

Figure 3.30. HAZUS Earthquake Loss Estimation with a 2% Probability of Exceedance in 50 Years Scenario – Total Building Loss

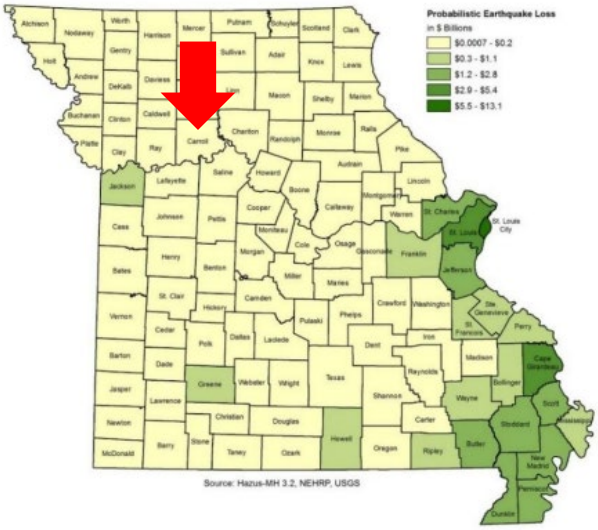


Table 3.43. FEMA National Risk Index Loss Estimation: Annualized Loss Scenario for Carroll County

Annualized Frequency	Expected Annual Loss Buildings (In $ Thousands)	Expected Annual Loss-Fatalities	Expected Annual Loss – Population Equivalence	Expected Annual Loss – Total	Expected Annual Loss Rating
0.00040	$11	0.00007	$563	$11,376	Very Low

Source: 2023 Missouri State Hazard Mitigation Plan

Impact of Previous and Future Development

Any future development to the planning area while unexpected, would not increase the risk to an earthquake other than contributing to the overall exposure of what could become damaged because of an earthquake event.

Hazard Summary by Jurisdiction

The intensity of an earthquake is not likely to vary greatly throughout the planning area, and the risk will be the same throughout the county. However, damages could differ if there are structural variations in the planning area-built environment. The impact of an earthquake is likely to be higher on homes built before 1939 and on mobile homes. The following table lists the percentage of homes built prior to 1939 in the planning area as well as percentage of mobile homes.

Table 3.44. Percentage of Homes Built Prior to 1939 and Percentage of Mobile Homes

Table 3.45. Jurisdiction	Mobile Homes	% Of Mobile Homes	Homes Built Prior to 1939	% Homes Built Prior to 1939
Carroll County	233	6.8%	651	18.9%
City of Bogard	10	13.5%	14	18.9%
City of Bosworth	7	10.0%	19	27.1%
Carrollton	45	3.4%	208	15.6%
City of De Witt	7	21.9%	9	28.1%
City of Hale	19	8.2%	42	18.0%
City of Norborne	20	6.5%	54	17.6%
Village of Tina	13	18.8%	15	21.7%

Source: U.S. Census Bureau, Physical Housing Characteristics for Occupied Housing Units (S2501)

Problem Statement

Although Harrison County is not located in an area that will likely see catastrophic damage from an earthquake, the county could be impacted by the loss of communications, transportation, the disruption of roads, rail and pipelines, water transportation, and the area will see a significant amount of refugees fleeing from Southern Missouri if a quake hits that area. Education is minimal for earthquakes due to the low likelihood of impact. An emergency plan for earthquakes should be made available to all residents and state what would happen in the event of an earthquake with details for communication and transportation. Owners of buildings and homes need to be aware of the plan in case damage is sustained to their property. Residents should be made aware of where the generators and emergency buildings are located. Utilization of social media and texting needs to be encouraged.

3.4.5 Drought

Hazard Profile

Hazard Description

Drought is generally defined as a condition of moisture levels significantly below normal for an extended period of time over a large area that adversely affects plants, animal life, and humans. A drought period can last for months, years, or even decades. There are four types of drought conditions relevant to Missouri, according to the State Plan, which are as follows.

- Meteorological drought is defined in terms of the basis of the degree of dryness (in comparison to some "normal" or average amount) and the duration of the dry period. A meteorological drought must be considered as region-specific since the atmospheric conditions that result in deficiencies of precipitation are highly variable from region to region.

- Hydrological drought is associated with the effects of periods of precipitation (including snowfall) shortfalls on surface or subsurface water supply (e.g., streamflow, reservoir and lake levels, ground water). The frequency and severity of hydrological drought is often defined on a watershed or river basin scale. Although all droughts originate with a deficiency of precipitation, hydrologists are more concerned with how this deficiency plays out through the hydrologic system. Hydrological droughts are usually out of phase with or lag the occurrence of meteorological and agricultural droughts. It takes longer for precipitation deficiencies to show up in components of the hydrological system such as soil moisture, streamflow, and ground water and reservoir levels. As a result, these impacts also are out of phase with impacts in other economic sectors.

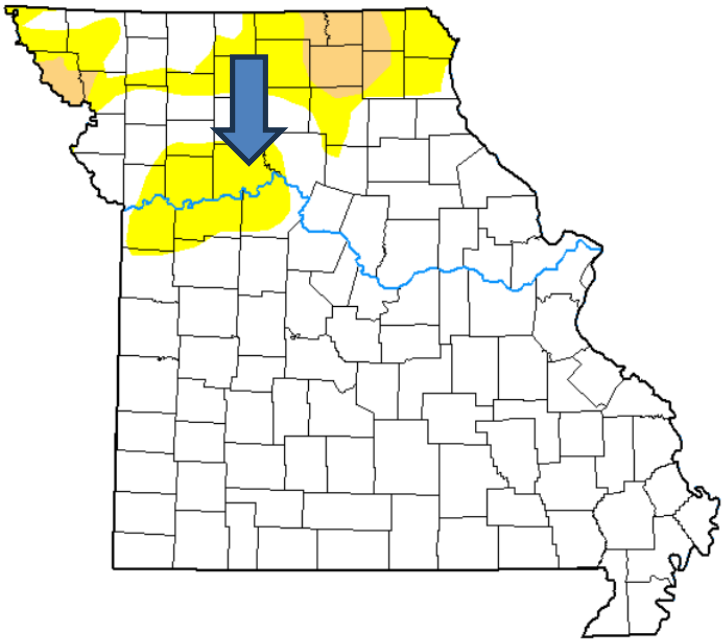
- Agricultural drought's focus is on soil moisture deficiencies, differences between actual and potential evaporation, reduced ground water or reservoir levels, etc. Plant demand for water depends on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil.

- Socioeconomic drought refers to when physical water shortage begins to affect people.

Geographic Location

Because of the broad scope of drought, all of Carroll County, with the exception of the school districts, is susceptible to this hazard. Agricultural land is extremely vulnerable to drought impacts. According to the most recent census of agriculture in 2023, a total of 393,921 acres is farmland, making the impacts of drought one that is acutely felt by residents of Carroll County.

Figure 3.32. U.S. Drought Monitor Map of Missouri on June 26, 2025 for Carroll County



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	83.86	16.14	2.98	0.00	0.00	0.00
Last Week 06-17-2025	81.27	18.73	4.25	0.00	0.00	0.00
3 Months Ago 03-25-2025	32.13	67.87	23.79	3.12	0.00	0.00
Start of Calendar Year 01-07-2025	69.71	30.29	11.75	0.00	0.00	0.00
Start of Water Year 10-01-2024	39.30	60.70	23.73	7.95	0.00	0.00
One Year Ago 06-25-2024	74.63	25.37	4.98	0.00	0.00	0.00

Intensity:

None
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:
Curtis Riganti
National Drought Mitigation Center

Source: U.S. Drought Monitor, https://droughtmonitor.unl.edu/Maps/MapArchive.aspx

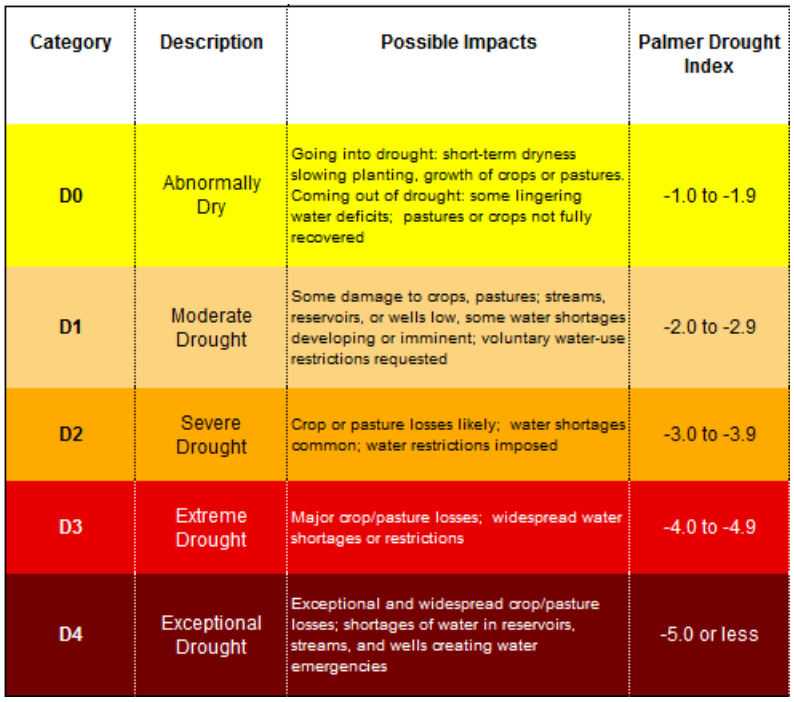
Strength/Magnitude/Extent

The Palmer Drought Indices measure dryness based on recent precipitation and temperature. The indices are based on a "supply-and-demand model" of soil moisture. Calculation of supply is relatively straightforward, using temperature and the amount of moisture in the soil. However, demand is more complicated as it depends on a variety of factors, such as evapotranspiration and recharge rates. These rates are harder to calculate. Palmer tried to overcome these difficulties by developing an algorithm that approximated these rates and based the algorithm on the most readily available data — precipitation and temperature.

The Palmer Index has proven most effective in identifying long-term drought of more than several months. However, the Palmer Index has been less effective in determining conditions over a matter of weeks. It uses a "0" as normal, and drought is shown in terms of negative numbers; for example, negative 2 is moderate drought, negative 3 is severe drought, and negative 4 is extreme drought. Palmer's algorithm also is used to describe wet spells, using corresponding positive numbers.

Palmer also developed a formula for standardizing drought calculations for each individual location based on the variability of precipitation and temperature at that location. The Palmer index can therefore be applied to any site for which sufficient precipitation and temperature data is available.

Figure 3.33. Drought Severity Classification



Category	Description	Possible Impacts	Palmer Drought Index
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less

Previous Occurrences

Table 3.46. Previous Occurrences of Drought in Carroll County 2015-2025

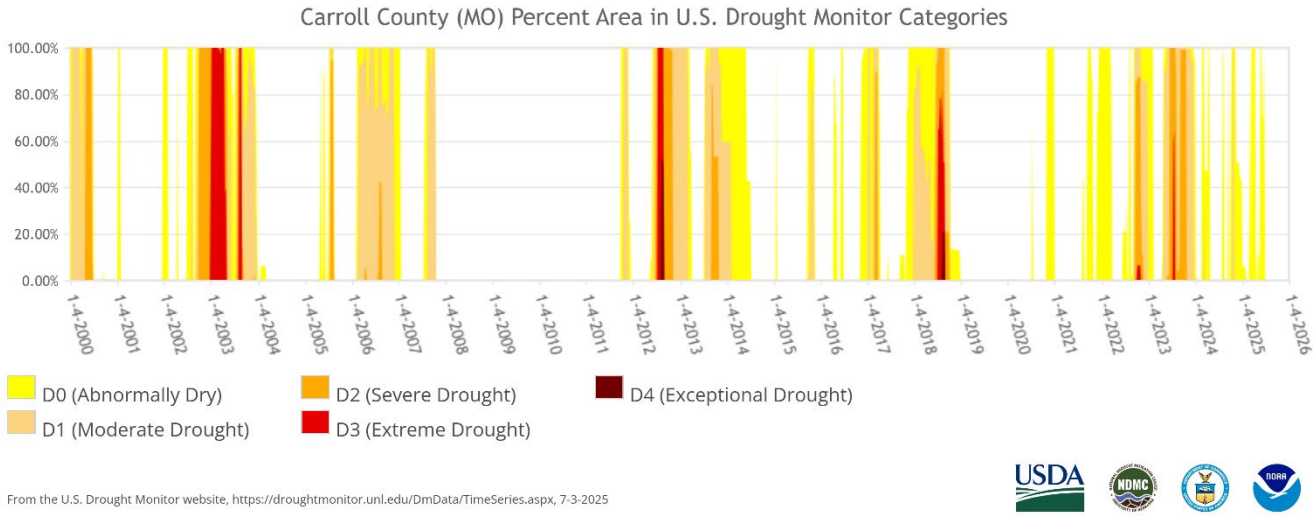
Begin Date	End Date	Episode Narrative
6/1/2018	6/30/2018	Starting at the very end of May and going into June the US Drought Monitor at the University of Nebraska declared portions of Carroll County in a D2 or worse drought. While impacts from this drought would be felt through the summer, it's unclear if any drought impacts were felt through the month of June.
7/1/2018	7/31/2018	The abnormally dry summer continued into and through July for Carroll County. The Drought Monitor put the county in D3 and maintained it into August. As of yet, the breadth and magnitude of the impacts are unknown.

8/1/2018	8/31/2018	Carroll County reached or maintained D4 drought status for the entire month. While rain did move into the area through the month, the ground was dry enough from below normal precipitation and above normal temperatures through the month to warrant D4 status maintenance. The direct impact on Carroll County is unclear, but statewide drought impacts are estimated at around 2 billion dollars, per The University of Missouri Extension Center. The drought has also hurt pastures, with about three-quarters in poor or very poor conditions, according to the USDA report. Many pastures haven't been able to support grazing cattle, prompting farmers to feed cattle with hay that might normally be saved for winter. It also hurt the hay crop, which is down about one-third from normal. The 2018 drought is turning out small corn ears. Some farmers are not waiting until harvest, instead trying to get the most out of the crop by baling it or cutting it for silage for cattle. Farmers can now clean out sediment in ponds to increase water-holding capacity. Ponds in the conservation program are built for erosion control.
9/1/2018	9/30/2018	The drought of 2018 continued for Carroll County; however an influx of some moisture brought some minor relief to the county. Conditions improved from D4 to D2 during the month of September, but the impacts and losses of several crops were already felt across the region. The amount of damage is unknown at this point, but numerous farmers were unable to get full return from their crops.
10/1/2018	10/9/2018	Due to widespread dry conditions through the summer and early fall of 2018 most counties experienced extreme to exceptional drought (D3-D4). While some counties saw marked improvement through the late summer and early fall the drought continued into the second week of October. The drought improved area-wide after 6-12 inches of rain fell in a four day stretch in early October. This effectively ended the drought area-wide. While the exact damage costs are unknown, it is estimated that farmers across the entire region suffered millions of dollars of losses due to the extremely dry conditions.
9/27/2022	9/30/2022	Due to ongoing lack of rain across the area the severe (D2) drought has expanded into Carroll County. So far there have been little to no reports of impacts, but the drought continued into October.
10/1/2022	10/31/2022	Significant precipitation deficits continued into October with severe to extreme drought persisting throughout the month. Carroll County spent all of October almost entirely within D2 drought with a small sliver of D3 drought taking hold across far southwestern Carroll County near the Missouri River by early to mid-October.
11/1/2022	11/29/2022	Significant precipitation deficits yielded D2 drought conditions continuing into November before improving to D1 or better by November 29th.
6/20/2023	6/30/2023	After 2 months of relatively dry conditions portions of Missouri were brought into severe drought conditions. According to the Advanced Hydrologic Precipitation Service page there was a deficit of 2-5 inches across May and June which led to the declaration and maintenance of severe drought.

7/1/2023	7/31/2023	After another relatively dry month across the area central and northern Missouri saw generally deteriorating drought conditions. By the middle to end of the month almost the entire area was covered in D3 extreme drought conditions.
8/1/2023	8/31/2023	Severe drought (D2) improved to moderate drought (D1) by mid-August.
9/1/2023	9/30/2023	Severe drought impacted most of Carroll County in September 2023.

Source: NCEI Database

Figure 3.34. Percent of Carroll County in Drought 2000-2025



Probability of Future Occurrence

To determine the frequency of previous droughts in Carroll County the data was taken from the US Drought Monitor website. The following table is a breakdown of the frequency and classifications of drought that Carroll County has had for the time frame of 7/3/2005 to 7/3/2025. This time frame encompasses 240 months in total, and this figure was used in the probability calculations. The following table provides a breakdown of the information that was gathered regarding Carroll County.

Table 3.47. Carroll County by Drought Classification 2005-2025 in Weeks & Months

Carroll County	D0	D1	D2	D3	D4
Weeks at this Designation	437	235	101	27	6
Months at this Designation	109.25	58.75	25.25	6.75	1.5

Source: US Drought Monitor

The following calculations use this data to determine the probability of Carroll County experiencing drought in any given year.

$$\textbf{Probability of D0 Drought} = \frac{109.25}{240} = 45.5\% \textbf{ Chance of D0}$$

$$\textbf{Probability of D1 Drought} = \frac{58.75}{240} = 24.4\% \textit{ Chance of D1}$$

$$\textbf{Probability of D2 Drought} = \frac{25.25}{240} = 10.5\% \textbf{ Chance of D2}$$

$$\textbf{Probability of D3 Drought} = \frac{6.75}{240} = 2.8\% \textbf{ Chance of D3}$$

$$\textbf{Probability of D4 Drought} = \frac{1.5}{240} = 0.6\% \textbf{ Chance of D4}$$

The probability of Carroll County experiencing some type of drought is very likely. Due to the likelihood of some type of drought, Carroll County should plan for the occurrence of drought and take steps to lessen the severity with measures intended to conserve water usage.

Vulnerability

Vulnerability Overview

The following table contains the data for crop loss claims due to drought that have been paid in Carroll County from 2013 to 2024.

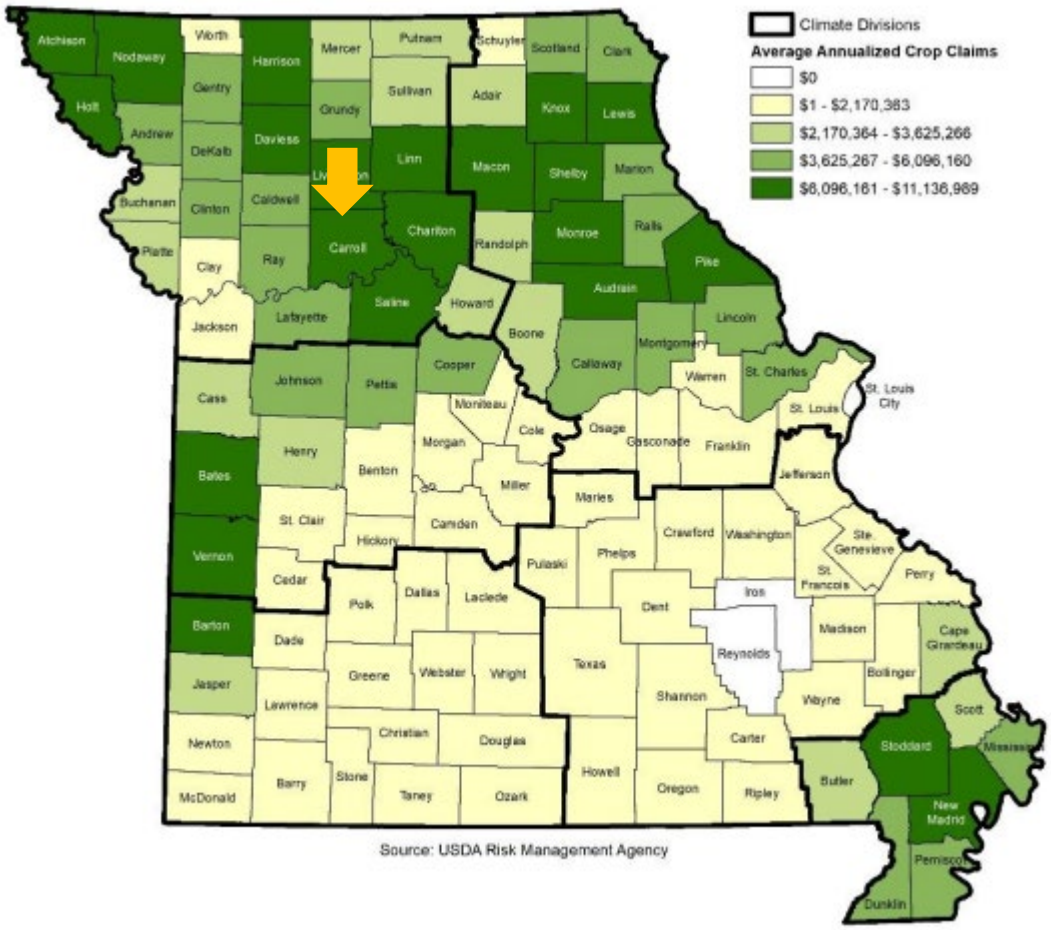
Table 3.48. Crop Loss Data for Carroll County (2014-1015)

CROP YEAR	CROP LOSS	CAUSE OF LOSS	INSURANCE PAID ($)
2014	Wheat	Drought	$6,377.70
	Soybeans		$87,350.00
2015	Wheat	Drought	$4,060.00
	Soybeans		$148,648.56
2016	Corn	Drought	$30,065.00
	Soybeans		$7,134.00.
2017	Wheat	Drought	$7,152.00
	Corn		$42,596.00
	Soybeans		$28,467.00
2018	Corn	Drought	$2,674,940.96
	Grain Sorghum		$2,592.00
	Soybeans		$714,138.75
	Wheat		$7,149.11
2019		**- No Claims -**	
2020	Corn	Drought	$13,156.00
	Soybeans		$109,715.75
2021	Corn	Drought	$62,221.00
	Soybeans		$128,108.50
2022	Wheat	Drought	$1,239.00
	Corn		$122,570.00
	Soybeans		$818,707.00

2023	Wheat	Drought	$16,011.38
	Corn		$1,251,749.00
	Soybeans		$248,364.00
2024	Wheat	Drought	$3,477.50
	Corn		$35,223.00
	Grain Sorghum		$5,249.00
	Soybeans		$169,368.00
Total			**$6,745,830.21**

Source: USDA Risk Management Data

Figure 3.35. Annualized Drought Crop Insurance Claims Paid 2013-2021



Source: 2023 Missouri State Hazard Mitigation Plan

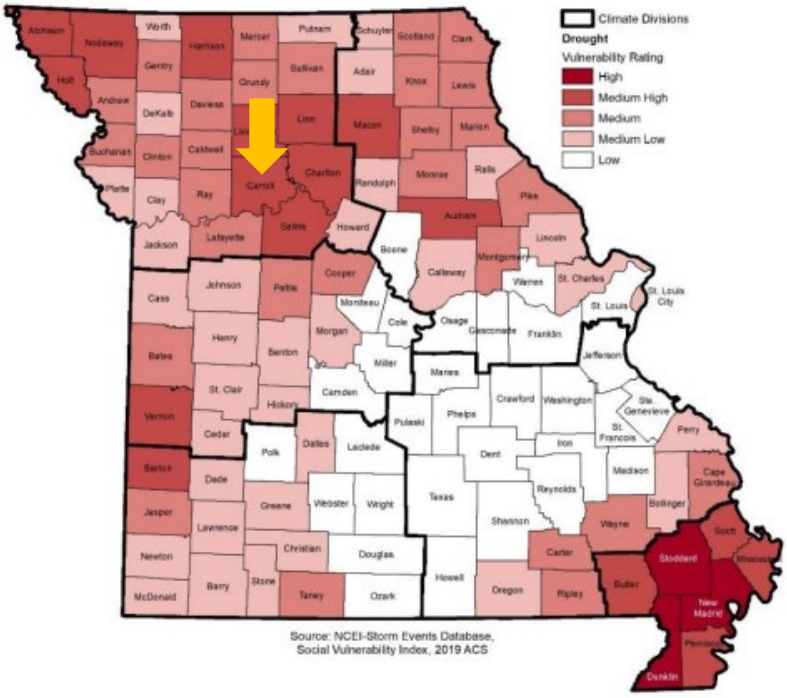
The 2023 Missouri State Hazard Mitigation Plan considered the factors in the following table to determine Carroll County's vulnerability to drought. Carroll County has an overall rating of 14 which is considered Medium High.

Table 3.49. Vulnerability of Carroll County to Drought

Factor Considered to Determine Vulnerability	
SOVI Index Rating	3
USDA RMA Total Drought Crop Claims	$89,406,894
Average Annualized Crop Claims	$8,940,689
USDA Claims Rating	5
2017 Crop Exposure	$126,502,000
Crop Exposure Rating	4
Likelihood of Severe Drought	0.46
Drought Occurrence Rating	2
Total Rating	14
Total Rating (text) to Drought	Medium High

Source: 2023 Missouri State Hazard Mitigation Plan

Figure 3.36. Drought Vulnerability in Carroll County



Source: 2023 Missouri State Hazard Mitigation Plan

As per the previous Figure, Carroll County in Missouri has a Medium-High Drought Vulnerability Rating per the 2023 State Hazard Mitigation Plan. The method used to determine vulnerability to drought across Missouri was a statistical analysis of data from several sources: USDA Risk Management Agency's insured crop losses as a result of drought (2021-2022), USDA crop exposure by county, the calculated Social Vulnerability Index for Missouri Counties from the Hazards and Vulnerability Research Institute in the Department of Geography at the University of South Carolins, and storm events data (1996-December 31, 2021) and probability of severe drought based on historic Palmer Drought Severity Index. The USDA crop exposure by county is from the 2017 Agricultural Census and assumes that the larger the exposure, the greater potential

for loss and impact on the local economy.

From the statistical data collected, four factors were considered in determining overall vulnerability to drought as follows: social vulnerability, crop exposure ratio, annualized crop claims paid, and likelihood of occurrence. Based on natural breaks in the statistical data, a rating value of 1 through 5 was assigned to each factor. Once the ranges were determined and applied to all factors considered in the analysis, the ratings were combined to determine an overall vulnerability rating for drought. These rating values correspond to the following descriptive terms:

1. Low
2. Medium-low
3. Medium
4. Medium-High
5. High

The following table utilizes these factors in determining the vulnerability rating of Carroll County to drought, according to the 2023 Missouri Hazard Mitigation Plan.

Table 3.50. Vulnerability of Carroll County to Drought

SOVI Index Rating	USDA RMA Total Drought Crop Claims	Average Annualized Crop Claims	USDA Claims Rating	2017 Crop Exposure	Crop Exposure Rating	Likelihood of Severe Drought	Drought Occurrence	Total Rating	Total Rating (text) Drought
3	$89,406,894	$8,940,689	5	$126,502,000	4	0.46	2	14	Medium High

Source: 2023 Missouri State Hazard Mitigation Plan

Potential Losses to Existing Development

The National Drought Monitor Center at the University of Nebraska at Lincoln summarized the potential impacts of drought as follows: Drought can create economic impacts on agriculture and related sectors, including forestry and fisheries, because of the reliance of these sectors on surface and subsurface water supplies. In addition to losses in yields in crop and livestock production, drought is associated with increases in insect infestations, plant disease, and wind erosion. Droughts also bring increased problems with insects and disease to forests and reduce growth. The incidence of forest and range fires increases substantially during extended droughts, which in turn place both human and wildlife populations at higher levels of risk. Income loss is another indicator used in assessing the impacts of drought because so many sectors are affected. Finally, while drought is rarely a direct cause of death, the associated heat, dust and stress can all contribute to increased mortality.

Although it is difficult to quantify many of the potential losses that may occur due to drought, agriculture losses are direct economic costs that can be easily quantified by examining previous insurance claims in the county. Carroll County's exposure is medium high with the majority of the land area in use for agricultural purposes. Over the past 20 years Carroll County has experienced an average of $613,257.29 annually in crop loss claims due to drought conditions.

Impact of Previous and Future Development

Increases in acreage planted with crops would increase the exposure to drought-related agricultural losses. In addition, increases in population impose additional strains on water supply systems to meet the growing demand for treated water, and these strains could prove impactful during times of drought.

Changing Future Conditions Considerations

Although drought is not predictable, long-range outlooks and predicted impacts of climate change could indicate an increased chance of drought. With an increase in annual temperatures due to a changing climate, droughts are more likely to occur through higher evaporation rates. With the likelihood of wetter springs there is an increased chance of dryer summers. The dryness is likely to reduce the river flow and may lead to a shortage of agricultural water availability. This has a large effect on the farm-dependent community.

A new analysis, performed for the Natural Resources Defense Council, examined the effects of climate change on water supply and demand in the contiguous United States. The study found that more than 1,100 counties will face higher risks of water shortages by mid-century as a result of climate change. Two of the principal reasons for the projected water constraints are shifts in precipitation and potential evapotranspiration (PET). Climate models project decreases in precipitation in many regions of the US, including areas that may currently be described as experiencing water shortages of some degree. This study shows a moderate risk of water shortages in 2050 for Carroll County with the effects of climate change.

Hazard Summary by Jurisdiction

Drought has the potential to impact all of Carroll County, except for the school districts. But the ways in which the impacts will be experienced vary. As discussed in the previous occurrences and vulnerability sections, most of the damage seen historically as a result of drought in Carroll County affect agriculture. Therefore, the magnitude of the impacts of drought may be greater in rural parts of the county, which have large areas of crops and wildlife. In areas with greater building density, there is more exposure to potential shrinking and expanding soil problems around foundations as a result of drought. If drought conditions are severe and prolonged, water supplies could also be affected.

Problem Statement

Carroll County and participating jurisdictions have a high level of crop exposure. Possible solutions include encouraging farmers to purchase crop insurance and educating farmers on drought-resistant farming practices.

Carroll County and the participating jurisdiction’s water supply could be impacted by severe or prolonged drought. Possible solutions include the development of agreements with neighboring communities for a secondary water source and review of local ordinance/regulation for inclusion of water-use restrictions during periods of drought.

3.4.6 Extreme Temperatures

Hazard Profile

Hazard Description

Extreme temperature events, both hot and cold, can impact human health and mortality, natural ecosystems, agriculture and other economic sectors. According to information provided by FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Ambient air temperature is one component of heat conditions, with relative humidity being the other. The relationship of these factors creates what is known as the apparent temperature. The Heat Index chart shown in Figure 3.37 uses both of these factors to produce a guide for the apparent temperature or relative intensity of heat conditions.

Extreme cold often accompanies severe winter storms and can lead to hypothermia and frostbite in people without adequate clothing protection. Cold can cause fuel to congeal in storage tanks and supply lines, stopping electric generators. Cold temperatures can also overpower a building's heating system and cause water and sewer pipes to freeze and rupture. Extreme cold also increases the likelihood for ice jams on flat rivers or streams. When combined with high winds from winter storms, extreme cold becomes extreme wind chill, which is hazardous to health and safety.

The National Institute on Aging estimates that more than 2.5 million Americans are elderly and especially vulnerable to hypothermia, with the isolated elders being most at risk. About 10 percent of people over the age of 65 have some kind of bodily temperature-regulating defect, and 3-4 percent of all hospital patients over 65 are hypothermic.

Also at risk, are those without shelter, those who are stranded, or who live in a home that is poorly insulated or without heat. Other impacts of extreme cold include asphyxiation (unconsciousness or death from a lack of oxygen) from toxic fumes from emergency heaters; household fires, which can be caused by fireplaces and emergency heaters; and frozen/burst pipes.

Geographic Location

Location within the county is not a factor when facing an extreme temperature event. Rather, they are area wide events. The entire planning area is subject to extreme temperatures and the risk of this hazard does not vary across jurisdictions.

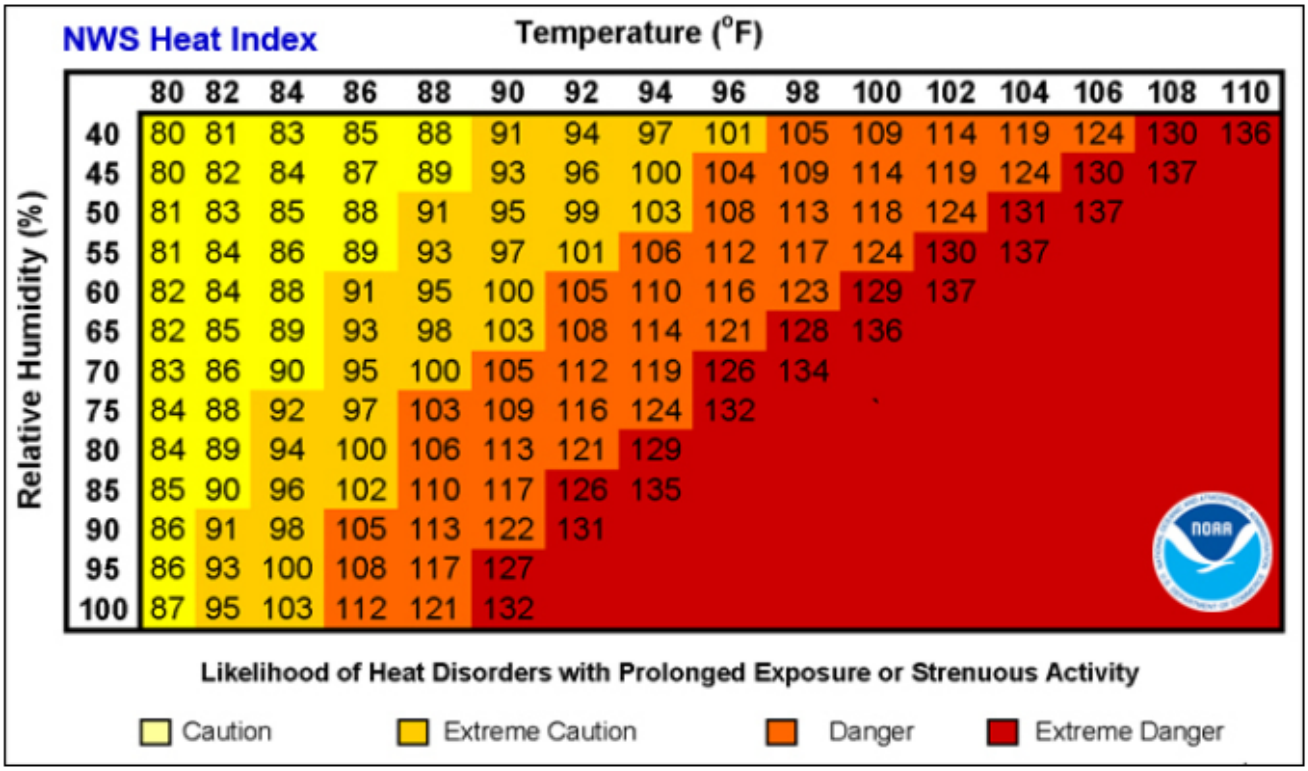
However, there are additional factors to consider when there is an extreme heat event. Specific climatic factors, such as temperature and humidity, along with wind and sun/shade determine the effects of this hazard. An individual's physical condition has a profound effect on their ability to deal with the effects of excessive heat. Illness or heavy exercise adds to the metabolic heat that the body must dissipate. Age is also a contributing factor. The accessibility of air-conditioned shelters is important to those falling into at-risk groups.

Strength/Magnitude/Extent

The National Weather Service (NWS) has an alert system in place (advisories or warnings) when the Heat Index is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. A common guideline for issuing excessive heat alerts is when for two or more consecutive days: (1) when the maximum daytime Heat

Index is expected to equal or exceed 105 degrees Fahrenheit (°F); and the night time minimum Heat Index is 80°F or above. A heat advisory is issued when temperatures reach 105 degrees and a warning is issued at 115 degrees.

Figure 3.37. Heat Index (HI) Chart



Source: National Weather Service (NWS); https://www.weather.gov/safety/heat-index
Note: Exposure to direct sun can increase Heat Index values by as much as 15°F. The shaded zone above 105°F corresponds to a HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

The NWS Wind Chill Temperature (WCT) 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 figure below presents wind chill temperatures which are based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature.

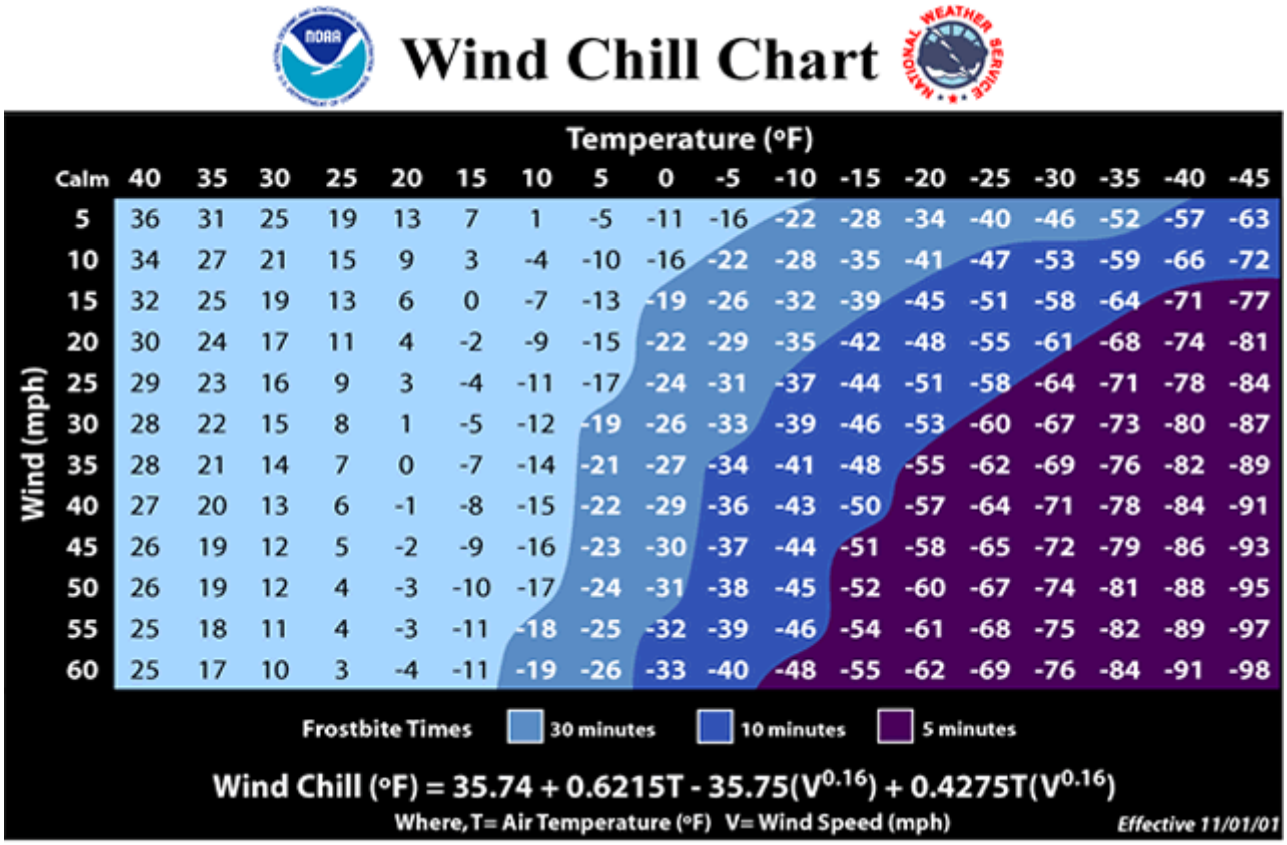
The National Weather Service issues the following wind chill products as conditions warrant across the State of Missouri. NWS local offices in Missouri may collaborate with local partners to determine when an alert should be issued for a local area. The planning area is vulnerable to all of these warnings if the temperature drops low enough.

- Wind Chill Warning: NWS issues a wind chill warning when dangerously cold wind chill values are expected or occurring. If you are in an area with a wind chill warning, avoid going outside during the coldest parts of the day. If you do go outside, dress in layers, cover exposed skin, and make sure at least one other person knows your whereabouts. Update them when you arrive safely at your destination.
- Wind Chill Watch: NWS issues a wind chill watch when dangerously cold wind chill values are possible. As with a warning, adjust your plans to avoid being outside during the coldest parts of the day. Make sure your car has at least a half a tank of gas and update your winter survival kit.
- Wind Chill Advisory: NWS issues a wind chill advisory when seasonably cold wind chill

values, but not extremely cold values are expected or occurring. Be sure you and your loved ones dress appropriately and cover exposed skin when venturing outdoors.

- Hard Freeze Warning: NWS issues a hard freeze warning when temperatures are expected to drop below 28°F for an extended period of time, killing most types of commercial crops and residential plants.
- Freeze Warning: When temperatures are forecasted to go below 32°F for a long period of time, NWS issues a freeze warning. This temperature threshold kills some types of commercial crops and residential plants.
- Freeze Watch: NWS issues a freeze watch when there is a potential for significant, widespread freezing temperatures within the next 24-36 hours. A freeze watch is issued in the autumn until the end of the growing season and in the spring at the start of the growing season.
- Frost Advisory: A frost advisory means areas of frost are expected or occurring, posing a threat to sensitive vegetation.

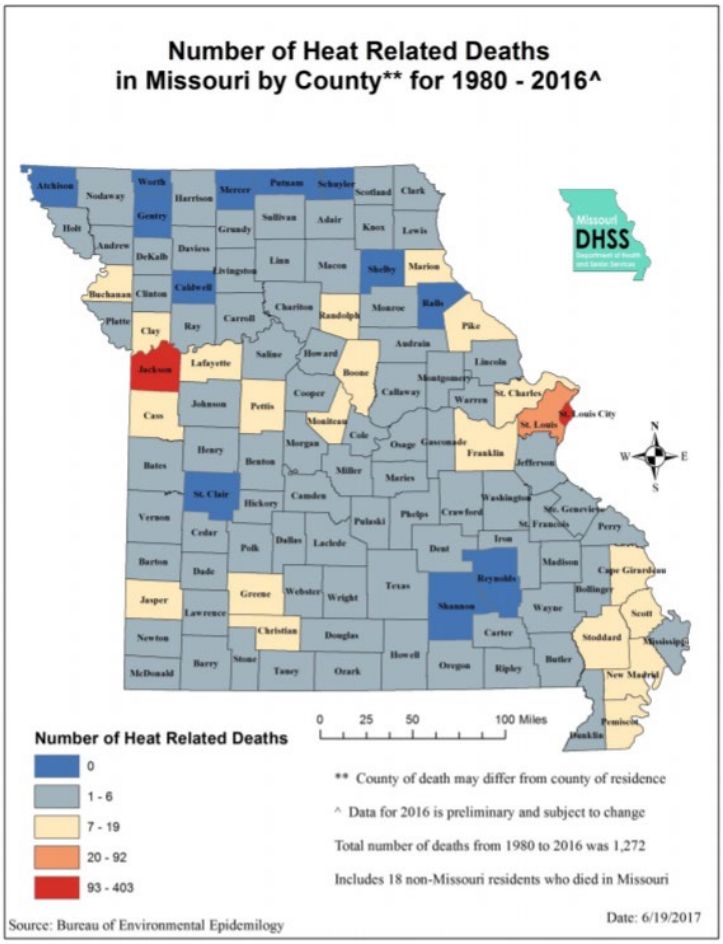
Figure 3.38. Wind Chill Chart



Source: https://www.weather.gov/safety/cold-wind-chill-chart

Previous Occurrences

Figure 3.39. Heat Related Deaths in Missouri 2000 - 2016



Source: https://health.mo.gov/living/healthcondiseases/hyperthermia/pdf/stat-report.pdf

Table 3.51. Crop Insurance Claims Paid in Carroll County Due to Extreme Cold 2014-2024

Year	Crop Name	Cause of Loss	Insurance Paid ($)
2014	Wheat	Cold Winter	$37,774.30
2015	No Claims		$0
2016	Soybeans	Cold Winter	$1,609
2017	No Claims		$0
2018	Wheat	Cold Winter	$3,508
2019	Wheat	Cold Winter	$687.96
2020	No Claims		$0
2021	Soybeans	Cold Winter	$1,068.50
2022	No Claims		$0
2023	No Claims		$0
2024	Wheat	Cold Winter	$3,477.50
Total			**$48,125.26**

Table 3.52. Crop Insurance Claims Paid in Carroll County Due to Extreme Heat 2014-2024

Year	Crop Name	Cause of Loss	Insurance Paid ($)
2014	No Claims		$0
2015	No Claims		$0
2016	No Claims		$0

2017	No Claims		$0
2018	Soybeans	Heat	$443
2019	No Claims		
2020	Soybeans	Heat	$7,397
2021	No Claims		$0
2022	Soybeans	Heat	-$5,537
2023	Corn	Heat	$6,638
	Soybeans		$12,512
2024	No Claims		$0
Total			**$21,453**

Extreme heat can cause stress to crops and animals. According to USDA Risk Management Agency, losses to insurable crops during the 10-year time period from 2004 to 2024 were $21,453. Extreme heat can also strain electricity delivery infrastructure overloaded during peak use of air conditioning during extreme heat events. Another type of infrastructure damage from extreme heat is road damage. When asphalt is exposed to prolonged extreme heat, it can cause buckling of asphalt-paved roads, driveways, and parking lots.

According to the USDA Risk Management Agency, losses to insurable crops due to Cold Winter were $48,125.26 between 2004 and 2024.

From 1988-2011, there were 3,496 fatalities in the U.S. attributed to summer heat. This translates to an annual national average of 146 deaths. During the same period, 0 deaths were recorded in the planning area, according to NCEI data. The National Weather Service stated that among natural hazards, no other natural disaster—not lightning, hurricanes, tornadoes, floods, or earthquakes—causes more deaths.

Table 3.53. Extreme Cold/Wind Chill Events for Carroll County (2004-2024)

Begin Date	Event Narrative
2/14/2021	In the first night of bitter cold across the area, temperatures dropped well below zero and with winds around 10-20 mph wind chills overnight going into Sunday morning dropped to around 20 to 30 below.
2/15/2021	In the second night of bitter cold across the area, temperatures dropped well below zero and with winds around 10-20 mph wind chills overnight going into Monday morning dropped to around 20 to 30 below.
2/16/2021	In the third night of bitter cold across the area, temperatures dropped well below zero and with winds around 10-20 mph wind chills overnight going into Sunday morning dropped to around 20 to 30 below.
12/22/2022	An arctic air mass sent temperatures below zero along with strong winds. Minimum wind chills across the region generally range from -30 to -40 degrees between roughly 10 am on 12/22 to noon on 12/23.
2/18/2025	The ASOS at Chillicothe reported wind chills between -15 and -20 between 1 am and 11 am on Feb 18th, with temperatures between 0 and -1 degrees. Wind chills once again dropped to between -14 and -20 degrees between 11 pm on Feb 19 and 9 am on Feb 20th, with temperatures dropping to -7. Wind chills were below zero the entire time between midnight at Feb 18th around noon on Feb 20th.

Source: NCEI Database

Table 3.54. Extreme Heat Events for Carroll County (2004-2024)

Begin Date	Episode Narrative
8/6/2007	An upper-level ridge of high pressure persisted across the area from August 6th through August 17th. The combination of heat and humidity produced heat index readings in the 105-to-115-degree range.

7/18/2012	An unusually strong upper-level ridge of high pressure dominated the central United States with very hot and dry conditions, from July 18th through 25th 2012. Temperatures topped out from 100 to 110 degrees.
7/18/2012	An unusually strong upper-level ridge of high pressure dominated the central United States with very hot and dry conditions, from July 18th through 25th 2012. Temperatures topped out from 100 to 110 degrees.

Source: NCEI Database

Probability of Future Occurrence

NCEI, dating from 2004 to April of 2025, indicates a total of 3 events related to extreme heat and 5 events related to extreme cold. Based on this historical data, the calculated probability of an event is as follows:

Probability of an Extreme Heat Event:

$$\boldsymbol{Probability} = \frac{\boldsymbol{\#\ of\ events}}{\boldsymbol{Years}} = \frac{3}{\boldsymbol{20}} = \boldsymbol{15}\%$$

Carroll County has a 15% chance of experiencing an extreme heat event in any given year. It is worth noting that there are data limitations in determining the probability of an extreme heat event due to the fact that extreme heat events could be underreported in the NCEI.

Probability of an Extreme Cold Event:

$$\boldsymbol{Probability} = \frac{\boldsymbol{\#\ of\ events}}{\boldsymbol{Years}} = \frac{\boldsymbol{5}}{\boldsymbol{20}} = \boldsymbol{25}\%$$

Carroll County has a 25% chance of experiencing an extreme cold event in any given year.

Changing Future Conditions Considerations

By the end of the century, the temperatures are projected to continue to increase. The best-case scenario, with lower greenhouse gas emissions, temperatures are expected to exceed historic levels by the middle of the 21st century. If greenhouse gas emissions are not curbed, historically unprecedented warming is projected by the end of the century. Due to the change in climate, it is projected that by the middle of the 21st century, record breaking heat is likely to occur on a regular basis. This will lead to a higher frequency of heat waves.

The impacts of extreme temperatures are experienced more acutely by the elderly and other vulnerable populations. High temperatures are often higher in urban areas, of which Carroll County has none. There is a higher demand for electricity as people try and keep cool. This increased demand adds a strain to electricity providers and could potentially lead to an increase in the number of power outages.

Additionally, air quality and water quality can be adversely affected by an increase in temperatures. Carroll County is mostly agricultural, and the strain placed on crops and livestock could increase along with the temperature.

Vulnerability

Vulnerability Overview

Those at greatest risk for heat-related illness include infants and children up to five years of age, people 65 years of age and older, people who are overweight, and people who are ill or on certain medications. However, even young and healthy individuals are susceptible if they participate in strenuous physical activities during hot weather. In agricultural areas, the exposure of farm workers, as well as livestock, to extreme temperatures is a major concern.

Table 3.5555 lists typical symptoms and health impacts due to exposure to extreme heat.

Table 3.55. Typical Health Impacts of Extreme Heat

Heat Index (HI)	Disorder
80-90° F (HI)	Fatigue possible with prolonged exposure and/or physical activity
90-105° F (HI)	Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and/or physical activity
105-130° F (HI)	Heatstroke/sunstroke highly likely with continued exposure

Source: National Weather Service Heat Index Program, www.weather.gov/os/heat/index.shtml

The National Institute on Aging estimates that more than 49 million Americans over the age of 65 are particularly vulnerable to hypothermia, with isolated elders being most at risk. For an older person, a body temperature of 95° or lower can cause many health problems, such as heart attack, kidney problems, liver damage or worse.

Also at risk are those without shelter, those who are stranded, and those who live in a home that is poorly insulated or without heat. Other impacts of extreme cold include asphyxiation (unconsciousness or death from a lack of oxygen) from toxic fumes from emergency heaters; household fires, which can be caused by fireplaces and emergency heaters; and frozen/burst pipes.

Extreme heat and extreme cold events are common occurrences in Missouri. The method used to determine vulnerability to extreme temperatures across Missouri was statistical analysis of data from several sources: National Centers for Environmental Information (NCEI) storm events data (1996 to December 31, 2021), total population and percentage of population over 65 data from the U.S. Census (2019), and the calculated Social Vulnerability Index for Missouri counties from the Hazards and Vulnerability Research Institute in the Department of Geography at the University of South Carolina.

From the statistical data collected, four factors were considered in determining overall vulnerability to extreme temperatures as follows: total population, percentage of population over 65, likelihood of occurrence, and social vulnerability. Based on natural breaks in the statistical data, a rating value of 1 through 5 was assigned to each factor. Once the individual ratings were determined for the above factors, a combined vulnerability rating was computed for extreme heat and extreme cold. These rating values correspond to the following descriptive terms:

1) Low
2) Medium-Low
3) Medium
4) Medium-High
5) High

Table 3.56. Likelihood of Occurrence and Overall Vulnerability Rating for Extreme Temperatures

Heat	Cold

Total Events	Likelihood of Occurrence	Likelihood Rating	Total Vulnerability	Total Vulnerability Description	Total Events	Likelihood of Occurrence	Likelihood Rating	Total Vulnerability	Total Vulnerability Description
17	0.65	1	9	Medium	6	0.24	2	10	Medium High

Source: 2023 Missouri State Hazard Mitigation Plan

Potential Losses to Existing Development

During extreme heat events structural, road, and electrical infrastructure are vulnerable to damages. Depending upon temperatures and the duration of extreme temperature losses will vary.

In the years from 2014-2024 Carroll County suffered a total of $69,578.26 in crop losses due to extreme temperatures. This would equal approximately $6,957.83 in claims for crop loss each year in Carroll County.

Impact of Previous and Future Development

Population growth can result in increases in the age groups that are most vulnerable to extreme heat. Population growth also increases the strain on electricity infrastructure, as more electricity is needed to accommodate the growing population.

Hazard Summary by Jurisdiction

There is no variation in vulnerability due to location or jurisdiction within the planning area. Rather, those at greatest risk for heat-related illness and deaths include children up to five years of age, people 65 years of age and older, people who are overweight, and people who are ill or on certain medications. To determine jurisdictions within the planning area with populations more vulnerable to extreme heat, demographic data was obtained from the 2010 census on population percentages in each jurisdiction comprised of those under age 5 and over age 65. Data was not available for overweight individuals and those on medications vulnerable to extreme heat. **Table 3.5757** below summarizes vulnerable populations in the participating jurisdictions. Note that school and special districts are not included in the table because students and those working for the special districts are not customarily in these age groups.

Table 3.57. Carroll Population Under Age 5 and Over Age 65, 2023 Census Data

Jurisdiction	Population Under 5	% Population Under 5	Population 65 and over	% Population 65 and over
Carroll County	462	5.4%	1979	23.3%
City of Bogard	9	5.4%	43	25.7%
City of Bosworth	15	7.0%	31	14.6%
Carrollton	183	5.2%	831	23.6%
City of De Witt	4	4.8%	21	25.3%

City of Hale	18	4.8%	75	20.0%
City of Norborne	38	6.0%	128	20.2%
Village of Tina	8	5.8%	24	17.3%

Source: U.S. Census Bureau, Profile of General Population and Housing Characteristics (DP1)

Problem Statement

Extreme heat could lead to increased use of water increasing stress on the public water supply systems, as well as increasing the risk to the health of residents who lack proper cooling systems. Heat will also increase demand for electricity and could lead to possible power outages. Extreme cold will cause schools to alter class times and in some cases suspend classes all together, cold temperatures may also lead to frozen pipes and increases in electric demand.

3.4.7 Severe Thunderstorms Including High Winds, Hail, and Lightning

Hazard Profile

Hazard Description

Thunderstorms

A thunderstorm is defined as a storm that contains lightning and thunder which is caused by unstable atmospheric conditions. When cold upper air sinks and warm moist air rises, storm clouds or 'thunderheads' develop resulting in thunderstorms. This can occur singularly, as well as in clusters or lines. The National Weather Service defines a thunderstorm as "severe" if it includes hail that is one inch or more, or wind gusts that are at 58 miles per hour or higher. At any given moment across the world, there are about 1,800 thunderstorms occurring. Severe thunderstorms most often occur in Missouri in the spring and summer, during the afternoon and evenings, but can occur at any time. Other hazards associated with thunderstorms are heavy rains resulting in flooding (discussed separately in **Section 3.**41) and tornadoes (discussed separately in **Section 3.**49).

High Winds

A severe thunderstorm can produce winds causing as much damage as a weak tornado. The damaging winds of thunderstorms include downbursts, microbursts, and straight-line winds. Downbursts are localized currents of air blasting down from a thunderstorm, which induce an outward burst of damaging wind on or near the ground. Microbursts are minimized downbursts covering an area of less than 2.5 miles across. They include a strong wind shear (a rapid change in the direction of wind over a short distance) near the surface. Microbursts may or may not include precipitation and can produce winds at speeds of more than 150 miles per hour. Damaging straight-line winds are high winds across a wide area that can reach speeds of 140 miles per hour.

Lightning

All thunderstorms produce lightning which can strike outside of the area where it is raining and is has been known to fall more than 10 miles away from the rainfall area. Thunder is simply the sound that lightning makes. Lightning is a huge discharge of electricity that shoots through the air causing vibrations and creating the sound of thunder.

Hail

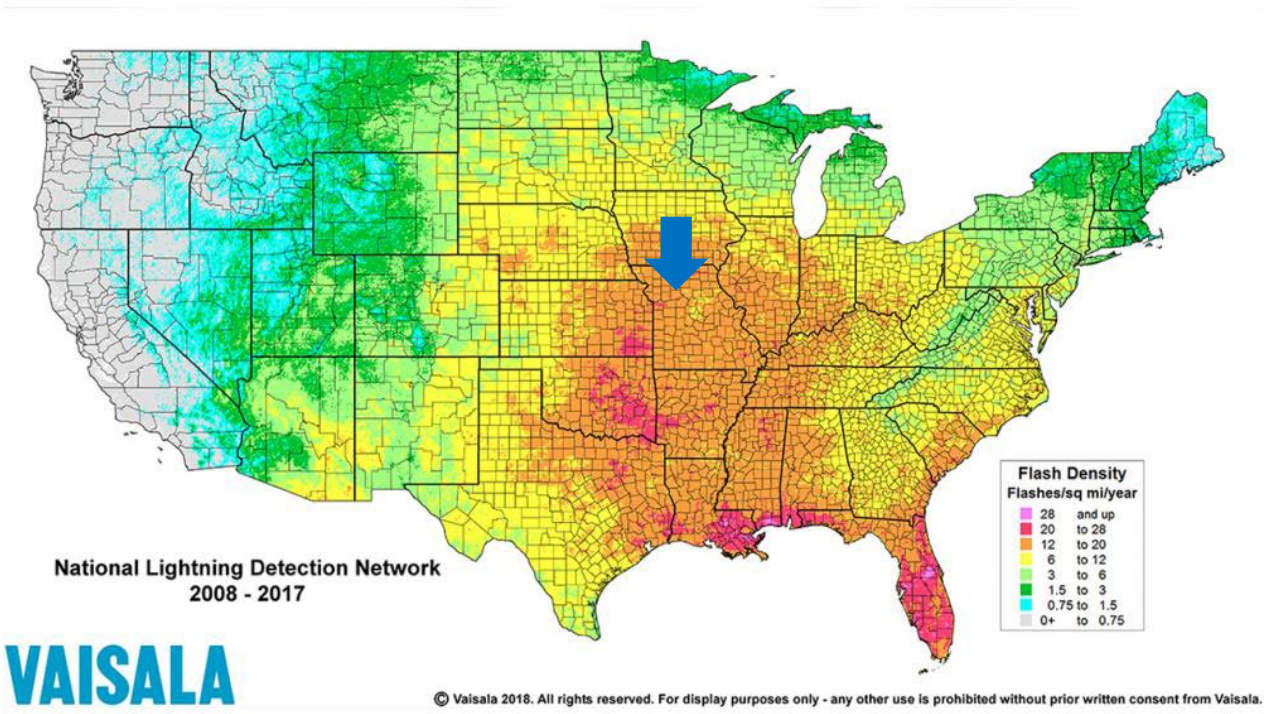
According to the National Oceanic and Atmospheric Administration (NOAA), hail is precipitation that is formed when thunderstorm updrafts carry raindrops upward into extremely cold atmosphere causing them to freeze. The raindrops form into small frozen droplets. They continue to grow as they come into contact with super-cooled water which will freeze on contact with the frozen rain droplet. This frozen droplet can continue to grow and form hail. As long as the updraft forces can support or suspend the weight of the hailstone, hail can continue to grow before it hits the earth.

At the time when the updraft can no longer support the hailstone, it will fall down to the earth. For example, a ¼" diameter or pea sized hail requires updrafts of 24 miles per hour, while a 2 ¾" diameter or baseball sized hail requires an updraft of 81 miles per hour. According to the NOAA, the largest hailstone in diameter recorded in the United States was found in Vivian, South Dakota on July 23, 2010. It was eight inches in diameter, almost the size of a soccer ball. Soccer-ball-sized hail is the exception, but even small pea-sized hail can do damage.

Geographic Location

Thunderstorms/high winds/hail/lightning events are an area-wide hazard that can happen anywhere in the county. Although these events occur similarly throughout the planning area, they are more frequently reported in more urbanized areas. In addition, damages are more likely to occur in more densely developed urban areas. The majority of Carroll County is rural. According to the following table, the flash density of lightning in Carroll County is categorized as 12 to 20 flashes/square mile/year.

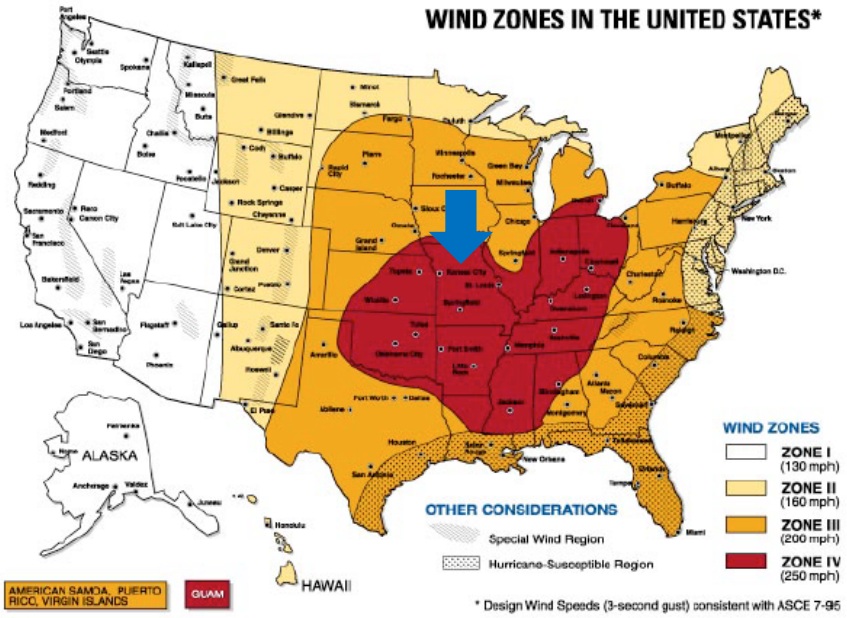
Figure 3.40. Location and Frequency of Lightning in Missouri



Source: National Weather Service, http://www.vaisala.com/en/products/thunderstormandlightningdetectionsystems/Pages/NLDN.aspx . Note: indicate location of planning area with a colored square or arrow.

Carroll County, indicated with an arrow in the following figure, is entirely within Zone 4. This information indicates that Carroll County could sustain wind speeds of up to 250 miles per hour.

Figure 3.41. Wind Zones in the United States



Source: FEMA 320, Taking Shelter from the Storm, 3rd edition, https://www.fema.gov/pdf/library/ism2_s1.pdf

Strength/Magnitude/Extent

Based on information provided by the Tornado and Storm Research Organization (TORRO), **Table 3.5858** below describes typical damage impacts of the various sizes of hail.

Table 3.58. Tornado and Storm Research Organization Hailstorm Intensity Scale

Intensity Category	Diameter (mm)	Diameter (inches)	Size Description	Typical Damage Impacts
Hard Hail	5-9	0.2-0.4	Pea	No damage
Potentially Damaging	10-15	0.4-0.6	Mothball	Slight general damage to plants, crops
Significant	16-20	0.6-0.8	Marble, grape	Significant damage to fruit, crops, vegetation
Severe	21-30	0.8-1.2	Walnut	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
Severe	31-40	1.2-1.6	Pigeon's egg > squash ball	Widespread glass damage, vehicle bodywork damage
Destructive	41-50	1.6-2.0	Golf ball > Pullet's egg	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
Destructive	51-60	2.0-2.4	Hen's egg	Bodywork of grounded aircraft dented, brick walls pitted
Destructive	61-75	2.4-3.0	Tennis ball > cricket ball	Severe roof damage, risk of serious injuries
Destructive	76-90	3.0-3.5	Large orange > Soft ball	Severe damage to aircraft bodywork
Super Hailstorms	91-100	3.6-3.9	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
Super Hailstorms	>100	4.0+	Melon	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Source: Tornado and Storm Research Organization (TORRO), Department of Geography, Oxford Brookes University
Notes: In addition to hail diameter, factors including number and density of hailstones, hail fall speed and surface wind speeds affect severity. http://www.torro.org.uk/site/hscale.php

Straight-line winds are defined as any thunderstorm wind that is not associated with rotation (i.e., is not a tornado). It is these winds, which can exceed 100 miles per hour, which represent the most common type of severe weather. They are responsible for most wind damage related to thunderstorms. Since thunderstorms do not have narrow tracks like tornadoes, the associated wind damage can be extensive and affect entire (and multiple) counties. Objects like trees, barns, outbuildings, high-profile vehicles, and power lines/poles can be toppled or destroyed, and roofs, windows, and homes can be damaged as wind speeds increase.

The onset of thunderstorms with lightning, high wind, and hail is generally rapid. Duration is less than six hours and warning time is generally six to twelve hours. Nationwide, lightning kills 75 to 100 people each year. Lightning strikes can also start structural and wildland fires, as well as damage electrical systems and equipment.

Previous Occurrences

Limitations to the use of NCEI reported lightning events include the fact that only lightning events that result in fatality, injury and/or property and crop damage are in the NCEI.

The tables below summarize past crop damages as indicated by crop insurance claims. The tables illustrate the magnitude of the impact on the planning area's agricultural economy.

The economy in Carroll County is largely agricultural in nature. The following crop insurance claims paid due to the hazards associated with severe storms, specifically hail, have had a significant impact on the planning area between 2014 and 2024.

Table 3.59. Crop Insurance Claims Paid in Carroll County from Thunderstorms, (2014-2024).

Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2014	No Claims		$0
2015			$0
2016			$0
2017			$0
2018			$0
2019			$0
2020			$0
2021			$0
2022			$0
2023			$0
2024			$0

Source: USDA Risk Management Agency, Insurance Claims, https://www.rma.usda.gov/data/cause

Table 3.60. Crop Insurance Claims Paid in Carroll County from High Winds, [2014-2024]

Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2014	No Claims		$0
2015	Soybeans	Wind/Excess Wind	$35,929
2016	Corn	Wind/Excess Wind	$4,413.20
2017	No Claims		$0
2018			$0
2019			$0
2020	Soybeans	Wind/Excess Wind	$1,376
2021			$0

2022	No Claims	$0
2023		$0
2024		$0
Total		$41,718.20

Source: USDA Risk Management Agency, Insurance Claims, https://www.rma.usda.gov/data/cause

Table 3.61. Crop Insurance Claims Paid in Carroll County from Lightning, [2014-2024].

Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2014	No Claims		$0
2015	Corn	Lightning	$70,579
2016	No Claims		$0
2017			$0
2018			$0
2019			$0
2020			$0
2021			$0
2022			$0
2023			$0
2024			$0
Total			$70,579

USDA Risk Management Agency, Insurance Claims, https://www.rma.usda.gov/data/cause

Table 3.62. Crop Insurance Claims Paid in Carroll County from Hail, [2014-2024].

Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2014	No Claims		$0
2015			$0
2016	Soybeans	Hail	$2,481.80
2017	No Claims		$0
2018			$0
2019			$0
2020	Corn	Hail	$36,079
	Soybeans		$260,739
2021	No Claims		$0
2022			$0
2023			$0
2024			$0
Total			$299,299.80

USDA Risk Management Agency, Insurance Claims, https://www.rma.usda.gov/data/cause

Table 3.63. NCEI Reported Thunderstorm Events and Damages in Carroll County (2004-2025)

Date	Event Type	Magnitude	Deaths/Injuries	Property Damage	Crop Damage
7/13/2004	Hail	0.75	0	0	0
5/11/2005	Hail	2	0	0	0
5/11/2005	Hail	2	0	0	0
5/11/2005	Hail	1	0	0	0
5/11/2005	Hail	1	0	0	0

5/11/2005	Hail	1.75	0	0	0
7/3/2005	Thunderstorm Wind	52	0	0	0
8/19/2005	Thunderstorm Wind	61	0	0	0
3/12/2006	Thunderstorm Wind	52	0	1000	0
3/30/2006	Hail	1.5	0	0	0
4/18/2006	Hail	1.75	0	0	0
6/27/2006	Hail	0.75	0	0	0
7/13/2006	Thunderstorm Wind	52	0	1000	0
8/2/2006	Thunderstorm Wind	57	0	2000	0
8/25/2006	Thunderstorm Wind	52	0	0	0
2/24/2007	Hail	0.75	0	0	0
2/28/2007	Hail	0.75	0	0	0
2/28/2007	Hail	0.75	0	0	0
3/22/2007	Hail	1	0	0	0
3/22/2007	Hail	2	0	0	0
3/22/2007	Thunderstorm Wind	52	0	0	3000
6/7/2007	Thunderstorm Wind	70	0	0	0
6/7/2007	Hail	1	0	0	0
6/7/2007	Hail	1.75	0	0	0
6/7/2007	Hail	2.75	0	0	0
6/7/2007	Thunderstorm Wind	65	0	2000	0
6/7/2007	Hail	1.75	0	0	0
8/16/2007	Hail	0.75	0	0	0
10/18/2007	Hail	0.75	0	0	0
3/31/2008	High Wind	52	0	0	0
4/25/2008	Hail	0.75	0	0	0
5/30/2008	Hail	1	0	0	0
5/30/2008	Hail	2.5	0	0	0
5/30/2008	Hail	2	0	0	0
6/3/2008	Hail	1	0	0	0
6/3/2008	Hail	1	0	0	0
6/15/2008	Hail	0.75	0	0	0
6/15/2008	Hail	0.75	0	0	0
6/24/2008	Hail	0.75	0	0	0
6/27/2008	Hail	0.75	0	0	0
6/27/2008	Thunderstorm Wind	52	0	0	0
6/27/2008	Thunderstorm Wind	52	0	0	0
7/2/2008	Hail	2.75	0	0	0
7/2/2008	Hail	1.25	0	0	0

5/7/2009	Hail	2.75	0	0	0
5/13/2009	Hail	1.5	0	0	0
5/15/2009	Hail	1	0	0	0
5/15/2009	Hail	1	0	0	0
6/17/2009	Thunderstorm Wind	52	0	2000	0
6/17/2009	Hail	0.88	0	0	0
6/17/2009	Thunderstorm Wind	52	0	0	0
6/17/2009	Thunderstorm Wind	52	0	0	0
6/17/2009	Thunderstorm Wind	56	0	2000	0
6/17/2009	Thunderstorm Wind	87	0	20000	0
6/17/2009	Thunderstorm Wind	52	0	5000	0
4/4/2010	Hail	2.5	0	0	0
4/4/2010	Hail	0.75	0	0	0
4/4/2010	Hail	1	0	0	0
4/4/2010	Hail	2.25	0	0	0
4/4/2010	Thunderstorm Wind	56	0	1000	0
4/6/2010	Thunderstorm Wind	53	0	0	0
5/2/2010	Hail	1	0	0	0
6/18/2010	Thunderstorm Wind	52	0	0	0
5/23/2011	Hail	1	0	0	0
6/27/2011	Hail	1.5	0	0	0
5/19/2013	Hail	1	0	0	0
4/27/2014	Thunderstorm Wind	55	0	0	0
4/27/2014	Hail	1	0	0	0
4/27/2014	Thunderstorm Wind	55	0	0	0
4/27/2014	Hail	0.88	0	0	0
5/10/2014	Hail	1	0	0	0
4/7/2015	Hail	0.88	0	0	0
4/8/2015	Hail	1	0	0	0
11/11/2015	High Wind	52	0	0	0
7/13/2016	Thunderstorm Wind	56	0	0	0
6/2/2018	Thunderstorm Wind	56	0	10000	0
4/17/2019	Hail	1	0	0	0
4/17/2019	Hail	1	0	0	0
5/14/2019	Hail	1	0	0	0
5/24/2019	Thunderstorm Wind	52	0	0	0
9/20/2021	Hail	0.88	0	0	0

8/4/2023	Thunderstorm Wind	52	0	0	0
8/13/2023	Thunderstorm Wind	52	0	0	0
6/3/2025	Thunderstorm Wind	52	0	0	0
6/26/2025	Thunderstorm Wind	52	0	0	0
6/26/2025	Thunderstorm Wind	52	0	0	0
7/11/2025	Thunderstorm Wind	52	0	0	0
Total			**0**	**$46,000**	**$3,000**

Source: NCEI Storm Database (Magnitude if Thunderstorm/Wind reflects MPH, if Hail reflects size in inches)

Table 3.64. NCEI Thunderstorm Event Narratives for Carroll County (Where Available)

DATE	EVENT_NARRATIVE
7/3/2005	6-to-8-inch tree limbs blown down.
3/12/2006	Roof damage to building on Highway 65.
7/13/2006	Several trees and power lines downed.
8/2/2006	Trees...large limbs...and a power pole down.
8/25/2006	Trees and limbs down in town.
3/22/2007	Thunderstorms with wind gusts to 60 mph, caused 4-inch tree limbs to snap off, and power lines to be downed. Also, a tin roof was peeled off a barn.
6/7/2007	Large tree limbs were reported down.
6/7/2007	Power poles and tree limbs were reported down.
3/31/2008	Winds were estimated to be gusting up to 60 mph in Carrollton.
6/17/2009	Trees and powerlines were reported down.
6/17/2009	Tree branches up to 6 inches in diameter were reported down.
6/17/2009	Thunderstorm wind gusts to 60 mph were estimated.
6/17/2009	Thunderstorm wind gusts to 65 mph were estimated. A 50-foot-tall radio tower was blown over.
6/17/2009	Spotter reported thunderstorm wind gusts estimated to be up to 100 mph. Winds were gusting up to 60 mph, for 10 to 15 minutes, between Norborne and Carrollton. Numerous trees and power lines were down. Several power poles were snapped.
6/17/2009	A part of a barn roof was ripped off. Several powerlines were also reported down.
4/4/2010	A power pole was broken on Highway D near Highway E.
4/6/2010	Thunderstorm wind gust was measured at 53 knots.
6/18/2010	Thunderstorm winds were estimated up to 60 mph.
4/27/2014	A number of farm outbuildings were heavily damaged.
4/27/2014	Trees blown onto power lines and buildings damaged in town.
11/11/2015	A dry line punched through the area on the afternoon of November 11, bringing 50 to 60 mph synoptic straight-line winds. Local ASOS observations reported gusts near 60 mph across the area, but the winds also damaged, trees, power lines, and a few outbuildings. This dry line also created some thunderstorm activity, which caused some isolated convective wind damage.
7/13/2016	Several large trees of unknown size or condition were down in Carrolton.
6/2/2018	Main power line was downed by strong winds.
5/24/2019	There were trees down on Route J, just west of Hale.
8/4/2023	Estimated 60 mph winds at the Casey's General Store in Norborne.
8/13/2023	Power lines down in Carrollton and power is out.
6/3/2025	Downed wires and power outages reported in the Norborne area.

6/26/2025	Downed wires near County Road 190 north of Carrollton.
7/11/2025	Downed tree limbs and wires near Missouri Avenue in Bosworth.

Source: NCEI Storm Database

Probability of Future Occurrence

Probability of Thunderstorm

$$\boldsymbol{Probability = \frac{\#\ of\ events}{Years} = \frac{87}{20} = 4.35}$$

According to the above calculation, the planning area of Carroll County should experience an average of 4.35 Thunderstorms annually.

Probability of Thunderstorm with High or Excessive Winds

$$\boldsymbol{Probability = \frac{\#\ of\ events}{Years} = \frac{33}{20} = 1.65}$$

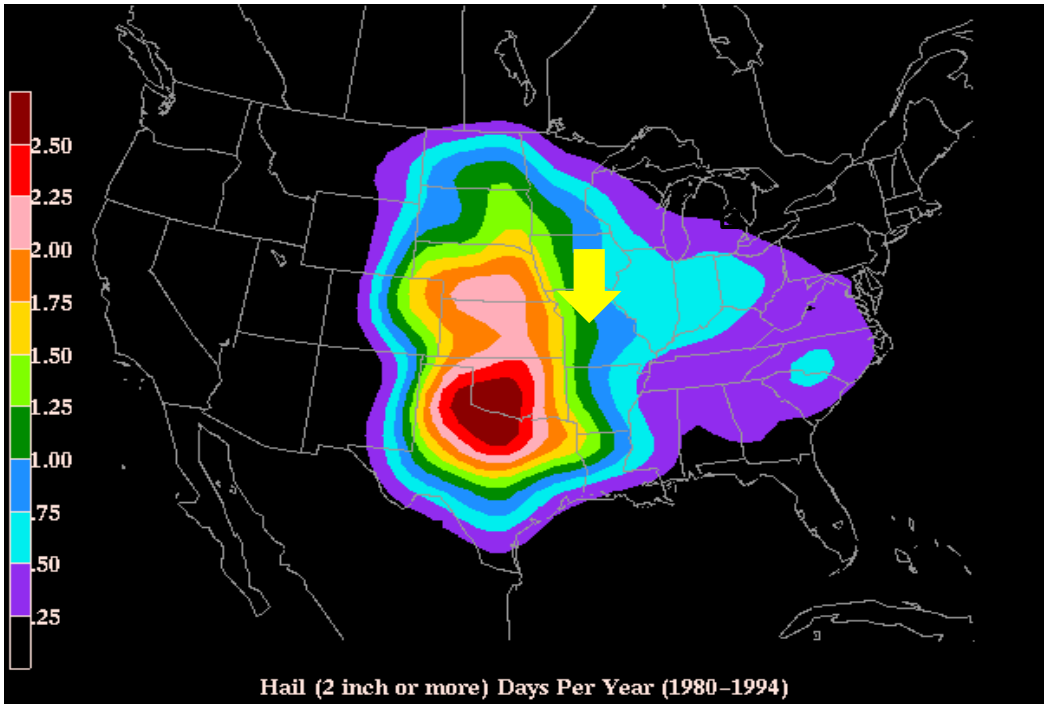
According to the above calculation, the planning area of Carroll County should experience a thunderstorm accompanied by high or excessive winds (60 mph or greater) approximately 1.65 times annually.

Probability of Thunderstorm with Hail

$$\boldsymbol{Probability = \frac{\#\ of\ events}{Years} = \frac{54}{20} = 2.7}$$

According to the above calculation, the planning area of Carroll County should experience a thunderstorm accompanied by hail approximately 2.7 times annually.

Figure 3.42. Annual Hailstorm Probability (2" diameter or larger), U 1980- 1994



Source: NSSL, http://www.nssl.noaa.gov/users/brooks/public_html/bighail.gif Note:

Changing Future Conditions Considerations

As temperatures increase with changing conditions, the severity of storms is likely to increase, as warm air is the key component of thunderstorms. Due to higher levels of convection, there could be a higher frequency and severity of storm events.

Vulnerability

Vulnerability Overview

Severe thunderstorm losses are usually attributed to the associated hazards of hail, downburst winds, lightning and heavy rains. Losses due to hail and high wind are typically insured losses that are localized and do not result in presidential disaster declarations. However, in some cases, impacts are severe and widespread and assistance outside state capabilities is necessary. Hail and wind also can have devastating impacts on crops. Severe thunderstorms/heavy rains that lead to flooding are discussed in the flooding hazard profile. Hailstorms cause damage to property, crops, and the environment, and can injure and even kill livestock. In the United States, hail causes more than $1 billion in damage to property and crops each year. Even relatively small hail can shred plants to ribbons in a matter of minutes. Vehicles, roofs of buildings and homes, and landscaping are also commonly damaged by hail. Hail has been known to cause injury to humans, occasionally fatal injury.

In general, assets in the County vulnerable to thunderstorms with lightning, high winds, and hail include people, crops, vehicles, and built structures. Although this hazard results in high annual losses, private property insurance and crop insurance usually cover the majority of losses. Considering insurance coverage as a recovery capability, the overall impact on jurisdictions is reduced.

Most lightning damages occur to electronic equipment located inside buildings. But structural

damage can also occur when a lightning strike causes a building fire. In addition, lightning strikes can cause damages to crops, if fields or forested lands are set on fire. Communications equipment and warning transmitters and receivers can also be knocked out by lightning strikes. http://www.vaisala.com/en/products/thunderstormandlightningdetectionsystems/Pages/NLDN.aspx and http://www.lightningsafety.noaa.gov/

The method used to determine vulnerability to severe thunderstorms across Missouri was statistical analysis of data from several sources: National Centers for Environmental Information (NCEI) storm events data (1996 to December 31, 2021), HAZUS Building Exposure Value data, housing density and mobile home data from the U.S. Census (2019), and the calculated Social Vulnerability Index for Missouri Counties from the Hazards and Vulnerability Research Institute in the Department of Geography at the University of South Carolina.

From the statistical data collected, six factors were considered in determining overall vulnerability to lightning as follows: housing density, building exposure, percentage of mobile homes, social vulnerability, likelihood of occurrence, and average annual property loss. Based on natural breaks in the statistical data, a rating value of 1 through 5 was assigned to each factor. Once the ranges were determined and applied to all factors considered in the analysis for wind, hail, and lightning, they were rated individually and factored together to determine an overall vulnerability rating for thunderstorms. This vulnerability rating was taken from the 2023 Missouri State Hazard Mitigation Plan.

These rating values correspond to the following descriptive terms:

1) Low
2) Medium-Low
3) Medium
4) Medium-High
5) High

Table 3.65. Housing Density, Building Exposure, SOVI, and Mobile Home Data for Carroll County

Total Building Exposure (HAZUS)	Building Exposure Rating	Housing Density	Housing Density Rating	SOVI Rating	SOVI Ranking Rating	Percent Mobile Homes	Percent Mobile Homes Rating
$1,255,053,000	1	6.69	1	Medium	3	7.1	3

Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.66. High Wind, Hail, and Lightning Events, Likelihood of Occurrence, and Associated Ratings for Carroll County

High Wind			Hail			Lightning		
Total Number of Events	Likelihood of Occurrence	Likelihood of Occurrence Rating	Total Number of Events	Likelihood of Occurrence	Likelihood of Occurrence Rating	Total Number of Events	Likelihood of Occurrence	Likelihood of Occurrence Rating
47	1.81	1	83	3.19	2	0	0.00	1

Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.67. Annualized Property Loss and Associated Ratings for Carroll County

High Wind		Hail		Lightning	
Total Annualized Property Loss	Total Annualized Property Loss Rating	Total Annualized Property Loss	Total Annualized Property Loss Rating	Total Annualized Property Loss	Total Annualized Property Loss Rating
$12,038	1	$0	1	$0	1

Source: 2023 Missouri State Hazard Mitigation Plan

Potential Losses to Existing Development

According to historical loss data reported for thunderstorm wind, high wind, hail, and lightning by NCEI, from 2014-2025, these thunderstorm events caused an estimated $46,000 in property damage with $3000 in reported crop damage. Based on this estimate Carroll County experiences an average annual property loss of approximately $2,450.

The USDA reported crop losses due to high winds, lightning, and hail. According to the USDA there were $411,597 in crop insurance claims recorded from 2014 to 2024. Based on these figures, Carroll County can expect to experience an average annual crop loss of $41,159.70.

Previous and Future Development

Any additional development that occurs in Carroll County will result in increased exposure and thus increased vulnerability to severe thunderstorms and their associated wind, hail, and lightning.

Hazard Summary by Jurisdiction

Thunderstorms, high winds, lightning, and hail events are area-wide and expected to occur uniformly across the planning area. However, the magnitude of impacts may vary by jurisdiction based on the physical vulnerability of structures.

Problem Statement

Severe thunderstorms and associated hazards such as lightning can result in power outages and damage to equipment resulting in operational capacity, such as at water treatment plants. Severe storms may also knock out communications system to critical facilities such as schools, strong winds may lead to structural damage and loss of residents and facilities.

3.4.8 Severe Winter Weather

Hazard Profile

Hazard Description

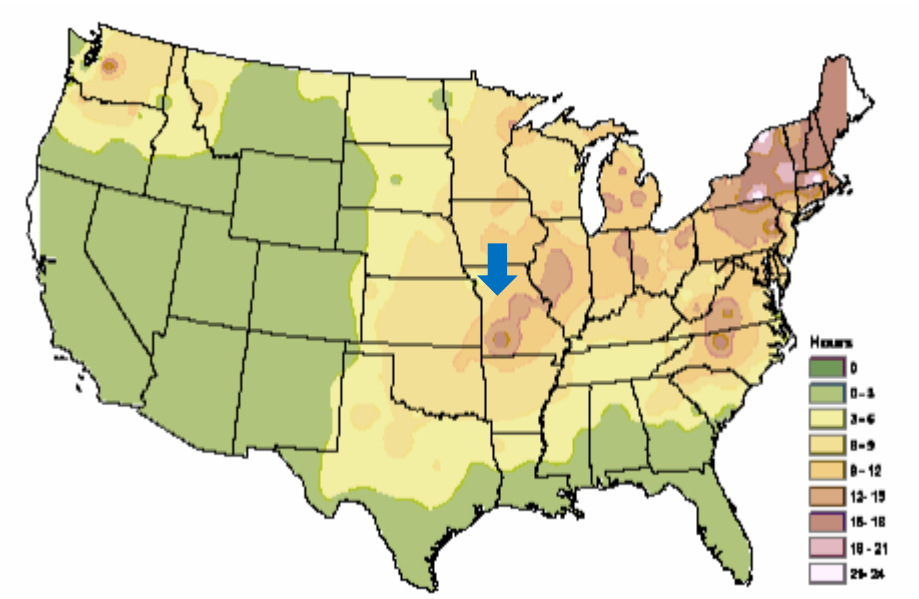
A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall, and cold temperatures. The National Weather Service describes different types of winter storm events as follows.

- **Blizzard**—Winds of 35 miles per hour or more with snow and blowing snow reducing visibility to less than ¼ mile for at least three hours.
- **Blowing Snow**—Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.
- **Snow Squalls**—Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.
- **Snow Showers**—Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **Freezing Rain**—Measurable rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Most freezing-rain events are short lived and occur near sunrise between the months of December and March.
- **Sleet**—Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects.

Geographic Location

The entire county is vulnerable to heavy snow, ice, extreme cold temperatures, and freezing rain. According to the following figure, the average amount of hours of freezing rain Carroll County can expect annually is between 9 and 12 per year.

Figure 3.43. NWS Statewide Average Number of Hours per Year with Freezing Rain



Source: American Meteorological Society. "Freezing Rain Events in the United States." http://ams.confex.com/ams/pdfpapers/71872.pdf

Strength/Magnitude/Extent

Severe winter storms include heavy snowfall, ice, and strong winds which can push the wind chill well below zero degrees in the planning area.

For severe weather conditions, the National Weather Service issues some or all of the following products as conditions warrant across the State of Missouri. NWS local offices in Missouri may collaborate with local partners to determine when an alert should be issued for a local area.

- Winter Weather Advisory — Winter weather conditions are expected to cause significant inconveniences and may be hazardous. If caution is exercised, these situations should not become life threatening. Often the greatest hazard is to motorists.
- Winter Storm Watch — Severe winter conditions, such as heavy snow and/or ice are possible within the next day or two.
- Winter Storm Warning — Severe winter conditions have begun or are about to begin.
- Blizzard Warning — Snow and strong winds will combine to produce a blinding snow (near zero visibility), deep drifts, and life-threatening wind chill.
- Ice Storm Warning -- Dangerous accumulations of ice are expected with generally over one quarter inch of ice on exposed surfaces. Travel is impacted, and widespread downed trees and power lines often result.
- Wind Chill Advisory -- Combination of low temperatures and strong winds will result in wind chill readings of -20 degrees F or lower.

- Wind Chill Warning -- Wind chill temperatures of -35 degrees F or lower are expected. This is a life-threatening situation.

Previous Occurrences

The following table contains the winter weather events in Carroll County, Missouri for the last 20 years. The rows highlighted in blue are events that lasted for more than one day but can be attributed to one storm system. The narrative information follows the table and provides additional information about the winter weather events that Carroll County has experienced over the last 20 years.

Table 3.68. NCEI Carroll County Winter Weather Events Summary, 2004-2025

Type of Event	Date	# of Death/Injuries	Property Damages	Crop Damages
Heavy Snow	11/23/2004	0	0	0
Ice Storm	1/5/2005	0	0	0
Ice Storm	11/29/2006	0	0	0
Heavy Snow	11/30/2006	0	0	0
Heavy Snow	12/1/2006	0	0	0
Winter Storm	1/12/2007	0	0	0
Ice Storm	12/10/2007	0	0	0
Winter Storm	1/6/2010	0	0	0
Winter Storm	2/21/2010	0	0	0
Winter Weather	1/10/2011	0	0	0
Winter Storm	1/19/2011	0	0	0
Blizzard	2/1/2011	0	0	0
Winter Storm	2/24/2011	0	0	0
Winter Weather	2/13/2012	0	0	0
Winter Storm	2/21/2013	0	0	0
Winter Storm	2/25/2013	0	0	0
Winter Storm	3/23/2013	0	0	0
Winter Weather	5/2/2013	0	0	0
Winter Storm	12/21/2013	0	0	0
Heavy Snow	2/4/2014	0	0	0
Winter Storm	3/1/2014	0	0	0
Blizzard	11/25/2018	0	0	0
Winter Storm	1/11/2019	0	0	0
Ice Storm	2/7/2019	0	0	0
Winter Storm	12/15/2019	0	0	0
Winter Storm	1/10/2020	0	0	0
Winter Storm	1/1/2021	0	0	0
Heavy Snow	2/1/2022	0	0	0
Winter Storm	2/17/2022	0	0	0

Source: NCEI, data accessed 10/2025

Table 3.69. Event Narratives for Winter Weather Events (2004-2024)

Date	Event Narrative
11/29/2006	One quarter to one half inch of ice reported across the county.
11/30/2006	Three to eight inches of snow reported across the county.

12/1/2006	See November 2006 Storm Data.
1/12/2007	Up to one inch of sleet and freezing rain.
12/10/2007	One quarter of an inch of ice was reported across the county.
1/6/2010	Up to 5 inches of snow was reported in Carrollton. Strong gusty northwest winds caused blowing and drifting snow.
2/21/2010	Up to 6 inches of snow, was mixed at times, with freezing rain and sleet across the county.
1/10/2011	The observer in Carrollton measured 6 inches of snow.
1/19/2011	Seven inches of snow was measured in Carrollton.
2/1/2011	Blizzard conditions were observed across the county, with frequent wind gusts up to 45 mph, visibilities less than 1/4 of a mile, and heavy snow of up to 14 inches, reported in Carrollton. Travel was nearly impossible, with the blowing and drifting snow, along with the low visibilities.
2/24/2011	The combination of up to 6 inches of snow, and blowing and drifting snow, led to hazardous driving conditions across the county.
2/13/2012	The observer in Coloma measured 2.5 inches of snow. The observer in Carrollton measured 2.0 inches of snow.
2/21/2013	Carrollton measured 8 inches of snow.
2/25/2013	Ten inches of snow was measured in Carrollton.
3/23/2013	Four to six inches of snow fell across the county.
5/2/2013	Carrollton measured 1.7 inches of snow.
12/21/2013	Trained weather spotters from across the area reported between .10 and .30 of freezing rain on December 21. Once the freezing rain ended light snow accumulated throughout the area during the overnight hours. Between 1 and 3 inches of snow fell on top of the ice accumulation. Some power outages occurred, but no widespread effects were reported from this ice storm.
2/4/2014	A major winter storm trekked through Kansas and Missouri on February 4 and 5. By the time the storm finished it dropped around a foot of snow across the entire area.
3/1/2014	Trained spotters across the area reported about a half inch to an inch of sleet, occurring mostly during the evening hours on March 1st through the overnight hours on March 2nd. Aside from the sleet accumulations snowfall approaching 3 to 6 inches also accumulated through the overnight hours on March 1st into March 2nd. The long-duration event ended during the afternoon hours on March 2nd.
11/25/2018	Blizzard conditions started after a few hours of light to moderately falling snow. Once the heavy snow arrived winds gusted up to 41 mph for nearly 4 hours, creating whiteout conditions, officially measured by the ASOS at nearby KMKC and KMCI as sub-quarter mile for that duration. Despite the heavy impacts from this system affecting Thanksgiving weekend return traffic, no serious injuries occurred from this event.
1/11/2019	Between 8 and 12 inches of snow fell across Carroll County, with most of it falling over the course of the first 12 hours. Light snow continued into the next day (January 12), but was fairly light, and only accounted for 1 to 2 inches. One fatal accident occurred as a result of snow-covered roadways. On US 24, just west of County Road 335, a westbound vehicle lost control and slid into the eastbound lane and impacted an oncoming vehicle. ||Link to the MHP Accident Report:
2/7/2019	While light freezing drizzle occurred off and on February 5, the bulk of the freezing rain fell during the overnight period on February 6 into February 7. Over the course of the event Carroll County received approximately a quarter inch of ice accumulation. Numerous vehicle accidents occurred area-wide and minor tree damage occurred.
12/15/2019	Light to moderate snow fell across the area on December 15, accumulating six to 8 inches across the county by the end of the day.
1/10/2020	Freezing rain occurred through much of the night going into January 11 and caused around a quarter to one-third inch accumulation. This occurred prior to about 2 to 3 inches of snow falling. This resulted in several auto accidents.

1/1/2021	Light to moderate freezing rain formed early morning on New Year's Day. This freezing rain quickly accreted between around a quarter inch before sunrise. Shortly after sunrise the freezing rain switched to light snow, which persisted for the bulk of the remaining day time hours. The snow did not accumulate more than 1 to 3 inches, but on top of the ice accretion created winter storm conditions. Mostly scattered power outages and vehicle accidents were the impacts, but being a holiday, road traffic was likely light.
2/1/2022	Roughly 5 to 7 inches of snow fell predominantly in the southeastern portion of Carrol County overnight on the 1st, going into the early morning hours on the 2nd of February. More snow moved in a few hours later, but did not appear to contribute significantly to the totals.
2/17/2022	Periods of moderate to heavy snow moved through the area during the morning hours on February 17. The highest totals were generally in the 5 to 7 inch range.

Source: NCEI Storm Data Weather Data (Accessed on 10/2025)

Winter storms, cold, frost, and freeze take a toll on crop production in the planning area. The following table includes the crop losses for Carroll County over the last 10 years due to freeze or cold winter. The following table shows the USDA's Risk Management Agency payments for insured crop losses in the planning area because of cold conditions and snow for the last 10 years.

Table 3.70. Crop Insurance Claims Paid in Carroll County as a Result of Cold Conditions and Snow (2014-2024)

Year	Crop	Cause of Loss	Crop Loss ($)
2014	Wheat	Cold Winter	$37,774.30
2015	No Claims		$0
2016	Soybeans	Cold Winter	$1,609
2017	No Claims		$0
2018	Wheat	Cold Winter	$3,508
2019	Wheat	Cold Winter	$687.96
2020	No Claims		$0
2021	Soybeans	Cold Winter	$1,068
2022	No Claims		$0
2023	No Claims		**$0**
2024	Wheat	Cold Winter	$3,477.50
Total			**$48,124.76**

Source: USDA Risk Management Agency, https://www.rma.usda.gov/data/cause

Probability of Future Occurrence

Over the last 20 years, Carroll County has experienced 29 winter weather events. Since one storm would generally include more than one type of event the probability of future occurrence was calculated as follows:

$$\boldsymbol{Probability = \frac{number\ of\ events}{number\ of\ years} = \frac{29}{20} = 1.45}$$

This calculation would indicate that Carroll County could expect to experience on average, 1.45 winter weather events annually.

Changing Future Conditions Considerations

With higher average temperatures occurring across the globe due to climate change, one might assume that winters would be milder. However, with the increase in the atmosphere's water-holding

capacity, there is an increased likelihood of heavy snow events. Changes in the jet stream patterns can also result in allowing pools of very cold air to sink further south than usual. In summation, the changing climate could result in more severe storms, both in duration and amount of precipitation.

Vulnerability

Vulnerability Overview

Heavy snow can bring a community to a standstill by inhibiting transportation (in whiteout conditions), weighing down utility lines, and by causing structural collapse in buildings not designed to withstand the weight of the snow. Repair and snow removal costs can be significant. Ice buildup can collapse utility lines and communication towers, as well as make transportation difficult and hazardous. Ice can also become a problem on roadways if the air temperature is high enough that precipitation falls as freezing rain rather than snow.

Buildings with overhanging tree limbs are more vulnerable to damage during winter storms when limbs fall. Businesses experience loss of income as a result of closure during power outages. In general heavy winter storms increase wear and tear on roadways though the cost of such damages is difficult to determine. Businesses can experience loss of income as a result of closure during winter storms.

Overhead power lines and infrastructure are also vulnerable to damages from winter storms. In particular ice accumulation during winter storm events damage to power lines due to the ice weight on the lines and equipment. Damages also occur to lines and equipment from falling trees and tree limbs weighted down by ice. Potential losses could include cost of repair or replacement of damaged facilities, and lost economic opportunities for businesses.

Secondary effects from loss of power could include burst water pipes in homes without electricity during winter storms. Public safety hazards include risk of electrocution from downed power lines. Specific amounts of estimated losses are not available due to the complexity and multiple variables associated with this hazard. Standard values for loss of service for utilities reported in FEMA's BCA Toolkit 6.0 Release Notes, the economic impact as a result of loss of power is $174 per person per day of lost service.

From the 2023 Missouri Hazard Mitigation Plan, the method used to determine vulnerability to severe winter weather across Missouri was statistical analysis of data from several sources: National Centers for Environmental Information (NCEI) storm events data (1996 to December 31, 2021), HAZUS Building Exposure Value Data, housing density data from the US Census, and the calculated Social Vulnerability Index for Missouri Counties from the Hazard and Vulnerability Research Institute in the Department of Geography at the University of South Carolina.

From the statistical data collected, five factors were considered in determining overall vulnerability to severe winter weather as follows: housing density, building exposure, social vulnerability, likelihood of occurrence, and average annual property loss. Based on natural breaks in the statistical data, a rating value of 1 through 5 was assigned to each factor. These rating values correspond to the following descriptive terms:

1. Low
2. Low-medium
3. Medium
4. Medium-high
5. High

Once the individual ratings were determined for the above factors, a combined vulnerability rating was computed for severe winter weather events. The following table provides the calculated ranges applied to determine overall vulnerability of Missouri counties to severe winter weather.

The following tables contain information from the 2023 Missouri State Hazard Mitigation Plan. These tables were included in the plan to provide additional data obtained from the NCEI and utilized to complete the overall vulnerability analysis and the total overall vulnerability rating for severe winter weather in Carroll County. The total number of winter weather events includes "blizzard", "heavy snow", "ice-storm", "winter-storm", and "winter weather events."

Table 3.71. Ranges for Severe Winter Weather Combined Vulnerability Rating

	Low (1)	Low-Medium (2)	Medium (3)	Medium-High (4)	High (5)
Severe Winter Weather Combined Vulnerability	7-8	8-10	10-12	12-15	15-22

Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.72. Housing Density, Building Exposure, and SOVI Data for Carroll County

	Total Building Exposure (HAZUS)	Building Exposure Rating	Housing Density	Housing Density Rating	SOVI Ranking	SOVI Rating
Carroll	$1,255,053,000	1	6.69	1	Medium	3

Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.73. Annualized Severe Winter Weather Damages in Carroll County

Annualized Blizzard Property Loss ($)	Annualized Heavy Snow Property Loss ($)	Annualized Ice Storm Property Loss ($)	Annualized Winter Storm Property Loss ($)	Annualized Winter Weather Property Loss ($)	Total Annualized Winter Weather Property Loss ($)
$0	$0	$9,615	$0	$0	$9,615

Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.74. Additional Statistical Data for Severe Winter Weather Vulnerability in Carroll County

Type of Data	Amount
Total # of Winter Weather Events	39
Likelihood of Occurrence	1.50
Likelihood of Occurrence Rating	1
Total Annualized Property Loss	$9,615
Total Annualized Property Loss Rating	1
Overall Vulnerability Rating	7
Overall Vulnerability Rating Description	Low

Source: 2023 Missouri State Hazard Mitigation Plan

Potential Losses to Existing Development

The next severe winter storm will most likely close schools and businesses for multiple days and make roadways hazardous for travel. Heavy ice accumulation may damage electrical infrastructures causing prolonged power outages for large portions of the region. In addition, freezing temperatures

make water lines vulnerable to freezing. Fallen tree limbs also pose a threat to various structures/infrastructures across the county.

Previous and Future Development

Future development could potentially increase vulnerability to this hazard by increasing demand on the utilities and increasing the exposure of infrastructure networks. At this time, there is little expected in the way of new development that would lead to an increased risk to the planning area.

Hazard Summary by Jurisdiction

Although crop loss as a result of severe winter weather occurs more in the unincorporated portions of the planning area, the density of vulnerable populations is higher in the urban areas of the planning areas. It is considered that the magnitude of this hazard is relatively equal. The factors of probability, warning time, and duration are also equal across the planning area. Therefore, the conclusion is that the hazard does not substantially vary by jurisdiction.

Problem Statement

Carroll County is expected to experience at least one severe winter weather event annually. The county has a low-medium vulnerability rating. Jurisdictions should enhance their weather monitoring to be better prepared for sever weather hazards. If jurisdictions monitor winter weather, they can dispatch road crews to prepare for the hazard.

County and city crews can also trim trees along power lines to minimize the potential for outages due to snow and ice. Citizens should also be educated about the benefits of being proactive to alleviate property damage as well as preparing for power outages. Education needs to occur to ensure all residents are aware of the shelters in the County, residents are educated on emergency supplies to have and the utilization of social media and texting increases.

Extreme temperatures can lead to a disruption in services to the county, such as schools and private commerce. Additional strains on the electric grid could potentially cause interruptions to power. During extreme-cold events water lines could freeze or burst.

3.4.9 Tornado

Hazard Profile

Hazard Description

Essentially, tornadoes are a vortex storm with two components of winds. The first is the rotational winds that can measure up to 500 miles per hour, and the second is an uplifting current of great strength. The dynamic strength of both these currents can cause vacuums that can overpressure structures from the inside.

Although tornadoes have been documented in all 50 states, most of them occur in the central United States. The unique geography of the central United States allows for the development of thunderstorms that spawn tornadoes. The jet stream, which is a high-velocity stream of air, determines which area of the central United States will be prone to tornado development. The jet stream normally separates the cold air of the north from the warm air of the south. During the winter, the jet stream flows west to east from Texas to the Carolina coast. As the sun "moves" north, so does the jet stream, which at summer solstice flows from Canada across Lake Superior to Maine. During its move northward in the spring and its recession south during the fall, the jet stream crosses Missouri, causing the large thunderstorms that breed tornadoes.

Tornadoes spawn from the largest thunderstorms. The associated cumulonimbus clouds can reach heights of up to 55,000 feet above ground level and are commonly formed when Gulf air is warmed by solar heating. The moist, warm air is overridden by the dry cool air provided by the jet stream. This cold air presses down on the warm air, preventing it from rising, but only temporarily. Soon, the warm air forces its way through the cool air and the cool air moves downward past the rising warm air. This air movement, along with the deflection of the earth's surface, can cause the air masses to start rotating. This rotational movement around the location of the breakthrough forms a vortex, or funnel. If the newly created funnel stays in the sky, it is referred to as a funnel cloud. However, if it touches the ground, the funnel officially becomes a tornado.

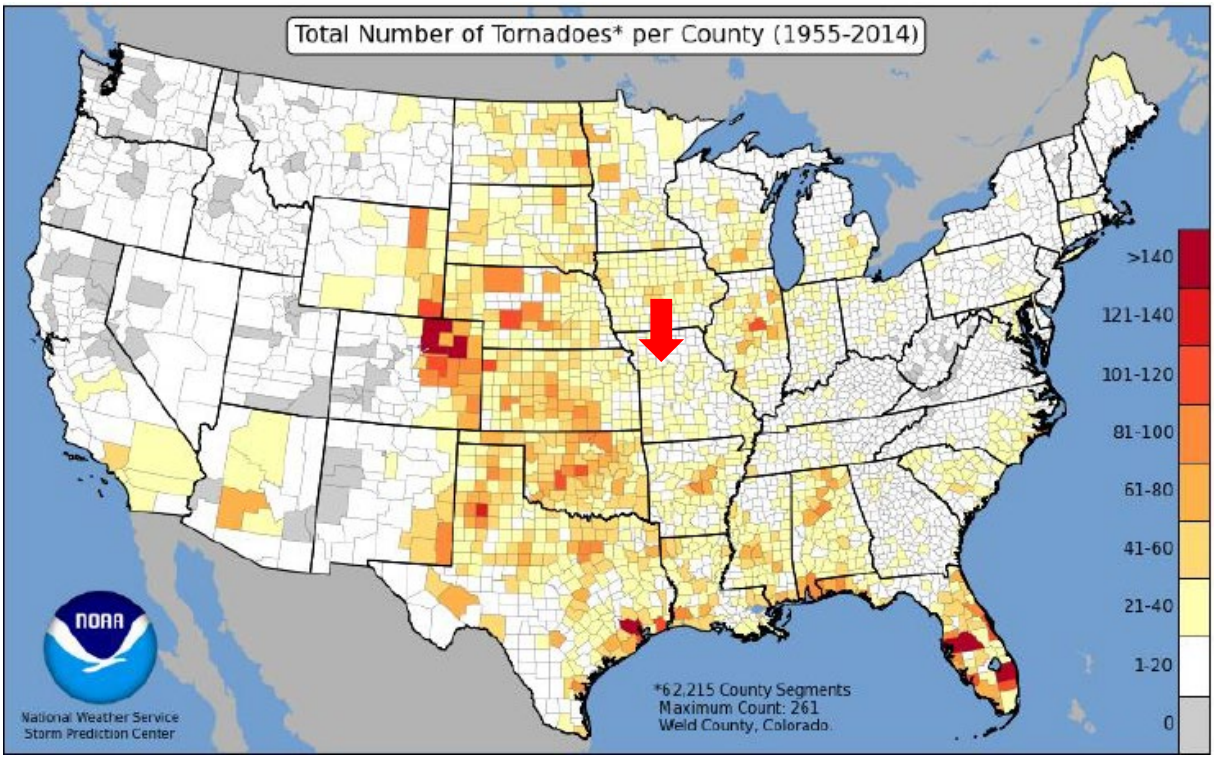
A typical tornado can be described as a funnel-shaped cloud that is "anchored" to a cloud, usually a cumulonimbus that is also in contact with the earth's surface. This contact on average lasts 30 minutes and covers an average distance of 15 miles. The width of the tornado (and its path of destruction) is usually about 300 yards. However, tornadoes can stay on the ground for upward of 300 miles and can be up to a mile wide. The National Weather Service, in reviewing tornadoes occurring in Missouri between 1950 and 1996, calculated the mean path length at 2.27 miles and the mean path area at 0.14 square mile.

The average forward speed of a tornado is 30 miles per hour but may vary from nearly stationary to 70 miles per hour. The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. Tornadoes are most likely to occur in the afternoon and evening, but have been known to occur at all hours of the day and night.

Geographic Location

Tornadoes can occur anywhere in the planning area. The following map was obtained from the 2023 Missouri State Hazard Mitigation Plan and shows the total number of tornadoes per county. Carroll County is indicated with a red arrow, and according to this map, had between 1-20 tornadoes between 1955 and 2014.

Figure 3.44. Tornado Activity in the United States 1955-2014



Strength/Magnitude/Extent

Tornadoes are the most violent of all atmospheric storms and are capable of tremendous destruction. Wind speeds can exceed 250 miles per hour and damage paths can be more than one mile wide and 50 miles long. Tornadoes have been known to lift and move objects weighing more than 300 tons a distance of 30 feet, toss homes more than 300 feet from their foundations, and siphon millions of tons of water from water bodies. Tornadoes also can generate a tremendous amount of flying debris or "missiles," which often become airborne shrapnel that causes additional damage. If wind speeds are high enough, missiles can be thrown at a building with enough force to penetrate windows, roofs, and walls. However, the less spectacular damage is much more common.

Tornado magnitude is classified according to the EF- Scale (or the Enhance Fujita Scale, based on the original Fujita Scale developed by Dr. Theodore Fujita, a renowned severe storm researcher). The EF-Scale (see **Table 3.7575**) attempts to rank tornadoes according to wind speed based on the damage caused. This update to the original F Scale was implemented in the U.S. on February 1, 2007.

Table 3.75. Enhanced F Scale for Tornado Damage

Fujita Scale			Derived EF Scale		Operational EF Scale	
F Number	Fastest ¼-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

Source: The National Weather Service, www.spc.noaa.gov/faq/tornado/ef-scale.html

The wind speeds for the EF scale and damage descriptions are based on information on the NOAA Storm Prediction Center as listed in **Table 3.76**. The damage descriptions are summaries. For the actual EF scale it is necessary to look up the damage indicator (type of structure damaged) and refer to the degrees of damage associated with that indicator. Information on the Enhanced Fujita Scale's damage indicators and degrees or damage is located online at www.spc.noaa.gov/efscale/ef-scale.html.

Table 3.76. Enhanced Fujita Scale with Potential Damage

Enhanced Fujita Scale			
Scale	Wind Speed (mph)	Relative Frequency	Potential Damage
EF0	65-85	53.5%	Light. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e. those that remain in open fields) are always rated EF0).
EF1	86-110	31.6%	Moderate. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	10.7%	Considerable. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes complete destroyed; large trees snapped or uprooted; light object missiles generated; cars lifted off ground.
EF3	136-165	3.4%	Severe. Entire stores of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some
EF4	166-200	0.7%	Devastating. Well-constructed houses and whole frame houses completely levelled; cars thrown and small missiles generated.
EF5	>200	<0.1%	Explosive. Strong frame houses levelled off foundations and swept away; automobile-sized missiles fly through the air in excess of 300 ft.; steel reinforced concrete structure badly damaged; high rise buildings have significant structural deformation; incredible phenomena will occur.

Source: NOAA Storm Prediction Center, http://www.spc.noaa.gov/efscale/ef-scale.html

Enhanced weather forecasting has provided the ability to predict severe weather likely to produce tornadoes days in advance. Tornado watches can be delivered to those in the path of these storms several hours in advance. Lead time for actual tornado warnings is about 30 minutes. Tornadoes have been known to change paths very rapidly, thus limiting the time in which to take shelter. Tornadoes may not be visible on the ground if they occur after sundown or due to blowing dust or driving rain and hail.

Previous Occurrences

There are limitations to the use of NCEI tornado data that must be noted. For example, one tornado may contain multiple segments as it moves geographically. A tornado that crosses a county line or state line is considered a separate segment for the purposes of reporting to the NCEI. Also, a tornado that lifts off the ground for less than 5 minutes or 2.5 miles is considered a separate segment. If the tornado lifts off the ground for greater than 5 minutes or 2.5 miles, it is considered a separate tornado. Tornadoes reported in Storm Data and the Storm Events Database are in segments.

Table 3.77. Recorded Tornadoes in Carroll County, 1993 – Present

Date	Beginning Location	Ending Location	Length (miles)	Width (yards)	F/EF Rating	Death	Injury	Property Damage	Crop Damages
4/8/1999	Bosworth	Bosworth	6.5	200	F2	0	0	$300,000	$100,000
5/26/2000	Norborne	Norborne	2.5	40	F1	0	0	$5,000	$0
6/20/2000	Carrollton	Carrollton	1	40	F0	0	0	$0	$0
3/12/2006	NORBORNE	NORBORNE	9.6	100	F0	0	0	$250,000	0
8/16/2007	CARROLLTON	CARROLLTON	0.1	25	EF0	0	0	0	0
3/6/2017	W B JCT	STANDISH	5.97	100	EF0	0	0	0	0

Source: National Centers for Environmental Information, http://www.NCEI.noaa.gov/stormevents/

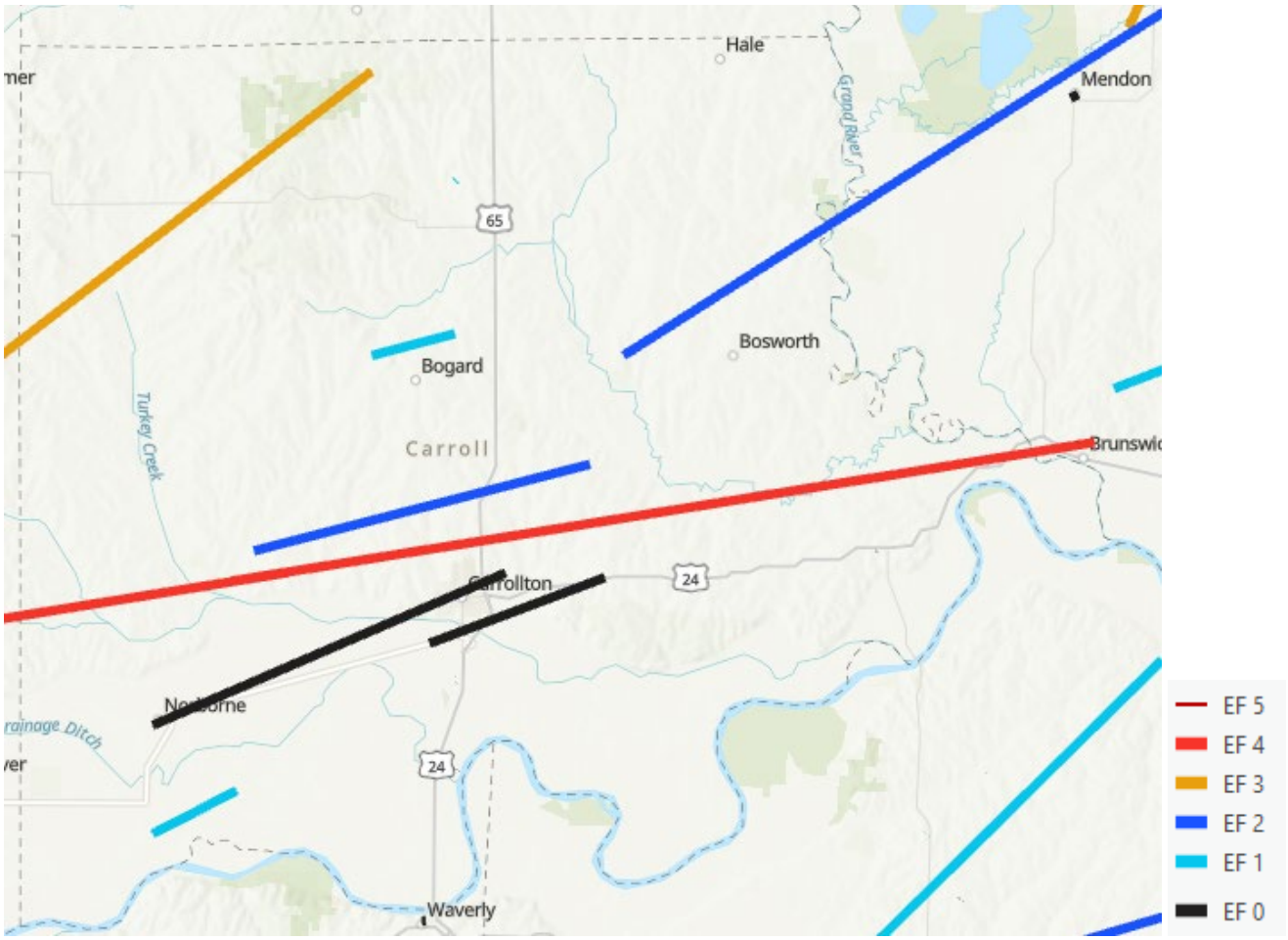
There were 6 tornado events listed in the NCEI database for Carroll County. The events listed as wind events were included in the plan under severe storms. The narratives obtained from the NCEI storm database are listed in the table below.

Table 3.78. Tornado Event Narratives for Carroll County (1993-2025)

Date	Event Narrative
4/8/1999	The tornado touched down 3 miles west of Bosworth and moved northeast into Chariton and Macon Counties. A home was destroyed 1 mile north of Bosworth and several large trees were downed before the tornado moved into Chariton County.
5/26/2000	Carroll County Emergency Management reported a tornado in open fields 4 miles south of Norborne. The tornado moved northeast for 2.5 miles, and trees and power lines were downed along its path.
6/20/2000	Two citizens reported that a tornado touched down briefly in open bottomland and moved east 1 mile. The tornado lifted after approximately two minutes on the ground, without doing any damage.
3/12/2006	F0 tornado touched down around Norborne at 0944 CST and then lifted 2 miles east of Carrollton at 1005 CST. Damage was noted to buildings...trees and power lines.
8/16/2007	Delayed report received from public via broadcast media. Brief tornado touchdown at 1405 CST. No damage noted.
3/6/2017	A squall line with embedded supercells and mesovortices moved through western Missouri and eastern Missouri on the evening of March 6. The storm took out a center point irrigation system just southwest of Carrolton; however, in the city of Carrolton several structures on the south side of the city were heavily damaged by tornadic winds. Along Main Street windows were completely blown out of several businesses and a couple buildings along Main Street even had some partial roof and external wall failure. The tornado moved east of town and did some external damage to a metal building. The tornado crossed HWY 65 and paralleled HWY 24 for a mile or two, causing damage to outbuildings along the route. About 2-3 miles east of Carrolton it crossed HWY 24 and dissipated north of HWY 24.

Source: NCEI Weather Database

Figure 3.45. Carroll County Map of Historic Tornado Events



Source: Missouri Tornado History Project, http://www.tornadohistoryproject.com/tornado/Missouri

Table 3.79. Crop Losses from Tornadoes in Carroll County, 2014-2024

CROP YEAR	CAUSE OF LOSS	INSURANCE PAID ($)
2013	No Claims	**$0**
2014	No Claims	$0
2015	No Claims	$0
2016	No Claims	$0
2017	No Claims	$0
2018	No Claims	$0
2019	No Claims	$0
2020	No Claims	$0
2021	No Claims	$0
2022	No Claims	$0
2023	No Claims	$0
2024	No Claims	$0
Total		**$ 0.00**

Source: USDA Risk Management Agency

According to the Midwestern Regional Climate Center data, Carroll County has had a total of 15 tornadoes touch down in the county between the years of 1950 and 2022. There have been $100,000 in recorded crop losses due to tornado events in the last 11 years.

However, it is worth noting that there have been some crop losses due to high winds/excessive winds claimed in the planning area. These crop losses have been mentioned in the thunderstorm high winds category and any crop losses due to high winds have been listed in the section on Severe

Thunderstorms.

Probability of Future Occurrence

$$Probability = \frac{Number\ of\ Events}{Number\ of\ Years} = \frac{15}{72} = 20.83\%$$

According to the previous calculation, the probability of Carroll County experiencing a tornado, regardless of EF scale, is approximately 20.83%.

Changing Future Conditions Considerations

According to the Missouri State Hazard Mitigation Plan, scientists do not know how the frequency and severity of tornadoes will change. Research published in 2015 suggests that changes in heat and moisture content in the atmosphere, brought on by a warming world, could be playing a role in making tornado outbreaks more common and severe in the US. The research concluded that the number of days with large outbreaks has been increasing since the 1950's and that densely concentrated tornado outbreaks are on the rise. It is notable that the research shows that the area of tornado activity is not expanding, but rather the areas already subject to tornado activity are seeing more densely packed tornadoes. Because Carroll County experiences approximately one tornado every five years, and based on the research, the frequency of such events could increase in the future.

Vulnerability

Vulnerability Overview

The 2023 Missouri State Hazard Mitigation Plan provided the following vulnerability analysis of Carroll County to tornadoes.

The method used to determine vulnerability to tornadoes across Missouri was statistical analysis of data from several sources: HAZUS building exposure value data, population density and mobile home data from the U.S. Census (2019), the calculated Social Vulnerability Index for Missouri Counties from the Hazards and Vulnerability Research Institute in the Department of Geography at the University of South Carolina, and storm events data (1950 to December 31, 2021) from the National Centers for Environmental Information (NCEI). It is important to realize that one limitation to the NCEI data is that many tornadoes that might have occurred in uninhabited areas, as well as some in inhabited areas, may not have been reported. The incompleteness of the data suggests that it is not appropriate for use in parametric modeling. In addition, NOAA data cannot show a realistic frequency distribution of different Fujita scale tornado events, except for recent years. Thus, a parametric model based on a combination of many physical aspects of the tornado to predict future expected losses was not used. The statistical model used for this analysis was probabilistic based purely on tornado frequency and historic losses. It is based on past experience and forecasts the expected results for the immediate or extended future.

From the statistical data collected, six factors were considered in determining overall vulnerability to tornadoes as follows: building exposure, population density, social vulnerability, percentage of mobile homes, likelihood of occurrence, and annual property loss. Based on natural breaks in the statistical data, a rating value of 1 through 5 was assigned to each factor. Once the ranges were determined and applied to all factors considered in the analysis, the ratings were combed to determine an overall vulnerability rating for tornadoes. These rating values correspond to the

following descriptive terms:

1) Low
2) Medium-Low
3) Medium
4) Medium-High
5) High

Table 3.80. Likelihood of Occurrence, Annual Property Loss, and Overall Vulnerability Rating for Carroll County by Tornadoes

Total Number of Tornadoes	16
Likelihood of Occurrence	0.222
Likelihood of Occurrence Rating	2
Total Annualized Property Loss	$44,174
Total Annualized Property Loss Rating	1
Overall Vulnerability Rating	11
Overall Vulnerability Rating Description	Medium Low

Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.81. Tornado Vulnerability Rating for Carroll County

Vulnerability	Data for Carroll County
Total Building Exposure	$1,225,053,000
Exposure Rating	1
Population Density	12.49
Population Density Rating	1
SOVI Index Ranking	Medium
SOVI Rating	3
Percent of Mobile Homes	7.1
Mobile Home Rating	3

Source: 2023 Missouri State Hazard Mitigation Plan

Carroll County is a region of the U.S. with high frequency of dangerous and destructive tornadoes referred to as “Tornado Alley”, illustrated below. (Indicated by red arrow).

Figure 3.46. Tornado Alley in the U.S.

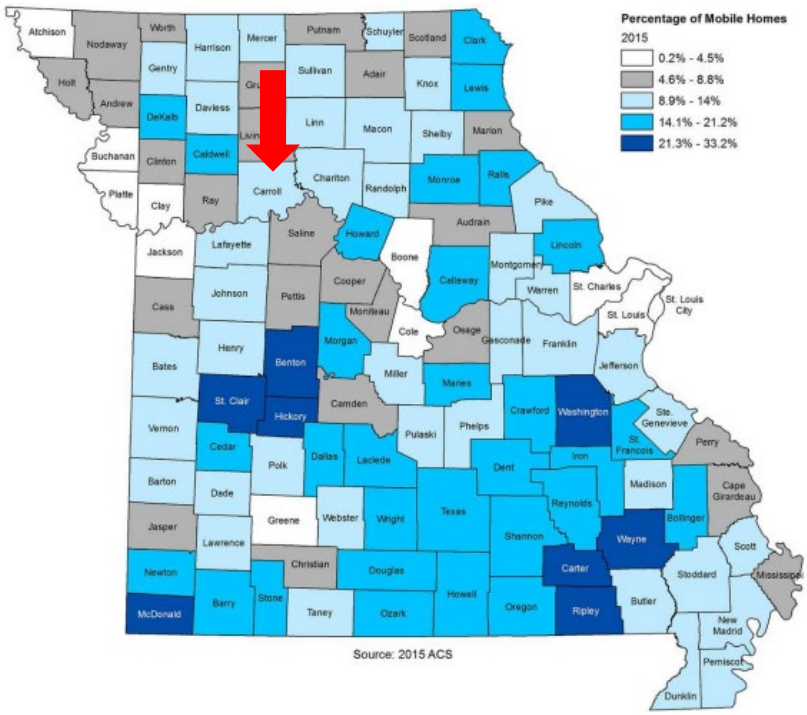


Source: http://www.tornadochaser.net/tornalley.html

Another factor to consider when determining vulnerability to tornadoes is the number of mobile homes in a county. Mobile homes are especially vulnerable to this hazard, as they are not built to provide adequate shelter from tornadoes, rather citizens that dwell in mobile homes must typically

seek shelter elsewhere.

Figure 3.47. Percent of Mobile Homes Per County in Missouri



Source: 2023 Missouri Hazard Mitigation Plan

Potential Losses to Existing Development

While there are no losses reported in the USDA Risk Management database as being from tornadoes, there were property damages of $555,000 reported by the NCEI database. This is an average loss of $17,343.75 annually.

Previous and Future Development

Vulnerability to tornadoes is anticipated to remain the same. Future development for public buildings such as schools, government offices, as well as buildings with high occupancy and campgrounds should consider including a tornado safe room to protect occupants in the event of a tornado.

Hazard Summary by Jurisdiction

A tornado event could occur anywhere in the planning area, but some jurisdictions would suffer heavier damages because of the age of the housing unit, the increased density of buildings and infrastructure, or the high concentration of mobile homes.

It is generally accepted that mobile homes are highly vulnerable to damage or devastation by tornadoes. The following table illustrates the number of mobile homes and homes built prior to 1939.

Table 3.82. Housing Vulnerability Indicators for Carroll County, 2023

Jurisdiction	Mobile Homes	% Of Mobile Homes	Homes Built Prior to 1939	% Homes Built Prior to 1939
Carroll County	233	6.8%	651	18.9%
City of Bogard	10	13.5%	14	18.9%
City of Bosworth	7	10.0%	19	27.1%
Carrollton	45	3.4%	208	15.6%
City of De Witt	7	21.9%	9	28.1%
City of Hale	19	8.2%	42	18.0%
City of Norborne	20	6.5%	54	17.6%
Village of Tina	13	18.8%	15	21.7%

Source: U.S. Census Bureau, Physical Housing Characteristics for Occupied Housing Units (S2501)

Problem Statement

A tornado could lead to damage to critical facilities, or disrupt the utility systems to critical facilities. A significant tornado would lead to a loss of life and may overwhelm resources.

3.4.10 Wildfire

Hazard Profile

Hazard Description

The fire incident types for wildfires include: 1) natural vegetation fire, 2) outside rubbish fire, 3) special outside fire, and 4) cultivated vegetation, crop fire.

The Forestry Division of the Missouri Department of Conservation (MDC) is responsible for protecting privately owned and state-owned forests and grasslands from wildfires. To accomplish this task, eight forestry regions have been established in Missouri for fire suppression. The Forestry Division works closely with volunteer fire departments and federal partners to assist with fire suppression

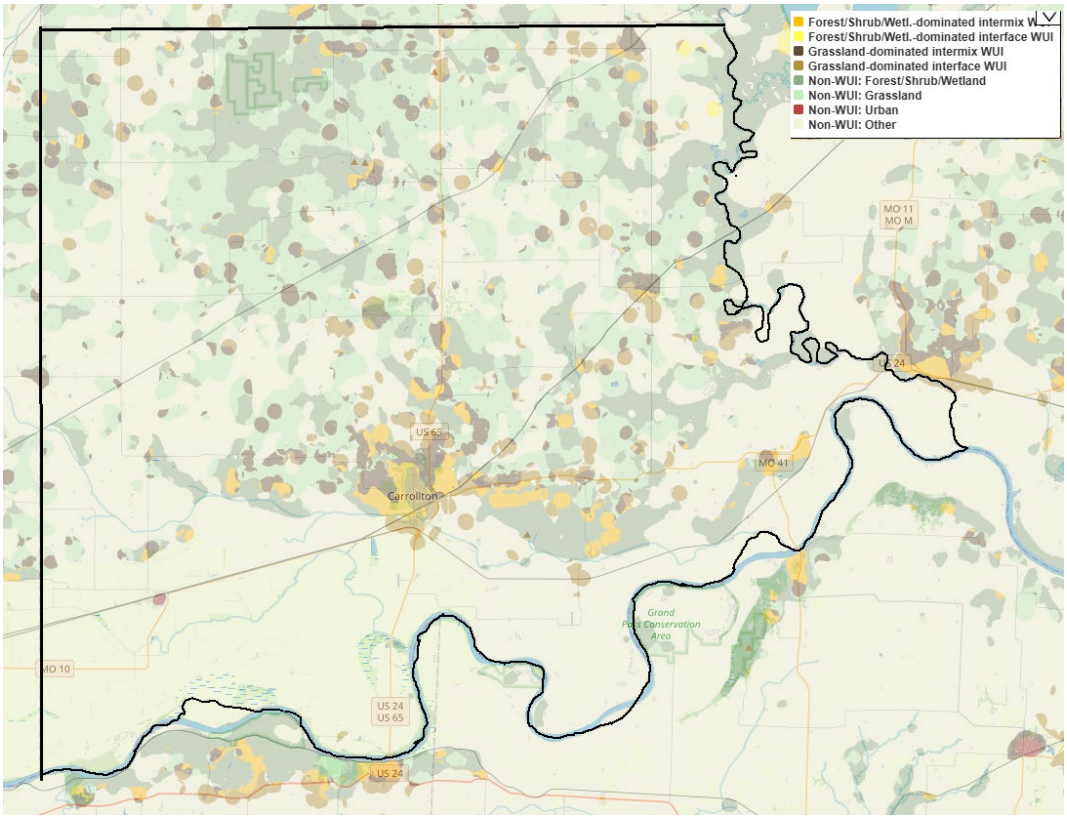
activities. Currently, more than 900 rural fire departments in Missouri have mutual aid agreements with the Forestry Division to obtain assistance in wildfire protection if needed.

Most of Missouri fires occur during the spring season between February and May. The length and severity of wildland fires depend largely on weather conditions. Spring in Missouri is usually characterized by low humidity and high winds. These conditions result in higher fire danger. In addition, due to the recent lack of moisture throughout many areas of the state, conditions are likely to increase the risk of wildfires. Drought conditions can also hamper firefighting efforts, as decreasing water supplies may not prove adequate for firefighting. It is common for rural residents burn their garden spots, brush piles, and other areas in the spring. Some landowners also believe it is necessary to burn their forests in the spring to promote grass growth, kill ticks, and reduce brush. Therefore, spring months are the most dangerous for wildfires. The second most critical period of the year is fall. Depending on the weather conditions, a sizeable number of fires may occur between mid-October and late November.

Geographic Location

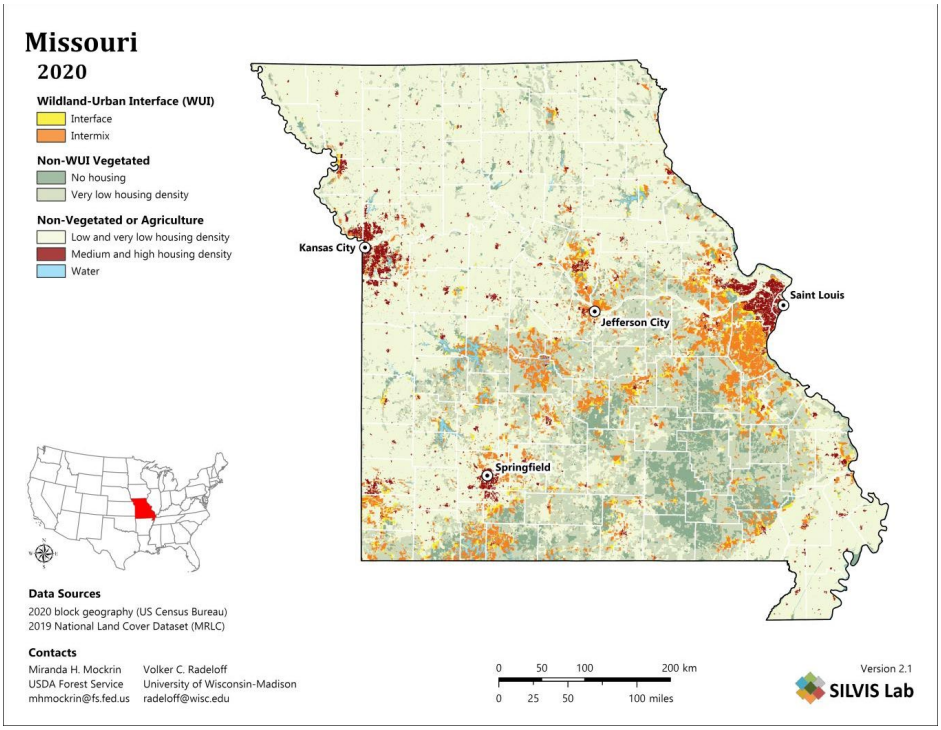
While all of Carroll County is at risk for the possibility of wildfires, areas with a higher Wildland Urban interface (WUI) are more susceptible to losses from a wildfire situation.

Figure 3.48. University of Wisconsin Wildland Urban Map showing Carroll County



Source: University of Wisconsin Global Wildland-Urban Interface (WUI) – 2020 accessed June 2025

Figure 3.49. Wildfire Urban Interface (WUI) Areas, 2020



Source: 2023 Missouri state hazard mitigation plan

Strength/Magnitude/Extent

Wildfires damage the environment, killing some plants and occasionally animals. Firefighters have been injured or killed, and structures can be damaged or destroyed. The loss of plants can heighten the risk of soil erosion and landslides. Although Missouri wildfires are not the size and intensity of those in the Western United States, they could impact recreation and tourism in and near the fires.

Wildland fires in Missouri have been mostly a result of human activity rather than lightning or some other natural event. Wildfires in Missouri are usually surface fires, burning the dead leaves on the ground or dried grasses. They do sometimes “torch” or “crown” out in certain dense evergreen stands like eastern red cedar and shortleaf pine. However, Missouri does not have the extensive stands of evergreens found in the western US that fuel the large fire storms seen on television news stories.

While very unusual, crown fires can and do occur in Missouri native hardwood forests during prolonged periods of drought combined with extreme heat, low relative humidity, and high wind. Tornadoes, high winds, wet snow and ice storms in recent years have placed a large amount of woody material on the forest floor that causes wildfires to burn hotter and longer. These conditions also make it more difficult for fire fighters suppress fires safely.

Often wildfires in Missouri go unnoticed by the general public because the sensational fire behavior that captures the attention of television viewers is rare in the state. Yet, from the standpoint of destroying homes and other property, Missouri wildfires can be quite destructive.

Previous Occurrences

Table 3.83. Counts of fires reported by year

Year	Number of fires reported

2015	27
2016	9
2017	29
2018	14
2019	73
2020	11
2021	26
2022	12
2023	91
2024	33
Total	**325**

Source: Missouri department of conservation wildfire reporting system

Figure 3.50. Average Annual Acreage Burned

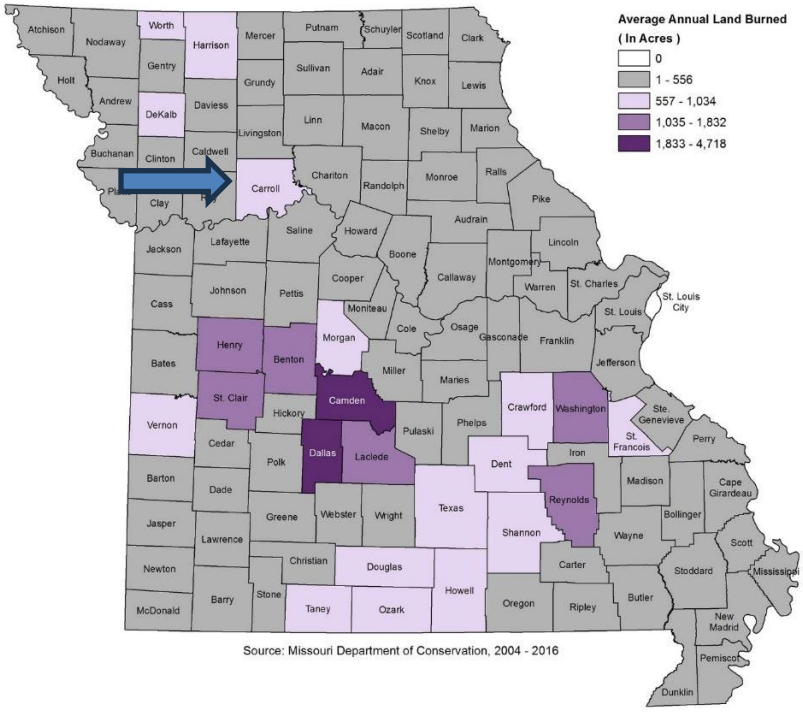


Table 3.84. Causes of Fire by type and count

Cause	Number of fires
Unknown	173
Miscellaneous	62
Debris	62
Equipment	23
Structure	11
Smoking	4
Arson	4
Campfire	3
Railroad	3
Not reported	2
Powerline	1

Source: Missouri department of conservation wildfire reporting system.

Probability of Future Occurrence

When calculating the probability of wildfires in Carroll County the following formula was used:

$$Probability = \frac{\#\ of\ events}{\#\ of\ years} = \frac{349}{10} = 34.9$$

This calculation indicates that the planning area could expect to experience approximately 34.9 wildfires per year.

Changing Future Conditions Considerations

Higher temperatures and changes in rainfall are unlikely to substantially reduce forest cover in Missouri, although the composition of trees in the forests may change. More droughts would reduce forest productivity, and changing future conditions are also likely to increase the damage from insects and diseases. But longer growing seasons and increased carbon dioxide concentrations could more than offset the losses from those factors. Forests cover about one-third of the state dominated by oak and hickory trees. As the climate changes, the abundance of pines in Missouri's forests is likely to increase, while the population of hickory trees is likely to decrease. Higher temperatures will also reduce the number of days prescribed burning can be performed. Reduction of prescribed burning will allow for growth of understory vegetation – providing fuel for destructive wildfires. Drought is also anticipated to increase in frequency and intensity during summer months under projected future scenarios. Drought can lead to dead or dying vegetation and landscaping material close to structures which creates fodder for wildfires within both the urban and rural settings.

Vulnerability

Vulnerability Overview

Potential Losses to Existing Development

Table 3.85. Estimated numbers and Values of Structures and Population Vulnerable to Wildfire in Carroll County

Type of Property	Number of Structures	Value of Structures	Population
Government	5	$4,146,216	0
Residential	33	$7,792,935	82
Agriculture	6	$31,469	0
Commercia	1	$410,302	0
Total	**45**	**$12,398,922**	**82**

Source; 2023 Missouri State Hazard Mitigation Plan

Table 3.86. Statistical Data for Wildfire Hazard in Carroll County

Number of Wildfires 2015-2025	Likelihood of Occurrence (#/year)	Total Acres Burned	Average Annual Acreage Burned
349	34.9	17,195.44	1,719.54

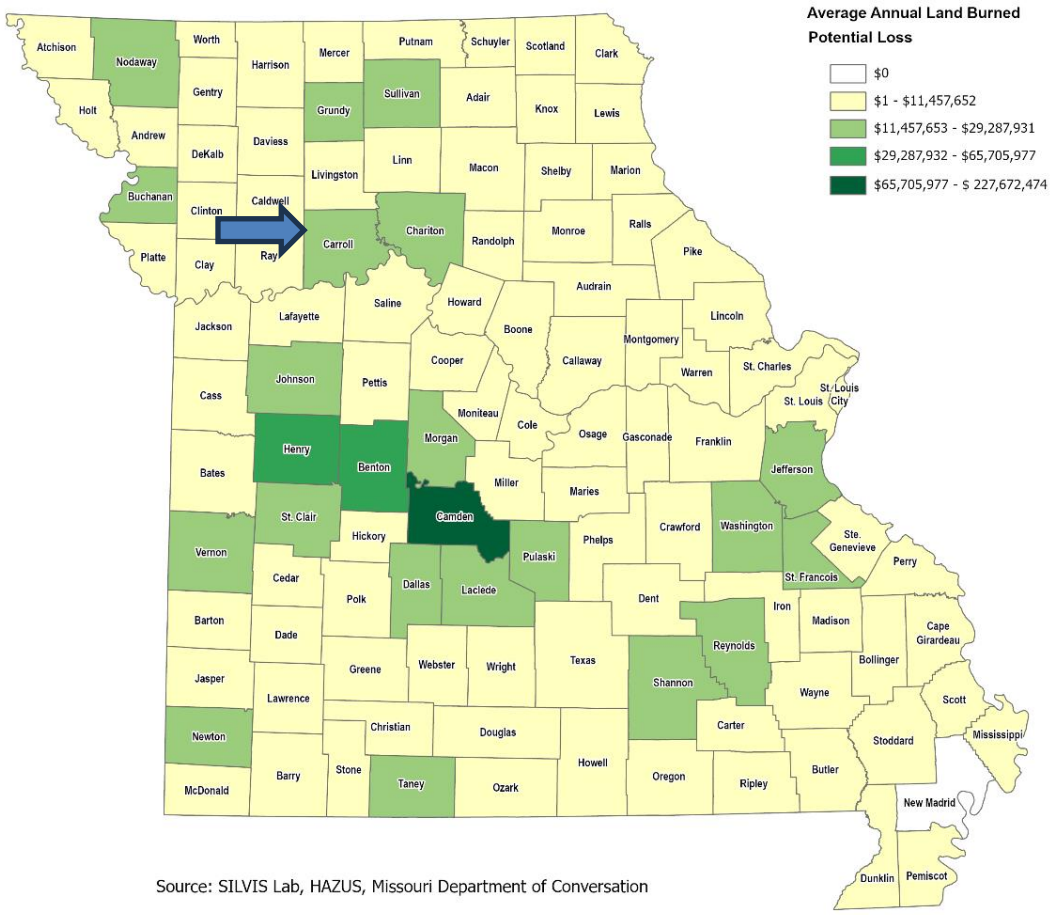
Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.87. Wildfire Potential Loss Estimates in Carroll County

Total WUI Acreage	Total Structure Value Within WUI	Average Value/Acre within WUI	Average Annual Acreage Burned	Potential Loss
675.86	675.86	675.86	675.86	675.86

Source: 2023 Missouri State Hazard Mitigation Plan

Table 3.88. Wildfire Potential Loss Estimate



Impact of Previous and Future Development

Future and previous development in the wildland-urban interface would increase vulnerability to the hazard. There are no known developments within the county that would increase the vulnerability.

Hazard Summary by Jurisdiction

The rural jurisdictions in the planning area are all surrounded by undeveloped agricultural land and face the possibility of a wildfire event. The school districts are mostly located in a rural area and do

not face danger of wildfire due to barriers in place around the schools. Future wildfires in Carroll County should have a negligible adverse impact on the community, as it would affect a small percentage of the population. Nonetheless, homes and businesses located in unincorporated areas are at higher risk from wildfires due to proximity to wood and distance from fire services. Variations in both structural/urban and wildfires are not able to be determined at this time due to lack of data. However, both fire types are expected to occur on an annual basis across the county.

Problem Statement

Residents do not comply with burn bans, education is not readily available for the levels of burn bans, many residents lack education in fire safety, and not all residents utilize social media and texting. Education should occur on the dangers of not complying with burn bans, more education for fire safety, and utilization of social media and texting for early warning.

Due to the regions high drought risk they may be more susceptible to fires. The plan could address this potential for high crop losses during drought and lessen the risk of wildfires during drought.

4 MITIGATION STRATEGY 4.1

4.1 Goals 4.1

4.2 Identification and Analysis of Mitigation Actions 4.2

4.3 Implementation of Mitigation Actions 4.7

4.4 Carroll County Actions for 2025 ..... 4.11

This section presents the mitigation strategy updated by the Mitigation Planning Committee (MPC) based on the [updated] risk assessment. The mitigation strategy was developed through a collaborative group process. The process included review of [updated] general goal statements to guide the jurisdictions in lessening disaster impacts as well as specific mitigation actions to directly reduce vulnerability to hazards and losses. The following definitions are taken from FEMA's *Local Mitigation Planning Policy Guide (2023)*

- **Goals** are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mitigation strategy.
- A **mitigation action** is a measure, project, plan or activity proposed to reduce current and future vulnerabilities described in the risk assessment.

4.1 Goals

This planning effort is an update to Carroll County's existing hazard mitigation plan approved by FEMA on May 3rd, 2021. Therefore, the goals from the 2021 Carroll County Hazard Mitigation Plan were reviewed to see if they were still valid, feasible, practical, and applicable to the defined hazard impacts. The MPC conducted a discussion session during their second meeting to review and update the plan goals. To ensure that the goals developed for this update were comprehensive and supported State goals, the 2023 State Hazard Mitigation Plan goals were reviewed. The MPC also reviewed the goals from current surrounding county plans. The MPC Planning Committee determined that the goals from the previous plan would be modified to the following:

- Goal 1: Eliminate loss of life, minimize injuries and reduce property damage caused by tornadoes, severe thunderstorms including high winds, hail, and lightning.
- Goal 2: Minimize property damage due to flooding, levee failure, and dam failure; including high hazard potential dams (HHPD).
- Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures, and wildfire.
- Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather.
- Goal 5: Minimize injuries and property damage due to seismic and/or geological events.

The goals were changed to more accurately reflect the hazards faced by jurisdictions and provide a targeted approach to address said hazards.

4.2 Identification and Analysis of Mitigation Actions

During the second MPC meeting, the results of the risk assessment update were provided to the MPC members for review, and the key issues were identified for specific hazards. Changes in risk since adoption of the previously approved plan were discussed. Actions from the previous plan included completed actions, on-going actions, and actions upon which progress had not been made. The MPC discussed SEMA's identified funding priorities and the types of mitigation actions generally recognized by FEMA.

The MPC included problem statements in the plan update at the end of each hazard profile. The problem statements summarize the risk to the planning area presented by each hazard and include possible methods to reduce that risk. Use of the problem statements allowed the MPC to recognize new and innovative strategies for mitigating risks in the planning area.

The focus of Meeting #3 was update of the mitigation strategy. For a comprehensive range of mitigation actions to be considered, the MPC reviewed the following information during Meeting #3:

- A list of actions proposed in the previous mitigation plan, the current 2023 State Plan, and approved plans in surrounding counties,
- Key issues from the risk assessments, including the problem statements concluding each hazard profile and vulnerability analysis,
- State priorities established for HMA grants, and
- Public input during meetings, responses to data collection questionnaires, and other efforts to involve the public in the plan development process.

For Meeting #3, individual jurisdictions, including school and special districts, developed final mitigation strategy for submission to the MPC. They were encouraged to review the details of the risk assessment vulnerability analysis specific to their jurisdiction. They were also provided a link to the FEMA's publication, *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)*. This document was developed by FEMA as a resource for identification of a range of potential mitigation actions for reducing risk to natural hazards and disasters.

The MPC reviewed the actions from the previously approved plan for progress made since the plan had been adopted, using worksheets included in Appendix C of this plan. Prior to Meeting #3, the list of actions for each jurisdiction was emailed to that jurisdiction's MPC representative along with the worksheets. Each jurisdiction was instructed to provide information regarding the "Action Status" with one of the following status choices:

- Completed, with a description of the progress.
- Ongoing, with a description of the progress made to date; or
- Not Yet Started, with a discussion of the reasons for lack of progress.

Additionally, the future inclusion of each mitigation action in the plan update was identified as either keep, delete, or modify. Based on the status updates, there were 35 completed actions, 80 continuing actions (either ongoing or modified), and 53 deleted actions.

Table 4.1 provides a summary of the action statuses for each jurisdiction:

Table 4.1. Action Status Summary

Jurisdiction	Completed Actions	Continuing Actions (ongoing or modify)	Deleted Actions
Carroll County	2	16	13
City of Bogard	2	7	3
Town of Carrollton	3	7	5
City of DeWitt	2	6	3
City of Hale	2	6	3
City of Norborne	5	11	14
Carrollton R-VII	3	3	1
Hale R-I	3	3	1
Norborne R-VIII	3	4	2
Tina-Avalon R-II	3	2	1
Total:	**35**	**80**	**53**

Table 4.2 provides a summary of the completed and deleted actions from the previous plan.

Table 4.2. Summary of Completed and Deleted Actions from the Previous Plan

Completed Actions	Completion Details (date, amount, funding source)
County 2020.21	Completed as part of the 2026 plan update using local funding
County 2020.22	Completed as part of the 2026 plan update using local funding
CB 2020.2	Contact information on file and in various locations.
CB 2020.6	Various agreements in place with emergency services and other cities, County
CBW 2020.2	Contact information on file and in various locations.
CC 2020.2	Posted on city website and various other sources
CC 2020.6	Agreements in place with MPUA, Fire departments and others
CC 2020.9	Utility maintains list of medical equipment dependent population
CD 2020.2	Completed using local funds, posted to various locations and media outlets
CD 2020.6	Agreements in place with county and fire departments
CH 2020.2	Completed using local funding, contacts posted on internet, and in various locations
CN 2020.2	Completed using local funding – information posted online and at city hall
CN 2020.6	Completed with local funds, agreements in place with county and others
CN 2020.21	Completed as part of the 2026 plan update using local funding
CN 2020.22	Completed as part of the 2026 plan update using local funding
CN 2020.24	Completed using local funds, action completed at city owned facilities.
VT 2020.2	Completed using local funds, information on file at city hall and other publications
VT 2020.6	Completed with local funds, agreements in place with rural water, county and others
BSD 2020.2	Completed using local funds, agreements with other schools in place
BSD 2020.3	Completed as part of the 2026 plan update using local funding
BSD 2020.4	Completed as part of the 2026 plan update using local funding
CSD 2020.2	Completed using local funds, agreements with other schools in place
CSD 2020.3	Completed as part of the 2026 plan update using local funding
CSD 2020.4	Completed as part of the 2026 plan update using local funding
HSD 2020.2	Completed using local funds, agreements with other schools in place
HSD 2020.3	Completed as part of the 2026 plan update using local funding
HSD 2020.4	Completed as part of the 2026 plan update using local funding
NSD 2020.2	Completed using local funds, agreements with other schools in place
NSD 2020.3	Completed as part of the 2026 plan update using local funding
NSD 2020.4	Completed as part of the 2026 plan update using local funding
TASD 2020.2	Completed as part of the 2026 plan update using local funding
TASD 2020.3	Completed using local funds, agreements with other schools in place
TASD 2020.4	Completed using local funds, agreements with other schools in place
Deleted Actions	**Reason for Deletion**
County 2020.3	MPC decided It was not a mitigation action
County 2020.4	Combined with other actions

County 2020.6	Combined with other actions
County 2020.7	Combined with other actions
County 2020.13	Combined with other actions
County 2020.14	Not a county function
County 2020.17	Combined with other actions
County 2020.19	Not practical
County 2020.23	No storm drains in the county
County 2020.26	Combined with other actions
County 2020.27	Deemed not a natural hazard, no longer covered in plan
County 2020.28	Deemed not a natural hazard, no longer covered in plan
County 2020.29	Combined with other actions
County 2020.30	Deemed not a natural hazard, no longer covered in plan
CB 2020.8	Not a city function
CB 2020.10	Combined with other actions
CB 2020.11	Deemed not a natural hazard, no longer covered in plan
CC 2020.10	Combined with other actions
CC 2020.11	Deemed not a natural hazard, no longer covered in plan
CC 2020.13	Deemed not a natural hazard, no longer covered in plan
CC 2020.14	Deemed not a natural hazard, no longer covered in plan
CD 2020.8	Not a city function
CD 2020.10	Combined with other actions
CD 2020.11	Deemed not a natural hazard, no longer covered in plan
CH 2020.8	Not a city function
CH 2020.10	Combined with other actions
CH 2020.11	Deemed not a natural hazard, no longer covered in plan
CN 2020.8	Not a city function
CN 2020.10	Combined with other actions
CN 2020.11	Deemed not a natural hazard, no longer covered in plan
CN 2020.14	Duplicate action in plan
CN 2020.16	Duplicate action in plan
CN 2020.17	Duplicate action in plan
CN 2020.18	Duplicate action in plan
CN 2020.19	Duplicate action in plan
CN 2020.20	Duplicate action in plan
CN 2020.26	Combined with other actions
CN 2020.27	Deemed not a natural hazard, no longer covered in plan
CN 2020.28	Deemed not a natural hazard, no longer covered in plan
CN 2020.29	Combined with other actions
CN 2020.30	Deemed not a natural hazard, no longer covered in plan
CN 2020.31	Duplicate action in plan
BSD 2020.5	Deemed not a natural hazard, no longer covered in plan
CSD 2020.5	Deemed not a natural hazard, no longer covered in plan
HSD 2020.5	Deemed not a natural hazard, no longer covered in plan
NSD 2020.6	Combined with other actions
NSD 2020.9	Deemed not a natural hazard, no longer covered in plan
TASD 2020.6	Deemed not a natural hazard, no longer covered in plan

Source: Previously approved County Hazard Mitigation Plan; Data Collection Questionnaires.

Table 4.3. provides a list of all actions of the previous plan and their status within the 2026 plan

Table 4.3. Summary of actions from the 2021 plan

Status	Action from Previous Plan
Continued	County 2020.1 Inventory of shelters and safe rooms
Continued/Modified	County 2020.2 Mitigation education (was preparedness education)
Removed	County 2020.3 Snow removal
Removed	County 2020.4 Maintain emergency management education
Continued/Modified	County 2020.5 Weather alerts, sirens, and education (was sirens)
Removed	County 2020.6 Education for early warning systems
Removed	County 2020.7 Flood warning system

Continued	County 2020.8 County-wide disaster drills and exercises
Continued	County 2020.9 Monitor repetitive loss properties
Continued/Modified	County 2020.10 Grants for road and bridge upgrades
Continued	County 2020.11 Levee failure data collection
Continued	County 2020.12 Hazard audits of vulnerable structures
Removed	County 2020.13 Flood risk reduction projects
Removed	County 2020.14 Weather spotter training
Continued	County 2020.15 Survey flood plain areas
Continued/Modified	County 2020.16 Critical facilities backup
Removed	County 2020.17 Public officials education on hazard mitigation
Continued	County 2020.18 Debris removal and brush clearing
Removed	County 2020.19 Accessible contact information
Continued	County 2020.20 Mutual aid agreements
Completed	County 2020.21 Public review of hazard mitigation plan
Completed	County 2020.22 Plan reassessment
Removed	County 2020.23 Storm drain system
Continued	County 2020.24 Safety audit and self-inspection for critical facilities
Continued	County 2020.25 Continue County municipal steering committee
Removed	County 2020.26 Tree trimming maintenance
Removed	County 2020.27 Pandemic response and management
Removed	County 2020.28 Economic stabilization during pandemic
Removed	County 2020.29 Warning siren coverage
Removed	County 2020.30 Pandemic PPE
Continued	County 2020.31 NFIP participation
Continued	CB 2020.1 Weather Alerts
Continued	CB 2020.2 Accessible contact information
Continued	CB 2020.3 Critical facilities backup
Continued	CB 2020.4 Debris removal
Continued/Modified	CB 2020.5 Emergency preparedness education
Completed	CB 2020.6 Mutual aid agreements
Continued	CB 2020.7 Storm shelters
Removed	CB 2020.8 Weather spotter training
Continued	CB 2020.9 Vulnerable population identification
Removed	CB 2020.10 Public officials education on hazard mitigation
Removed	CB 2020.11 Pandemic PPE
Continued	CB 2020.12 Installation of warning sirens
Continued	CC 2020.1 Installation of warning sirens
Complete	CC 2020.2 Accessible contact information
Continued	CC 2020.3 Critical facilities backup
Continued	CC 2020.4 Debris removal
Continued/Modified	CC 2020.5 Preparedness education
Complete	CC 2020.6 Mutual aid agreements
Continued	CC 2020.7 Storm shelters
Continued	CC 2020.8 Weather spotter training
Complete	CC 2020.9 Vulnerable population identification
Removed	CC 2020.10 Public officials' education on hazard mitigation
Removed	CC 2020.11 Pandemic PPE
Removed	CC 2020.12 Hazard education for those involved in land development
Removed	CC 2020.13 Pandemic response and management
Removed	CC 2020.14 Economic stabilization during pandemic
Continued	CC 2020.15 Participation in NFIP
Continued	CD 2020.1 Installation of waning sirens
Completed	CD 2020.2 Accessible contact information
Continued	CD 2020.3 Critical facilities backup
Continued	CD 2020.4 Debris removal
Continued/Modified	CD 2020.5 Preparedness education
Completed	CD 2020.6 Mutual aid agreements
Continued	CD 2020.7 Storm shelters
Removed	CD 2020.8 Weather spotter training
Continued	CD 2020.9 Vulnerable population identification
Removed	CD 2020.10 Public officials education on hazard mitigation
Removed	CD 2020.11 Pandemic PPE

Continued	CH 2020.1 Installation of a warning siren
Completed	CH 2020.2 Accessible contact information
Continued	CH 2020.3 Critical facilities backup
Continued	CH 2020.4 Debris removal
Continued/Modified	CH 2020.5 Preparedness education
Completed	CH 2020.6 Mutual aid agreements
Continued	CH 2020.7 Storm shelters
Removed	CH 2020.8 Weather spotter training
Continued	CH 2020.9 Vulnerable population identification
Removed	CH 2020.10 Public officials' education on hazard mitigation
Removed	CH 2020.11 Pandemic PPE
Continued	CN 2020.1 Installation of warning siren
Completed	CN 2020.2 Accessible contact information
Continued	CN 2020.3 Critical facilities backup
Continued	CN 2020.4 Debris removal
Continued/Modified	CN 2020.5 Preparedness education
Completed	CN 2020.6 Mutual aid agreements
Continued	CN 2020.7 Storm shelters
Removed	CN 2020.8 Weather spotter training
Continued	CN 2020.9 Vulnerable population identification
Removed	CN 2020.10 Public officials' education on hazard mitigation
Removed	CN 2020.11 Pandemic PPE
Continued	CN 2020.12 Participation in the NFIP
Continued	CN 2020.13 Flood risk reduction projects
Removed	CN 2020.14 Weather spotter training
Continued	CN 2020.15 Survey flood plain areas
Removed	CN 2020.16 Critical facilities backup
Removed	CN 2020.17 Public officials' education on hazard mitigation
Removed	CN 2020.18 Debris removal and brush clearing
Removed	CN 2020.19 Accessible contact information
Removed	CN 2020.20 Mutual aid agreements
Completed	CN 2020.21 Public review of hazard mitigation plan
Completed	CN 2020.22 Plan reassessment
Continued	CN 2020.23 Storm drain system
Completed	CN 2020.24 Safety audits and self-inspections for critical facilities
Continued	CN 2020.25 Continue County municipal steering committee
Continued	CN 2020.26 Tree trimming maintenance
Removed	CN 2020.27 Pandemic response and management
Removed	CN 2020.28 Economic stabilization during pandemic
Removed	CN 2020.29 Warning siren coverage
Removed	CN 2020.30 Pandemic PPE
Removed	CN 2020.31 Pandemic participation in the NFIP
Continued/Modified	CSD 2020.1 Emergency preparedness education
Complete	CSD 2020.2 Mutual aid agreements
Complete	CSD 2020.3 Plan reassessment
Complete	CSD 2020.4 Representative for county hazard mitigation steering committee
Continued	CSD 2020.5 Storm shelters or safe rooms
Removed	CSD 2020.6 Pandemic PPE
Continued	CSD 2020.7 Generator
Continued/Modified	HSD 2020.1 Preparedness education
Complete	HSD 2020.2 Mutual aid agreements
Complete	HSD 2020.3 Plan reassessment
Complete	HSD 2020.4 Representative for hazard mitigation steering committee
Continued	HSD 2020.5 Storm shelters
Continued	HSD 2020.6 Generator
Removed	HSD 2020.7 Pandemic PPE
Continued/Modified	NSD 2020.1 Preparedness education
Complete	NSD 2020.2 Mutual aid agreements
Complete	NSD 2020.3 Plan reassessment
Complete	NSD 202.4 Representative for hazard mitigation steering committee
Continued	NSD 2020.5 Weather alerts
Removed	NSD 2020.6 Warning siren coverage

Continued	NSD 2020.7 Public storm shelter
Continued	NSD 2020.8 Generator
Removed	NSD 2020.9 Pandemic PPE
Continued/Modified	TASD 2020.1 Preparedness education
Complete	TASD 2020.2 Plan reassessment
Complete	TASD 2020.3 Mutual aid agreements
Complete	TASD 2020.4 Representee for county hazard mitigation planning committee
Continued	TASD 2020.5 Safe rooms and storm shelters
Removed	TASD 2020.6 Pandemic PPE

4.3 Implementation of Mitigation Actions

Jurisdictional MPC members were encouraged to meet with others in their community to finalize the actions to be submitted for the updated mitigation strategy. Throughout the MPC consideration and discussion, emphasis was placed on the importance of a benefit-cost analysis in determining project priority. The Disaster Mitigation Act requires benefit-cost review as the primary method by which mitigation projects should be prioritized. The MPC decided to pursue implementation according to when and where damage occurs, available funding, political will, jurisdictional priority, and priorities identified in the 2023 Missouri State Hazard Mitigation Plan. The benefit/cost review at the planning stage primarily consisted of a qualitative analysis and was not the detailed process required grant funding application. For each action, the plan sets forth a narrative describing the types of benefits that could be realized from action implementation. The cost was estimated as close as possible, with further refinement to be supplied as project development occurs.

FEMA's STAPLEE methodology was used to assess the costs and benefits, overall feasibility of mitigation actions, and other issues impacting project. During the prioritization process, the jurisdictions used worksheets to assign scores. The worksheets posed questions based on the STAPLEE elements as well as the potential mitigation effectiveness of each action. Scores were based on the responses to the questions as follows:

Definitely YES = 3 points
Maybe YES = 2 points
Probably NO = 1 point
Definitely NO = 0 points

The following questions were asked for each proposed action.

S: Is the action socially acceptable?
T: Is the action technically feasible and potentially successful?
A: Does the jurisdiction have the administrative capability to successfully implement this action?
P: Is the action politically acceptable?
L: Does the jurisdiction have the legal authority to implement the action?
E: Is the action economically beneficial?
E: Will the project have an environmental impact that is either beneficial or neutral? (score "3" if positive and "2" if neutral)

Will the implemented action result in lives being saved?
Will the implanted action result in a reduction in disaster damage?

The final scores are listed below in the analysis of each action. The worksheets are attached to this plan as Appendix C. The STAPLEE final score for each action, absent other considerations, such as a localized need for a project, determined the priority. Low priority action items were those that had a total score of between 0 and 24. Moderate priority actions were those scoring between 25 and 29. High priority actions scored 30 or above. A blank STAPLEE worksheet is

shown in **Figure 4.1**

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:		
Action or Project		
Action/Project Number:	Insert a unique action number for this action for future tracking purposes. This can be a combination of the jurisdiction name, followed by the goal number and action number (i.e. Joplin1.1)	
Name of Action or Project:		
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		
T: Is it **Technically** feasible and potentially successful?		
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		
P: Is it **Politically** acceptable?		
L: Is there **Legal** authority to implement?		
E: Is it **Economically** beneficial?		
E: Will the project have either a neutral or positive impact on the natural **Environment**?		
Will historic structures be saved or protected?		
Could it be implemented quickly?		
STAPLEE SCORE		
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	
MITIGATION EFFECTIVENESS SCORE		
TOTAL SCORE (STAPLEE + Mitigation Effectiveness)		

☐ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**

Completed by
(Name, Title, Phone Number) _____

ACTION WORKSHEET

Action Worksheet	
Name of Jurisdiction:	
Risk / Vulnerability	
Hazard(s) Addressed:	List the hazard or hazards that will be addressed by this action
Problem being Mitigated:	Provide a brief description of the problem that the action will address. Utilize the problem statement developed in the risk assessment.
Action or Project	
Applicable Goal Statement:	Choose the goal statement that applies to this action
Action/Project Number:	Insert a unique action number for this action for future tracking purposes. This can be a combination of the jurisdiction name, followed by the goal number and action number (i.e. Joplin1.1)
Name of Action or Project:	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services
Action or Project Description:	Describe the action or project.
Estimated Cost:	Provide an estimate of the cost to implement this action. This can be accomplished with a range of estimated costs.
Benefits:	Provide a narrative describing the losses that will be avoided by implementing this action. If dollar amounts of avoided losses are known, include them as well.
Plan for Implementation	
Responsible Organization/Department:	Which organization will be responsible for tracking this action? Be specific to include the specific department or position within a department.
Supporting Organization/Department:	Which organization/department will assist in implementation of this action?
Action/Project Priority:	Include the STAPLEE score and Priority (H, M, L)
Timeline for Completion:	How many months/years to complete.
Potential Fund Sources:	List specific funding sources that may be used to pay for the implementation of the action.
Local Planning Mechanisms to be Used in Implementation, if any:	
Progress Report	
Action Status:	Indicate status as New, Continuing Not Started, or Continuing in Progress)
Report of Progress:	For Continuing actions only, indicate the report on progress. If the action is not started, indicate any barriers encountered to initiate the action. If the action is in progress, indicate the activity that has occurred to date.

4.4 Carroll County Actions for 2025

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Lack of readily available, organized and useful information on available shelters and safe rooms.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.1
Name of Action or Project:	**County-wide inventory of emergency shelters and safe rooms**
Mitigation Category:	Emergency Services
Action or Project Description:	1. Appoint a shelter coordinator 2. Work with representatives from each community to develop a list of shelters and safe rooms, which can include: • Shelter/Safe Room location • Contact Information • Facility Information • Capacity • Amenities, such as showers, bathrooms, segregated spaces, stored supplies • Whether site has generator or capacity to interface with a portable generator
Estimated Cost:	$0
Benefits:	This could establish an inventory from which the County can work to identify its comprehensive needs for shelter throughout its jurisdictions.
Plan for Implementation	
Responsible Organization/Department:	County Emergency Management,
Supporting Organization/Department:	City governments and school districts
Action/Project Priority:	High
Timeline for Completion:	1 – 5 years
Potential Fund Sources:	Emergency management
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Lack of public knowledge about natural disasters.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.2
Name of Action or Project:	**Public mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the public through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population will increase understanding of natural disasters and how to prepare for natural disasters potentially affecting the County.
Plan for Implementation	
Responsible Organization/Department:	County Emergency Management
Supporting Organization/Department:	FEMA, SEMA, NWS, USGS
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	NA
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	Will continue to conduct mitigation education yearly

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	, Flooding, Dam failure, Extreme temperatures, Severe Thunderstorm, Severe Winter Weather, Tornadoes, Wildfires
Problem being Mitigated:	All citizens should have sufficient access to advance and emergency weather information in times of severe weather.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather
Action/Project Number:	County 2025.3
Name of Action or Project:	**Weather alerts**
Mitigation Category:	Education and outreach
Action or Project Description:	Maintain or expand as needed or able, the distribution methods of severe weather alerts to the general public. Local governments should encourage residents to purchase weather radios or receive mobile phone alerts to ensure that everyone has sufficient access to information in times of severe weather.
Estimated Cost:	$1,000
Benefits:	Reach more residents during severe weather, increasing potential to save lives and property.
Plan for Implementation	
Responsible Organization/Department:	County Officials
Supporting Organization/Department:	County EMD, Fire Departments
Action/Project Priority:	High
Timeline for Completion:	1 – 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Efficiency, Timing, and Effectiveness of Warning, Response, and Recovery Efforts
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.4
Name of Action or Project:	**County-wide disaster drills and exercises**
Mitigation Category:	Emergency Services
Action or Project Description:	1. Emergency Management will coordinate with local response agencies and facilities to plan and execute tabletop and full-scale exercise to address above goal. 2. They will design and implement county-wide drills involving agencies, public and private entities, including schools, businesses and nursing facilities. 3. They will publicize county-wide or city-wide drills.
Estimated Cost:	$1000
Benefits:	Improves efficiency, timing and effectiveness of the disaster preparedness programming in the county
Plan for Implementation	
Responsible Organization/Department:	County Emergency Management
Supporting Organization/Department:	Police, Fire, EMS, Businesses and Schools, Nursing Facilities
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	Emergency Management Grant Funding
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Under development

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Efficiency, Timing, and Effectiveness of Warning, Response, and Recovery Efforts
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	County 2025.5
Name of Action or Project:	**Monitor repetitive loss properties**
Mitigation Category:	Planning and Regulation
Action or Project Description:	Monitor current, and watch for future repetitive loss properties as a result of flooding
Estimated Cost:	$100
Benefits:	Improve efficiency, timing and effectiveness of the disaster preparedness programming in the county
Plan for Implementation	
Responsible Organization/Department:	County Emergency Management
Supporting Organization/Department:	Emergency Management/Floodplain Administrator
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	Emergency management funding
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Under review

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Emergency responses are affected by problematic transportation routes, improving infrastructure will mitigate damage caused by natural disasters and improve emergency response times, mitigating loss of life.
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	County 2025.6
Name of Action or Project:	**Structure grants for road and bridge upgrades**
Mitigation Category:	Structure and Infrastructure projects
Action or Project Description:	• Structure grant proposals for road/bridge upgrades so that hazard mitigation concerns are also met, and address mitigation needs in transportation planning via the local Transportation Advisory Committee and its needs assessments, which form the basis of MoDOT's 5-year plans. • The County Commission shall present local transportation concerns to the regional transportation advisory committee, where they can be incorporated into MoDOT's planning structure. The County and City will also seek CDBG and MoDOT grant funding to address specific issues as they are discovered.
Estimated Cost:	$0
Benefits:	The cost of participating in planning and applying for grant funds is considered to be minimal compared to the potential benefits.
Plan for Implementation	
Responsible Organization/Department:	County Commissioners
Supporting Organization/Department:	MoDOT; CDBG
Action/Project Priority:	Medium
Timeline for Completion:	2025
Potential Fund Sources:	MoDOT; CDBG
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Levee Failure
Problem being Mitigated:	Incidents involving Levees
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	County 2025.7
Name of Action or Project:	**Levee failure/Incident data collection**
Mitigation Category:	Structure and Infrastructure projects
Action or Project Description:	Work with levee districts to keep a dataset of incidents of levee failure or other events
Estimated Cost:	$100
Benefits:	Identify problematic levee's and direct funding to mitigate future impacts
Plan for Implementation	
Responsible Organization/Department:	County Commissioners
Supporting Organization/Department:	
Action/Project Priority:	Low
Timeline for Completion:	2025
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-Going

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Lack of education at facilities on preparation for hazard impacts and mitigation.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.8
Name of Action or Project:	**Hazards audit and self-inspection and training for facilities**
Mitigation Category:	Education and outreach
Action or Project Description:	1. Emergency Management will arrange for training on *safety audits and hazard mitigation* for facilities using federal and state training resources and grant funding. 2. Emergency Management will provide opportunities for training administrators and employees of critical facilities *to develop self-inspection processes* to ensure that the building infrastructure is earthquake, flood and tornado resistant. 3. Emergency services will engage local government, utility and response agency experts to participate in this process and build rapport between agencies.
Estimated Cost:	$500
Benefits:	Low cost. Increased collaboration between agencies for natural disaster planning and education. Ongoing preparation through regular self-inspection and audits by critical facilities.
Plan for Implementation	
Responsible Organization/Department:	County EMD
Supporting Organization/Department:	SEMA/FEMA, Red Cross
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On going on a yearly basis

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Unregulated development within the flood plain
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	County 2025.9
Name of Action or Project:	**Survey of flood plain areas**
Mitigation Category:	Planning and regulation
Action or Project Description:	Work with county officials to determine new development within the regulated flood plain to ensure compliance with the NFIP ordinance
Estimated Cost:	$100
Benefits:	Reduce future costs by managing unregulated development within the flood plain
Plan for Implementation	
Responsible Organization/Department:	Flood plain administrator
Supporting Organization/Department:	n/a
Action/Project Priority:	Low
Timeline for Completion:	2025
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-Going

Action Worksheet	
Name of Jurisdiction:	**Carroll county**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Facilities with auxiliary power supplies should be available to residents affected by power outages.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.10
Name of Action or Project:	**Critical facilities back-up**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Assist critical facilities with emergency communication plans and emergency power back-up plans as needed, including shelters for those displaced from their homes by power outages.
Estimated Cost:	$500,000
Benefits:	Critical facilities, such as shelters, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	County Commission, County EMD
Supporting Organization/Department:	n/a
Action/Project Priority:	HIGH
Timeline for Completion:	1 year
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Transportation routes can be disrupted by debris caused by natural disasters.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.11
Name of Action or Project:	**Debris removal & Brush clearing**
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Mitigate the risk to life and property and promote continued operation of government and emergency functions by regularly removing debris as needed along transportation routes and drainage systems.
Estimated Cost:	$500,000
Benefits:	Frequent removal of debris will help clear roadways and drainage systems. Emergency services can response quicker to emergencies. Storm water can drain effectively and reduce the risk of flooding with regular removal of debris.
Plan for Implementation	
Responsible Organization/Department:	Road and Bridge Department
Supporting Organization/Department:	n/a
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	Transportation budget, FEMA Recovery funds, Emergency budget
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On going as needed

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	It is necessary to maintain and update Mutual Aid Agreements for swift response to provide support during a natural disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.12
Name of Action or Project:	**Mutual aid agreements**
Mitigation Category:	Emergency Services
Action or Project Description:	Execute and maintain mutual aid agreements with all relevant agencies.
Estimated Cost:	$500
Benefits:	Mutual Aid Agreements will expedite swifter response for assistance from organizations with which the county has agreements during and after a natural disaster.
Plan for Implementation	
Responsible Organization/Department:	County EMD
Supporting Organization/Department:	County Commission, Fire Departments and Ambulance District
Action/Project Priority:	HIGH
Timeline for Completion:	1 year
Potential Fund Sources:	General revenue budget
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued
Report of Progress:	Reviewed as needed

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Lack of an ongoing county-wide committee to coordinate emergency preparedness and hazard mitigation planning with active representatives from each jurisdiction in the County.
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	County 2025.15
Name of Action or Project:	**Upgrade or replace road tubes and culverts**
Mitigation Category:	Structure and infrastructure
Action or Project Description:	Upgrade, resize, or replace road tubes that are prone to being overwhelmed during a heavy rainfall event leading to flooding
Estimated Cost:	$250,000
Benefits:	The County will save on the long term cost of fixing washouts and road damage from underperforming tubes and culverts
Plan for Implementation	
Responsible Organization/Department:	County Commission
Supporting Organization/Department:	Hazard Mitigation Planning Committees
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, Transportation budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	New
Report of Progress:	New Project

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Lack of education at critical facilities on preparation for hazard impacts and mitigation.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.16
Name of Action or Project:	**Safety audit and self-inspection and training for critical facilities**
Mitigation Category:	Education and outreach
Action or Project Description:	1. Emergency Management will arrange for training on *safety audits and hazard mitigation* for facilities using federal and state training resources and grant funding. 2. Emergency Management will provide opportunities for training to administrators and employees of critical facilities *to develop self-inspection processes* to ensure that the building infrastructure is earthquake, flood and tornado resistant. 3. Emergency services will engage local government, utility and response agency experts to participate in this process and build rapport between agencies.
Estimated Cost:	$500
Benefits:	Low cost. Increased collaboration between agencies for natural disaster planning and education. Ongoing preparation through regular self-inspection and audits by critical facilities.
Plan for Implementation	
Responsible Organization/Department:	County EMD
Supporting Organization/Department:	SEMA/FEMA, Red Cross
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On going on a yearly basis

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Lack of an ongoing county-wide committee to coordinate emergency preparedness and hazard mitigation planning with active representatives from each jurisdiction in the County.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	County 2025.17
Name of Action or Project:	**Continue county-level municipality steering committee**
Mitigation Category:	Education and Outreach
Action or Project Description:	This Steering Committee will meet quarterly to assist the County to: 1. Forecast County emergency preparedness needs for: a. Protection of Life, Health and Safety b. Protection of Continuity of Government and Essential Services c. Protection of Public and Private Property, and d. Protection of Community Tranquility. 2. Inform County officials of potential problematic areas. 3. Educate the public on emergency preparedness and hazard mitigation. 4. Review existing planning documents during annual review. 5. Identify funding sources and partner agencies for emergency preparedness and mitigation projects.
Estimated Cost:	$0
Benefits:	The County will benefit from proactive identification and planning for potential problems as well as increased coordination with partner agencies and potential grant sources to identify assistance and funding to address identified problems in advance of a natural hazard event.
Plan for Implementation	
Responsible Organization/Department:	County Commission, County EMD
Supporting Organization/Department:	Hazard Mitigation Planning Committees
Action/Project Priority:	Medium
Timeline for Completion:	5 years
Potential Fund Sources:	NA
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	New
Report of Progress:	New Project

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Unregulated development in the floodplains
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	County 2025.18
Name of Action or Project:	**PARTICIPATION IN NFIP (National Floodplain Insurance Program)**
Mitigation Category:	Planning and Regulation
Action or Project Description:	County will continue participation in NFIP, re-evaluate and continue enforcement of ordinances and regulations, and continue to work with the floodplain manager.
Estimated Cost:	$100/Yearly
Benefits:	Protection of structures insured through NFIP.
Plan for Implementation	
Responsible Organization/Department:	Floodplain Administrator
Supporting Organization/Department:	
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Ordinance
Progress Report	
Action Status:	Continued
Report of Progress:	Continue, in progress

Action Worksheet	
Name of Jurisdiction:	**Carroll County**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Unregulated development in the floodplains
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents..
Action/Project Number:	County 2025.19
Name of Action or Project:	**Revised flood plain ordinance**
Mitigation Category:	Planning and Regulation
Action or Project Description:	County will update it's flood plain ordinance to ensure compliance and address situations of substantial damage and substantial improvement as needed.
Estimated Cost:	$100/Yearly
Benefits:	Protection of structures insured through NFIP.
Plan for Implementation	
Responsible Organization/Department:	County Commission
Supporting Organization/Department:	n/a
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Ordinance
Progress Report	
Action Status:	New
Report of Progress:	New for 2026 plan update

Action Worksheet	
Name of Jurisdiction:	**City of Bogard**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam failure, Extreme temperatures, Severe Thunderstorm, Severe Winter Weather, Tornadoes, Wildfires
Problem being Mitigated:	All citizens should have sufficient access to advance and emergency weather information in times of severe weather.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather
Action/Project Number:	CB 2025.1
Name of Action or Project:	**Weather alerts**
Mitigation Category:	Education and outreach
Action or Project Description:	Maintain or expand as needed or able, the distribution methods of severe weather alerts to the general public. Local governments should encourage residents to purchase weather radios or receive mobile phone alerts to ensure that everyone has sufficient access to information in times of severe weather.
Estimated Cost:	$1,000
Benefits:	Reach more residents during severe weather, increasing potential to save lives and property.
Plan for Implementation	
Responsible Organization/Department:	City Officials
Supporting Organization/Department:	County EMD, Fire Departments
Action/Project Priority:	High
Timeline for Completion:	1 – 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of Bogard**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Facilities with auxiliary power supplies should be available to residents affected by power outages.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CB 2025.2
Name of Action or Project:	**Critical facilities back-up**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Assist critical facilities with emergency communication plans and emergency power back-up plans as needed, including shelters for those displaced from their homes by power outages.
Estimated Cost:	$5,000
Benefits:	Critical facilities, such as shelters, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	City council
Supporting Organization/Department:	n/a
Action/Project Priority:	HIGH
Timeline for Completion:	1 year
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Bogard**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Earthquake, Severe thunderstorm, Sever winter storm, tornado
Problem being Mitigated:	Transportation routes can be disrupted by debris caused by natural disasters.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CB 2025.3
Name of Action or Project:	**Debris removal & regular brush clearing**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Mitigate the risk to life and property and promote continued operation of government and emergency functions by regularly removing debris as needed along transportation routes and drainage systems.
Estimated Cost:	$500,000
Benefits:	Frequent removal of debris will help clear roadways and drainage systems. Emergency services can respond quicker to emergencies. Stormwater can drain effectively and reduce the risk of flooding with regular removal of debris.
Plan for Implementation	
Responsible Organization/Department:	City Road and Bridge Department
Supporting Organization/Department:	County Road and Bridge Dept, EMD
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	HMGP, FEMA Recovery, Transportation budget
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of Bogard**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CB 2025.4
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the public through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	Mayor, City board
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of Bogard**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CB 2025.5
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	County Commissioners, Local Police Departments, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Bogard**
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures
Problem being Mitigated:	Extreme temperatures (severe heat and severe cold) present hardship and high risk for injury or death to county citizens, especially the very young and old.
Action or Project	
Applicable Goal Statement:	Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire
Action/Project Number:	CB 2025.6
Name of Action or Project:	**Vulnerable population identification**
Mitigation Category:	Emergency Services
Action or Project Description:	Identify and maintain list of local vulnerable populations that are the most susceptible to extreme heat and cold to ensure that local public safety officials confirm their well-being during episodes of extreme temperature, reducing the risk of loss of life due to hazardous conditions and natural hazards.
Estimated Cost:	$500
Benefits:	Lives could be saved through identification of vulnerable populations for well-being checks during natural hazards.
Plan for Implementation	
Responsible Organization/Department:	City Officials
Supporting Organization/Department:	County EMD, County Health Department, Coordination with Senior Centers, DHHS, local doctor's offices, County Sheriff's Department, Fire District, Ambulance District
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	N/A
Progress Report	
Action Status:	Continued
Report of Progress:	Limited progress

Action Worksheet	
Name of Jurisdiction:	**City of Bogard**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorm, Tornado
Problem being Mitigated:	Early Warning Sirens
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CB 2025.7
Name of Action or Project:	**Installation of warning siren**
Mitigation Category:	Structure and Infrastructure Projects, Emergency Services
Action or Project Description:	Installation of early warning sirens
Estimated Cost:	$500,000
Benefits:	With adequate time for warning of storms, residents are able to seek cover to help minimize the loss of life.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	County Commission
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	Hazard Mitigation Grant Funds, Capital projects
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Town of Carrollton**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorm, Tornado
Problem being Mitigated:	Early Warning Sirens
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CC 2025.1
Name of Action or Project:	**Installation of warning siren**
Mitigation Category:	Structure and Infrastructure Projects, Emergency Services
Action or Project Description:	Installation of early warning sirens
Estimated Cost:	$500,000
Benefits:	With adequate time for warning of storms, residents are able to seek cover to help minimize the loss of life.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	Hazard Mitigation Grant Funds, Capital projects
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Town of Carrollton**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Facilities with auxiliary power supplies should be available to residents affected by power outages.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CC 2025.2
Name of Action or Project:	**Critical facilities back-up**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Assist critical facilities with emergency communication plans and emergency power back-up plans as needed, including shelters for those displaced from their homes by power outages.
Estimated Cost:	$5,000
Benefits:	Critical facilities, such as shelters, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	City council
Supporting Organization/Department:	
Action/Project Priority:	HIGH
Timeline for Completion:	1 year
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Town of Carrollton**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Earthquake, Severe thunderstorm, Sever winter storm, tornado
Problem being Mitigated:	Transportation routes can be disrupted by debris caused by natural disasters.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CC 2025.3
Name of Action or Project:	**Debris removal & regular brush clearing**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Mitigate the risk to life and property and promote continued operation of government and emergency functions by regularly removing debris as needed along transportation routes and
Estimated Cost:	$500,000
Benefits:	Frequent removal of debris will help clear roadways and drainage systems. Emergency services can respond quicker to emergencies. Stormwater can drain effectively and reduce the risk of flooding with regular removal of debris.
Plan for Implementation	
Responsible Organization/Department:	City Road and Bridge Department
Supporting Organization/Department:	County Road and Bridge Dept, EMD
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	HMGP, FEMA Recovery, Transportation budget
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Town of Carrollton**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CC 2025.4
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the public through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	Mayor, City board
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Town of Carrollton**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CC 2025.5
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	County Commissioners, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Town of Carrollton**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms and Tornados
Problem being Mitigated:	Early warning of wind hazards, including severe thunderstorms and tornados, can reduce the number of residents at risk of injury or death.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CC 2025.6
Name of Action or Project:	**Weather spotter training**
Mitigation Category:	Education and Outreach
Action or Project Description:	Make weather spotter training courses available for interested local citizens at local fire and police departments.
Estimated Cost:	$500
Benefits:	Weather spotter training will educate interested citizens or staff to provide the City of Bethany early warning of severe weather for increased reaction time to take shelter.
Plan for Implementation	
Responsible Organization/Department:	City Officials
Supporting Organization/Department:	Police Departments, County EMD, National Weather Service SKYWARN Storm Spotters Educators, Local Fire District
Action/Project Priority:	High
Timeline for Completion:	1 – 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Town of Carrollton**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Unregulated development within the flood plain
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	CC 2025.7
Name of Action or Project:	**Survey of flood plain areas**
Mitigation Category:	Planning and regulation
Action or Project Description:	Work with county officials to determine new development within the regulated flood plain to ensure compliance with the NFIP ordinance
Estimated Cost:	$10
Benefits:	Reduce future costs by managing unregulated development within the flood plain
Plan for Implementation	
Responsible Organization/Department:	Flood plain administrator
Supporting Organization/Department:	
Action/Project Priority:	Low
Timeline for Completion:	2025
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-Going

Action Worksheet	
Name of Jurisdiction:	**Town of Carrollton**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Unregulated development in the floodplains
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	CC 2025.8
Name of Action or Project:	**PARTICIPATION IN NFIP (National Floodplain Insurance Program)**
Mitigation Category:	Planning and Regulation
Action or Project Description:	County will continue participation in NFIP, re-evaluate and continue enforcement of ordinances and regulations, and continue to work with the floodplain manager.
Estimated Cost:	$100/Yearly
Benefits:	Protection of structures insured through NFIP.
Plan for Implementation	
Responsible Organization/Department:	Floodplain Administrator
Supporting Organization/Department:	
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Ordinance
Progress Report	
Action Status:	Continued
Report of Progress:	Continue, in progress

Action Worksheet	
Name of Jurisdiction:	**City of DeWitt**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorm, Tornado
Problem being Mitigated:	Early Warning Sirens
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CD 2025.1
Name of Action or Project:	**Installation of warning siren**
Mitigation Category:	Structure and Infrastructure Projects, Emergency Services
Action or Project Description:	Installation of early warning sirens
Estimated Cost:	$500,000
Benefits:	With adequate time for warning of storms, residents are able to seek cover to help minimize the loss of life.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	Hazard Mitigation Grant Funds, Capital projects
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of DeWitt**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Facilities with auxiliary power supplies should be available to residents affected by power outages.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CD 2025.2
Name of Action or Project:	**Critical facilities back-up**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Assist critical facilities with emergency communication plans and emergency power back-up plans as needed, including shelters for those displaced from their homes by power outages.
Estimated Cost:	$5,000
Benefits:	Critical facilities, such as shelters, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	City council
Supporting Organization/Department:	
Action/Project Priority:	HIGH
Timeline for Completion:	1 year
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of DeWitt**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Earthquake, Severe thunderstorm, Sever winter storm, tornado
Problem being Mitigated:	Transportation routes can be disrupted by debris caused by natural disasters.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CD 2025.3
Name of Action or Project:	**Debris removal**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Mitigate the risk to life and property and promote continued operation of government and emergency functions by regularly removing debris as needed along transportation routes and drainage systems.
Estimated Cost:	$500,000
Benefits:	Frequent removal of debris will help clear roadways and drainage systems. Emergency services can respond quicker to emergencies. Stormwater can drain effectively and reduce the risk of flooding with regular removal of debris.
Plan for Implementation	
Responsible Organization/Department:	City Road and Bridge Department
Supporting Organization/Department:	County Road and Bridge Dept, EMD
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	HMGP, FEMA Recovery, Transportation budget
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of DeWitt**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CD 2025.4
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide mitigation information and resources related to all natural disasters to the public and elected officials through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population and elected officials will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	Mayor, City board
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of DeWitt**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CD 2025.5
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	County Commissioners, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of DeWitt**
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures
Problem being Mitigated:	Extreme temperatures (severe heat and severe cold) present hardship and high risk for injury or death to county citizens, especially the very young and old.
Action or Project	
Applicable Goal Statement:	Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire
Action/Project Number:	CD 2025.6
Name of Action or Project:	**Vulnerable population identification**
Mitigation Category:	Emergency Services, Education and outreach
Action or Project Description:	Identify and maintain list of local vulnerable populations that are the most susceptible to extreme heat and cold to ensure that local public safety officials confirm their well-being during episodes of extreme temperature, reducing the risk of loss of life due to hazardous conditions and natural hazards.
Estimated Cost:	$500
Benefits:	Lives could be saved through identification of vulnerable populations for well-being checks during natural hazards.
Plan for Implementation	
Responsible Organization/Department:	City Officials
Supporting Organization/Department:	County EMD, County Health Department, Coordination with Senior Centers, DHHS, local doctor's offices, County Sheriff's Department, Fire District, Ambulance District
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	N/A
Progress Report	
Action Status:	Continued
Report of Progress:	Limited progress

Action Worksheet	
Name of Jurisdiction:	**City of Hale**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorm, Tornado
Problem being Mitigated:	Early Warning Sirens
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CH 2025.1
Name of Action or Project:	**Installation of warning siren**
Mitigation Category:	Structure and Infrastructure Projects, Emergency Services
Action or Project Description:	Installation of early warning sirens
Estimated Cost:	$500,000
Benefits:	With adequate time for warning of storms, residents are able to seek cover to help minimize the loss of life.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	n/a
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	Hazard Mitigation Grant Funds, Capital projects
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Hale**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Facilities with auxiliary power supplies should be available to residents affected by power outages.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CH 2025.2
Name of Action or Project:	**Critical facilities back-up**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Assist critical facilities with emergency communication plans and emergency power back-up plans as needed, including shelters for those displaced from their homes by power outages.
Estimated Cost:	$5,000
Benefits:	Critical facilities, such as shelters, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	City council
Supporting Organization/Department:	
Action/Project Priority:	HIGH
Timeline for Completion:	1 year
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Hale**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Earthquake, Severe thunderstorm, Sever winter storm, tornado
Problem being Mitigated:	Transportation routes can be disrupted by debris caused by natural disasters.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CH 2025.3
Name of Action or Project:	**Debris removal**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Mitigate the risk to life and property and promote continued operation of government and emergency functions by regularly removing debris as needed along transportation routes and drainage systems.
Estimated Cost:	$500,000
Benefits:	Frequent removal of debris will help clear roadways and drainage systems. Emergency services can respond quicker to emergencies. Stormwater can drain effectively and reduce the risk of flooding with regular removal of debris.
Plan for Implementation	
Responsible Organization/Department:	City Road and Bridge Department
Supporting Organization/Department:	County Road and Bridge Dept, EMD
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	HMGP, FEMA Recovery, Transportation budget
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of Hale**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CH 2025.4
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide mitigation information and resources related to all natural disasters to the public and elected officials through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population and elected officials will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	Mayor, City board
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of Hale**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CH 2025.5
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	County Commissioners, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Hale**
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures
Problem being Mitigated:	Extreme temperatures (severe heat and severe cold) present hardship and high risk for injury or death to county citizens, especially the very young and old.
Action or Project	
Applicable Goal Statement:	Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire
Action/Project Number:	CH 2025.6
Name of Action or Project:	**Vulnerable population identification**
Mitigation Category:	Emergency Services, Education and outreach
Action or Project Description:	Identify and maintain list of local vulnerable populations that are the most susceptible to extreme heat and cold to ensure that local public safety officials confirm their well-being during episodes of extreme temperature, reducing the risk of loss of life due to hazardous conditions and natural hazards.
Estimated Cost:	$500
Benefits:	Lives could be saved through identification of vulnerable populations for well-being checks during natural hazards.
Plan for Implementation	
Responsible Organization/Department:	City Officials
Supporting Organization/Department:	County EMD, County Health Department, Coordination with Senior Centers, DHHS, local doctor's offices, County Sheriff's Department, Fire District, Ambulance District
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	N/A
Progress Report	
Action Status:	Continued
Report of Progress:	Limited progress

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorm, Tornado
Problem being Mitigated:	Early Warning Sirens
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CN 2025.1
Name of Action or Project:	**Installation of warning siren**
Mitigation Category:	Structure and Infrastructure Projects, Emergency Services
Action or Project Description:	Installation of early warning sirens
Estimated Cost:	$500,000
Benefits:	With adequate time for warning of storms, residents are able to seek cover to help minimize the loss of life.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	Hazard Mitigation Grant Funds, Capital projects
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Facilities with auxiliary power supplies should be available to residents affected by power outages.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CN 2025.2
Name of Action or Project:	**Critical facilities back-up**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Assist critical facilities with emergency communication plans and emergency power back-up plans as needed, including shelters for those displaced from their homes by power outages.
Estimated Cost:	$5,000
Benefits:	Critical facilities, such as shelters, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	City council
Supporting Organization/Department:	
Action/Project Priority:	HIGH
Timeline for Completion:	1 year
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Earthquake, Severe thunderstorm, Sever winter storm, tornado
Problem being Mitigated:	Transportation routes can be disrupted by debris caused by natural disasters.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CN 2025.3
Name of Action or Project:	**Debris removal**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Mitigate the risk to life and property and promote continued operation of government and emergency functions by regularly removing debris as needed along transportation routes and drainage systems.
Estimated Cost:	$500,000
Benefits:	Frequent removal of debris will help clear roadways and drainage systems. Emergency services can respond quicker to emergencies. Stormwater can drain effectively and reduce the risk of flooding with regular removal of debris.
Plan for Implementation	
Responsible Organization/Department:	City Road and Bridge Department
Supporting Organization/Department:	County Road and Bridge Dept, EMD
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	HMGP, FEMA Recovery, Transportation budget
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CN 2025.4
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide mitigation information and resources related to all natural disasters to the public and elected officials through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population and elected officials will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	Mayor, City board
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CN 2025.5
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	County Commissioners, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures
Problem being Mitigated:	Extreme temperatures (severe heat and severe cold) present hardship and high risk for injury or death to county citizens, especially the very young and old.
Action or Project	
Applicable Goal Statement:	Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire
Action/Project Number:	CN 2025.6
Name of Action or Project:	**Vulnerable population identification**
Mitigation Category:	Emergency Services, Education and outreach
Action or Project Description:	Identify and maintain list of local vulnerable populations that are the most susceptible to extreme heat and cold to ensure that local public safety officials confirm their well-being during episodes of extreme temperature, reducing the risk of loss of life due to hazardous conditions and natural hazards.
Estimated Cost:	$500
Benefits:	Lives could be saved through identification of vulnerable populations for well-being checks during natural hazards.
Plan for Implementation	
Responsible Organization/Department:	City Officials
Supporting Organization/Department:	County EMD, County Health Department, Coordination with Senior Centers, DHHS, local doctor's offices, County Sheriff's Department, Fire District, Ambulance District
Action/Project Priority:	High
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	N/A
Progress Report	
Action Status:	Continued
Report of Progress:	Limited progress

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Unregulated development in the floodplains
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	CN 2025.7
Name of Action or Project:	**PARTICIPATION IN NFIP (National Floodplain Insurance Program)**
Mitigation Category:	Planning and Regulation
Action or Project Description:	County will continue participation in NFIP, re-evaluate and continue enforcement of ordinances and regulations, and continue to work with the floodplain manager.
Estimated Cost:	$100/Yearly
Benefits:	Protection of structures insured through NFIP.
Plan for Implementation	
Responsible Organization/Department:	Floodplain Administrator
Supporting Organization/Department:	
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	Floodplain Ordinance
Progress Report	
Action Status:	Continued
Report of Progress:	Continue, in progress

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Flooding related damage to buildings, infrastructure, natural grounds
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	CN 2025.8
Name of Action or Project:	**Flood risk reduction projects**
Mitigation Category:	Structure and Infrastructure projects, Natural systems protection, Planning and Regulation
Action or Project Description:	This project will identify areas that are prone to flooding and implement other projects to reduce the on going risk through measured including bur not limited to upgraded storm water systems, regulations against future development, relocations and education
Estimated Cost:	$0
Benefits:	Reducing flood related losses will save a large amount of money each disaster that can be used toward growth and development in areas not prone to flooding.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	MoDOT; CDBG
Action/Project Priority:	Medium
Timeline for Completion:	2025
Potential Fund Sources:	MoDOT; CDBG, Capital projects
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Unregulated development within the flood plain
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	CN 2025.9
Name of Action or Project:	**Survey of flood plain areas**
Mitigation Category:	Planning and regulation
Action or Project Description:	Work with officials to determine new development within the regulated flood plain to ensure compliance with the NFIP ordinance
Estimated Cost:	$1,000
Benefits:	Reduce future costs by managing unregulated development within the flood plain
Plan for Implementation	
Responsible Organization/Department:	Flood plain administrator
Supporting Organization/Department:	
Action/Project Priority:	Low
Timeline for Completion:	2025
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-Going

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Inadequate ability to handle storm water during heavy rain events
Action or Project	
Applicable Goal Statement:	Goal 2: Minimize property damage due to flooding, levee failure or dam incidents.
Action/Project Number:	CN 2025.10
Name of Action or Project:	**Storm Drain system**
Mitigation Category:	Structure and infrastructure
Action or Project Description:	Work with county officials to determine new development within the regulated flood plain to ensure compliance with the NFIP ordinance
Estimated Cost:	$50,000
Benefits:	Reduce future costs by managing unregulated development within the flood plain
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	
Action/Project Priority:	Low
Timeline for Completion:	1 to 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	On-Going

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Lack of an ongoing county-wide committee to coordinate emergency preparedness and hazard mitigation planning with active representatives from each jurisdiction in the County.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CN 2025.11
Name of Action or Project:	**Continue county-level municipality steering committee**
Mitigation Category:	Education and Outreach
Action or Project Description:	This Steering Committee will meet quarterly to assist the County to: 6. Forecast County emergency preparedness needs for: e. Protection of Life, Health and Safety f. Protection of Continuity of Government and Essential Services g. Protection of Public and Private Property, and h. Protection of Community Tranquility. 7. Inform County officials of potential problematic areas. 8. Educate the public on emergency preparedness and hazard mitigation. 9. Review existing planning documents during annual review. 10. Identify funding sources and partner agencies for emergency preparedness and mitigation projects.
Estimated Cost:	$0
Benefits:	The County will benefit from proactive identification and planning for potential problems as well as increased coordination with partner agencies and potential grant sources to identify assistance and funding to address identified problems in advance of a natural hazard event.
Plan for Implementation	
Responsible Organization/Department:	City Council
Supporting Organization/Department:	Hazard Mitigation Planning Committees
Action/Project Priority:	Medium
Timeline for Completion:	5 years
Potential Fund Sources:	NA
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	Continued
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**City of Norborne**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	The electrical grid and transportation system are most affected by severe weather and reduce the risk of wildfire.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather
Action/Project Number:	CN 2025.12
Name of Action or Project:	**Tree trimming maintenance**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Prioritize tree trimming and maintenance along utility lines.
Estimated Cost:	$5,000
Benefits:	Frequent maintenance of trees will help keep access clear along roadways and electrical lines. Emergency services can response quicker to emergencies. Regular clearing of brush mitigates the risk of wildfire.
Plan for Implementation	
Responsible Organization/Department:	City public works
Supporting Organization/Department:	County Maintenance Crews
Action/Project Priority:	Low
Timeline for Completion:	1-5 years
Potential Fund Sources:	Public works budget
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	As needed

Action Worksheet	
Name of Jurisdiction:	**Carrollton R-VII**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CSD 2025.1
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide mitigation information and resources related to all natural disasters to the public and elected officials through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population and elected officials will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	School Board, Administration
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Carrollton R-VII**
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Loss of power threatening student safety and property during an extreme event.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	CSD 2025.2
Name of Action or Project:	**Generators**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Install backup generators or transfer switch to allow for the safe use of backup power ensuring public safety and property during power outages due to extreme events
Estimated Cost:	$1,000,000
Benefits:	Critical facilities, such as schools, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	School board
Supporting Organization/Department:	
Action/Project Priority:	HIGH
Timeline for Completion:	1 to 5 years
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Carrollton R-VII**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	CSD 2025.3
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	School Board
Supporting Organization/Department:	County Commissioners, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Hale R-I**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	HSD 2025.1
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide mitigation information and resources related to all natural disasters to the public and elected officials through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population and elected officials will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	School Board, Administration
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Hale R-I**
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Loss of power threatening student safety and property during an extreme event.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	HSD 2025.2
Name of Action or Project:	**Generators**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Install backup generators or transfer switch to allow for the safe use of backup power ensuring public safety and property during power outages due to extreme events
Estimated Cost:	$1,000,000
Benefits:	Critical facilities, such as schools, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	School board
Supporting Organization/Department:	
Action/Project Priority:	HIGH
Timeline for Completion:	1 to 5 years
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Hale R-I**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	HSD 2025.3
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	School Board
Supporting Organization/Department:	County Commissioners, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Norborne R-VIII**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	NSD 2025.1
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide mitigation information and resources related to all natural disasters to the public and elected officials through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population and elected officials will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	School Board, Administration
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Norborne R-VIII**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorm, Tornado
Problem being Mitigated:	Early Warning Sirens
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	NSD 2025.2
Name of Action or Project:	**Installation of warning siren, Weather Alerts, Education**
Mitigation Category:	Structure and Infrastructure Projects, Education and Outreach
Action or Project Description:	Installation of early warning sirens, Weather radios, and mass notification systems along with educating the public and elected officials about the systems and processes in place for weather alerts
Estimated Cost:	$500,000
Benefits:	With adequate time for warning of storms, residents are able to seek cover to help minimize the loss of life.
Plan for Implementation	
Responsible Organization/Department:	School Board
Supporting Organization/Department:	
Action/Project Priority:	Medium
Timeline for Completion:	1-5 years
Potential Fund Sources:	Hazard Mitigation Grant Funds, Capital projects
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Norborne R-VIII**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	NSD 2025.3
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	School Board
Supporting Organization/Department:	County Commissioners, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Norborne R-VIII**
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado
Problem being Mitigated:	Loss of power threatening student safety and property during an extreme event.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	NSD 2025.4
Name of Action or Project:	**Generators**
Mitigation Category:	Structure and Infrastructrue
Action or Project Description:	Install backup generators or transfer switch to allow for the safe use of backup power ensuring public safety and property during power outages due to extreme events
Estimated Cost:	$1,000,000
Benefits:	Critical facilities, such as schools, can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	School board
Supporting Organization/Department:	
Action/Project Priority:	HIGH
Timeline for Completion:	1 to 5 years
Potential Fund Sources:	General Revenue, Capital projects, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Action Worksheet	
Name of Jurisdiction:	**Tina-Avalon R-II**
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire
Problem being Mitigated:	Preparedness remains the best option to limit the threats of hazard events on the residents of Bogard
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning. Goal 2: Minimize property damage due to flooding, levee failure or dam incidents. Goal 3: Minimize the impact to natural and human resources caused by drought, extreme temperatures and wildfire Goal 4: Maintain public services, protect life, and minimize the risk of property damage caused by severe winter weather Goal 5: Minimize injuries and property damage due to seismic and/or geological events.
Action/Project Number:	TASD 2025.1
Name of Action or Project:	**Mitigation education**
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide mitigation information and resources related to all natural disasters to the public and elected officials through active education and outreach programs.
Estimated Cost:	$500
Benefits:	The general population and elected officials will increase understanding of how to prepare for natural disasters potentially affecting the city
Plan for Implementation	
Responsible Organization/Department:	School Board, Administration
Supporting Organization/Department:	County EMD, Fire Districts
Action/Project Priority:	HIGH
Timeline for Completion:	1 - 5 years
Potential Fund Sources:	General revenue
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued/Modified
Report of Progress:	On-going

Action Worksheet	
Name of Jurisdiction:	**Tina-Avalon R-II**
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornado
Problem being Mitigated:	FEMA-approved storm shelters have proven effective in mitigating the loss of property and life during tornados. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes to minimize the potential for loss of life. School safe rooms can protect students from injury during a thunderstorm, tornado or natural wind event/disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Eliminate loss of life, minimize injuries, and reduce property damage caused by tornadoes, severe thunderstorm high winds, hail and lightning.
Action/Project Number:	TASD 2025.2
Name of Action or Project:	**Storm shelter/safe room**
Mitigation Category:	Structure and Infrastructure
Action or Project Description:	Utilize grant funds and local resources to construct or install storm shelters in locations with insufficient protection including, but not limited to, schools, local recreation areas, and public facilities.
Estimated Cost:	$2M
Benefits:	Storm shelters can protect the lives of individuals in a thunderstorm, tornado or hazardous wind event who may not have other options for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	School Board
Supporting Organization/Department:	County Commissioners, GHRPC, County EMD
Action/Project Priority:	High
Timeline for Completion:	5 years
Potential Fund Sources:	Capital projects budget, HMGP
Local Planning Mechanisms to be Used in Implementation, if any:	NA
Progress Report	
Action Status:	Continued
Report of Progress:	Awaiting funding

Table 4.4. Mitigation Action Matrix

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
Structure and Infrastructure Projects								
County 2025.6	Road and bridge upgrades to reduce flood risk	Carroll Co	High	2	Flooding	x	x	
County 2025.7	Levee incident data collection	Carroll Co	High	2	Flooding	x	x	
County 2025.10	Critical facilities backup power and communication systems	Carroll Co	Low	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
County 2025.11	Debris removal, Brush clearing, and Tree trimming	Carroll Co	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x	x	
County 2025.15	Upgrade and replace culverts	Carroll Co	High	2	Flooding	x	x	
CB 2025.2	Critical facilities backup power and communication systems	Bogard	Low	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CB 2025.3	Debris removal	Bogard	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CB 2025.5	Storm shelters and safe rooms	Bogard	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	X	
CB 2025.7	Installation of warning siren	Bogard	High	1	Severe thunderstorms, Tornado,	x	X	
CC 2025.1	Weather Alerts, Sirens	Carrollton	High	1,2,3,4	Severe thunderstorms, Tornado	x	x	
CC 2025.2	Critical facilities backup power and communication systems	Carrollton	High	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CC 2025.3	Debris removal	Carrollton	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x		
CC 2025.5	Storm shelters and safe rooms	Carrollton	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CD 2025.1	Weather Alerts, Sirens	DeWitt	High	1,2,3,4	Severe thunderstorms, Tornado	x	x	
CD 2025.2	Critical facilities backup power and communication systems	DeWitt	High	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CD 2025.3	Debris removal	DeWitt	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x	x	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
CD 2025.5	Storm shelters and safe rooms	DeWitt	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CH 2025.1	Weather Sirens	Hale	High	1,2,3,4	Severe thunderstorms, Tornado	x	x	
CH 2025.2	Critical facilities backup power and communication systems	Hale	High	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CH 2025.3	Debris removal	Hale	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x		
CH 2025.5	Storm shelters and safe rooms	Hale	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CN 2025.1	Weather Siren	Norborne	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CN 2025.2	Critical facilities backup power and communication systems	Norborne	High	1,3,4,5	Earthquakes, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado	x	x	
CN 2025.3	Debris removal	Norborne	Low	1,4,5	Flooding, Earthquakes, Severe thunderstorms, Severe winter weather, Tornado	x		
CN 2025.8	Flood reduction projects	Norborne	Medium	2	Flooding	x	x	x
CN 2025.5	Storm shelters and safe rooms	Norborne	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CN 2025.10	Storm drain system	Norborne	Medium	2	Flooding	x	x	
CN 2025.12	Tree trimming maintenance	Norborne.	High	1,4	Severe thunderstorms, Severe winter weather, Tornado	X	X	
CSD 2025.2	Generators	Carrollton R-VII	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
CSD 2025.3	Storm shelters and safe rooms	Carrollton R-VII	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
HSD 2025.2	Generators	Hale R-I	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
HSD 2025.3	Storm shelters and safe rooms	Hale R-I	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
NSD 2025.2	Weather Alerts, Sirens and education	Norborne R-VIII	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
NSD 2025.3	Storm shelters and safe rooms	Norborne R-VIII	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
NSD 2025.2	Generators	Norborne R-VIII	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
TASD 2025.2	Storm shelters and safe rooms	Tina-Avalon R-II	High	1,3,4,5	Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado,	x	x	
Natural Systems Protection								
County 2025.18	Participation in the NFIP	Carroll Co	High	2	Flooding	x	x	x
County 2025.19	Revised Flood plain ordinance	Carroll Co	High	2	Flooding	x	x	x
CC 2025.7	Participation in the NFIP	Carrollton	High	2	Flooding	x	x	x
CN 2025.7	Participation in the NFIP	Norborne	High	2	Flooding	x	x	x
CN 2025.8	Flood reduction projects	Norborne	Medium	2	Flooding	x	x	x
Planning and Regulation								
County 2025.5	Monitor repetitive loss properties	Carroll Co.	High	2	Flooding			x
County 2025.9	Survey of flood plain areas	Carroll Co	Low	2	Flooding	x	x	x
County 2025.18	Participation in the NFIP	Carroll Co	High	2	Flooding	x	x	x
County 2025.19	Revised Flood plain ordinance	Carroll Co	High	2	Flooding	x	x	x
CC 2025.7	Participation in the NFIP	Carrollton	High	2	Flooding	x	x	x
CN 2025.7	Participation in the NFIP	Norborne	High	2	Flooding	x	x	x
CN 2025.8	Flood reduction projects	Norborne	Medium	2	Flooding	x	x	x
CN 2025.9	Survey of flood plain areas	Norborne	Low	2	Flooding	x	x	x
CN 2025.11	County level steering committee	Norborne	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
Education and Outreach								
County 2025.2	Mitigation education	Carroll Co	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
County 2025.3	Weather Alerts, Sirens and education	Carroll Co	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
County 2025.8	Hazard audits of facilities	Carroll Co	Low	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x		
County 2025.16	Safety audits of facilities	Carroll Co	Low	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x		
County 2025.17	County level steering committee	Carroll Co	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CB 2025.1	Weather Alerts, Sirens and education	Bogard	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CB 2025.4	Mitigation education	Bogard	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CC 2025.1	Weather Alerts, Sirens and education	Carrollton	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CC 2025.4	Mitigation education	Carrollton	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CC 2025.6	Weather spotter training	Carrollton	High	1	Severe thunderstorm, Tornado	X	X	
CD 2025.4	Mitigation education	DeWitt	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
CD 2025.6	Vulnerable population identification	DeWitt	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CH 2025.4	Mitigation education	Hale	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CH 2025.6	Vulnerable population identification	Hale	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CN 2025.4	Mitigation education	Norborne	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CN 2025.6	Vulnerable population identification	Norborne	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CN 2025.11	County level steering committee	Norborne	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
CSD 2025.1	Mitigation education	Carrollton R-VII	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
HSD 2025.1	Mitigation education	Hale R-I	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
NSD 2025.1	Mitigation education	Norborne R-VIII	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
NSD 2025.2	Weather Alerts, Sirens and education	Norborne R-VIII	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
TASD 2025.1	Mitigation education	Tina-Avalon R-II	High	1,2,3,4,5	Flooding, Dam failure, Drought, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
Emergency Services								
County 2025.1	County-wide inventory of shelters and safe rooms	Carroll Co	High	1,2,3,4,5	Flooding, Earthquakes, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x		
County 2025.4	Disaster drills and exercises	Carroll Co	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	x
County 2025.12	Mutual aid agreements	Carroll Co	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CB 2025.6	Vulnerable population identification	Bogard	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CD 2025.1	Weather Alerts, Sirens and education	DeWitt	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CD 2025.6	Vulnerable population identification	DeWitt	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CH 2025.1	Weather sirens	Hale	High	1,2,3,4	Severe Thunderstorms, Tornadoes	X	x	
CH 2025.6	Vulnerable population identification	Hale	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	
CN 2025.1	Weather Sirens	Norborne	High	1,2,3,4	Flooding, Dam Failure, Levee Failure, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
CN 2025.6	Vulnerable population identification	Norborne	High	1,2,3,4,5	Flooding, Dam Failure, Earthquakes, Sink holes, Levee Failure, Drought, Extreme Temperatures, Severe thunderstorms, Severe winter weather, Tornado, Wildfire	x	x	

5 PLAN MAINTENANCE PROCESS

5 PLAN MAINTENANCE PROCESS 5.1

5.1 Monitoring, Evaluating, and Updating the Plan 5.1

5.1.1 Responsibility for Plan Maintenance 5.1

5.1.2 Plan Maintenance Schedule 5.2

5.1.3 Plan Maintenance Process 5.2

5.2 Incorporation into Existing Planning Mechanisms 5.3

5.3 Continued Public Involvement 5.5

This chapter provides an overview of the overall strategy for plan maintenance and outlines the method and schedule for monitoring, updating and evaluating the plan. The chapter also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

5.1 Monitoring, Evaluating, and Updating the Plan

44 CFR Requirement 201.6(c)(4): The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

5.1.1 Responsibility for Plan Maintenance

The State Emergency Management Agency (SEMA) requires that Hazard Mitigation Plans be reviewed periodically, at least annually, to ensure that goals and objectives are being considered. Revisions to the actions or strategies may be required, as well as acknowledging completed successful mitigations. This section of the Carroll County Multi-jurisdictional Hazard Mitigation Plan provides the process to review, revise, and update the plan.

The maintenance of the plan shall be delegated to the County Emergency Management Committee. They meet quarterly and following any disaster declarations, and will invite members of the MPC to attend these meetings to discuss the plan progress and determine if any updates or amendments need to be considered.

Maintenance shall involve agreement of the participating jurisdictions, including school and special districts, to:

- Meet annually, and after a disaster event, to monitor and evaluate the implementation of the plan;
- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high priority, low- or no-cost recommended actions;
- Maintain vigilant monitoring of multi-objective, cost-share, and other funding opportunities to help the community implement the plan's recommended actions for which no current funding exists;

- Monitor and assist in implementation and update of this plan;
- Keep the concept of mitigation in the forefront of community decision making by identifying plan recommendations when other community goals, plans, and activities overlap, influence, or directly affect increased community vulnerability to disasters;
- Report on plan progress and recommended changes to the County Commissioners and governing bodies of participating jurisdictions; and
- Inform and solicit input from the public.

The Carroll County Emergency Management Committee is an advisory body and can only make recommendations to county, city, town, or district elected officials. Its primary duty is to coordinate emergency departments within the county. It will attempt to see the plan successfully carried out and to report to the community governing boards and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, hearing stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information in areas accessible to the public.

5.1.2 Plan Maintenance Schedule

The MPC agrees to meet annually and after a state or federally declared hazard event as appropriate to monitor progress and update the mitigation strategy. The Carroll County Emergency Management Director will be responsible for initiating the plan reviews and will invite members of the MPC and other interested parties to the meeting.

In coordination with all participating jurisdictions, the Emergency Management Director will be responsible for initiating a five-year written update of the plan to be submitted to the Missouri State Emergency Management Agency (SEMA) and FEMA Region VII per Requirement §201.6(c)(4)(i) of the Disaster Mitigation Act of 2000, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule.

5.1.3 Plan Maintenance Process

There were no changes made in the plan due to changes in priorities of any jurisdiction that participated in the development of the plan. The plan MUST describe the process for evaluating the plan for effectiveness, including evaluation criteria, when it will be evaluated for effectiveness, and who will be responsible for this evaluation.

The plan must identify how, when and by whom the plan will be assessed for effectiveness at achieving its stated purpose and goals (evaluating). Progress on the proposed actions can be monitored by evaluating changes in vulnerabilities identified in the plan. The MPC (and the Carroll County Emergency Committee) during the annual meeting should review changes in vulnerability identified as follows:

- Decreased vulnerability as a result of implementing recommended actions,
- Increased vulnerability as a result of failed or ineffective mitigation actions,
- Increased vulnerability due to hazard events, and/or
- Increased vulnerability as a result of new development (and/or annexation).

Future 5-year updates to this plan will include the following activities:

- Consideration of changes in vulnerability due to action implementation,

- Documentation of success stories where mitigation efforts have proven effective,
- Documentation of unsuccessful mitigation actions and why the actions were not effective,
- Documentation of previously overlooked hazard events that may have occurred since the previous plan approval,
- Incorporation of new data or studies with information on hazard risks,
- Incorporation of new capabilities or changes in capabilities,
- Incorporation of growth data and changes to inventories, and
- Incorporation of ideas for new actions and changes in action prioritization.

In order to best evaluate any changes in vulnerability as a result of plan implementation, the participating jurisdictions will adopt the following process:

- Each proposed action in the plan identified an individual, office, or agency responsible for action implementation. This entity will track and report on an annual basis to the jurisdictional MPC member on action status. The entity will provide input on whether the action as implemented meets the defined objectives and is likely to be successful in reducing risk.
- If the action does not meet identified objectives, the jurisdictional MPC member will determine necessary remedial action, making any required modifications to the plan.
- If new actions are identified to implement mitigation activities, the jurisdictional MPC member will take necessary actions to amend the plan. GHRPC staff currently handles such requests.

Changes will be made to the plan to remedy actions that have failed or are not considered feasible. Feasibility will be determined after a review of action consistency with established criteria, time frame, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed as well during the monitoring of this plan. Updating of the plan will be accomplished by written changes and submissions, as the MPC in cooperation with the Carroll County Emergency Committee deems appropriate and necessary. Changes will be approved by the Carroll County Commissioners and the governing boards of the other participating jurisdictions.

5.2 Incorporation into Existing Planning Mechanisms

44 CFR Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Where possible, plan participants, including school and special districts, will use existing plans and/or programs to implement hazard mitigation actions. Based on the capability assessments of the participating jurisdictions, communities in Carroll County will continue to plan and implement programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through the following plans:

- General or master plans of participating jurisdictions;
- Ordinances of participating jurisdictions;
- Carroll County Emergency Operations Plan;
- Capital improvement plans and budgets;
- Other community plans within the County, such as water conservation plans, storm water management plans, and parks and recreation plans;

- School and Special District Plans and budgets; and
- Other plans and policies outlined in the capability assessment sections for each jurisdiction in Chapter 2 of this plan.

The MPC (or designated responsible entity) members involved in updating these existing planning mechanisms will be responsible for integrating the findings and actions of the mitigation plan, as appropriate. The MPC (or designated responsible entity) is also responsible for monitoring this integration and incorporation of the appropriate information into the five-year update of the multi-jurisdictional hazard mitigation plan.

Additionally, after the annual review of the Hazard Mitigation Plan, the Carroll County Emergency Management Director will provide the updated Mitigation Strategy with current status of each mitigation action to the County Commissioners as well as all Mayors, City Clerks, and School District Superintendents. The Emergency Management Director will request that the mitigation strategy be incorporated, where appropriate, in other planning mechanisms.

Table 5.1 below lists the planning mechanisms by jurisdiction into which the Hazard Mitigation Plan will be integrated.

Table 5.1. Planning Mechanisms Identified for Integration of Hazard Mitigation Plan

Jurisdiction	Planning Mechanisms	Integration Process for Previous Plan	Integration Process for Current Plan
Carroll County	Transportation Advisory Committee (TAC)	Member of TAC attended all planning meetings and identified actions relating to transportation infrastructure were included in annual update to Unfunded Needs List and the State Transportation Improvement Plan, and the Regional Transportation Plan	Member of TAC attended all planning meetings and identified actions relating to transportation infrastructure were included in annual update to unfunded needs list, the State Transportation Improvement Plan, and the Regional Transportation Plan
	Carroll County Emergency Plan	The Commissioners attended all planning meetings and identified actions relating to infrastructure were included in annual update to Comprehensive Plan	The Commissioners and EMD attended all planning meetings. Identified new actions or ongoing actions relating to infrastructure will be included in annual update to Comprehensive Plan
	CEDS, LEPC, Council Budgeting Session	Annual review, county emergency plan review	Annual CEDS review, County Emergency Plan Review
The City of Bogard	Local Budget, CEDS, Emergency Plan, City Ordinances	Annual review	Annual CEDS review, Emergency Plan Review, Regional Transportation Plan
The City of Carrollton	Local Budget, CEDS, Emergency Plan, City Ordinances, Floodplain Ordinance	Annual Review	Annual CEDS review, Emergency Plan Review, Regional Transportation Plan

City of DeWitt	Local Budget, CEDS, Emergency Plan, City Ordinances	Annual Review	Annual CEDS review, Emergency Plan Review, Regional Transportation Plan
City of Hale	Local Budget, CEDS, Emergency Plan, City Ordinances	Annual Review	Annual CEDS review, Emergency Plan Review, Regional Transportation Plan
City of Norborne	Local Budget, CEDS, Emergency Plan, City Ordinances	Annual Review	Annual CEDS review, Emergency Plan Review, Regional Transportation Plan

5.3 Continued Public Involvement

44 CFR Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

The hazard mitigation plan update process provides an opportunity to publicize success stories resulting from the plan's implementation and seek additional public comment. Information about the annual reviews will be posted in the local newspaper, as well as on the Carroll County website following each annual review of the mitigation plan and will solicit comments from the public based on the annual review.

The Carroll County emergency management director and the MPC will be responsible for publicizing success stories if mitigation activities are completed by issuing press releases and publicizing information on the Carroll County and/or Jurisdiction's website.

When the MPC reconvenes for the five-year update, it will coordinate with all stakeholders participating in the planning process. Included in this group will be those who joined the MPC after the initial effort, to update and revise the plan. Public notice will be posted, and public participation will be actively solicited, at a minimum, through available website postings and press releases to local media outlets, primarily newspapers.

Appendix A: Sources

- 2020 Block Geography (US Census Bureau) & National Land Cover Dataset (MRLC)
- American Meteorological Society
- BC Ministry of Forests, Lands, and Natural Resource Operations
- County and local Comprehensive Plans to the extent available
- County Emergency Management
- County Flood Insurance Rate Map, FEMA
- Data Collection Questionnaires completed by each jurisdiction.
- Decennial Census
- DESE
- Department of Geography
- Encyclopedia Britannica, Inc.
- Environmental Protection Agency
- Federal Emergency Management Agency (FEMA)
- Flood Insurance Administration
- Flood Insurance Study, FEMA
- Hazards US (HAZUS)
- Iowa Department of Natural Resources
- Carroll County LEPC
- Missouri Department of Commerce & Insurance
- Missouri Department of Conservation
- Missouri Department of Health and Human Services; health.mo.gov
- Missouri Department of Natural Resources
- Missouri Department of Transportation
- Missouri Division of Fire Marshal Safety
- Missouri Hazard Mitigation Plans (2013, 2018, and 2023)
- Missouri Public Service Commission
- National Agricultural Statistics Service (Agriculture production/losses)
- National Centers for Environmental Information
- National Drought Mitigation Center Drought Reporter
- National Fire Incident Reporting System (NFIRS)
- National Inventory of Dams
- National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI);
- National Weather Service
- NFIP Community Status Book
- Oxford Brooks University
- Previously approved Carroll County Hazard Mitigation Plan (2021)
- Purdue University
- SEMA
- SILVIS Lab, Department of Forest Ecology and Management, University of Wisconsin
- State of Missouri GIS data
- Tornado and Storm Research Organization (TORRO)
- United States Geological Survey (USGS)
- US Army Corps of Engineers
- US Bureau of the Census and Annual population estimates

- US Community Survey, 2023
- US Department of Agriculture's (USDA) Risk Management Agency Crop Insurance Statistics
- US Department of Transportation
- US Drought Monitor
- US Fish and Wildlife Service
- www.tornadochaser.net
- www.weather.gov

Appendix B: Planning Documentation & Invitations

HMP Meeting # 1 for Carroll County 7/28/2025

Printed Name	Jurisdiction	Commute Time	Email or Mobile number (text)
Charles Pence	Carroll County Commission		charles_pence@yahoo.com
Chris Jacobs	City of Hale / Hale R1 School Dist		cjacobs57@hotmail.com
Nick Wilson	City of Hale / Hale R1 Hale Fire Protection	30	nicholas94wilson@gmail.com
Stan Falke	Carroll County Commission	-	stan.falke@gmail.com
Petal Stanley	Carroll County Clerk		countyclerk@carrollcountymo.gov
Amanda George	CMRPC		
Keith Higgins	Carrollton Mayor	-	mayor@townofcarrollton mo.gov
Glen Briggs	Carroll Co EMD	1 hr	glen@cmrpc.org.
Bill Jackson	Bartlett & MiDe	45 min.	bpjackson2018@gmail
Mark Shaw	Bartlett & MiDe	45 min	
Richard Mounts	Carrollton P+Z		pz-office@townofcarrolltonmo.gov

#1 Virtual

County: Carroll County **Date&Time:** 7-29-2025 2p-2:30pm

Printed Name	Jurisdiction	Commute Time	Email or Mobile number (text)
Jennifer Courtney	Northwest School	—	jcourtney@Northwestschools.com
Amanda George	GHRPC		amanda@ghrpc.org
Glen Briggs	GHRPC		glen@ghrpc.org

County: Carroll County **Date&Time:** 8/20/2025 2:30 – 3:30

Printed Name	Jurisdiction	Commute Time	Email or Mobile number (text)
Glen Briggs	GHRPC		gcrm
Nick Wilson	Hale City Hale FD	30	660-383-3860
Carol Stevens	Norborne City	10 miles	660-593-3514 cstevens@cityofnorborne.org
Charles Pence	CarrollCounty Com.	10. "	660-542-6234
Stan Falke	Carroll County	—	660 329 0351
Everett Shields	Carroll County	—	660-329 0834
Lonnie Sensenich	Carrollton Fire	—	660-329-1000
Keith Higgins	City of Carrollton	—	660-329-1881
Richard Mounts	Planning + Zoning	—	660-542-0400 ext
Amanda George	GHRPC	—	amanda@ghrpc.org

VIRTUAL 10:00AM - 10:10AM

HMP Meeting # 2 for Carroll County 8/22/2025

Printed Name	Jurisdiction	Commute Time	Email or Mobile number (text)
Amanda George	GHRPC	—	amanda@ghrpc.org
Glen Briggs	GHRPC	—	glen@ghrpc.org

3:00 - 4:00 PM

HMP Meeting # 3 for Carroll County 9/22/2025

Printed Name	Jurisdiction	Commute Time	Email or Mobile number (text)
Amanda George	GHRPC	—	amanda@ghrpc.org
Glen Briggs	GHRPC	—	glen@ghrpc.org
Nick Wilson	Hale PI City FD	30	Nicholas94wilson@gmail.com
JACK VANTRUMP	CARROLLTON		~~elshields@yahoo.com~~
Everett Shields	Carroll County		~~elshields@yahoo.com~~
Stan FALKE	" "		~~Stan.falke@gmail.com~~
Charles Pence	" "		~~charles_pence@yahoo.com~~
Petal J. Stanley	" "		countyclerk@carrollcountyms.gov
Dr Tinna Croy	Carrollton School	5	Croy-tinna@trojans.k12.ms.us

Virtual

10AM - 10:10am

HMP Meeting # 3 for Carroll County 9/23/2025

Printed Name	Jurisdiction	Commute Time	Email or Mobile number (text)
Amanda George	GHRPC	–	amanda@ghrpc.org
Glen Briggs	GHRPC	–	glen@ghrpc.org

Agenda – Carroll County

Meeting #2

Aug 20 & 22

- Start Meeting
- Introductions and Sign-In Sheet
- Brief Description of Hazard Mitigation Process
    - Mitigation – actions taken to reduce or eliminate long-term risks to life and property due to natural disasters
        - Involves identifying risks and vulnerabilities
        - Developing strategies to minimize the impact of disasters
    - Mitigation is important, as it is essential for breaking the cycle of damage and repair (which can be costly)
- The Hazard Mitigation Planning Process
- Risk Assessment (4 components)
    - Hazard Identification (Meeting #1)
    - Profiling of Hazard Events (Meeting #1)
    - Inventory of Assets
    - Estimation of potential human and economic losses based on exposure and vulnerability of people, buildings, and infrastructure
- Develop a Mitigation Strategy for each potential hazard
    - This will be based on the risk assessment and hazard identification
- Adopt and Implement the Plan

Agenda: Carroll County

Hazard Mitigation Meeting #3

Action Prioritization & Plan Maintenance

September 22, 2025 and Sept. 23, 2025

Start Meeting

Introductions

Hazard Mitigation Plan Process: brief overview for new participants

- Meeting #1 – Hazard Identification
- Meeting #2 – Risk Assessment and Identification of Vulnerable Assets
- Meeting #3 – Action Prioritization & Plan Maintenance

Demonstration of completing STAPLEE Worksheets

- emphasis on each action needs a worksheet
- each hazard needs an action in each jurisdiction

Discussion of additional actions that jurisdictions would

Plan Maintenance

- At minimum yearly meetings
- Check progress of actions
- Develop new actions if there is a need

NOI Process

- Schedule meeting with GHRPC Staff
- Benefit Cost Analysis (overview)
- Submit to SEMA

Open the floor for questions

Conclude Meeting

Identifying Vulnerable Assets for Carroll County

Jurisdiction: _____

Refer to the Hazard Identification Worksheet where you described issues that you have had with the identified hazards. We are now going to look at specific community assets that can be affected by the identified hazards.

Instructions: For the hazards that affect your community, identify two to three examples of assets that can be affected by the identified hazards.

Vulnerable Assets	What makes this group/asset vulnerable during hazards? Have there ever been issues with recovery after an event?
People (Residents, workers, visiting populations, and socially vulnerable populations like seniors, individuals with disabilities, lower-income individuals, etc.)	
Structures (Community centers, historic places, planned capital improvement)	
	Community Center
	Fire Dept
	Museum
Economic Assets (Major employers, primary economic sectors, key infrastructure like telecommunications networks)	

Natural, Historic, and Cultural Resources (Areas of conservation, beaches, parks, critical habitats)	
Critical Facilities and Infrastructure (Hospitals, law enforcement, water, power)	
	Waste water plant
	water wells
Community Activities (Major local events such as festivals or economic events like farming or fishing)	
Are there other assets that you can think to include?	

Agenda – Carroll County Meeting #1

July 28th & 29th , 2025

- Start Meeting
- Introductions (complete sign-in sheet)
- What is Hazard Mitigation Planning?
    - Existing Plan
    - Update every 5 years
    - Requirement for HMGP grants
- Planning process
    - 3 meetings
        - Outreach and Hazard Identification (This meeting)
        - Risk Assessment & Mitigation Strategies – What are the vulnerabilities within our jurisdiction and Mitigation Strategies that could reduce risk from these hazards
        - Action Prioritization; Reviewing and Adopting the Plan; and Plan Upkeep
- To be a participating jurisdiction, you must do the following:
    - Complete jurisdictional questionnaire (County, School Districts, Cities & Villages, and Special Districts)
    - Attend at least one meeting
    - Provide suggestions about the plan, develop actions that address every hazard your jurisdiction faces, and participate in the planning process
    - Review and Adopt the plan
- Outreach
    - We (GHRPC) have sent letters, emails, and made phone calls to potential stakeholders county wide
    - Public Survey – Please complete and Share on social media
        - Share with Members of the public
        - Share with Employees of the school, city, village, etc.
- Identify Hazards
    - Email – "Hazard Identification for Daviess County"
    - Go through this worksheet
- Questions?

Crestview Home
1313 S 25th Street
Bethany, MO 64424

Davis Creek
1011 S 17th Street
Bethany, MO 64424

Access Personal Care
1506 Main Street
Bethany, MO 64424

Harrison County Group Home
501 S 26th Street
Bethany, MO 64424

Bristal Manor
811 S 24th Street
Bethany, MO 64424

Hudson Home
2804 Timothy Terrace
Bethany, MO 64424

City of Bethany
206 N 16th Street
Bethany, MO 64424

Bethany Senior Center
1316 S 25th Street
Bethany, MO 64424

Harrison County Hospice
1700 Bethany Ave
Bethany, MO 64424

Harrison County Council-Aging
1316 S 25th Street
Bethany, MO 64424

Ridgeway Baptist Church
106 Main Street
Ridgeway, MO 64481

Eagleville Church of Christ
13021 Ginkgo Street
Eagleville, MO 64442

First Baptist Church
1502 Depot Road
Cainsville, MO 64632

Mount Moriah Municipal Building
805 State Hwy B
Mount Moriah, MO 64481

Kingdom Hall of Jehovah's Witnesses
909 Taylor Street
Bethany, MO 64424

United Methodist Church
2703 Crestview Road
Bethany, MO 64424

Immanuel Baptist Church
4207 Miller Street
Bethany, MO 64424

Hope Lutheran Church
1205 S 25th Street
Bethany, MO 64424

Fireworks World
21023 E State Hwy N
Eagleville, MO 64442

Hy-Vee
1104 S 25th Street
Bethany, MO 64424

Bethany Building Center
1301 Main Street
Bethany, MO 64424

Gumdrop Books Central Programs
802 41st Street
Bethany, MO 64424

O'Neils Home Furnishings
702 41st Street
Bethany, MO 64424

North Missouri Mowers
3903 Bulldog Ave
Bethany, MO 64424

Village of Blythedale
516 State Hwy N
Blythedale, MO 64426

City of Cainsville
1315 Vine Street
Cainsville, MO 64632

City of Eagleville
10028 10th Street
Eagleville, Mo 64442

City of Gilman City
429 Main Street
Gilman City, MO 64642

City of New Hampton
212 E Lincoln Street
New Hampton, MO 64471

City of Ridgeway
708 main Street
Ridgeway, MO 64481

City of Lamoni
190 S Chestnut Street
Lamoni, IA 50140

City of Albany
106 E Clay Street
Albany, MO 64402

City of Pattonsburg
100 2nd Ave
Pattonsburg, MO 64670

Bethany Fire Department
P.O. Box 344
Bethany, MO 64424

Cainsville Fire Protection District
P.O. Box 77
Cainsville, MO 64632

Gilman City Fire Protection District
P.O. Box 36
Gilman City, MO 64642

New Hampton Fire District
103 E Lincoln Way
New Hampton, MO 64471

North Harrison Fire Protection District
P.O. Box 299
Eagleville, MO 64442

Ridgeway Fire Protection District
P.O. Box 163
Ridgeway, MO 64481

Harrison County Sheriff
1501 Central Street
Bethany, MO 64424

NTA Ambulance District
1000 S 25th Street
Bethany, MO 64424

HCCH Medical Clinic
3202 Miller Street
Bethany, MO 64424

Bethany Health Services
903 N 25th Street
Bethany, MO 64424

Eagleville Medical Clinic
12050 12th Street
Eagleville, MO 64424

Cainsville Medical Clinic
707 Victory Lane
Cainsville, MO 64632

North Missouri Family Health
2703 Miller Street
Bethany, MO 64424

North Harrison Medical Clinic
16027 Locust Street
Eagleville, MO 64442

Mosaic Family Care
304 E Lincoln Street
New Hampton, MO 64471

Emergency Coordinators
Jacob Denum
206 N 16th Street
Bethany, MO 64424

Harrison County Emergency Coordinator
Caleb Jacobs
P.O Box 525
Bethany, MO 64424

Floodplain Administrator
Jake Taylor
P.O. Box 344
Bethany, MO 64424

Cainsville Floodplain Administrator
Rebecca Deskins
P.O. Box 77
Cainsville, MO 64632

New Hampton Floodplain Administrator
Kerri Peters
P.O. Box 283
New Hampton, MO 64471

Ridgeway Floodplain Administrator
Jesse Hale
P.O. Box 182
Ridgeway, MO 64481

Harrison County
Clerk
P.O. Box 525
Bethany, MO 64424

Harrison County Water District
P.O. Box 227
Bethany, MO 64424

Cainsville R-1
1308 Depot Rd
Cainsville, MO 64632

North Harrison R-III
12023 Fir Street
Eagleville, MO 64442

Ridgeway R-V
305 Main Street
Ridgeway, MO 64481

South Harrison Co. R-II
3400 Bulldog Ave
Bethany, MO 64424

Green Hills
Regional Planning Commission
810 Washington Street, Trenton, Missouri 64683

June 18, 2025

On behalf of the County, you are invited to participate in updating the Harrison County Multi-Jurisdictional Hazard Mitigation Plan. Jurisdictions (including county and city governments, public school districts, and special districts) that do not participate in an approved Hazard Mitigation Plan are NOT eligible to apply for FEMA's Hazard Mitigation Assistance grants.

Harrison County Multi-Jurisdictional Hazard Mitigation Plan Update
Bethany Fire Department
710 S 12th Street
Bethany, MO 64424
July 23rd 3 – 4:30pm

Your County Commissioners are working to update the County Multi-Jurisdictional Hazard Mitigation Plan to better protect the people and property of your County from the effects of natural hazard events. The existing plan was approved by FEMA on September 20, 2021. The plan update will be prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations. These regulations establish the requirements that hazard mitigation plans must meet for the County and the participating jurisdictions in the County to be eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288). Because the County is subject to many kinds of hazards, access to these federal programs is vital.

What is a Hazard Mitigation Plan?

A hazard mitigation plan is the result of a planning process which identifies policies and actions that can be implemented over the long term to reduce the risk and future losses resulting from natural hazard events. The Harrison County Multi-Jurisdictional Hazard Mitigation Plan Update will address a comprehensive list of natural hazards likely to impact each County. The identified mitigation policies and actions will be based on an assessment of natural hazards, vulnerabilities, and risks.

The hazard mitigation planning process is also heavily dependent on the participation of representatives from local government agencies and departments, the public, and other stakeholder groups. A Hazard Mitigation Planning Committee is typically formed to support this project and will include representatives from the County, cities, school districts, private-non-profit entities, business partners, academic institutions, and other local, state, and federal agencies acting in or serving in the County.

6. **Outreach**
    - We (GHRPC) have sent letters, emails, and made phone calls to potential stakeholder's county wide
    - Public Survey – Please complete and share on social media
        - Share with members of the public
        - Share with Employees of the school, city, village, etc.

7. **Identify Hazards**
    - Emailed all attendees a copy of "Hazard Identification for Carroll County"
    - Detailed each hazard outlined on "Hazard Identification for Carroll County" worksheet with examples.

Opened the floor for questions?

Meeting Adjourned at 2:30pm.

Green Hills
Regional Planning Commission
810 Washington Street, Trenton, Missouri 64683

Carroll County HMP Meeting #1 (Virtual)

Zoom: https://us02web.zoom.us/j/83987545818?pwd=gsuUrCeY004kiYWnTuSBnpavc2el3T.1

Meeting Minutes
July 29, 2025

1. **Call to Order:** The meeting was called to order at 2pm by Amanda George.

2. **Attendance:** Attendance and introductions.

Jennifer Courtney	Norborne R-VIII	RPC Staff Amanda George Brandy Jones

3. **What is Hazard Mitigation Planning?**
   - Existing Plan
   - Updates every 5 years
   - Requirements for HMGP Grants

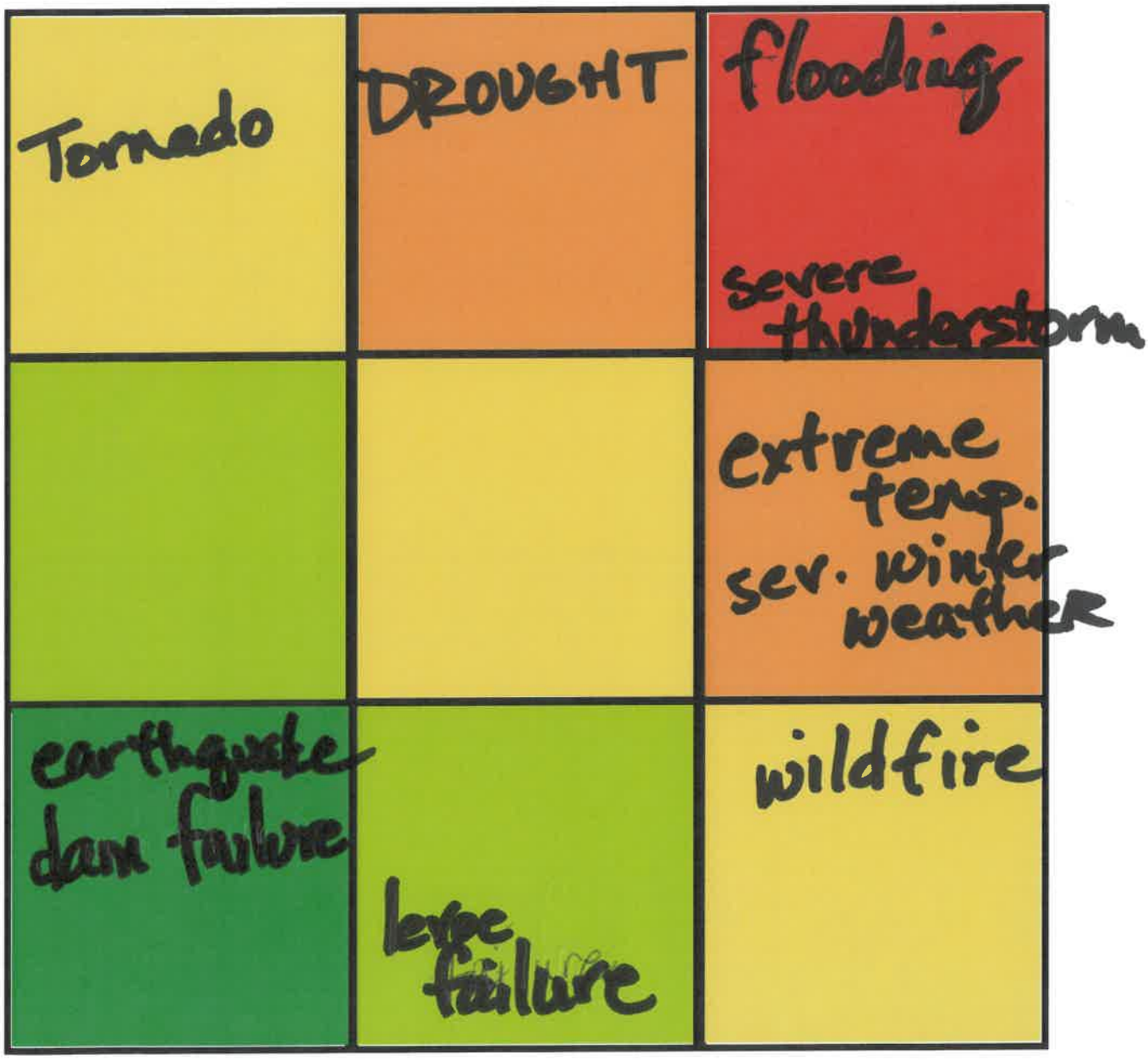
4. **Planning Process**
   - 3 in-person meetings and 3 corresponding virtual meetings.
     - **Meeting 1** Outreach and Hazard Identification (this Meeting)
     - **Meeting 2** Risk Assessment & Mitigation Strategies – What are the vulnerabilities within our jurisdiction and Mitigation Strategies that could reduce risk from these hazards.
     - **Meeting 3** Action Prioritization: Reviewing and Adopting the Plan: and Plan Upkeep.

5. **To be a participating jurisdiction, you must do the following:**
   - Complete jurisdictional questionnaire (County, School District, Cities & Villages, and Special Districts)
   - Attend at least one meeting
   - Provide suggestions about the plan, develop actions that address every hazard your jurisdiction faces, and participate in the planning process
   - Review and adopt the plan

Carroll County

~~Levee Failure~~
~~Flooding~~
~~Tornado~~
~~Drought~~
Wildfire

~~Extreme Temp.~~
~~Earthquake~~
~~Dam Failure~~
~~Severe Thunderstorm~~
~~Severe Winter Weather~~



Brandy Jones
Program Administrator

Green Hills Regional Planning Commission
810 Washington Street
Trenton, MO 64683
Brandy@ghrpc.org
Office: 660-359-5636
Mobile: 213-332-7738

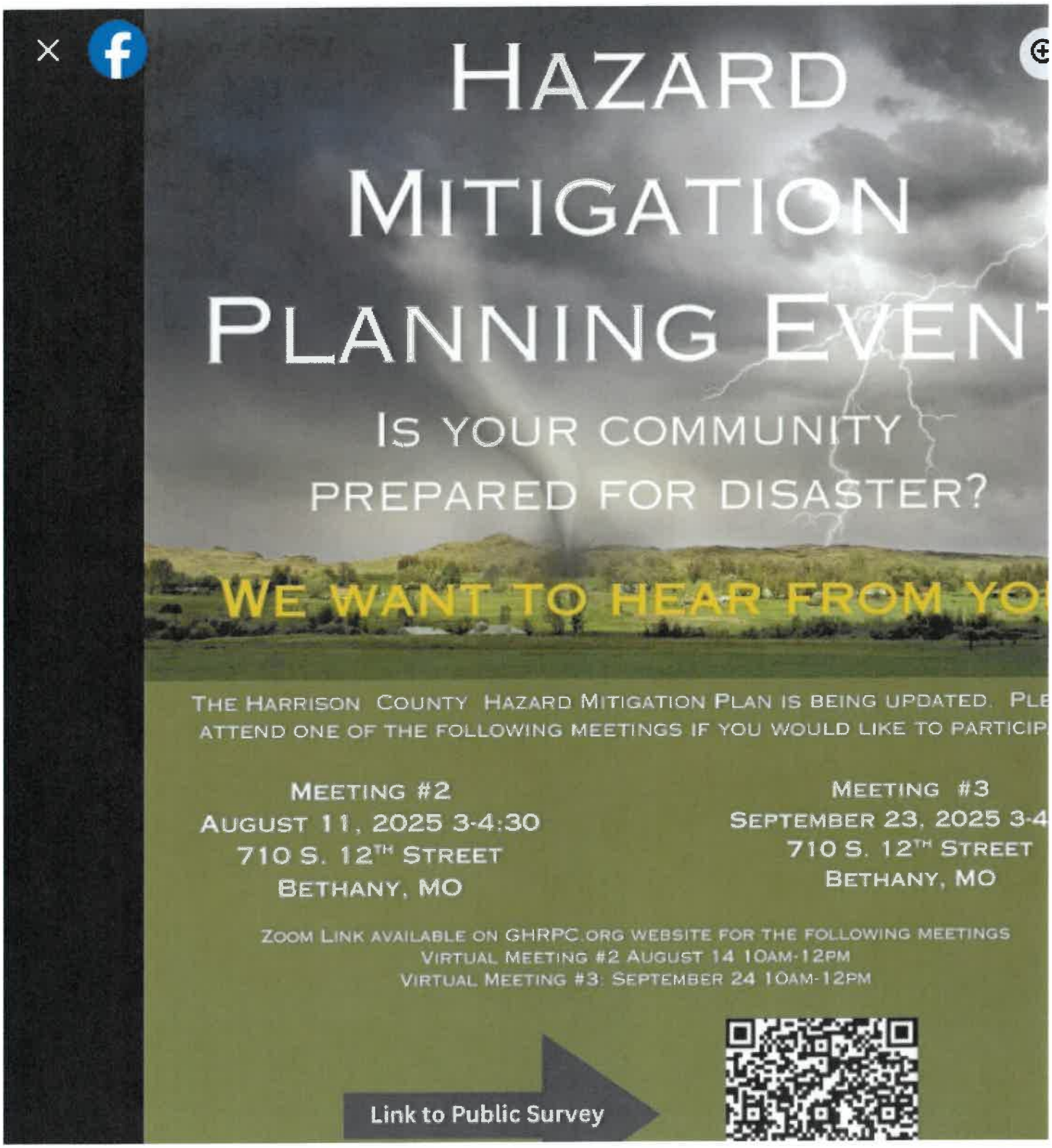
NMSWMD

North Missouri Solid Waste Management District Region B

MoDOT

Amanda George

From: Brandy Jones
Sent: Wednesday, September 17, 2025 7:16 PM
To: Amanda George
Subject: Harrison HMP Facebook post



Amanda George

From: Brandy Jones
Sent: Wednesday, September 17, 2025 7:08 PM
To: Amanda George
Subject: HMP Facebook post

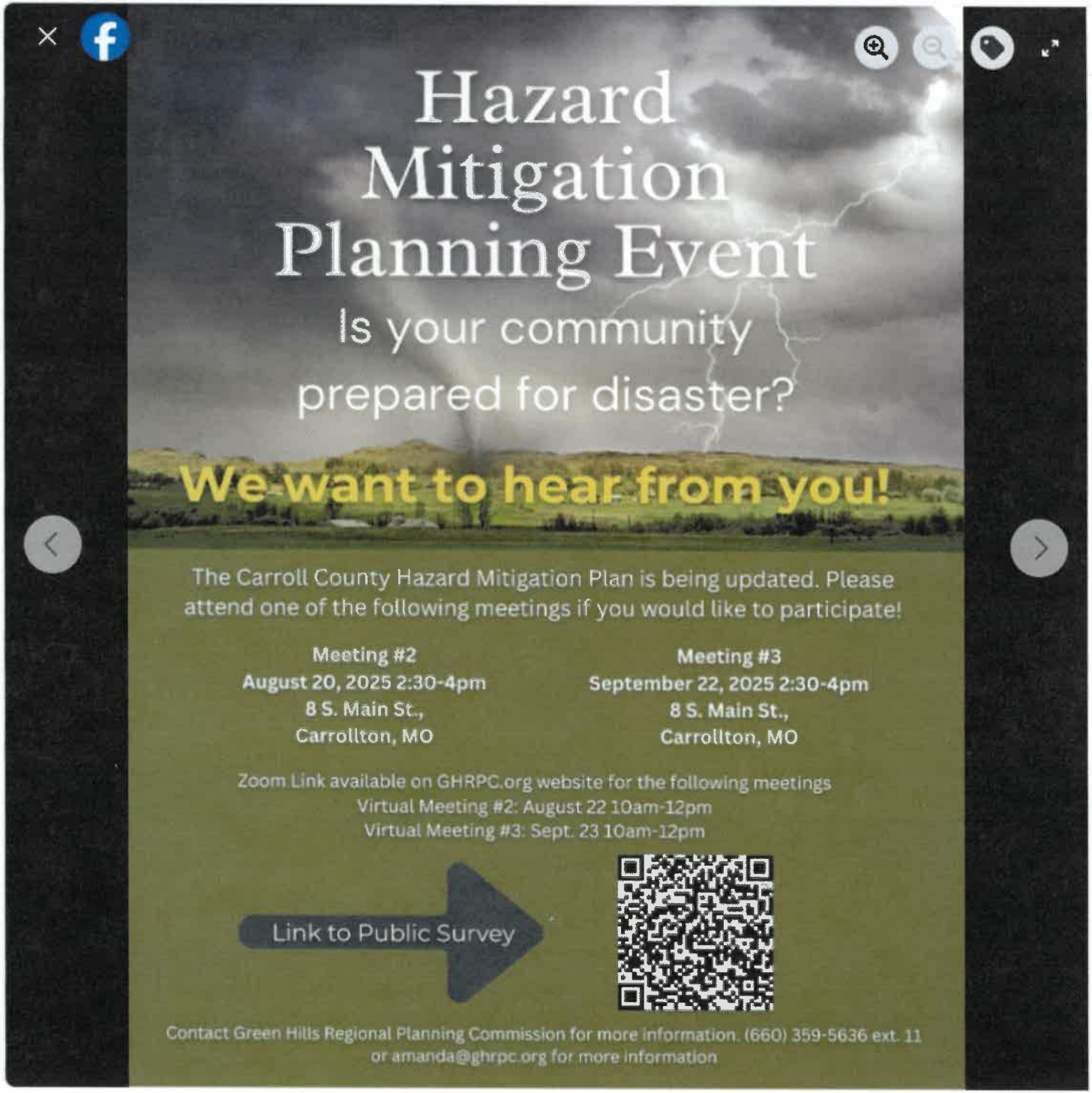


Brandy Jones
Program Administrator

Green Hills Regional Planning Commission
810 Washington Street
Trenton, MO 64683
Brandy@ghrpc.org
Office: 660-359-5636
Mobile: 213-332-7738

NMSWMD | North Missouri Solid Waste Management District Region B

MoDOT



Green Hills Regional Planning Commission
Published by Brandy Stretch Jones · September 17 at 7:04 PM ·

We will be having the final HMP In-person meeting for Carroll County in Carrollton on 9/22. Mark your calendars now. Please take the survey! Your feedback matters.

#carrollcountymo #carrolltonmo #NorborneMO #halemo #bogardmo #bosworthmo #dewittmo #ghrpc

Edit Boost post

No comments yet
Be the first to comment.

Comment as Green Hills Regional Plan...

Green Hills Regional Planning Commission

For Immediate Release:

Carroll County, MO – The Green Hills Regional Planning Commission (GHRPC) is pleased to announce that the Carroll County Hazard Mitigation Plan (HMP) is now available for public review on the GHRPD website at ghrpc.org. This plan is an important step in reducing the impact of natural hazards in Carroll County and guiding future mitigation activities across the region.

The Hazard Mitigation Plan identifies risks and vulnerabilities and outlines practical steps to lessen the effects of emergencies, including severe weather events such as floods, tornadoes, snowstorms, and thunderstorms. It provides a coordinated approach to emergency preparedness, response, and recovery, ensuring that local governments, residents, and businesses are better equipped to handle potential disasters.

Carroll County residents and stakeholders are encouraged to review the draft plan and provide feedback through the avenues specified on the GHRPC website. Public input is vital to create a robust and actionable plan that accurately reflects the community's needs and priorities. The plan also helps the County and participating municipalities qualify for federal funding for mitigation projects and community safety initiatives.

For more information, or to submit comments, visit the **Green Hills Regional Planning Commission website** at ghrpc.org or contact the Green Hills Regional Planning Commission at 660-359-5636 ext. 11 or email: amanda@ghrpc.org.

Appendix C: Questionnaires, Surveys, Public Comment, & STAPLEE Worksheets

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Local Governments

COUNTY: CARROLL

JURISDICTION: CARROLL COUNTY

RETURN BY: _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. ***A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.*** According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process ***will not*** be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: PETAL J. STANLEY

PHONE: 660-542-0615

EMAIL: COUNTYCLERK@CARROLLCOUNTYMO.GOV DATE: 11/21/2025

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

CAPABILITY ASSESSMENT

& INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the ***underlined and bold*** elements, ***please provide a copy of the document*** to the contact listed on the front.

CAPABILITIES	***Status, Including Date of Document or Policy***
PLANNING CAPABILITIES	
Comprehensive Plan	
Builder's Plan	
Capital Improvement Plan	
City Emergency Operations Plan	
County Emergency Operations Plan	YES
Local Recovery Plan	
County Recovery Plan	
City Mitigation Plan	
County Mitigation Plan	
Debris Management Plan	
Economic Development Plan	
Transportation Plan	
Land-use Plan	

Flood Mitigation Assistance (FMA) Plan	
Watershed Plan	
Firewise or other fire mitigation plan	
School Mitigation Plan	
Critical Facilities Plan	
POLICIES/ORDINANCE	
Zoning Ordinance	YES
Building Code	
Floodplain Ordinance	YES
Subdivision Ordinance	
Tree Trimming Ordinance	YES
Nuisance Ordinance	
Stormwater Ordinance	
Drainage Ordinance	
Site Plan Review Requirements	
Historic Preservation Ordinance	
Landscape Ordinance	
Seismic Construction Ordinance	
PROGRAM	
Zoning/Land Use Restrictions	YES
Codes Building Site/Design	
Hazard Awareness Program	
National Flood Insurance Program (NFIP)	YES
NFIP Community Rating System (CRS) program If so, what is your current level rating?	
National Weather Service (NWS) Storm Ready	

Firewise Community Certification	
Building Code Effectiveness Grading (BCEGs)	
ISO Fire Rating	
Economic Development Program	YES
Land Use Program	
Public Education/Awareness	
Property Acquisition	
Planning/Zoning Boards	YES
Stream Maintenance Program	
Tree Trimming Program	YES
Engineering Studies for Streams (Local/County/Regional)	
Mutual Aid Agreements	YES
STUDIES/REPORTS/MAPS	
Hazard Analysis/Risk Assessment (Local)	
Hazard Analysis/Risk Assessment (County)	YES
Flood Insurance Maps	YES
FEMA Flood Insurance Study (Detailed)	
Evacuation Route Map	
Critical Facilities Inventory	
Vulnerable Population Inventory	
Land Use Map	YES
STAFF/DEPARTMENT ***Full Time or Part Time, if applicable?***	
Building Code Official	
Building Inspector	
Mapping Specialist (GIS)	

Engineer	
Development Planner	
Public Works Official	YES
Emergency Management Director	YES
NFIP Floodplain Administrator	YES
Emergency Response Team	
Hazardous Materials Expert	
Local Emergency Planning Committee	YES
County Emergency Management Commission	
Sanitation Department	
Transportation Department	
Economic Development Department	CONTRACTED
Housing Department	
Historic Preservation	

NON-GOVERNMENTAL ORGANIZATIONS (NGOS) ***Is there a local chapter? Yes or No***	
American Red Cross	
Salvation Army	
Veterans Groups	YES
Local Environmental Organization	
Homeowner Associations	
Neighborhood Associations	
Chamber of Commerce	YES
Community Organizations (Lions, Kiwanis, etc.)	YES

LOCAL FUNDING AVAILABILITY ***Answer Yes or No***

Apply for Community Development Block Grants	YES
Fund projects through Capital Improvements funding	YES
Authority to levy taxes for a specific purpose	YES
Fees for water, sewer, gas, or electric services	YES
Impact fees for new development	YES
Ability to incur debt through general obligation bonds	YES
Ability to incur debt through special tax bonds	YES
Ability to incur debt through private activities	YES
Withhold spending in hazard prone areas	NO

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated into existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	**Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation**
Comprehensive Plan	
Builder's Plan	
Capital Improvement Plan	

Local Recovery Plan	
County Recovery Plan	
Debris Management Plan	
Economic Development Plan	
Transportation Plan	
Land-use Plan	
Watershed Plan	
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members) 3 COUNTY COMMISSIONERS, COUNTY CLERK,

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

5. How many outdoor warning sirens are in your community?

   How are they activated (indicate responsible department/personnel)?

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

   Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas.

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

11. Please list major employers in your jurisdiction with an estimated number of employees.

CARROLL COUNTY HOSPITAL

SCHOOLS

SHO ME ETHANOL

MARIJUANA GROW FACILITIES

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

CARROLL COUNTY PARTICIPATES IN THE NFIP.

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. ***Essential facilities*** are those that if damaged would have devastating impacts on disaster response and/or recovery. ***High potential loss facilities*** are those that would have a high loss or impact on the community. ***Transportation and lifeline facilities*** are third category of critical assets; examples are provided below.

Essential Facilities	**High Potential Loss Facilities**	**Transportation and Lifeline**
Hospitals and other medical facilities Police stations Fire station Emergency Operations Centers	Power plants Dams/levees Military installations Hazardous material sites Schools Shelters Day care centers Nursing homes Main government buildings	Highways, bridges, and tunnels Railroads and facilities Bus facilities Airports Water treatment facilities Natural gas facilities and pipelines Oil facilities and pipelines Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed. If this information is available in GIS format, please provide to the contact listed on the first page.

Critical Facilities

Name of Asset	Address	Natural Hazards
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers		

High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools – they will be reported by the school districts)		
COURTHOUSE		
Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities and pipelines, communications facilities		

Economic Assets (Major Employers, etc.)

Asset	Address	Product/Service	Number of Employees	Hazards

Historic Hazard Events

Please fill out the sheet on the next page for each significant hazard event that affected Your Jurisdiction. ***Make as many copies as necessary to record all events and complete them with as much detail as possible.*** This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Assessment of Previously Proposed Actions

Jurisdiction: _____

Green Hills RPC has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- ***Completed Actions:*** provide a description of the implementation process. This may be a success story you would like to publicize in your community.
- ***Ongoing Actions:*** indicate what activity has occurred during the previous five years and indicate if this program is still viable enough that it should be carried on into the future.
- ***No Progress:*** if no progress has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication ***Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013).***

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M Complete - C
		Complete	Ongoing	No Progress		
County 2020.1	COUNTY-WIDE INVENTORY OF EMERGENCY SHELTERS AND SAFE ROOMS					✓
County 2020.2	MITIGATION EDUCATION					✓
County 2020.3	SNOW REMOVAL					✓
County 2020.4	MAINTAIN EMERGENCY MANAGEMENT EDUCATION					✓
County 2020.5	WEATHER ALERTS, SIRENS & EDUCATION					✓
County 2020.6	PUBLIC EDUCATION EVENT FOR EARLY WARNING SYSTEMS				2020.5	M
County 2020.7	FLOOD WARNING SYSTEM					X
County 2020.8	COUNTY-WIDE DISASTER DRILLS AND EXERCISES					✓
County 2020.9	MONITOR REPETITIVE FLOOD LOSS PROPERTIES					✓
County 2020.10	STRUCTURE GRANTS FOR ROAD AND BRIDGE UPGRADES					✓
County 2020.11	LEVEE FAILURE DATA COLLECTION	X			Included in 2026 HMP update	C
County 2020.12	HAZARD AUDITS OF VULNERABLE STRUCTURES BY GOVERNMENT EXPERTS					K

County 2020.13	FLOOD RISK REDUCTION PROJECTS					✓
County 2020.14	WEATHER SPOTTER TRAINING					λ
County 2020.15	SURVEY FLOOD PLAIN AREAS					
County 2020.16	CRITICAL FACILITIES UTILITY BACK-Ups					
County 2020.17	PUBLIC OFFICIALS EDUCATION ON HAZARD MITIGATION					
County 2020.18	DEBRIS REMOVAL AND BRUSH CLEARING					✓
County 2020.19	ACCESSIBLE CONTACT INFORMATION				NOT A MITIGATION	X
County 2020.20	MUTUAL AID AGREEMENTS					
County 2020.21	PUBLIC PARTICIPATION AND REVIEW OF HAZARD MITIGATION PLANS	X			Completed as part of the 2026 plan update	C
County 2020.22	PLAN REASSESSMENT	X			Completed as part of the 2026 plan update	C
County 2020.23	STORM DRAIN SYSTEM				NOT COUNTY	X
County 2020.24	SAFETY AUDIT AND SELF-INSPECTION TRAINING FOR CRITICAL FACILITIES					X
County 2020.25	CONTINUATION OF A COUNTY-LEVEL MUNICIPALITY STEERING COMMITTEE					✓
County 2020.26	TREE TRIMMING MAINTENANCE					X

County 2020.27	PANDEMIC RESPONSE / DISEASE PREVENTION AND MANAGEMENT				No longer covered in plan	X
County 2020.28	ECONOMIC STABILIZATION DURING PANDEMIC				No longer covered in plan	X
County 2020.29	WARNING SIREN COVERAGE					
County 2020.30	PANDEMIC PERSONAL PROTECTIVE EQUIPMENT (PPE)					
County 2020.31	PARTICIPATION IN NFIP (National Floodplain Insurance Program)					

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Local Governments

COUNTY: Carroll

JURISDICTION: City of Hale / Hale Fire Protection District

RETURN BY: _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each jurisdiction that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process will not be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: Nicholas Wilson Mayor / Emergency Management Director City of Hale Fire Chief Hale Fire Protection District

PHONE: 660-383-3860

EMAIL: Nicholas94wilson@gmail.com DATE: 7/10/2025

Please return questionnaire via email or mail to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Local Governments

COUNTY: Carroll

JURISDICTION: City of Bogard

RETURN BY: _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. ***A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.*** According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process ***will not*** be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: Keith Brock Mayor

PHONE: 660-322-1807

EMAIL: bkaybrock@gmail.com DATE: 11-14-25

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

CAPABILITY ASSESSMENT

& INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the *underlined and bold* elements, *please provide a copy of the document* to the contact listed on the front.

CAPABILITIES	*Status, Including Date of Document or Policy*
PLANNING CAPABILITIES	
Comprehensive Plan	
Builder's Plan	NA
Capital Improvement Plan	NA
City Emergency Operations Plan	Fire dept
County Emergency Operations Plan	NA
Local Recovery Plan	NA
County Recovery Plan	NA
City Mitigation Plan	NA
County Mitigation Plan	NA
Debris Management Plan	NA
Economic Development Plan	
Transportation Plan	NA
Land-use Plan	NA

Flood Mitigation Assistance (FMA) Plan	NA
Watershed Plan	
Firewise or other fire mitigation plan	
School Mitigation Plan	NA
Critical Facilities Plan	NA
POLICIES/ORDINANCE	
Zoning Ordinance	NA
Building Code	NA
Floodplain Ordinance	NA
Subdivision Ordinance	NA
Tree Trimming Ordinance	city ordinance Yes
Nuisance Ordinance	city ordinance Yes
Stormwater Ordinance	NA
Drainage Ordinance	NA
Site Plan Review Requirements	NA
Historic Preservation Ordinance	NA
Landscape Ordinance	NA
Seismic Construction Ordinance	NA
PROGRAM	
Zoning/Land Use Restrictions	city ordinance Yes
Codes Building Site/Design	NA
Hazard Awareness Program	NA
National Flood Insurance Program (NFIP)	NA
NFIP Community Rating System (CRS) program If so, what is your current level rating?	NA
National Weather Service (NWS) Storm Ready	NA

Firewise Community Certification	NA
Building Code Effectiveness Grading (BCEGs)	NA
ISO Fire Rating	NA
Economic Development Program	NA
Land Use Program	NA
Public Education/Awareness	NA
Property Acquisition	NA
Planning/Zoning Boards	NA
Stream Maintenance Program	NA
Tree Trimming Program	Yes City Ordinance
Engineering Studies for Streams (Local/County/Regional)	
Mutual Aid Agreements	Fire dist.
STUDIES/REPORTS/MAPS	
Hazard Analysis/Risk Assessment (Local)	
Hazard Analysis/Risk Assessment (County)	
Flood Insurance Maps	NA
FEMA Flood Insurance Study (Detailed)	NA
Evacuation Route Map	NA
Critical Facilities Inventory	NA
Vulnerable Population Inventory	NA
Land Use Map	NA
STAFF/DEPARTMENT *Full Time or Part Time, if applicable?*	
Building Code Official	NA
Building Inspector	NA
Mapping Specialist (GIS)	NA

Engineer	NA
Development Planner	NA
Public Works Official	NA
Emergency Management Director	NA
NFIP Floodplain Administrator	NA
Emergency Response Team	Fire dept
Hazardous Materials Expert	NA
Local Emergency Planning Committee	NA
County Emergency Management Commission	NA
Sanitation Department	NA
Transportation Department	NA
Economic Development Department	NA
Housing Department	NA
Historic Preservation	NA

NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

Is there a local chapter? Yes or No

American Red Cross	NA
Salvation Army	NA
Veterans Groups	Yes
Local Environmental Organization	NA
Homeowner Associations	NA
Neighborhood Associations	NA
Chamber of Commerce	County
Community Organizations (Lions, Kiwanis, etc.)	NA

LOCAL FUNDING AVAILABILITY

Answer Yes or No NO

Apply for Community Development Block Grants	NA
Fund projects through Capital Improvements funding	NA
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	NA
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	NA
Withhold spending in hazard prone areas	Yes

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated into existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	**Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation**
Comprehensive Plan	NA
Builder's Plan	NA
Capital Improvement Plan	NA

Local Recovery Plan	NA
County Recovery Plan	Yes
Debris Management Plan	Yes
Economic Development Plan	NA
Transportation Plan	NA
Land-use Plan	Yes
Watershed Plan	NA
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	NA

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)
   4 council members
   1 City Clerk

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

   NA

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

   NA

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

NA

5. How many outdoor warning sirens are in your community? 1- New in 2024

   How are they activated (indicate responsible department/personnel)?

Fire dept. By toner- or Phone

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

911

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

   Please provide address locations:

We have none

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

NA

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas.

NA

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

NA

11. Please list major employers in your jurisdiction with an estimated number of employees.

N A

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

N A

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

N A

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. ***Essential facilities*** are those that if damaged would have devastating impacts on disaster response and/or recovery. ***High potential loss facilities*** are those that would have a high loss or impact on the community. ***Transportation and lifeline facilities*** are third category of critical assets; examples are provided below.

Essential Facilities	**High Potential Loss Facilities**	**Transportation and Lifeline**
Hospitals and other medical facilities Police stations Fire station Emergency Operations Centers	Power plants Dams/levees Military installations Hazardous material sites Schools Shelters Day care centers Nursing homes Main government buildings	Highways, bridges, and tunnels Railroads and facilities Bus facilities Airports Water treatment facilities Natural gas facilities and pipelines Oil facilities and pipelines Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed. If this information is available in GIS format, please provide to the contact listed on the first page.

Critical Facilities

Name of Asset	Address	Natural Hazards
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers		
City Hall	305 South Campbell	St - T
Post office	100 west third st	St - T

High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools – they will be reported by the school districts)		
NA		
Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities and pipelines, communications facilities		
NA		

Economic Assets (Major Employers, etc.)

Asset	Address	Product/Service	Number of Employees	Hazards
NA				

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Local Governments

COUNTY: CARROLL

JURISDICTION: TOWN OF CARROLLTON

RETURN BY: LONNIE SENSENICH

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. *A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.* According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process *will not* be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: LONNIE SENSENICH

PHONE: 660-329-1000

EMAIL: CARROLLFIRE2178@GMAIL.COM

DATE: 11/10/2025

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

CAPABILITY ASSESSMENT

& INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the *underlined and bold* elements, *please provide a copy of the document* to the contact listed on the front.

CAPABILITIES	*Status, Including Date of Document or Policy*
PLANNING CAPABILITIES	
Comprehensive Plan	
Builder's Plan	
Capital Improvement Plan	
City Emergency Operations Plan	
County Emergency Operations Plan	
Local Recovery Plan	
County Recovery Plan	
City Mitigation Plan	
County Mitigation Plan	
Debris Management Plan	
Economic Development Plan	
Transportation Plan	
Land-use Plan	

Flood Mitigation Assistance (FMA) Plan	
Watershed Plan	
Firewise or other fire mitigation plan	
School Mitigation Plan	
Critical Facilities Plan	
POLICIES/ORDINANCE	
Zoning Ordinance	YES
Building Code	YES
Floodplain Ordinance	YES
Subdivision Ordinance	
Tree Trimming Ordinance	
Nuisance Ordinance	YES
Stormwater Ordinance	
Drainage Ordinance	
Site Plan Review Requirements	
Historic Preservation Ordinance	
Landscape Ordinance	
Seismic Construction Ordinance	
PROGRAM	
Zoning/Land Use Restrictions	YES
Codes Building Site/Design	YES
Hazard Awareness Program	
National Flood Insurance Program (NFIP)	
NFIP Community Rating System (CRS) program If so, what is your current level rating?	
National Weather Service (NWS) Storm Ready	NO

Firewise Community Certification	NO
Building Code Effectiveness Grading (BCEGs)	
ISO Fire Rating	4
Economic Development Program	
Land Use Program	
Public Education/Awareness	
Property Acquisition	
Planning/Zoning Boards	YES
Stream Maintenance Program	
Tree Trimming Program	YES
Engineering Studies for Streams (Local/County/Regional)	
Mutual Aid Agreements	YES
STUDIES/REPORTS/MAPS	
Hazard Analysis/Risk Assessment (Local)	
Hazard Analysis/Risk Assessment (County)	
Flood Insurance Maps	
FEMA Flood Insurance Study (Detailed)	
Evacuation Route Map	
Critical Facilities Inventory	
Vulnerable Population Inventory	
Land Use Map	
STAFF/DEPARTMENT *Full Time or Part Time, if applicable?*	
Building Code Official	Richard Mounts
Building Inspector	Brandon Blount
Mapping Specialist (GIS)	

Engineer	
Development Planner	
Public Works Official	Bryan Mathis
Emergency Management Director	TOC Lonnie Sensenich
NFIP Floodplain Administrator	Richard Mounts
Emergency Response Team	Carrollton Fire Department
Hazardous Materials Expert	
Local Emergency Planning Committee	YES River Bend LEPD
County Emergency Management Commission	Glen Brigs
Sanitation Department	Chad
Transportation Department	
Economic Development Department	Jeffery Martin
Housing Department	
Historic Preservation	
NON-GOVERNMENTAL ORGANIZATIONS (NGOS) *Is there a local chapter? Yes or No*	
American Red Cross	NO
Salvation Army	NO
Veterans Groups	
Local Environmental Organization	
Homeowner Associations	
Neighborhood Associations	
Chamber of Commerce	Jeffery Martin
Community Organizations (Lions, Kiwanis, etc.)	Lions and Kiwanis
LOCAL FUNDING AVAILABILITY *Answer Yes or No*	

Apply for Community Development Block Grants	YES
Fund projects through Capital Improvements funding	YES
Authority to levy taxes for a specific purpose	
Fees for water, sewer, gas, or electric services	
Impact fees for new development	
Ability to incur debt through general obligation bonds	
Ability to incur debt through special tax bonds	
Ability to incur debt through private activities	
Withhold spending in hazard prone areas	

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated into existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation
Comprehensive Plan	
Builder's Plan	
Capital Improvement Plan	

Local Recovery Plan	
County Recovery Plan	
Debris Management Plan	
Economic Development Plan	
Transportation Plan	
Land-use Plan	
Watershed Plan	
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

Mayor / City Council (5)

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

Fire Department does public fire prevention.

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

5. How many outdoor warning sirens are in your community?
   5
   How are they activated (indicate responsible department/personnel)?

   They are activated through fire department radio.

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

Town of Carrollton has NIXEL text alert system.

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?
   NO

   Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update.
   Two Cannabis grow facilities

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas.

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

unknown

11. Please list major employers in your jurisdiction with an estimated number of employees.

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. *Essential facilities* are those that if damaged would have devastating impacts on disaster response and/or recovery. *High potential loss facilities* are those that would have a high loss or impact on the community. *Transportation and lifeline facilities* are third category of critical assets; examples are provided below.

Essential Facilities	High Potential Loss Facilities	Transportation and Lifeline
Hospitals and other medical facilities Police stations Fire station Emergency Operations Centers	Power plants Dams/levees Military installations Hazardous material sites Schools Shelters Day care centers Nursing homes Main government buildings	Highways, bridges, and tunnels Railroads and facilities Bus facilities Airports Water treatment facilities Natural gas facilities and pipelines Oil facilities and pipelines Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed. If this information is available in GIS format, please provide to the contact listed on the first page.

Critical Facilities

Name of Asset	Address	Natural Hazards
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers		
High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools – they will be reported by the school districts)		

Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities and pipelines, communications facilities		

Economic Assets (Major Employers, etc.)

Asset	Address	Product/Service	Number of Employees	Hazards

Historic Hazard Events

Please fill out the sheet on the next page for each significant hazard event that affected Your Jurisdiction. *Make as many copies as necessary to record all events and complete them with as much detail as possible.* This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Assessment of Previously Proposed Actions

Jurisdiction:

Green Hills RPC has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- *Completed Actions:* provide a description of the implementation process. This may be a success story you would like to publicize in your community.
- *Ongoing Actions:* indicate what activity has occurred during the previous five years and indicate if this program is still viable enough that it should be carried on into the future.
- *No Progress:* if no progress has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013).*

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✔ Delete – X Modify – M
		Complete	Ongoing	No Progress		

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Local Governments

COUNTY: ____CARROLL_____

JURISDICTION: _____CITY OF DEWITT_____

RETURN BY: _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. ***A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.*** According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process ***will not*** be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: _____NORMA L. SPARKS_____

PHONE: _____660-549-3481_____

EMAIL: SPARKS@CVALLEY.NET_ DATE: 10/30/2025_____

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

CAPABILITY ASSESSMENT

& INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the *underlined and bold* elements, *please provide a copy of the document* to the contact listed on the front.

CAPABILITIES	*Status, Including Date of Document or Policy*
PLANNING CAPABILITIES	
Comprehensive Plan	
Builder's Plan	
Capital Improvement Plan	
City Emergency Operations Plan	
County Emergency Operations Plan	
Local Recovery Plan	
County Recovery Plan	
City Mitigation Plan	Part of Carroll County Hazard Mitigation Plan
County Mitigation Plan	Yes
Debris Management Plan	
Economic Development Plan	
Transportation Plan	
Land-use Plan	

Flood Mitigation Assistance (FMA) Plan	
Watershed Plan	
Firewise or other fire mitigation plan	
School Mitigation Plan	
Critical Facilities Plan	
POLICIES/ORDINANCE	
Zoning Ordinance	
Building Code	
Floodplain Ordinance	
Subdivision Ordinance	
Tree Trimming Ordinance	
Nuisance Ordinance	Yes 11-20-2021A
Stormwater Ordinance	
Drainage Ordinance	
Site Plan Review Requirements	
Historic Preservation Ordinance	
Landscape Ordinance	
Seismic Construction Ordinance	
PROGRAM	
Zoning/Land Use Restrictions	
Codes Building Site/Design	
Hazard Awareness Program	
National Flood Insurance Program (NFIP)	
NFIP Community Rating System (CRS) program If so, what is your current level rating?	
National Weather Service (NWS) Storm Ready	

Firewise Community Certification	
Building Code Effectiveness Grading (BCEGs)	
ISO Fire Rating	
Economic Development Program	
Land Use Program	
Public Education/Awareness	
Property Acquisition	
Planning/Zoning Boards	
Stream Maintenance Program	
Tree Trimming Program	
Engineering Studies for Streams (Local/County/Regional)	
Mutual Aid Agreements	Yes
STUDIES/REPORTS/MAPS	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	
Critical Facilities Inventory	
Vulnerable Population Inventory	
Land Use Map	
STAFF/DEPARTMENT *Full Time or Part Time, if applicable?*	
Building Code Official	
Building Inspector	
Mapping Specialist (GIS)	

Engineer	
Development Planner	
Public Works Official	No
Emergency Management Director	
NFIP Floodplain Administrator	
Emergency Response Team	
Hazardous Materials Expert	
Local Emergency Planning Committee	
County Emergency Management Commission	
Sanitation Department	Contract with Carroll County Solid Waste
Transportation Department	
Economic Development Department	
Housing Department	
Historic Preservation	

NON-GOVERNMENTAL ORGANIZATIONS (NGOS)

Is there a local chapter? Yes or No

American Red Cross	
Salvation Army	
Veterans Groups	
Local Environmental Organization	
Homeowner Associations	
Neighborhood Associations	
Chamber of Commerce	
Community Organizations (Lions, Kiwanis, etc.)	

LOCAL FUNDING AVAILABILITY

Answer Yes or No

Apply for Community Development Block Grants	Yes
Fund projects through Capital Improvements funding	
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	No
Impact fees for new development	
Ability to incur debt through general obligation bonds	
Ability to incur debt through special tax bonds	
Ability to incur debt through private activities	
Withhold spending in hazard prone areas	

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated into existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	**Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation**
Comprehensive Plan	
Builder's Plan	
Capital Improvement Plan	

Local Recovery Plan	
County Recovery Plan	
Debris Management Plan	
Economic Development Plan	
Transportation Plan	
Land-use Plan	
Watershed Plan	
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members) Mayor/City Council – 1 Mayor, 4 Councilmen and 1 Clerk

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.
   None

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants. None

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

5. How many outdoor warning sirens are in your community?

   How are they activated (indicate responsible department/personnel)?

   None

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.
   None

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?
   None

   Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update. None

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas. None

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.
    No

11. Please list major employers in your jurisdiction with an estimated number of employees.
ASB – But not in City limits

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. ***Essential facilities*** are those that if damaged would have devastating impacts on disaster response and/or recovery. ***High potential loss facilities*** are those that would have a high loss or impact on the community. ***Transportation and lifeline facilities*** are third category of critical assets; examples are provided below.

Essential Facilities	**High Potential Loss Facilities**	**Transportation and Lifeline**
Hospitals and other medical facilities Police stations Fire station Emergency Operations Centers	Power plants Dams/levees Military installations Hazardous material sites Schools Shelters Day care centers Nursing homes Main government buildings	Highways, bridges, and tunnels Railroads and facilities Bus facilities Airports Water treatment facilities Natural gas facilities and pipelines Oil facilities and pipelines Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

CAPABILITY ASSESSMENT

& INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update.

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the [illegible] elements, please provide [illegible] to the contact listed on the front.

City Hall

CAPABILITIES	*Status, Including Date of Document or Policy*
PLANNING CAPABILITIES	
[illegible]	
Builder's Plan	None
Capital Improvement Plan	None
City Emergency Operations Plan	Yes July 2025
County Emergency Operations Plan	Yes
Local Recovery Plan	in the works
County Recovery Plan	unknown
City Mitigation Plan	in the works
County Mitigation Plan	unknown
Debris Management Plan	Yes July 2025
[illegible]	
Transportation Plan	in the works
Land-use Plan	in the works

Flood Mitigation Assistance (FMA) Plan	in the works
Watershed Plan	
Firewise or other fire mitigation plan	Yes
School Mitigation Plan	Yes
Critical Facilities Plan	in the works
POLICIES/ORDINANCE	
Zoning Ordinance	none
Building Code	none
Floodplain Ordinance	none
Subdivision Ordinance	none
Tree Trimming Ordinance	none
Nuisance Ordinance	Yes 2018
Stormwater Ordinance	none
Drainage Ordinance	none
Site Plan Review Requirements	none
Historic Preservation Ordinance	none
Landscape Ordinance	none
Seismic Construction Ordinance	None
PROGRAM	
Zoning/Land Use Restrictions	none
Codes Building Site/Design	none
Hazard Awareness Program	none
National Flood Insurance Program (NFIP)	none
NFIP Community Rating System (CRS) program If so, what is your current level rating?	Unknown
National Weather Service (NWS) Storm Ready	Yes

Firewise Community Certification	unknown
Building Code Effectiveness Grading (BCEGs)	none
ISO Fire Rating	Yes
Economic Development Program	none
Land Use Program	none
Public Education/Awareness	Yes
Property Acquisition	None
Planning/Zoning Boards	none
Stream Maintenance Program	none
Tree Trimming Program	none
Engineering Studies for Streams (Local/County/Regional)	none
Mutual Aid Agreements	Yes Mutiple

STUDIES/REPORTS/MAPS

Hazard Analysis/Risk Assessment (Local)	unknown
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	unknown
FEMA Flood Insurance Study (Detailed)	cc >>
Evacuation Route Map	Cc >>
Critical Facilities Inventory	Yes
Vulnerable Population Inventory	Yes
Land Use Map	yes

STAFF/DEPARTMENT

(List Those Which Exist, If Applicable)

Building Code Official	none
Building Inspector	none
Mapping Specialist (GIS)	none

Engineer	none
Development Planner	none
Public Works Official	Yes Full time
Emergency Management Director	Yes part time
NFIP Floodplain Administrator	none
Emergency Response Team	Yes
Hazardous Materials Expert	yes Chill. Fire
Local Emergency Planning Committee	none
County Emergency Management Commission	Yes
Sanitation Department	yes
Transportation Department	none
Economic Development Department	none
Housing Department	none
Historic Preservation	none
NON-GOVERNMENTAL ORGANIZATIONS (NGOS)	
American Red Cross	Yes
Salvation Army	Yes
Veterans Groups	yes
Local Environmental Organization	Yes
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	no
Community Organizations (Lions, Kiwanis, etc.)	Yes
LOCAL FUNDING AVAILABILITY	

Apply for Community Development Block Grants	Yes
Fund projects through Capital Improvements funding	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	unknown
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	NO
Withhold spending in hazard prone areas	UNKnown

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated into existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation
Comprehensive Plan	none
Builder's Plan	none
Capital Improvement Plan	none

Local Recovery Plan	none
County Recovery Plan	none
Debris Management Plan	none
Economic Development Plan	none
Transportation Plan	none
Land-use Plan	none
Watershed Plan	none
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	none

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members) Mayor/City Council

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

   Fire Safety

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

   None

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

   Aging population in rural communities.

5. How many outdoor warning sirens are in your community?

   1

   How are they activated (indicate responsible department/personnel)?

   Activated by phone by our Fire Chief/Emergency Management Director.

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

   Radio broadcast and Facebook.

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

   Unknown if meets FEMA standards but the Methodist Church is unlocked during weather events.

   Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

   None

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas.

   None

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

    None

11. Please list major employers in your jurisdiction with an estimated number of employees.

MFA INC - 15
Hale R1 School - 30

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

Unknown

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally

Unknown

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. *Essential facilities* are those that if damaged would have devastating impacts on disaster response and/or recovery. *High potential loss facilities* are those that would have a high loss or impact on the community. *Transportation and lifeline facilities* are third category of critical assets; examples are provided below.

Essential Facilities	High Potential Loss Facilities	Transportation and Lifeline
Hospitals and other medical facilities Police stations Fire station Emergency Operations Centers	Power plants Dams/levees Military installations Hazardous material sites Schools Shelters Day care centers Nursing homes Main government buildings	Highways, bridges, and tunnels Railroads and facilities Bus facilities Airports Water treatment facilities Natural gas facilities and pipelines Oil facilities and pipelines Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed. If this information is available in GIS format, please provide to the contact listed on the first page.

Critical Facilities

Name of Asset	Address	Natural Hazards
Essential facilities such as hospitals and other medical facilities having surgery or emergency treatment areas		
Community Hall	121 Broad St Hale mo 64643	T, SWW, ST
City Hall	302 main St Hale mo 64643	T, SWW, ST
Fire Station	109 E Sunset Hale mo 64643	RF, T, SWW, ST
Hale R1 School	518 main St Hale mo 64643	T, SWW, ST

High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools – they will be reported by the school districts)		
Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities and pipelines, communications facilities		

Economic Assets (Major Employers, etc.)

Asset	Address	Product/Service	Number of Employees	Hazards
Hale R1 school	518 main St Hale MO 64643	Education	720	T, SWW, St
MEA	116 main St Hale MO 64643	Ag	715	T, SWW, St

Historic Hazard Events

Please fill out the sheet on the next page for each significant hazard event that affected Your Jurisdiction. *Make as many copies as necessary to record all events and complete them with as much detail as possible.* This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Assessment of Previously Proposed Actions

Jurisdiction: _____

Green Hills RPC has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- [illegible] provide a description of the implementation process. This may be a success story you would like to publicize in your community.
  [illegible] indicate what activity has occurred during the previous five years and indicate if this program is still viable enough that it should be carried on into the future.
- [illegible] if no progress has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication [illegible]

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M Complete - C
		Complete	Ongoing	No Progress		
CH 2020.1	WEATHER ALERTS				Modified to include weather radios and education	M
CH 2020.2	ACCESSIBLE CONTACT INFORMATION				Not a mitigation action	X
CH 2020.3	CRITICAL FACILITIES UTILITY BACK-UP				Modified to include transfer switches and communications	M
CH 2020.4	DEBRIS REMOVAL		X		awaiting funding	K
CH 2020.5	MITIGATION EDUCATION				Modified from preparedness education to mitigation, combined with 2020.10 to cover all education actions	M
CH 2020.6	MUTUAL AID AGREEMENTS		X		in progress	K
CH 2020.7	STORM SHELTERS		X		awaiting funding	K
CH 2020.8	WEATHER SPOTTER TRAINING				Not a mitigation action	X
CH 2020.9	VULNERABLE POPULATION IDENTIFICATION			X		OK
CH 2020.10	PUBLIC OFFICIALS EDUCATION ON HAZARD MITIGATION				Combined with 2020.5	X
CH 2020.11	PANDEMIC PERSONAL PROTECTIVE EQUIPMENT (PPE)				No longer covered in plan	X

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Local Governments

COUNTY: Carroll

JURISDICTION: City of Norborne

RETURN BY:

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. *A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.* According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process will not be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: Carol Stevens - City Clerk

PHONE: 660-593-3514

EMAIL: Cstevens@cityofnorborne.org DATE: 8-27-25

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

CAPABILITY ASSESSMENT

& INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the *underlined and bold* elements, *please provide a copy of the document* to the contact listed on the front.

CAPABILITIES	*Status, Including Date of Document or Policy*
PLANNING CAPABILITIES	
Comprehensive Plan	No
Builder's Plan	NO
Capital Improvement Plan	No
City Emergency Operations Plan	No
County Emergency Operations Plan	No
Local Recovery Plan	No
County Recovery Plan	No
City Mitigation Plan	yes-part of Carroll County Hazard Mitigation plan
County Mitigation Plan	yes-part of Carroll County Hazard Mitigation
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	NO
Land-use Plan	No

Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
School Mitigation Plan	No
Critical Facilities Plan	No
POLICIES/ORDINANCE	
Zoning Ordinance	yes
Building Code	yes
Floodplain Ordinance	Yes
Subdivision Ordinance	No
Tree Trimming Ordinance	No
Nuisance Ordinance	yes
Stormwater Ordinance	Yes
Drainage Ordinance	yes
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
PROGRAM	
Zoning/Land Use Restrictions	No
Codes Building Site/Design	No
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System (CRS) program If so, what is your current level rating?	No
National Weather Service (NWS) Storm Ready	No

Firewise Community Certification	NO
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	NO
Economic Development Program	NO
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	Yes
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes - MPUA - local fire protection district

STUDIES/REPORTS/MAPS	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	yes
FEMA Flood Insurance Study (Detailed)	yes
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	yes

STAFF/DEPARTMENT *Full Time or Part Time, if applicable?*	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	No

Engineer	yes- Bartlett + West
Development Planner	No
Public Works Official	Yes- Joey Bates
Emergency Management Director	No
NFIP Floodplain Administrator	yes
Emergency Response Team	No
Hazardous Materials Expert	No
Local Emergency Planning Committee	No
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
NON-GOVERNMENTAL ORGANIZATIONS (NGOS) Is there a local chapter? Yes or No	
American Red Cross	No
Salvation Army	ND
Veterans Groups	Yes- American Legion- Auxilliary
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	Lions, 4H, Norborne Betterment, Norborne Housing Revitalization, Town + Country Garden Club
LOCAL FUNDING AVAILABILITY Answer Yes or No	

Apply for Community Development Block Grants	yes
Fund projects through Capital Improvements funding	yes
Authority to levy taxes for a specific purpose	yes - with voter approval
Fees for water, sewer, gas, or electric services	yes - water & sewer
Impact fees for new development	No
Ability to incur debt through general obligation bonds	yes - with voter approval
Ability to incur debt through special tax bonds	yes - with voter approval
Ability to incur debt through private activities	yes - with voter approval
Withhold spending in hazard prone areas	No

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated into existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation
Comprehensive Plan	None
Builder's Plan	None
Capital Improvement Plan	None

Local Recovery Plan	None
County Recovery Plan	None
Debris Management Plan	None
Economic Development Plan	None
Transportation Plan	None
Land-use Plan	None
Watershed Plan	none
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	~~None~~ none

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

   Mayor - 4 Aldermen

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

   none that I Am aware of

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

   none that I Am aware of

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

low income + elderly

5. How many outdoor warning sirens are in your community?

How are they activated (indicate responsible department/personnel)?

one tornado siren owned + activated by volunteer Fire Dept.

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe. text- Caster

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards? Not that I Am aware of

Please provide address locations:

N/A

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas. None

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

None

11. Please list major employers in your jurisdiction with an estimated number of employees.

Caseys - 12
Ray Carroll - 20
Norborne School - 30

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

I do not know this information

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

I do not know this information

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. *Essential facilities* are those that if damaged would have devastating impacts on disaster response and/or recovery. *High potential loss facilities* are those that would have a high loss or impact on the community. *Transportation and lifeline facilities* are third category of critical assets; examples are provided below.

Essential Facilities	High Potential Loss Facilities	Transportation and Lifeline
Hospitals and other medical facilities Police stations Fire station Emergency Operations Centers	Power plants Dams/levees Military installations Hazardous material sites Schools Shelters Day care centers Nursing homes Main government buildings	Highways, bridges, and tunnels Railroads and facilities Bus facilities Airports Water treatment facilities Natural gas facilities and pipelines Oil facilities and pipelines Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools – they will be reported by the school districts)		
City Hall / Library	105 E 2nd St	
Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities and pipelines, communications facilities		
BNSF Railroad		
Norfolk Southern RR		
Water treatment Plant	Long St	Flood - Storm - Risk
Water Tower	Long St	Flood - Storm Risk
WWT Plant - Lagoon	10 Highway	Flood Risk

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed. If this information is available in GIS format, please provide to the contact listed on the first page.

Critical Facilities

Name of Asset	Address	Natural Hazards
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers		
Norborne Volunteer Fire Dept.	Pirate Lane	Flood-Storm-Wind

Historic Hazard Events

Please fill out the sheet on the next page for each significant hazard event that affected Your Jurisdiction. *Make as many copies as necessary to record all events and complete them with as much detail as possible.* This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	City of Norborne
Type of event	Flooding
Nature and magnitude of event	
Location	Carroll/Ray County
Date of event	93, 95
Injuries	
Deaths	
Property damage	Major
Infrastructure damage	NOT major- Highway damage
Crop damage	Major
Business/economic impacts	Major
Road/school/other closures	Major
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Economic Assets (Major Employers, etc.)

Asset	Address	Product/Service	Number of Employees	Hazards

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		
	N/A					

Assessment of Previously Proposed Actions

Jurisdiction: City of Nortonne

Green Hills RPC has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- *Completed Actions:* provide a description of the implementation process. This may be a success story you would like to publicize in your community.
- *Ongoing Actions:* indicate what activity has occurred during the previous five years and indicate if this program is still viable enough that it should be carried on into the future.
- *No Progress:* if no progress has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)*.

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Schools Districts and Educational Institutions

COUNTY: Carroll

JURISDICTION: Carrollton School District

RETURN BY: Dr Tinna Croy

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. ***A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.*** According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process *will not* be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: Dr Tinna Croy

PHONE: 660-542-2769

EMAIL: croy-tinna@trojans.k12.mo.us DATE: Sept 26, 2025

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

Capability Assessment & Incorporation of Existing Plans, Studies, Reports, and Technical Information

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the *underlined and bold* elements, *please provide a copy of the document to the contact indicated on the front* to the contact listed on page 1.

PLANNING ELEMENTS	YES/NO	DATE OF LATEST VERSION	COMMENTS
Master Plan	Yes	Aug 2025	
Capital Improvement Plan	No		updating this fall
School Emergency Plan • Shelter in Place Protocols • Evacuation Protocols	Yes	Aug 2025	
Weapons Policy	No		This is w/in our School Safety Pla
PERSONNEL RESOURCES	**YES/NO**	**DEPARTMENT/ POSITION**	**COMMENTS**
Full-Time Building Official	Yes	superintendent	
Emergency Manager	Yes	SRO	
Grant Writer	No		
Public Information Officer	Yes	Superintendent	

FINANCIAL RESOURCES	YES/NO	COMMENTS
Capital Improvements Project Funding	Yes	
Local Funds	Yes	
General Obligation Bonds	No	
Special Tax Bonds	NO	
Private Activities/Donations	Yes	
State and Federal Funds	Yes	

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe. Yes - all buildings have working speakers & all classrooms have emergency procedures & phone
2. Does your school buildings' have NOAA Weather Radios?

   No

3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur. we are always updating our info based on the latest needs.
4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.

   none at this time

5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards? NO

6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update? Please list the buildings and the improvement.

Yes, the elementary additional 4K classrooms were made

7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas?

Yes = The elementary building was added onto & offices were remade

8. What percentage is your projected enrollment expected to increase or decrease in the next five years?

decrease by approximately 30 students.

9. Do you have your own campus police? Please explain your police department or who you rely on for security needs.

We have a school resource officer. We have both a police department and sheriff department in Toron.

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. *If you have this data in GIS formats, or other formats, please provide in lieu of this.*

Name of Asset	Address	Natural Hazards
preschool building		—
elementary K-6	207 E. 9th St.	—
high school 7-8	300 E 9th St.	—
career center	305 E 10th St.	—

Historic Hazard Events

Please fill out the sheet on the next page for each significant hazard event that affected Your Jurisdiction. *Make as many copies as necessary to record all events and complete them with as much detail as possible*. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M Complete - C
		Complete	Ongoing	No Progress		
CSD 2020.1	MITIGATION EDUCATION		✓			✓
CSD 2020.2	MUTUAL AID AGREEMENTS		✓			✓
CSD 2020.3	Plan reassessment	X			Completed as part of the 2026 plan update	C
CSD 2020.4	REPRESENTATIVE FOR COUNTY HAZARD MITIGATION STEERING COMMITTEE	X			Completed as part of the 2026 plan update	C
CSD 2020.6	PANDEMIC PERSONAL PROTECTIVE EQUIPMENT (PPE)				No longer covered in plan	X
CSD 2020.5	Storm shelters		✓			✓
CSD 2020.7	Generator		✓			✓

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M Complete - C
		Complete	Ongoing	No Progress		
CSD 2020.1	MITIGATION EDUCATION		✓			✓
CSD 2020.2	MUTUAL AID AGREEMENTS		✓			✓
CSD 2020.3	Plan reassessment	X			Completed as part of the 2026 plan update	C
CSD 2020.4	REPRESENTATIVE FOR COUNTY HAZARD MITIGATION STEERING COMMITTEE	X			Completed as part of the 2026 plan update	C
CSD 2020.6	PANDEMIC PERSONAL PROTECTIVE EQUIPMENT (PPE)				No longer covered in plan	X
CSD 2020.5	Storm shelters		✓			✓
CSD 2020.7	Generator		✓			✓

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Schools Districts and Educational Institutions

COUNTY: CARROLL
JURISDICTION: HALE R-1 SCHOOL

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. ***A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.*** According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process ***will not*** be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: NICHOLAS WILSON

PHONE: 1-660-383-3860

Email: nicholas94wilson@gmail.com date: 11/10/2025

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

Capability Assessment & Incorporation of Existing Plans, Studies, Reports, and Technical Information

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the ***underlined and bold*** elements, ***please provide a copy of the document to the contact indicated on the front*** to the contact listed on page 1.

HALE R-1

PLANNING ELEMENTS	YES/NO	DATE OF LATEST VERSION	COMMENTS
Master Plan	YES	2025	
Capital Improvement Plan	YES	2025	
School Emergency Plan • Shelter in Place Protocols • Evacuation Protocols	YES	2025	
Weapons Policy	YES	2025	
Personnel Resources	YES/NO	DEPARTMENT/ POSITION	COMMENTS
Full-Time Building Official	YES	SUPERINTENDENT	COURTNEY NIER
Emergency Manager	YES	MAINT/TRANSPORT	NICHOLAS WILSON
Grant Writer	YES	SUPERINTENDENT	COURTNEY NIER
Public Information Officer	YES	SUPERINTENDENT	COURTNEY NIER

Financial Resources	YES/NO	COMMENTS
Capital Improvements Project Funding	YES	
Local Funds	YES	
General Obligation Bonds	YES	
Special Tax Bonds	NO	
Private Activities/Donations	YES	
State and Federal Funds	YES	

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe.

Yes Both PA and Fire Alarm

2. Does your school buildings' have NOAA Weather Radios?

Yes

3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur.

We conduct drills throughout the year for every type of emergency, Our local EMD/Fire Chief also works in the building constantly keeping us up to date on weather and other hazards.

4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.

None on going

5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards?
   We have designated saferooms/shelters they do not meet FEMA standards

6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update? Please list the buildings and the improvement.

NONE

7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas?

NONE

8. What percentage is your projected enrollment expected to increase or decrease in the next five years?

Decrease 10-20%

9. Do you have your own campus police? Please explain your police department or who you rely on for security needs.

None now besides the local sheriff's office. We will be getting someone school safety officer certified.

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. ***If you have this data in GIS formats, or other formats, please provide in lieu of this.***

Name of Asset	**Address**	**Natural Hazards**
Hale R-1 School	518 Main St Hale MO 64643	EQ,ET,ST,SWW,T

Historic Hazard Events

Please fill out the sheet on the next page for each significant hazard event that affected Your Jurisdiction. *Make as many copies as necessary to record all events and complete them with as much detail as possible*. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Assessment of Previously Proposed Actions

Jurisdiction:

Green Hills RPC has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- *Completed Actions:* provide a description of the implementation process. This may be a success story you would like to publicize in your community.
- *Ongoing Actions:* indicate what activity has occurred during the previous five years and indicate if this program is still viable enough that it should be carried on into the future.
- *No Progress:* if no progress has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013).*

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M Complete - C
		Complete	Ongoing	No Progress		
HSD 2020.1	MITIGATION EDUCATION		X		Modified from preparedness education to mitigation	M
HSD 2020.2	MUTUAL AID AGREEMENTS		X		Have agreements	K
HSD 2020.3	Plan reassessment	X			Completed as part of the 2026 plan update	C
HSD 2020.4	REPRESENTATIVE FOR COUNTY HAZARD MITIGATION STEERING COMMITTEE	X			Completed as part of the 2026 plan update	C
HSD 2020.5	Storm shelters			X	Waiting on Funding	K
HSD 2020.6	Generator			X	Waiting on Funding	K
HSD 2020.7	PANDEMIC PERSONAL PROTECTIVE EQUIPMENT (PPE)			X	No longer covered in plan	X

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Schools Districts and Educational Institutions

COUNTY: _Carroll_____

JURISDICTION: Norborne

RETURN BY: _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. ***A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.*** According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process ***will not*** be eligible applicants for FEMA mitigation funding programs.

PREPARED BY:JENNIFER COURTNEY_____

PHONE: ___660-593-3319_____

EMAIL: JCOURTNEY@NORBORNESCHOOLS.COM

DATE: __OCT 23, 2025_____

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

Capability Assessment & Incorporation of Existing Plans, Studies, Reports, and Technical Information

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the ***underlined and bold*** elements, ***please provide a copy of the document to the contact indicated on the front*** to the contact listed on page 1.

PLANNING ELEMENTS	YES/NO	DATE OF LATEST VERSION	COMMENTS
Master Plan	YES	SEPT 2024-2028	CSIP PLAN
Capital Improvement Plan	YES	SEPT 2024	REVIEW YEARLY
School Emergency Plan • Shelter in Place Protocols • Evacuation Protocols	YES	AUGUST 2025	
Weapons Policy	YES	JULY 2025	
PERSONNEL RESOURCES	**YES/NO**	**DEPARTMENT/ POSITION**	**COMMENTS**
Full-Time Building Official	YES	SUPERINTENDENT	
Emergency Manager	YES	ALICE TRAINER	
Grant Writer	YES	SUPERINTENDENT	

Public Information Officer	YES	SUPERINTENDENT	
FINANCIAL RESOURCES	YES/NO	COMMENTS	
Capital Improvements Project Funding	YES	PROP PIRATES 2025	
Local Funds	YES	TAX DOLLARS	
General Obligation Bonds	YES	PROP PIRATES 2025	
Special Tax Bonds	NO		
Private Activities/Donations	NO		
State and Federal Funds	YES	SCHOOL FUNDING	

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe. Yes, we have a bell and intercom system throughout the entire building. Used daily

2. Does your school buildings' have NOAA Weather Radios? Yes – one in the high school office. We also use weather bug (Earth Networks) weather station and lightning detector.

3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur. We have drills for tornado, fire, earthquake and intruder at least twice per year. We also have an ongoing special meeting with all students about preparing for intruders at school and home. We also teach them to be weather aware and make "packs" to take to a basement if a tornado were to come through.

4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.

5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards? Yes, we have a storm shelter in our gymnasium.

6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update? Please list the buildings and the improvement.
Yes, we have remodeled the kitchen and cafeteria. Remodeled the high school entrance for safety, added fencing to all playgrounds.

7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas? Since improvements were made in 2025 we do not plan to make any large changes in the next 5 years. We are looking to replace our fire systems.

8. What percentage is your projected enrollment expected to increase or decrease in the next five years? I look for enrollment to stay steady or decrease 5-10% over the next 5 years.

9. Do you have your own campus police? Please explain your police department or who you rely on for security needs. We do not have a police department. We have an SRO.

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. ***If you have this data in GIS formats, or other formats, please provide in lieu of this.***

Name of Asset	Address	**Natural Hazards**

Historic Hazard Events

Please fill out the sheet on the next page for each significant hazard event that affected Your Jurisdiction. ***Make as many copies as necessary to record all events and complete them with as much detail as possible.*** This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Assessment of Previously Proposed Actions

Jurisdiction: _____

Green Hills RPC has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- ***Completed Actions:*** provide a description of the implementation process. This may be a success story you would like to publicize in your community.
- ***Ongoing Actions:*** indicate what activity has occurred during the previous five years and indicate if this program is still viable enough that it should be carried on into the future.
- ***No Progress:*** if no progress has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication ***Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013).***

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire for Schools Districts and Educational Institutions

COUNTY: Carroll

JURISDICTION: Tina- Avalon R11

RETURN BY: Lauren Lee

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. ***A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan.*** According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process ***will not*** be eligible applicants for FEMA mitigation funding programs.

PREPARED BY: Lauren Lee

PHONE: (660) 022-4211

EMAIL: llee@tinaavalon.k12.mo.us DATE: 9/4/25

Please return questionnaires by mail, email, or fax to:

Name: Amanda George – Transportation Planner & Hazard Mitigation Specialist

Address: Green Hills Regional Planning Commission, 810 Washington St., Trenton, MO 64683

Email: amanda@ghrpc.org

Phone: (660) 359-5636 ext. 11

Capability Assessment & Incorporation of Existing Plans, Studies, Reports, and Technical Information

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the ***underlined and bold*** elements, ***please provide a copy of the document to the contact indicated on the front*** to the contact listed on page 1.

PLANNING ELEMENTS	YES/NO	DATE OF LATEST VERSION	COMMENTS
Master Plan			
Capital Improvement Plan			
School Emergency Plan • Shelter in Place Protocols • Evacuation Protocols	✓	8/25	
Weapons Policy	✓	8/25	
Personnel Resources	**YES/NO**	**DEPARTMENT/ POSITION**	**COMMENTS**
Full-Time Building Official	Yes	Superintendent	

Emergency Manager	Yes	Superintendent	
Grant Writer	Yes	Superintendent	
Public Information Officer	Yes	Superintendent	
Financial Resources	**YES/NO**	**COMMENTS**	
Capital Improvements Project Funding	yes	Superintendent	
Local Funds			
General Obligation Bonds			
Special Tax Bonds			
Private Activities/Donations			
State and Federal Funds			

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe.
   Yes. we have a PA system
2. Does your school buildings' have NOAA Weather Radios?
   yes. There is a weather radio in Superintendent office.
3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur.
4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.

5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards?
   Yes. we have tornado shelter area. - No.

6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update? Please list the buildings and the improvement.
   Yes. Bus garage addition. Added an attached garage to current bus garage.

7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas?
   No. NO.

8. What percentage is your projected enrollment expected to increase or decrease in the next five years? decrease 2%

9. Do you have your own campus police? Please explain your police department or who you rely on for security needs.
   No. Carol County Sheriff responds first.

Vulnerability Assessment

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate which of the following hazards the asset is vulnerable to. Use the following abbreviations.

Natural Hazards	
Flooding (Major & Flash) – RF	Drought – D
Levee Failure – LF	Extreme Temperature – ET
Dam Failure – DF	Severe Thunderstorm (incl. wind, hail, lightning) – ST
Earthquake – EQ	Severe Winter Weather (incl. snow, ice, severe cold) – SWW
Land Subsidence /Sinkholes – LSS	Tornadoes – T
Wildfire - W	

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. ***If you have this data in GIS formats, or other formats, please provide in lieu of this.***

Name of Asset	Address	Natural Hazards
Tina-Avalon R11 Buildings	11896 Hwy 65 Tina, MO	ET, ST, SWW, T

Historic Hazard Events

Please fill out the sheet on the next page for each significant hazard event that affected Your Jurisdiction. ***Make as many copies as necessary to record all events and complete them with as much detail as possible.*** This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	Tina - Avalon R11 School
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	N/A

Assessment of Previously Proposed Actions

Jurisdiction: Tina-Avalon R11 School

Green Hills RPC has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- ***Completed Actions:*** provide a description of the implementation process. This may be a success story you would like to publicize in your community.
- ***Ongoing Actions:*** indicate what activity has occurred during the previous five years and indicate if this program is still viable enough that it should be carried on into the future.
- ***No Progress:*** if no progress has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication ***Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013).***

None that we are aware of.

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

(1)

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	County ~~2019~~ 2020.1	
Name of Action or Project:	County wide Inventory	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		3
T: Is it **Technically** feasible and potentially successful?		3
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		2
L: Is there **Legal** authority to implement?		3
E: Is it **Economically** beneficial?		1
E: Will the project have either a neutral or positive impact on the natural **Environment?**		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		1
	STAPLEE SCORE	
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
	MITIGATION EFFECTIVENESS SCORE	
	TOTAL SCORE (STAPLEE + Mitigation Effectiveness)	
☒ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)	Dan Falke Presiding Commissioner	

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:		
Action or Project		
Action/Project Number:	County 2020.26	
Name of Action or Project:	Tree Trimming Maintenance	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		3
T: Is it **Technically** feasible and potentially successful?		3
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		2
L: Is there **Legal** authority to implement?		3
E: Is it **Economically** beneficial?		2
E: Will the project have either a neutral or positive impact on the natural **Environment**?		3
Will historic structures be saved or protected?		1
Could it be implemented quickly?		3
STAPLEE SCORE		
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	7
MITIGATION EFFECTIVENESS SCORE		
TOTAL SCORE (STAPLEE + Mitigation Effectiveness)		
☐ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)		

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	2020.3	
Name of Action or Project:	Snow Removal	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		3
T: Is it **Technically** feasible and potentially successful?		3
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		3
L: Is there **Legal** authority to implement?		3
E: Is it **Economically** beneficial?		3
E: Will the project have either a neutral or positive impact on the natural **Environment**?		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
	STAPLEE SCORE	
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	8
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	8
	MITIGATION EFFECTIVENESS SCORE	
	TOTAL SCORE (STAPLEE + Mitigation Effectiveness)	
☐ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)		

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	2020.5	
Name of Action or Project:	Weather Alerts	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		3
T: Is it **Technically** feasible and potentially successful?		3
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		3
L: Is there **Legal** authority to implement?		3
E: Is it **Economically** beneficial?		3
E: Will the project have either a neutral or positive impact on the natural **Environment**?		3
Will historic structures be saved or protected?		1
Could it be implemented quickly?		3
STAPLEE SCORE		
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	9
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
MITIGATION EFFECTIVENESS SCORE		
TOTAL SCORE (STAPLEE + Mitigation Effectiveness)		
☐ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)		

2020.8

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	2020.8	
Name of Action or Project:	County Wide Disaster Drills	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		1
T: Is it **Technically** feasible and potentially successful?		2
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		2
L: Is there **Legal** authority to implement?		3
E: Is it **Economically** beneficial?		1
E: Will the project have either a neutral or positive impact on the natural **Environment**?		1
Will historic structures be saved or protected?		1
Could it be implemented quickly?		1
	STAPLEE SCORE	
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	9
	MITIGATION EFFECTIVENESS SCORE	
	TOTAL SCORE (STAPLEE + Mitigation Effectiveness)	
☒ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)	Stan Facke Presiding Commissioner	

2020.9

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	2020.9	
Name of Action or Project:	Monitor Repetitive Flood Loss Properties	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		1
T: Is it **Technically** feasible and potentially successful?		2
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		1
P: Is it **Politically** acceptable?		1
L: Is there **Legal** authority to implement?		1
E: Is it **Economically** beneficial?		1
E: Will the project have either a neutral or positive impact on the natural **Environment**?		3
Will historic structures be saved or protected?		1
Could it be implemented quickly?		1
STAPLEE SCORE		
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	8
MITIGATION EFFECTIVENESS SCORE		
TOTAL SCORE (STAPLEE + Mitigation Effectiveness)		
☐ **High Priority (30+ points)**	☒ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)	Steve Fahr Presiding Commissioner	

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	2020.10	
Name of Action or Project:	Structure Grants For Roads and Bridges upgrade	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		3
T: Is it **Technically** feasible and potentially successful?		3
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		3
L: Is there **Legal** authority to implement?		3
E: Is it **Economically** beneficial?		3
E: Will the project have either a neutral or positive impact on the natural **Environment**?		2
Will historic structures be saved or protected?		0
Could it be implemented quickly?		1
	STAPLEE SCORE	
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	7
	MITIGATION EFFECTIVENESS SCORE	
	TOTAL SCORE (STAPLEE + Mitigation Effectiveness)	
☐ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)		

2020.13

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	2020.13	
Name of Action or Project:	Flood Risk Reduction Projects	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		3
T: Is it **Technically** feasible and potentially successful?		~~2~~ 3
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		3
L: Is there **Legal** authority to implement?		3
E: Is it **Economically** beneficial?		2
E: Will the project have either a neutral or positive impact on the natural **Environment**?		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		1
	STAPLEE SCORE	
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
	MITIGATION EFFECTIVENESS SCORE	
	TOTAL SCORE (STAPLEE + Mitigation Effectiveness)	
☒ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)	Stan Falke Presiding Commissioner	

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	2020-25	
Name of Action or Project:	Cont. of county-Level Mun. Steering Com	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		2
T: Is it **Technically** feasible and potentially successful?		2
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		1
L: Is there **Legal** authority to implement?		2
E: Is it **Economically** beneficial?		1
E: Will the project have either a neutral or positive impact on the natural **Environment**?		2
Will historic structures be saved or protected?		3
Could it be implemented quickly?		2
STAPLEE SCORE		18
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
MITIGATION EFFECTIVENESS SCORE		10
TOTAL SCORE (STAPLEE + Mitigation Effectiveness)		28
☐ **High Priority (30+ points)**	☒ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)	Carroll County Com. Charles Pence	

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:		
Action or Project		
Action/Project Number:	County 2020-[illegible] 2020.31	
Name of Action or Project:	NFIP	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		**Score**
S: Is it **Socially** Acceptable		3
T: Is it **Technically** feasible and potentially successful?		3
A: Does the jurisdiction have the **Administrative** capacity to execute this action?		3
P: Is it **Politically** acceptable?		3
L: Is there **Legal** authority to implement?		3
E: Is it **Economically** beneficial?		3
E: Will the project have either a neutral or positive impact on the natural **Environment**?		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE SCORE		
Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
MITIGATION EFFECTIVENESS SCORE		
TOTAL SCORE (STAPLEE + Mitigation Effectiveness)		
☐ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**
Completed by (Name, Title, Phone Number)		

Modify

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:	Carroll County	
Action or Project		
Action/Project Number:	Modify	
Name of Action or Project:	Road Tubes	
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	

STAPLEE Criteria **Evaluation Rating** Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	**Score**
S: Is it **Socially** Acceptable	3
T: Is it **Technically** feasible and potentially successful?	3
A: Does the jurisdiction have the **Administrative** capacity to execute this action?	3
P: Is it **Politically** acceptable?	3
L: Is there **Legal** authority to implement?	3
E: Is it **Economically** beneficial?	3
E: Will the project have either a neutral or positive impact on the natural **Environment**?	3
Will historic structures be saved or protected?	0
Could it be implemented quickly?	2
STAPLEE SCORE	

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
	MITIGATION EFFECTIVENESS SCORE	
	TOTAL SCORE (STAPLEE + Mitigation Effectiveness)	

☐ **High Priority (30+ points)**	☐ **Medium Priority (25 - 29 points)**	☐ **Low Priority (<25 points)**

Completed by (Name, Title, Phone Number)	

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Weather alerts	**Jurisdiction:** City of Bogard
Action ID: CB 2025.1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	7
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	8
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 42

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Keith Bock mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Critical facilities back up	**Jurisdiction:** City of Bogard
Action ID: CB 2025.2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		11

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 38

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Keith Brock mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Debris removal & regular brush cleaning	**Jurisdiction:** City of Bogard
Action ID: CB 2025.3	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	6
Mitigation Effectiveness Score		12

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 39

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Keith Brock mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Mitigation education	**Jurisdiction:** City of Bogard
Action ID: CB. 2025.4	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	8
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	6
Mitigation Effectiveness Score		14

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 41

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Kevin Brock mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Vulnerable population identification	**Jurisdiction:** City of Bogard
Action ID: CB 2025.6	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		2
Will historic structures be saved or protected?		2
Could it be implemented quickly?		3
STAPLEE Score		23

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 38

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Keith Black mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Storm shelter/safe room	**Jurisdiction:** City of Bogard
Action ID: CB 2025.5	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		11

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 38

Priority Level: ■ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Keith Brock mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Installation of warning sirens	**Jurisdiction:** City of Bogard
Action ID: CB 2025. 7	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		2
A: Does the jurisdiction have the administrative capacity to execute this action?		2
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		2
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		2
Will historic structures be saved or protected?		1
Could it be implemented quickly?		1
STAPLEE Score		16

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	7
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		12

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 28

Priority Level: ☐ High (30+ points) ☒ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Keith Brock Major

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Installation of warning siren	**Jurisdiction:** Town of Carrollton
Action ID: CC 2025.1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		2
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		2
Will historic structures be saved or protected?		1
Could it be implemented quickly?		2
STAPLEE Score		19

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 29

Priority Level: ☐ High (30+ points) ☒ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Fire Chief 660 329 1000

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Critical facilities back up	**Jurisdiction:** Town of Carrollton
Action ID: CC 2025.2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	7
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		12

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 39

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Fire Chief 660 329 1000

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Debris removal & regular brush clearing	**Jurisdiction:** Town of Carrollton
Action ID: CC 2025.3	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	8
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	7
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 42

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Fire Chief 660 329 1000

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Mitigation Education	**Jurisdiction:** Town of Carrollton
Action ID: CC 2025.4	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	7
Mitigation Effectiveness Score		13

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 40

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): FIRE CHIEF

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Storm shelter/safe room	**Jurisdiction:** Town of Carrollton
Action ID: CC 2025.5	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	7
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		12

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 39

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Fire Chief 660 329 108

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Weather spotter training	**Jurisdiction:** Town of Carrollton
Action ID: CC 2025.6	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		11

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 38

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): [illegible] 660 329 1000

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Survey of flood plain areas	**Jurisdiction:** Town of Carrollton
Action ID: CC 2025.7	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		1
T: Is it Technically feasible and potentially successful?		1
A: Does the jurisdiction have the administrative capacity to execute this action?		1
P: Is it Politically acceptable?		1
L: Is there Legal authority to implement?		2
E: Is it Economically beneficial?		1
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		2
Will historic structures be saved or protected?		0
Could it be implemented quickly?		1
STAPLEE Score		10

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 20

Priority Level: ☐ High (30+ points) ☐ Medium (25-29 points) ☒ Low (less than 25 points)

Completed by (name/title/phone #): Lonnie Fire Chief

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Participation in NFIP	**Jurisdiction:** Town of Carrollton
Action ID: CC 2025. 8	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		1
T: Is it Technically feasible and potentially successful?		2
A: Does the jurisdiction have the administrative capacity to execute this action?		2
P: Is it Politically acceptable?		1
L: Is there Legal authority to implement?		2
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		2
Will historic structures be saved or protected?		1
Could it be implemented quickly?		2
STAPLEE Score		15

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		11

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 26

Priority Level: ☐ High (30+ points) ☒ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): [illegible]

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Installation of warning siren	**Jurisdiction:** City of DeWitt
Action ID: CD 2025.1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		2
A: Does the jurisdiction have the administrative capacity to execute this action?		2
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		2
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		2
Will historic structures be saved or protected?		2
Could it be implemented quickly?		2
STAPLEE Score		18

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 28

Priority Level: ☐ High (30+ points) ☒ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): norma Sparks

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Critical facilities back-up	**Jurisdiction:** City of DeWitt
Action ID: CD 2025.2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		25

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	7
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		12

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 37

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Norma Sparks

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Debris removal	**Jurisdiction:** City of DeWitt
Action ID: CD 2025.3	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	8
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		13

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 40

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Norma Sparks

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Mitigation education	**Jurisdiction:** City of DeWitt
Action ID: CD 2025.4	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	7
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		12

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 39

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Norma Sparks

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Vulnerable population identification	**Jurisdiction:** City of DeWitt
Action ID:	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	9
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	6
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 42

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Norma Sparks

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: Storm shelter/saferoom	**Jurisdiction:** City of DeWitt
Action ID: CD 2025.5	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 37

Priority Level: ☒ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): norma sparks

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: SIREN	**Jurisdiction:** HALE
Action ID: CH 2025.1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		2
STAPLEE Score		19

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 34

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Nick Wilson Mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: BACKWOODS FACILITIES	**Jurisdiction:** HALE
Action ID: CH 2025. 2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		2
A: Does the jurisdiction have the administrative capacity to execute this action?		2
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		1
Could it be implemented quickly?		2
STAPLEE Score		21

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 31

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Nick Asher Mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: DEBRIS REMOVAL	**Jurisdiction:** HALE
Action ID: CH 2025.3	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		24

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 39

Priority Level: ☐ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): Mel Wilson mayor

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title:	**Jurisdiction:**
EDUCATION	HALE
Action ID: CH 2025. 4	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 47

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Nick Wilson mg

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: SHELTERS	**Jurisdiction:** HALE
Action ID: CIT 2025. 5	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		1
STAPLEE Score		22

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 42

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Mike Milligan mg

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: VULNERABLE POPULATION	**Jurisdiction:** STATE
Action ID: CIT 2025 6	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		3
STAPLEE Score		20

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 35

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): N. C. Wilson MPO

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: SIRENS	**Jurisdiction:** NORBORNE
Action ID: CW 2025 1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		1
STAPLEE Score		18

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 28

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carol Stalker Clerk

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: CRITICAL BACK UPS	**Jurisdiction:** WORBORNE
Action ID: CN 2025.2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		1
STAPLEE Score		22

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 32

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carl Stands Chief

SHOW-ME COUNTY
MULTI-JURISDICTIONAL
LOCAL HAZARD MITIGATION PLAN

Action Title: DEBRIS REMOVAL	**Jurisdiction:** NORBORNE
Action ID: CN 2025 3	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		25

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 40

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carol Stevens Clerk

SHOW-ME COUNTY
MULTI-JURISDICTIONAL
LOCAL HAZARD MITIGATION PLAN

Action Title: EDUCATION	**Jurisdiction:** NORBORNE
Action ID: CN 2025 4	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 47

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carl Simes Chair

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: SHELTERS	**Jurisdiction:** NORBORNE
Action ID: CN 2025.5	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		2
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		0
STAPLEE Score		20

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 40

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carol Stevens Clerk

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: VULNERABLE POPULATION	**Jurisdiction:** NORBORNE
Action ID: CW 2025 6	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		2
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		2
Could it be implemented quickly?		3
STAPLEE Score		15

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 30

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): CAROL STUMP CLERK

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: NFIP	**Jurisdiction:** NORBORNE
Action ID: CN 2025 7	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		2
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		2
Will historic structures be saved or protected?		1
Could it be implemented quickly?		1
STAPLEE Score		16

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 26

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carla Stiles, Clerk

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: FLOOD RISK PROJECTS	**Jurisdiction:** UDP Phase
Action ID: CW 2025.8	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		1
Will historic structures be saved or protected?		1
Could it be implemented quickly?		1
STAPLEE Score		17

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 27

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carol Stamps CLEPS

SHOW-ME COUNTY
MULTI-JURISDICTIONAL
LOCAL HAZARD MITIGATION PLAN

Action Title: SURVEY FLOOD PLAIN	**Jurisdiction:** NORBORNE
Action ID: CN 2025.9	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		1
T: Is it Technically feasible and potentially successful?		2
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		0
L: Is there Legal authority to implement?		2
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		3
STAPLEE Score		13

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 23

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): CARL STEVENS CLERK

SHOW-ME COUNTY
MULTI-JURISDICTIONAL
LOCAL HAZARD MITIGATION PLAN

Action Title: STORM Drains	**Jurisdiction:** NORTHSIDE
Action ID: CN 0025.10	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		1
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		2
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		0
Will historic structures be saved or protected?		0
Could it be implemented quickly?		0
STAPLEE Score		10

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 20

Priority Level: ☐ High (30+ points) ☐ Medium (25-29 points) ☒ Low (less than 25 points)

Completed by (name/title/phone #): Carol Stamps Clerk

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: STEERING COMMITTEE	**Jurisdiction:** NORBORNE
Action ID: CN 2025.11	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		2
P: Is it Politically acceptable?		2
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		1
Could it be implemented quickly?		3
STAPLEE Score		19

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 29

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carol Stone CLERK

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: TREE trimming	**Jurisdiction:** NORBORNE
Action ID: CN 2025.12	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		2
T: Is it Technically feasible and potentially successful?		2
A: Does the jurisdiction have the administrative capacity to execute this action?		2
P: Is it Politically acceptable?		0
L: Is there Legal authority to implement?		2
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		0
Will historic structures be saved or protected?		0
Could it be implemented quickly?		3
STAPLEE Score		11

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	5
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		10

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 21

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Carol Stiles clerk

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: EDUCATION	**Jurisdiction:** CARROLLTON R-VII
Action ID: CSD 2025.1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 47

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): DC Cully

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: GENERATORS	**Jurisdiction:** CARROLLTON R-VII
Action ID: C30 2025.2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		0
STAPLEE Score		18

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	6
Mitigation Effectiveness Score		12

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 30

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Dr Croy

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: SHELTERS	**Jurisdiction:** CARROLLTON R-VII
Action ID: CSD 2025.3	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		0
STAPLEE Score		18

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 38

Priority Level: ☑ High (30+ points) ☐ Medium (25-29 points) ☐ Low (less than 25 points)

Completed by (name/title/phone #): TINA Croy Super.

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: EDUCATION	**Jurisdiction:** HALE R-1
Action ID: HSD 2025.1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 47

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): NICK WILSON - MAINT

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: GENERATORS	**Jurisdiction:** HALE R-1
Action ID: HSD 2025.2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		0
STAPLEE Score		18

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	5
Mitigation Effectiveness Score		15

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 43

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): N. [illegible] Wilcom MAINT

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title:	**Jurisdiction:**
SHELTERS	HALE R-1
Action ID: HSD 2025:3	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		0
STAPLEE Score		18

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 38

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): NICK WILSON NA/VT

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: GENERATORS	**Jurisdiction:** DORBORNE R VIII
Action ID: MSO 2025.4	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		0
STAPLEE Score		18

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	6
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	6
Mitigation Effectiveness Score		12

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 30

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Jennifer County

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: SHELTERS	**Jurisdiction:** NORBORNE R-VIII
Action ID: NSD 2025.3	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		1
STAPLEE Score		20

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 40

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Jennifer Courtney

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title:	**Jurisdiction:**
WARNINGS	NORBORNE R-VII
Action ID: NSD 2025.2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		0
STAPLEE Score		24

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 44

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Jennifer Courtney

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: EDUCATION	**Jurisdiction:** NORBORNE R-VI
Action ID: NSD 2025.1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 47

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Jennifer Cauntley

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title:	**Jurisdiction:**
Education	TNR-Naylor II
Action ID: TRSD 2025.1	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		3
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		3
Could it be implemented quickly?		3
STAPLEE Score		27

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

Total Score (STAPLEE Score + Mitigation Effectiveness Score): 47

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Lauren Lee

SHOW-ME COUNTY MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

Action Title: SHELTERS	**Jurisdiction:** TINA - AVALON R-II
Action ID: TAVD 2025.2	

STAPLEE Criteria	Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0	Score
S: Is it Socially acceptable?		3
T: Is it Technically feasible and potentially successful?		3
A: Does the jurisdiction have the administrative capacity to execute this action?		3
P: Is it Politically acceptable?		3
L: Is there Legal authority to implement?		3
E: Is it Economically beneficial?		0
E: Will the project have either a neutral or positive impact on the natural environment? (score a 3 if positive impact, 2 if neutral impact)		3
Will historic structures be saved or protected?		0
Could it be implemented quickly?		0
STAPLEE Score		18

Mitigation Effectiveness Criteria	**Evaluation Rating**	**Score**
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives would be saved.	10
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	10
Mitigation Effectiveness Score		20

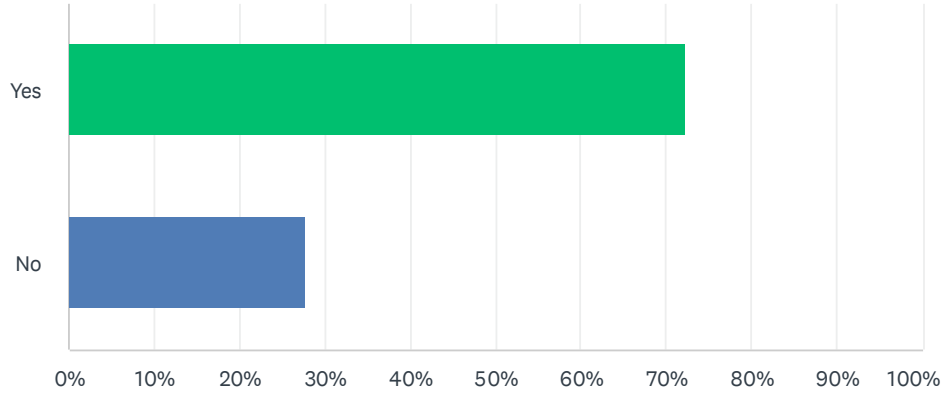
Total Score (STAPLEE Score + Mitigation Effectiveness Score): 38

Priority Level: ☐High (30+ points) ☐Medium (25-29 points) ☐Low (less than 25 points)

Completed by (name/title/phone #): Laura Lee

Q1 During the past five years have you experienced a natural disaster?

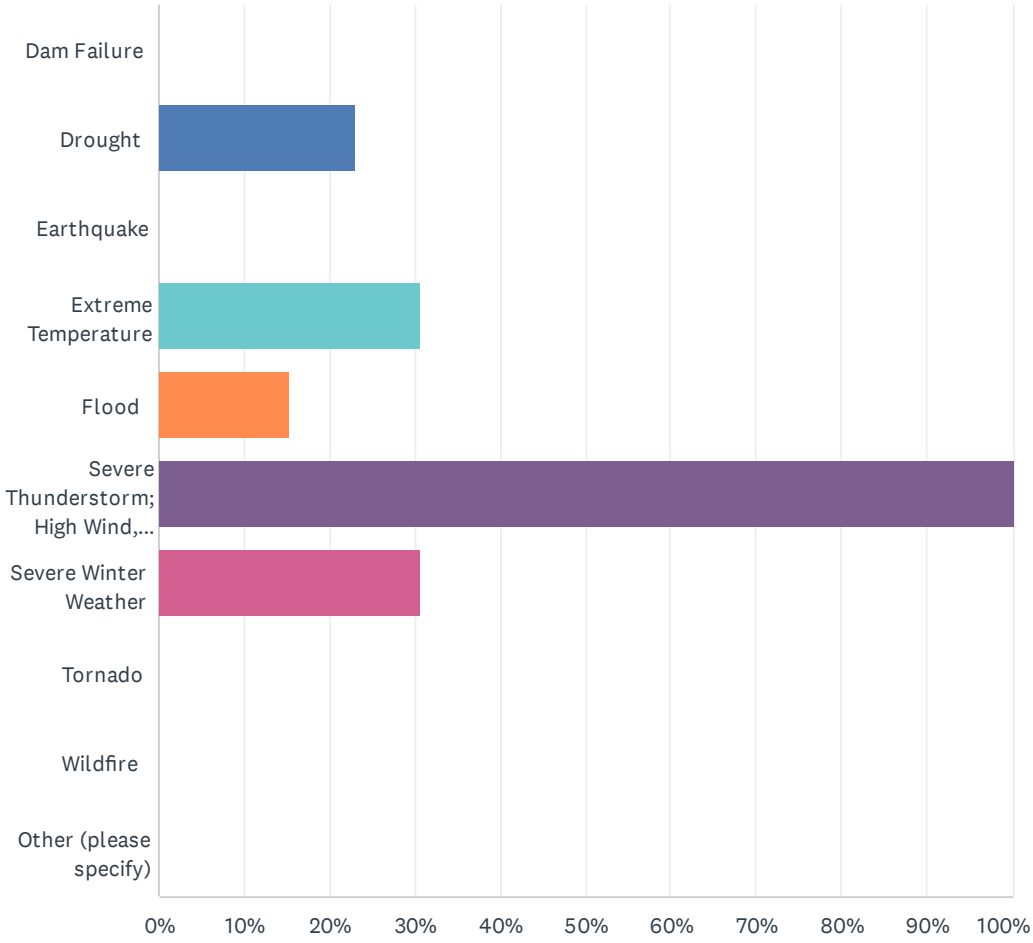
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	72.22%	13
No	27.78%	5
TOTAL		18

Q2 If "YES" which of the following natural disasters have you experienced?

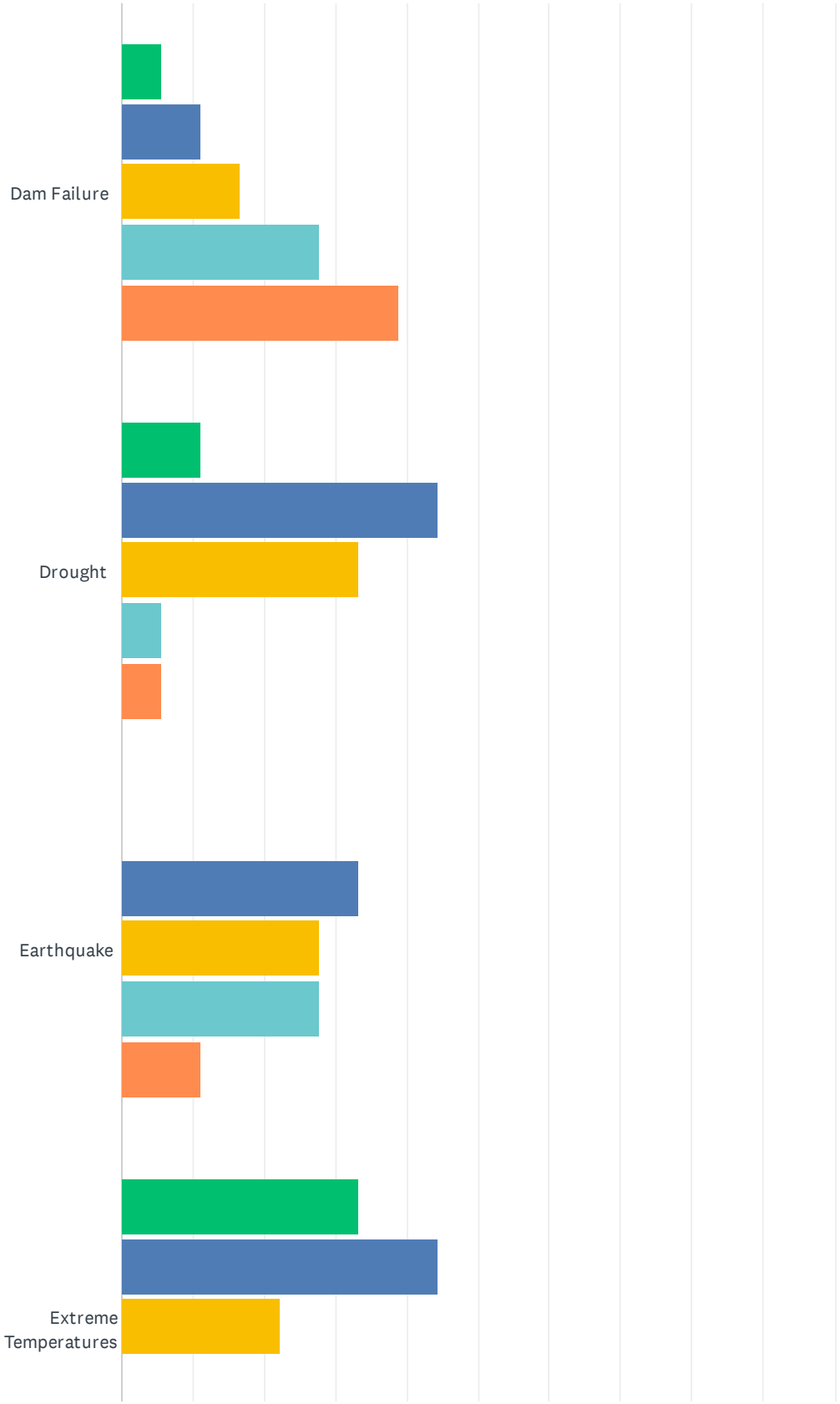
Answered: 13 Skipped: 5

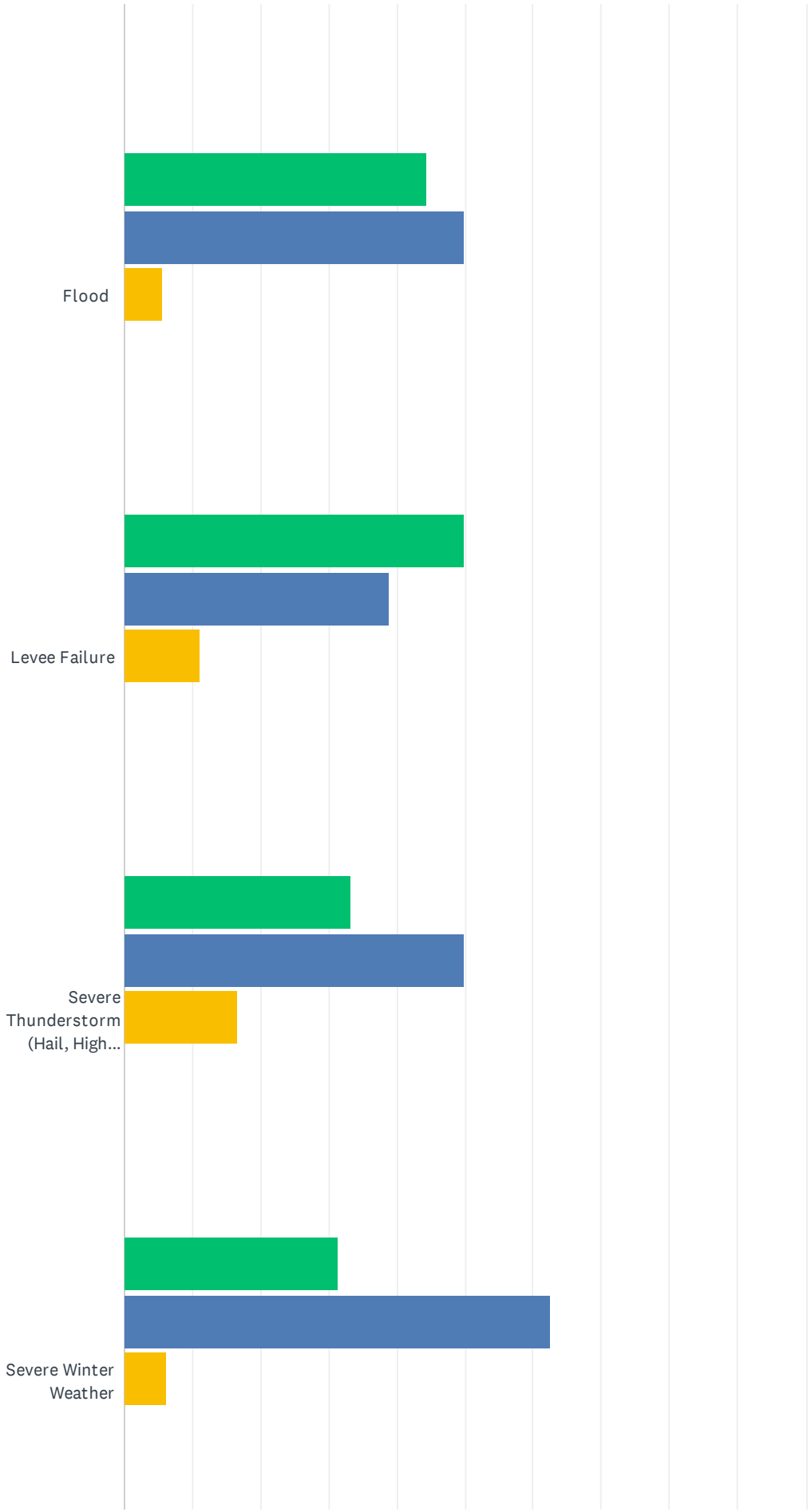


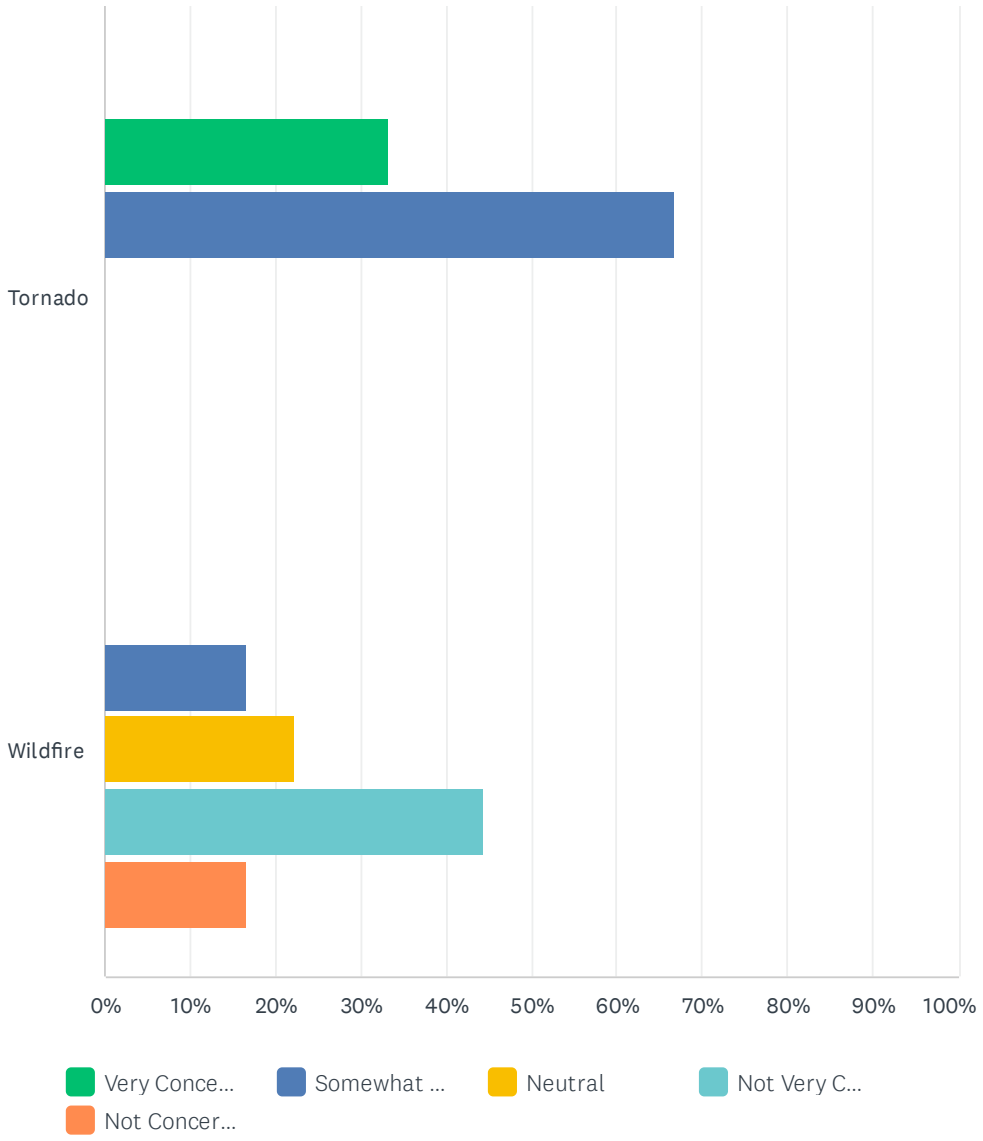
ANSWER CHOICES	RESPONSES	
Dam Failure	0.00%	0
Drought	23.08%	3
Earthquake	0.00%	0
Extreme Temperature	30.77%	4
Flood	15.38%	2
Severe Thunderstorm; High Wind, Lightning, and/or Hail	100.00%	13
Severe Winter Weather	30.77%	4
Tornado	0.00%	0
Wildfire	0.00%	0
Other (please specify)	0.00%	0
Total Respondents: 13		

Q3 How concerned are you about the following natural disasters?

Answered: 18 Skipped: 0



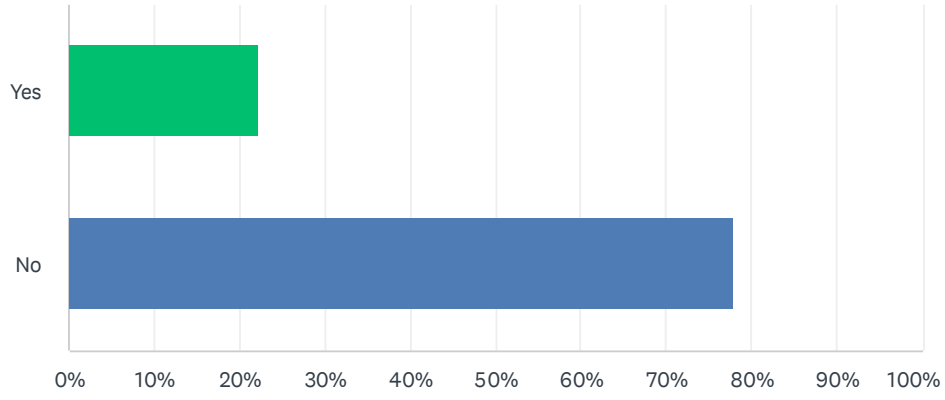

Flood
Levee Failure
Severe Thunderstorm (Hail, High...
Severe Winter Weather


Tornado
Wildfire
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Very Conce...
Somewhat ...
Neutral
Not Very C...
Not Concer...

	VERY CONCERNED	SOMEWHAT CONCERNED	NEUTRAL	NOT VERY CONCERNED	NOT CONCERNED	TOTAL
Dam Failure	5.56% 1	11.11% 2	16.67% 3	27.78% 5	38.89% 7	18
Drought	11.11% 2	44.44% 8	33.33% 6	5.56% 1	5.56% 1	18
Earthquake	0.00% 0	33.33% 6	27.78% 5	27.78% 5	11.11% 2	18
Extreme Temperatures	33.33% 6	44.44% 8	22.22% 4	0.00% 0	0.00% 0	18
Flood	44.44% 8	50.00% 9	5.56% 1	0.00% 0	0.00% 0	18
Levee Failure	50.00% 9	38.89% 7	11.11% 2	0.00% 0	0.00% 0	18
Severe Thunderstorm (Hail, High Winds, & Lightning)	33.33% 6	50.00% 9	16.67% 3	0.00% 0	0.00% 0	18
Severe Winter Weather	31.25% 5	62.50% 10	6.25% 1	0.00% 0	0.00% 0	16
Tornado	33.33% 6	66.67% 12	0.00% 0	0.00% 0	0.00% 0	18
Wildfire	0.00% 0	16.67% 3	22.22% 4	44.44% 8	16.67% 3	18

Q4 Have you ever received information about how to make members of your household and your home safer from natural disasters?

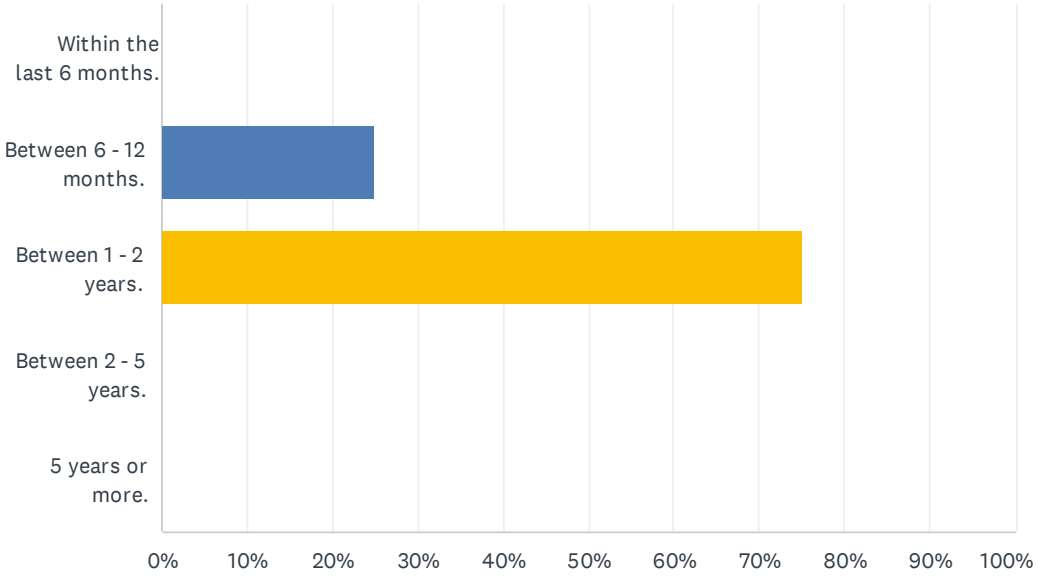
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	22.22%	4
No	77.78%	14
TOTAL		18

Q5 If "Yes", how recently?

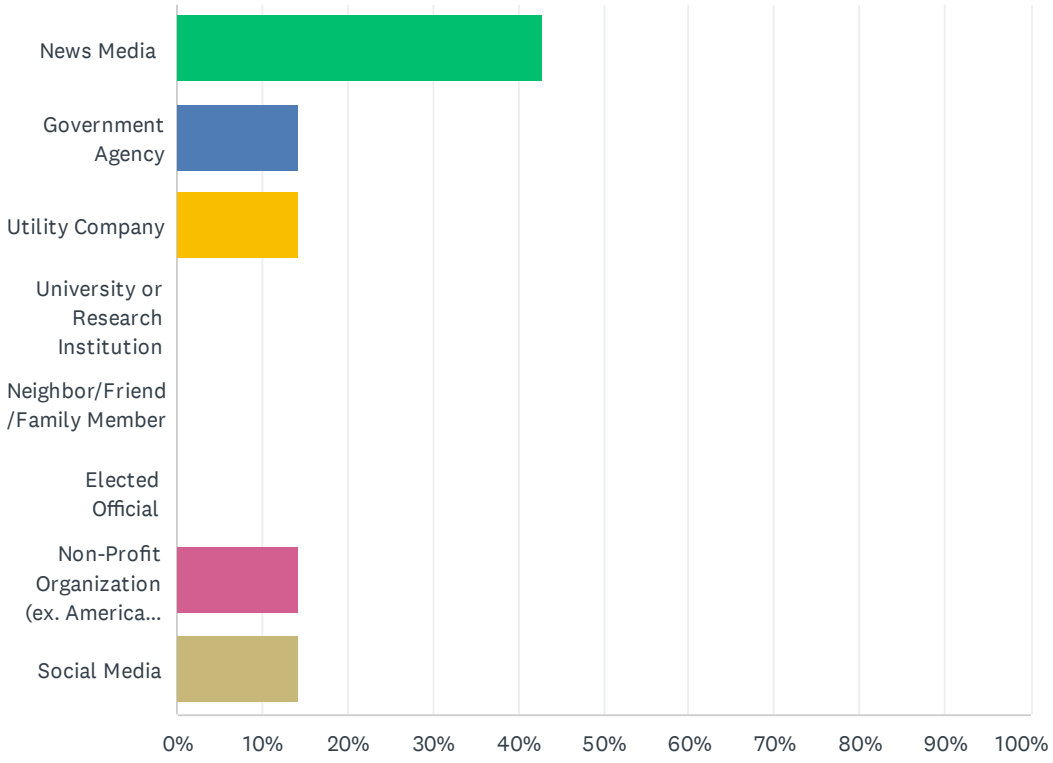
Answered: 4 Skipped: 14



ANSWER CHOICES	RESPONSES	
Within the last 6 months.	0.00%	0
Between 6 - 12 months.	25.00%	1
Between 1 - 2 years.	75.00%	3
Between 2 - 5 years.	0.00%	0
5 years or more.	0.00%	0
TOTAL		4

Q6 From whom did you last receive information about how to make members of your household and your home safer from natural disasters?

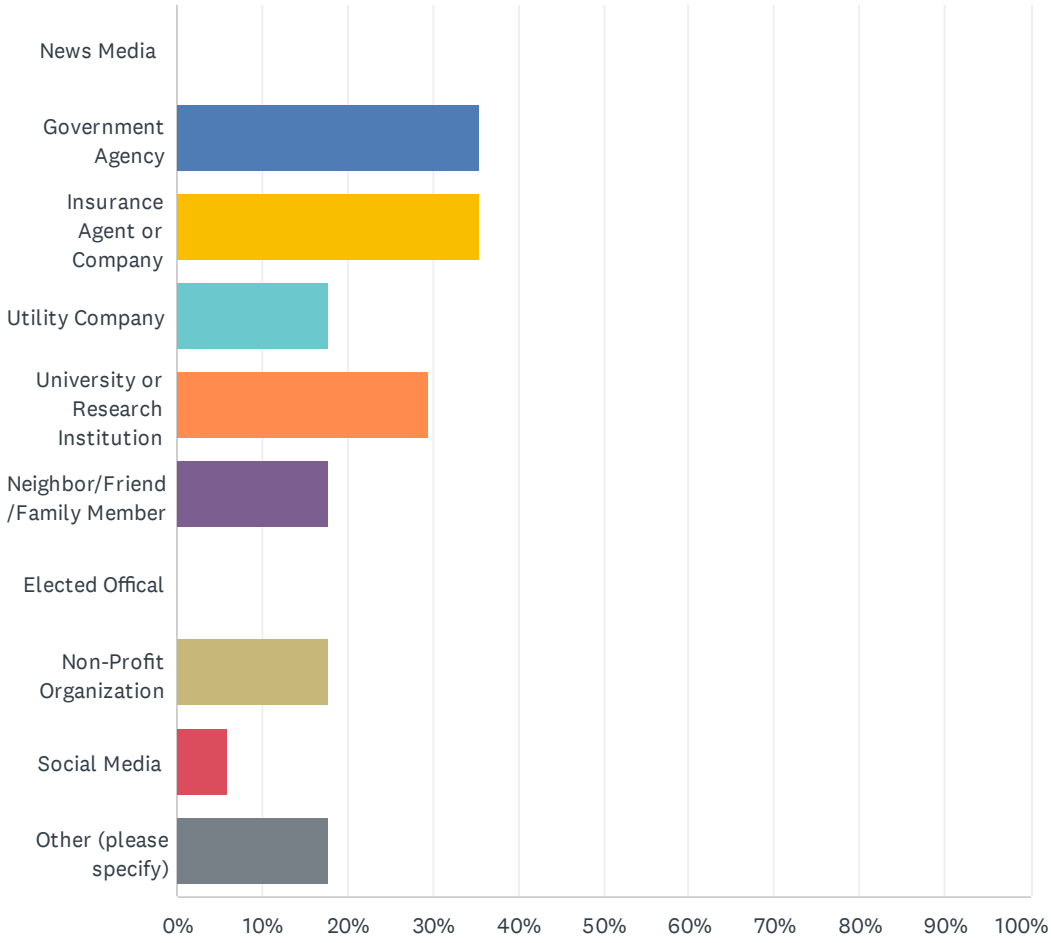
Answered: 7 Skipped: 11



ANSWER CHOICES	RESPONSES	
News Media	42.86%	3
Government Agency	14.29%	1
Utility Company	14.29%	1
University or Research Institution	0.00%	0
Neighbor/Friend/Family Member	0.00%	0
Elected Official	0.00%	0
Non-Profit Organization (ex. American Red Cross)	14.29%	1
Social Media	14.29%	1
TOTAL		7

Q7 Whom would you most trust to provide you with information about how to make your household and home safer from natural disasters?

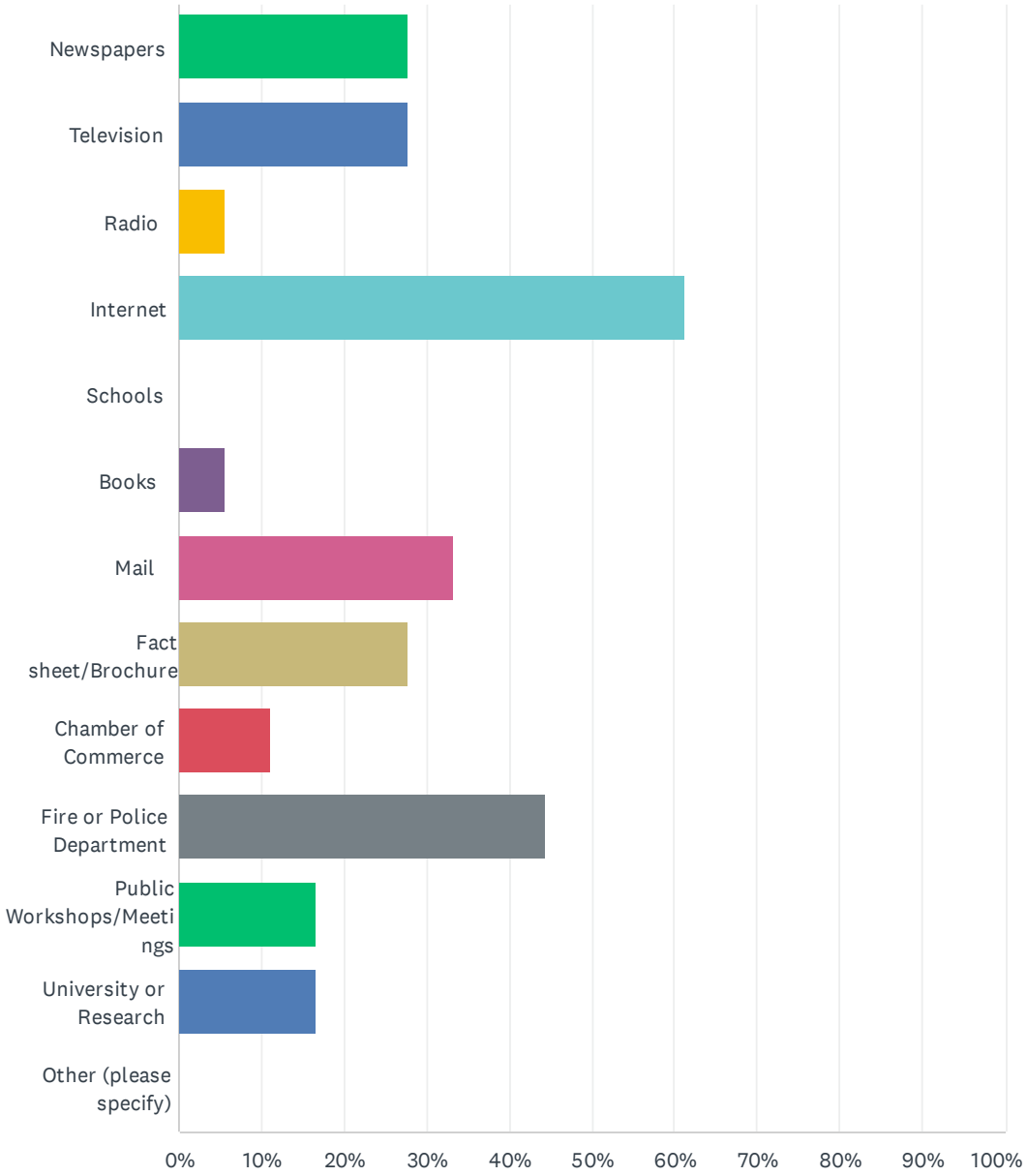
Answered: 17 Skipped: 1



ANSWER CHOICES	RESPONSES	
News Media	0.00%	0
Government Agency	35.29%	6
Insurance Agent or Company	35.29%	6
Utility Company	17.65%	3
University or Research Institution	29.41%	5
Neighbor/Friend/Family Member	17.65%	3
Elected Offical	0.00%	0
Non-Profit Organization	17.65%	3
Social Media	5.88%	1
Other (please specify)	17.65%	3
Total Respondents: 17		

Q8 What is the most effective way for you to receive information about how to make your household and home safer from natural disasters?

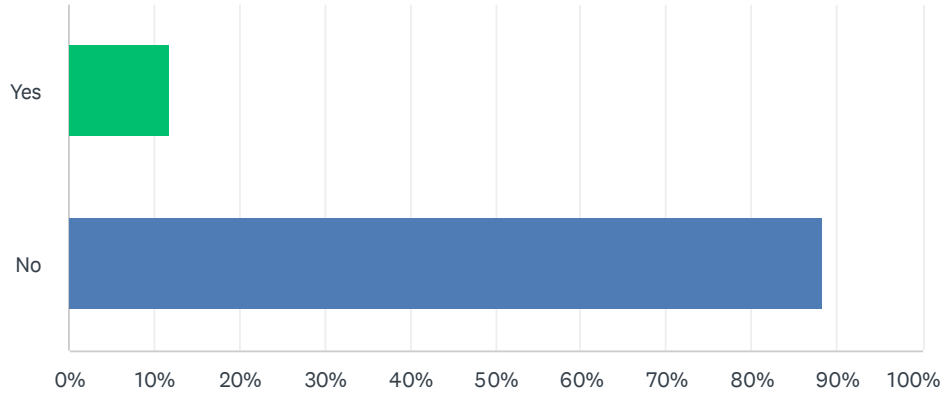
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Newspapers	27.78%	5
Television	27.78%	5
Radio	5.56%	1
Internet	61.11%	11
Schools	0.00%	0
Books	5.56%	1
Mail	33.33%	6
Fact sheet/Brochure	27.78%	5
Chamber of Commerce	11.11%	2
Fire or Police Department	44.44%	8
Public Workshops/Meetings	16.67%	3
University or Research	16.67%	3
Other (please specify)	0.00%	0
Total Respondents: 18		

Q9 Prior to completing this survey, were you aware of your county's Hazard Mitigation Plan?

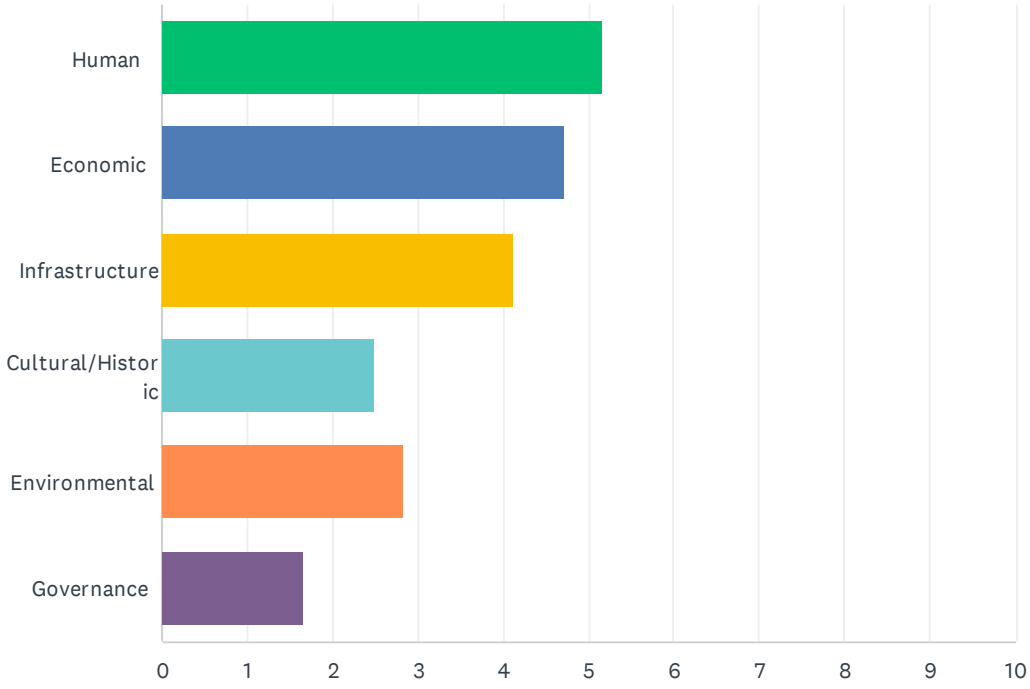
Answered: 17 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	11.76%	2
No	88.24%	15
TOTAL		17

Q10 Community assets are features, characteristics, or resources that either make a community unique or allow the community to function. Which of the following categories are most susceptible to the impacts caused by natural hazards in your community?

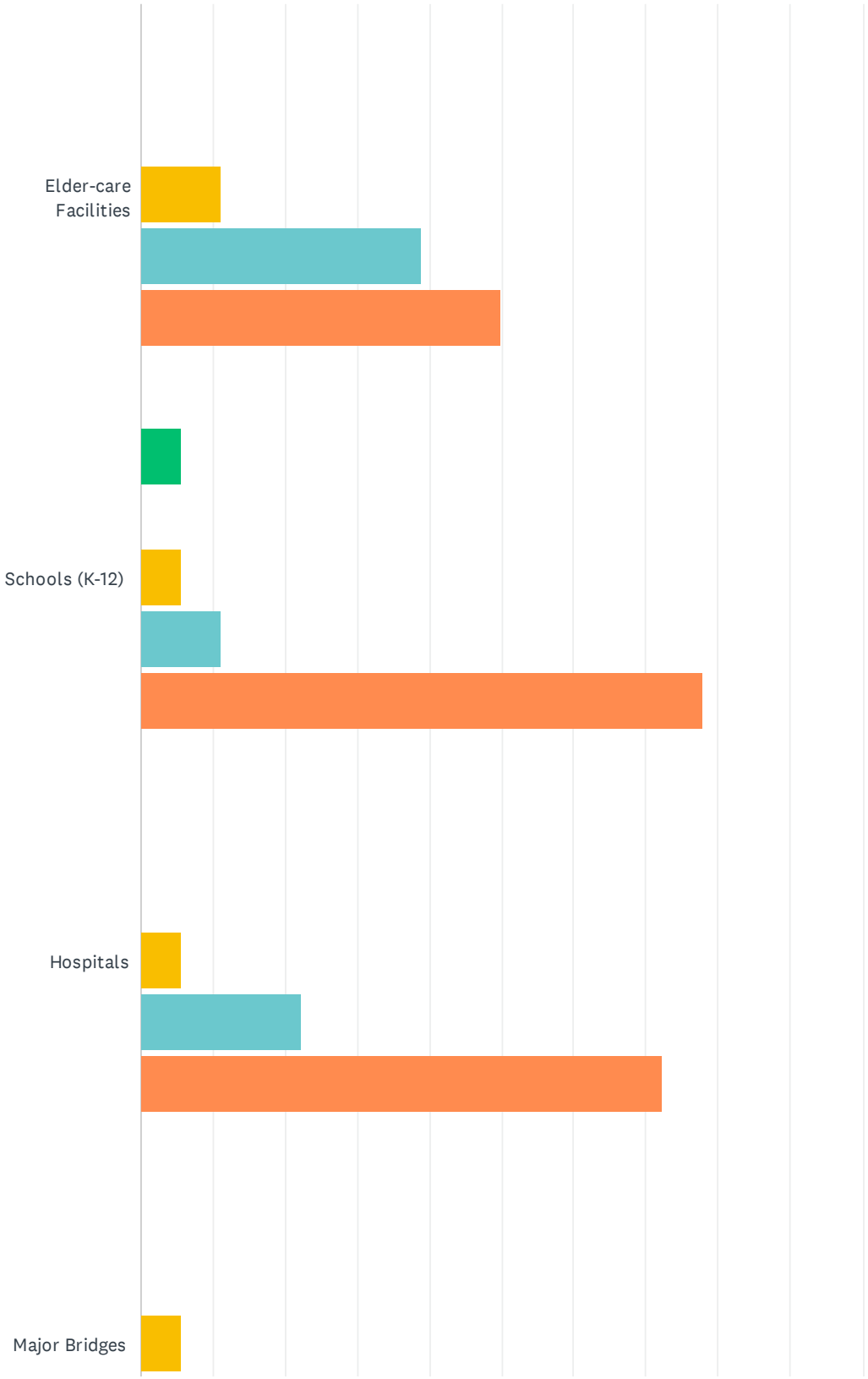
Answered: 18 Skipped: 0

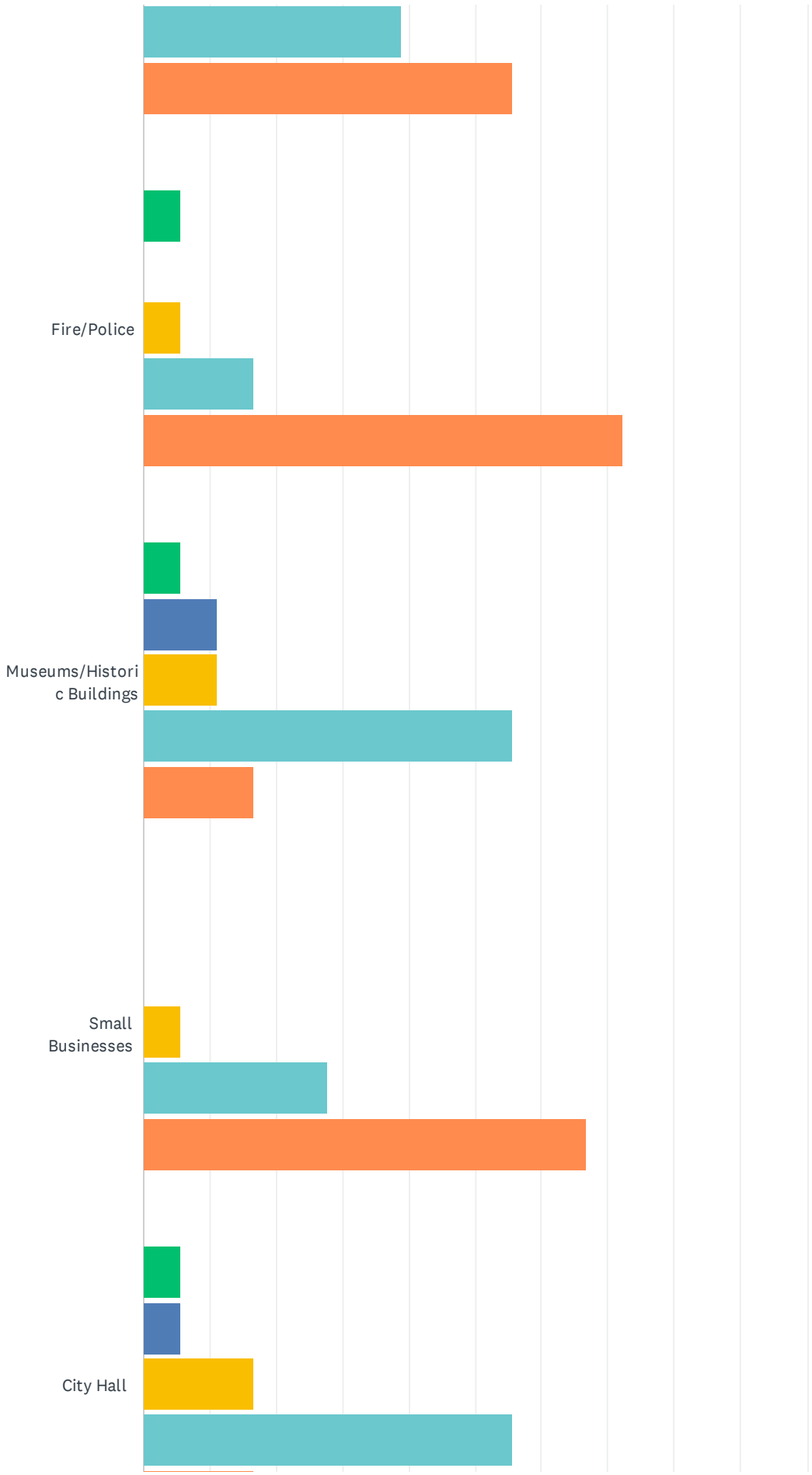


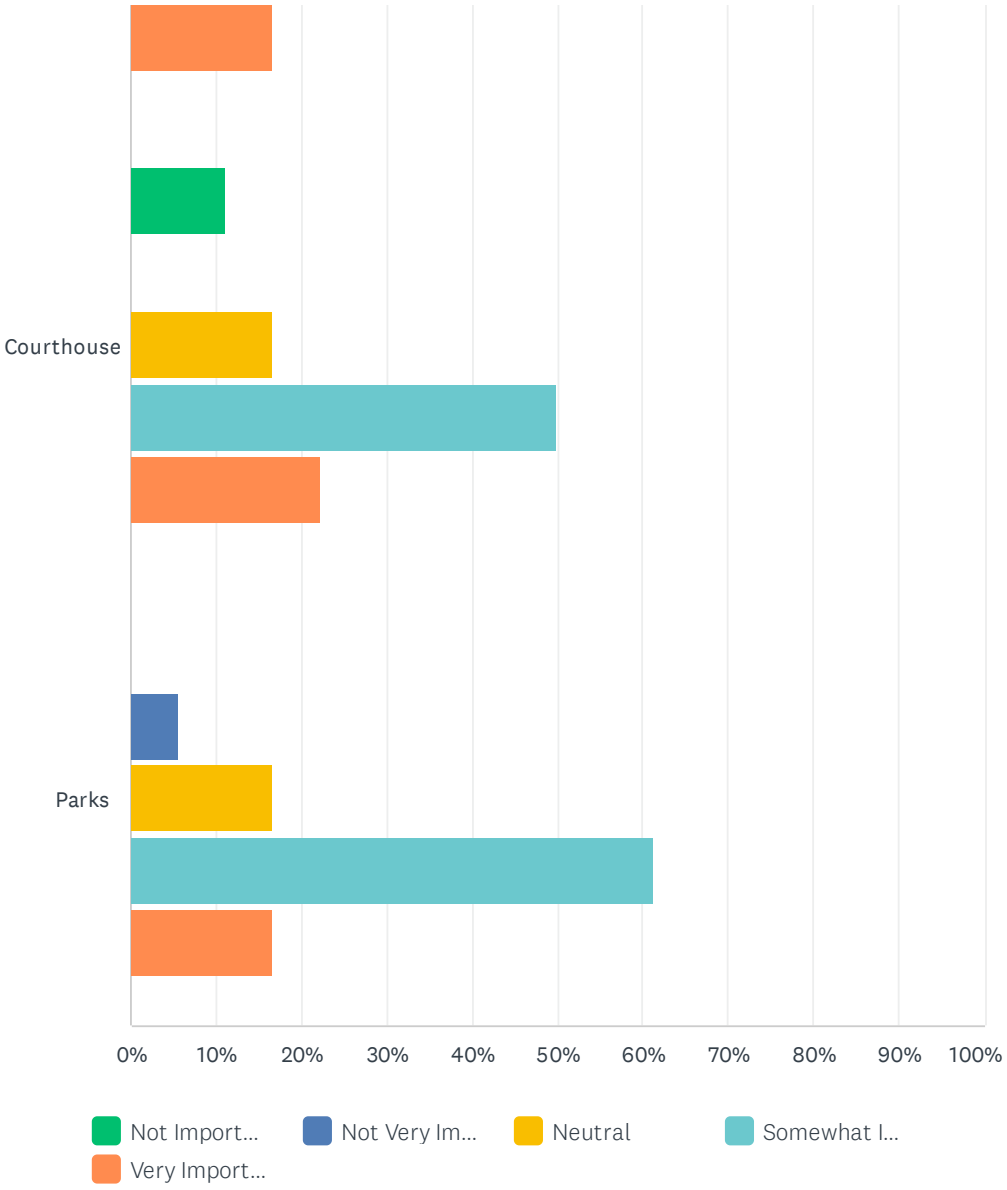
	1	2	3	4	5	6	TOTAL	SCORE
Human	66.67% 12	11.11% 2	11.11% 2	0.00% 0	5.56% 1	5.56% 1	18	5.17
Economic	27.78% 5	38.89% 7	11.11% 2	22.22% 4	0.00% 0	0.00% 0	18	4.72
Infrastructure	0.00% 0	27.78% 5	55.56% 10	16.67% 3	0.00% 0	0.00% 0	18	4.11
Cultural/Historic	0.00% 0	5.56% 1	11.11% 2	33.33% 6	27.78% 5	22.22% 4	18	2.50
Environmental	0.00% 0	16.67% 3	11.11% 2	16.67% 3	50.00% 9	5.56% 1	18	2.83
Governance	5.56% 1	0.00% 0	0.00% 0	11.11% 2	16.67% 3	66.67% 12	18	1.67

Q11 Next, we would like to know what specific types of community assets are most important to you.

Answered: 18 Skipped: 0



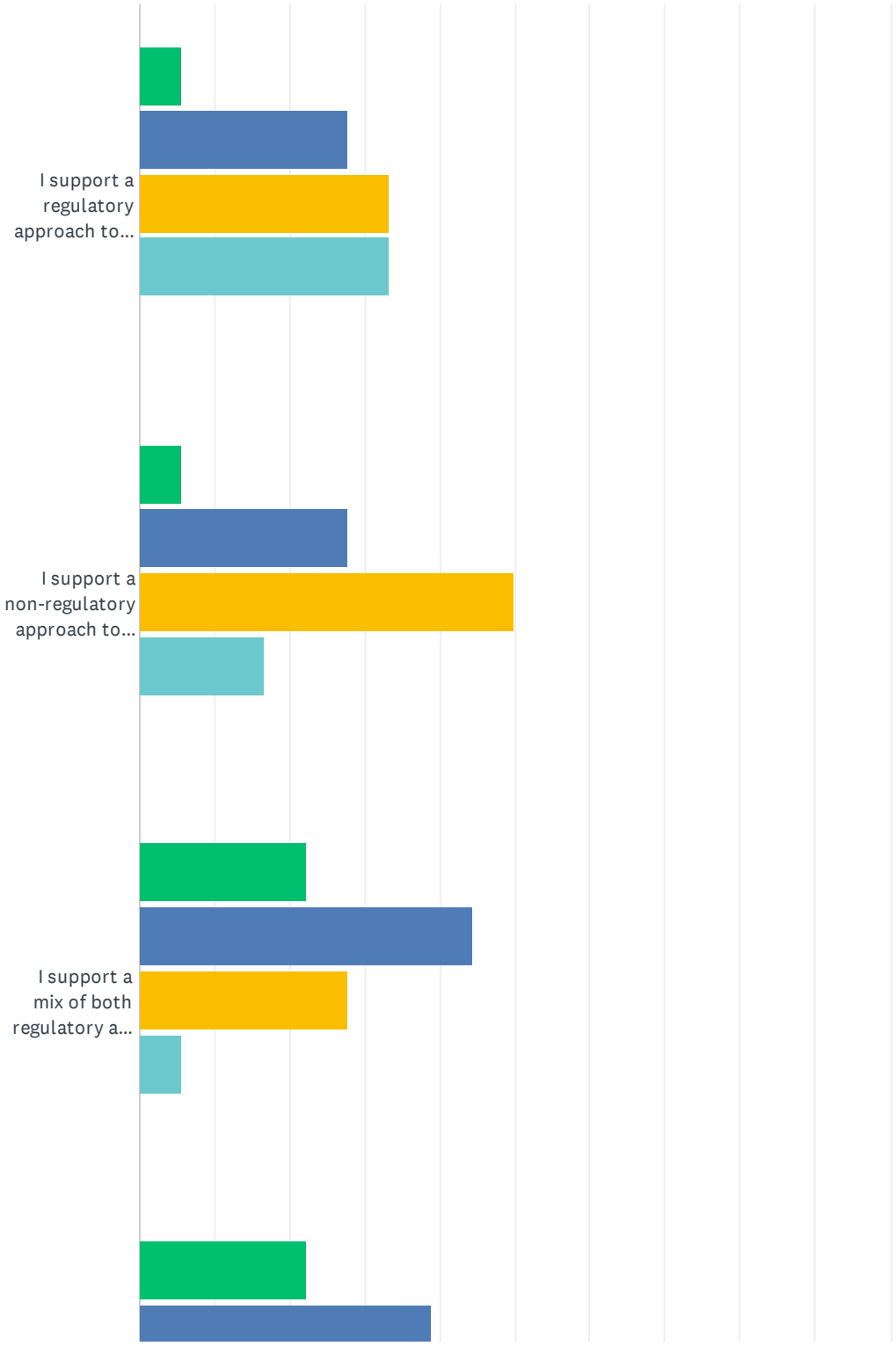

Fire/Police
Museums/Historic Buildings
Small Businesses
City Hall

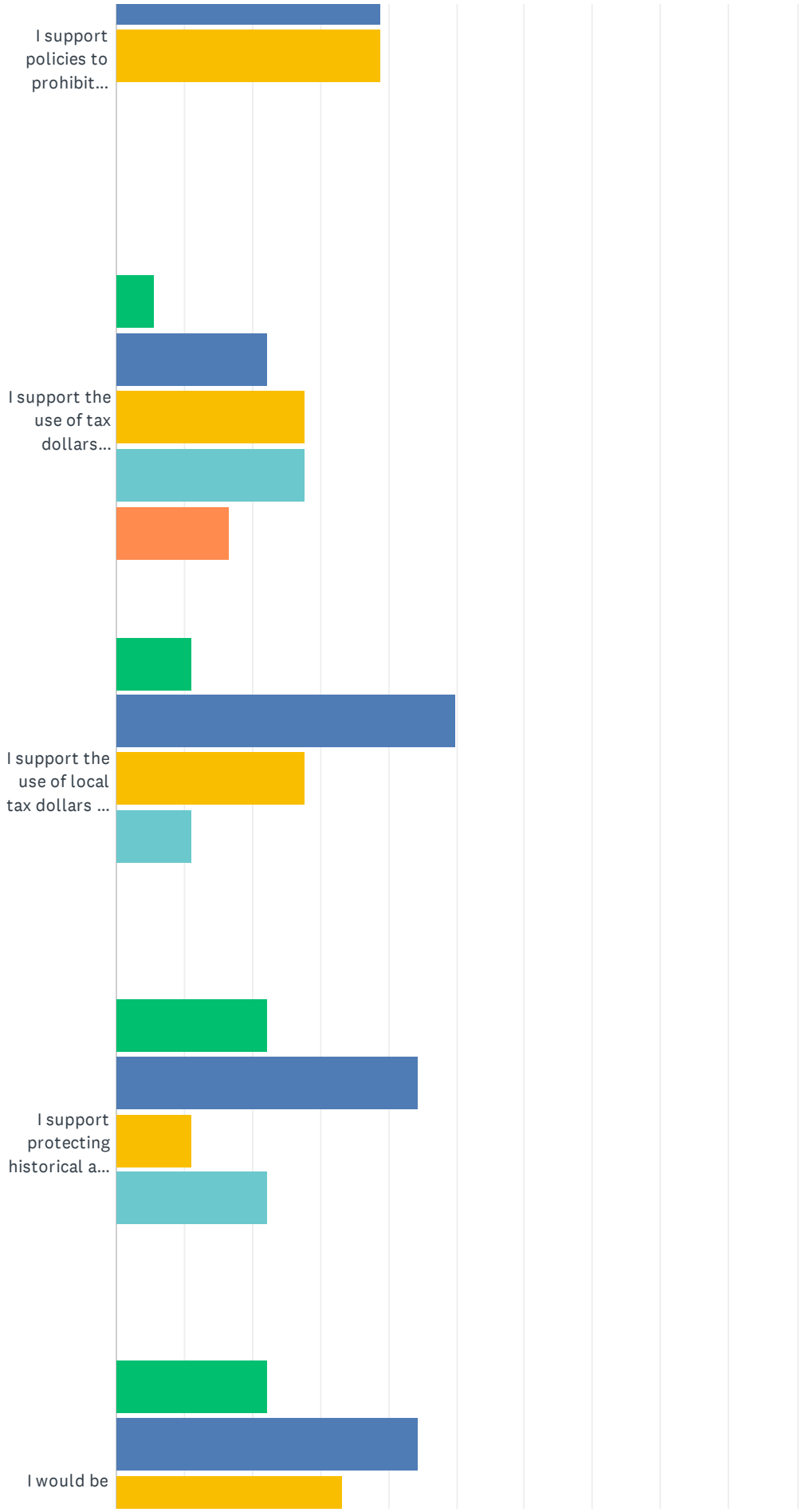

Courthouse
Parks
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Not Import...
Not Very Im...
Neutral
Somewhat I...
Very Import...

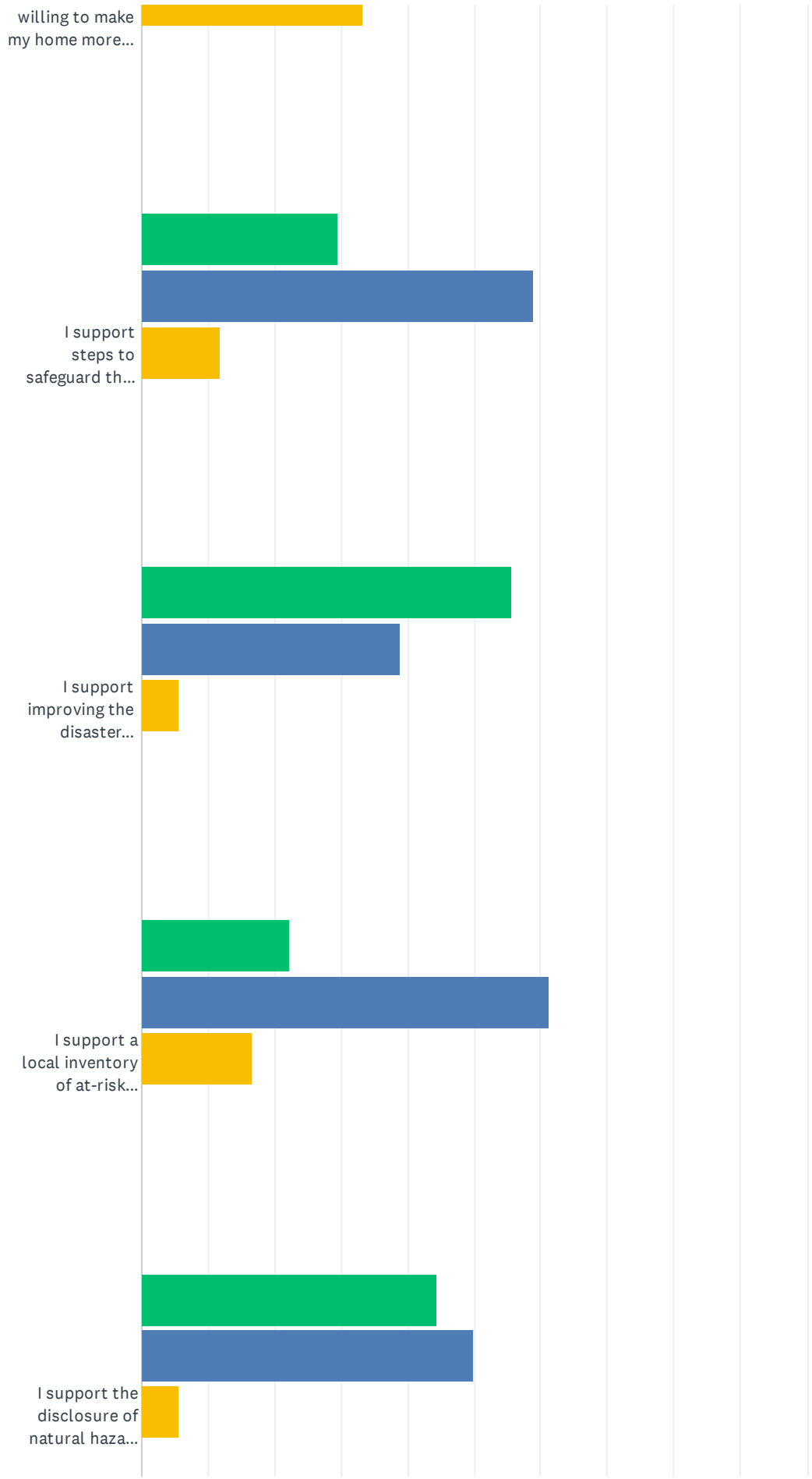
	NOT IMPORTANT	NOT VERY IMPORTANT	NEUTRAL	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Elder-care Facilities	0.00% 0	0.00% 0	11.11% 2	38.89% 7	50.00% 9	18	4.39
Schools (K-12)	5.56% 1	0.00% 0	5.56% 1	11.11% 2	77.78% 14	18	4.56
Hospitals	0.00% 0	0.00% 0	5.56% 1	22.22% 4	72.22% 13	18	4.67
Major Bridges	0.00% 0	0.00% 0	5.56% 1	38.89% 7	55.56% 10	18	4.50
Fire/Police	5.56% 1	0.00% 0	5.56% 1	16.67% 3	72.22% 13	18	4.50
Museums/Historic Buildings	5.56% 1	11.11% 2	11.11% 2	55.56% 10	16.67% 3	18	3.67
Small Businesses	0.00% 0	0.00% 0	5.56% 1	27.78% 5	66.67% 12	18	4.61
City Hall	5.56% 1	5.56% 1	16.67% 3	55.56% 10	16.67% 3	18	3.72
Courthouse	11.11% 2	0.00% 0	16.67% 3	50.00% 9	22.22% 4	18	3.72
Parks	0.00% 0	5.56% 1	16.67% 3	61.11% 11	16.67% 3	18	3.89

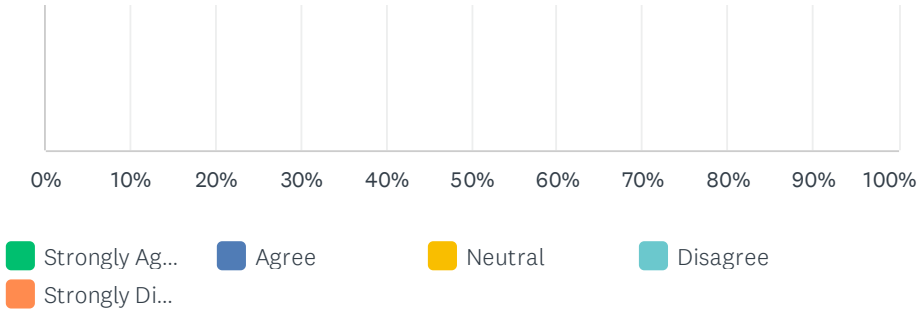
Q12 A number of activities can reduce your community's risk from natural hazards. These activities can be both regulatory and non-regulatory. Please check the box that best represents your opinion of the following strategies to reduce the risk and loss associated with natural disasters.

Answered: 18 Skipped: 0




I support policies to prohibit...
I support the use of tax dollars...
I support the use of local tax dollars ...
I support protecting historical a...
I would be

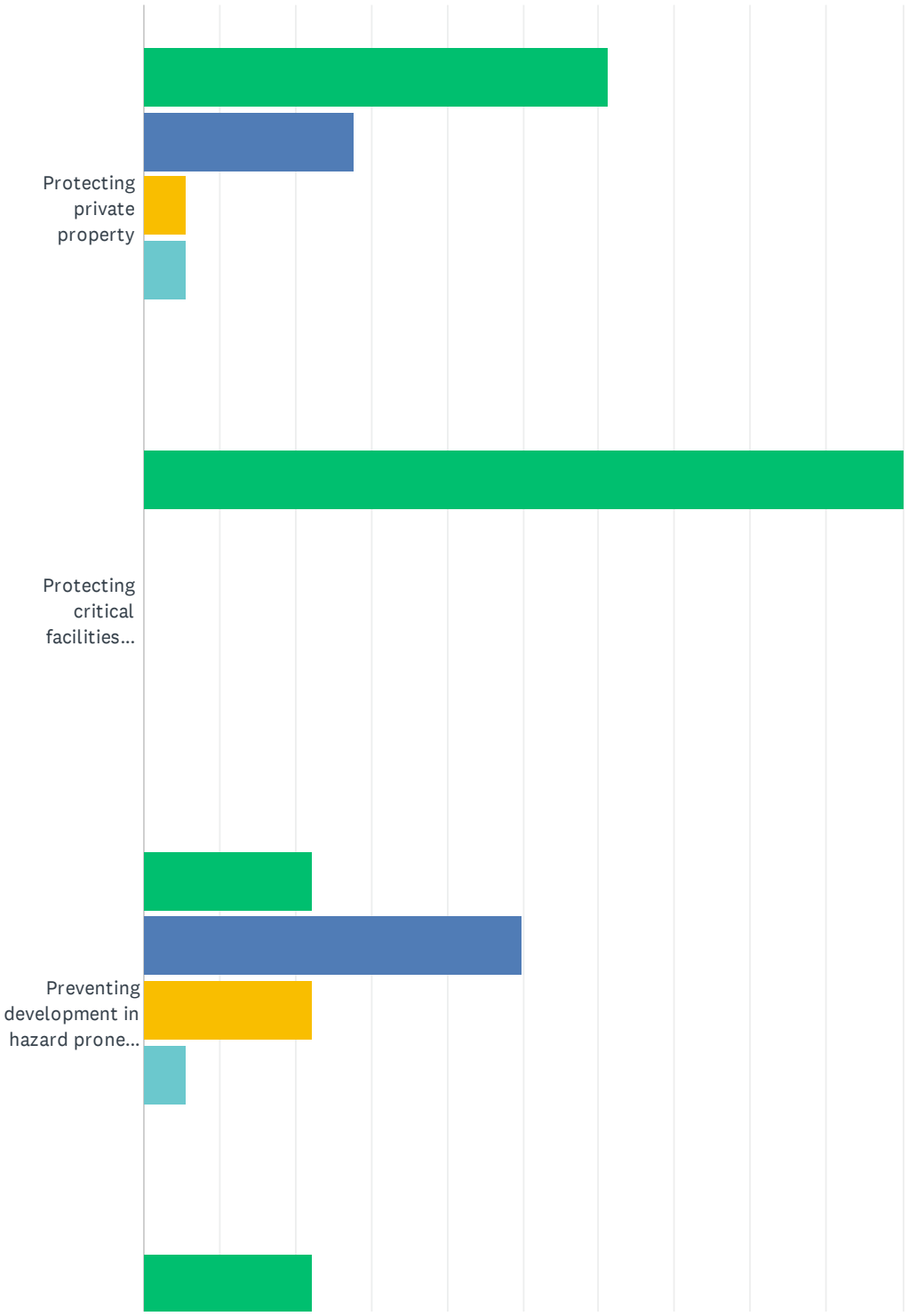

willing to make my home more...
I support steps to safeguard th...
I support improving the disaster...
I support a local inventory of at-risk...
I support the disclosure of natural haza...

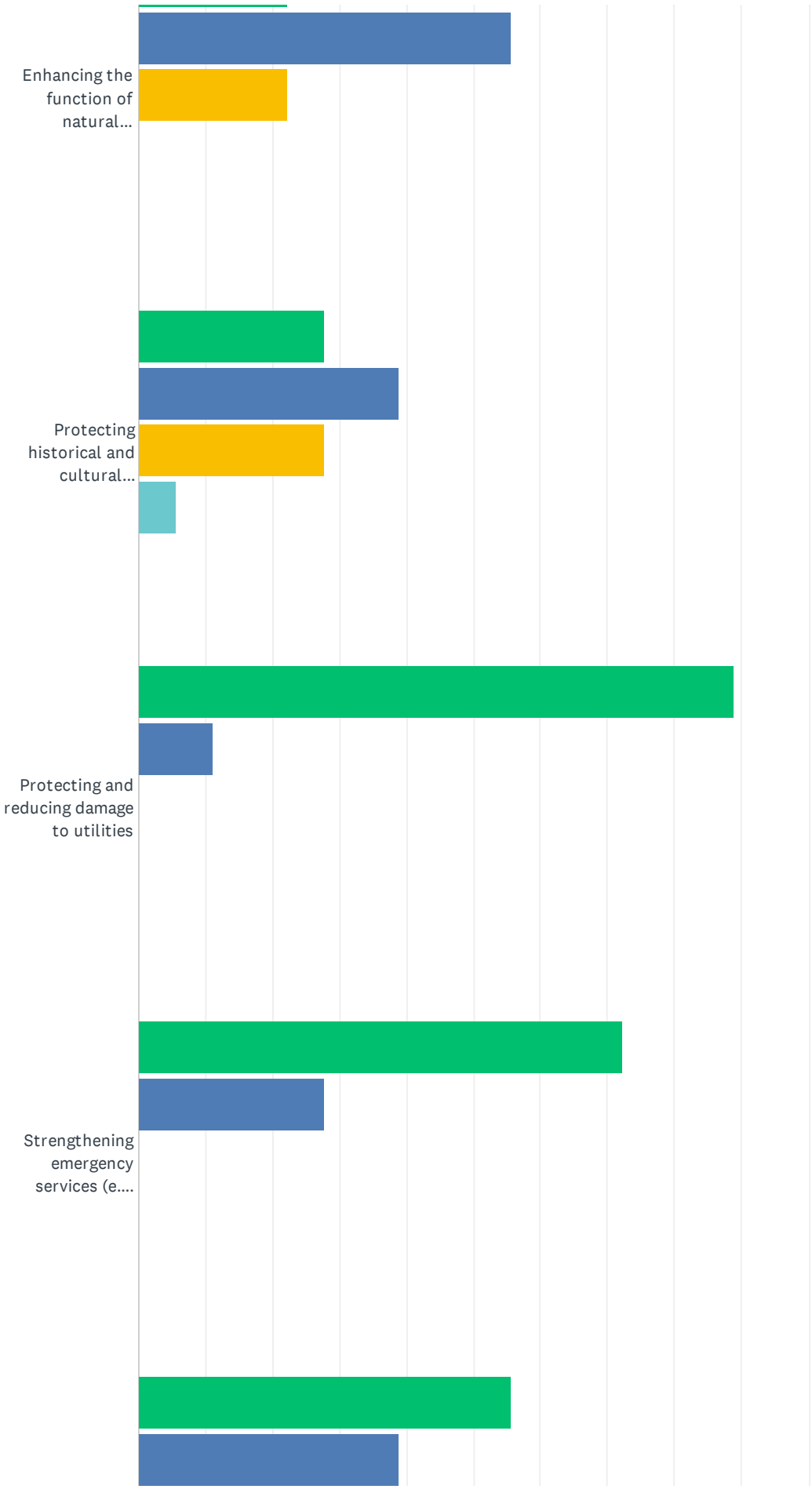


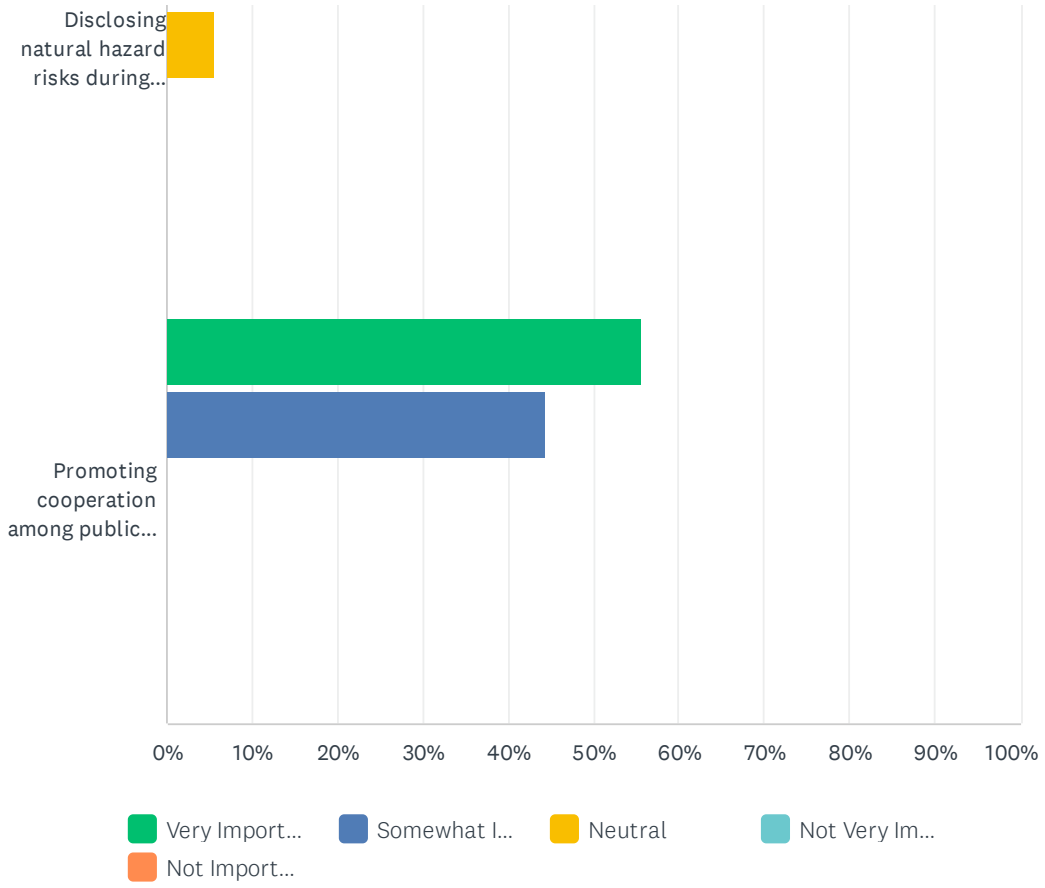
	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	TOTAL	WEIGHTED AVERAGE
I support a regulatory approach to reducing risk	5.56% 1	27.78% 5	33.33% 6	33.33% 6	0.00% 0	18	2.94
I support a non-regulatory approach to reducing risk	5.56% 1	27.78% 5	50.00% 9	16.67% 3	0.00% 0	18	2.78
I support a mix of both regulatory and non-regulatory approaches to reducing risk	22.22% 4	44.44% 8	27.78% 5	5.56% 1	0.00% 0	18	2.17
I support policies to prohibit development in areas subject to natural hazards	22.22% 4	38.89% 7	38.89% 7	0.00% 0	0.00% 0	18	2.17
I support the use of tax dollars (federal and/or local) to compensate landowners for not developing in areas subject to natural hazards	5.56% 1	22.22% 4	27.78% 5	27.78% 5	16.67% 3	18	3.28
I support the use of local tax dollars to reduce risks and losses from natural disasters	11.11% 2	50.00% 9	27.78% 5	11.11% 2	0.00% 0	18	2.39
I support protecting historical and cultural structures	22.22% 4	44.44% 8	11.11% 2	22.22% 4	0.00% 0	18	2.33
I would be willing to make my home more disaster resilient	22.22% 4	44.44% 8	33.33% 6	0.00% 0	0.00% 0	18	2.11
I support steps to safeguard the local economy following a disaster event	29.41% 5	58.82% 10	11.76% 2	0.00% 0	0.00% 0	17	1.82
I support improving the disaster preparedness of local schools	55.56% 10	38.89% 7	5.56% 1	0.00% 0	0.00% 0	18	1.50
I support a local inventory of at-risk buildings and infrastructure	22.22% 4	61.11% 11	16.67% 3	0.00% 0	0.00% 0	18	1.94
I support the disclosure of natural hazard risks during real estate transactions	44.44% 8	50.00% 9	5.56% 1	0.00% 0	0.00% 0	18	1.61

Q13 Natural Hazards can have a significant impact on a community, but planning for these events can help lessen the impacts. The following statements will help determine citizen priorities regarding planning for natural hazards in your county. Please tell us how important each one is to you.

Answered: 18 Skipped: 0



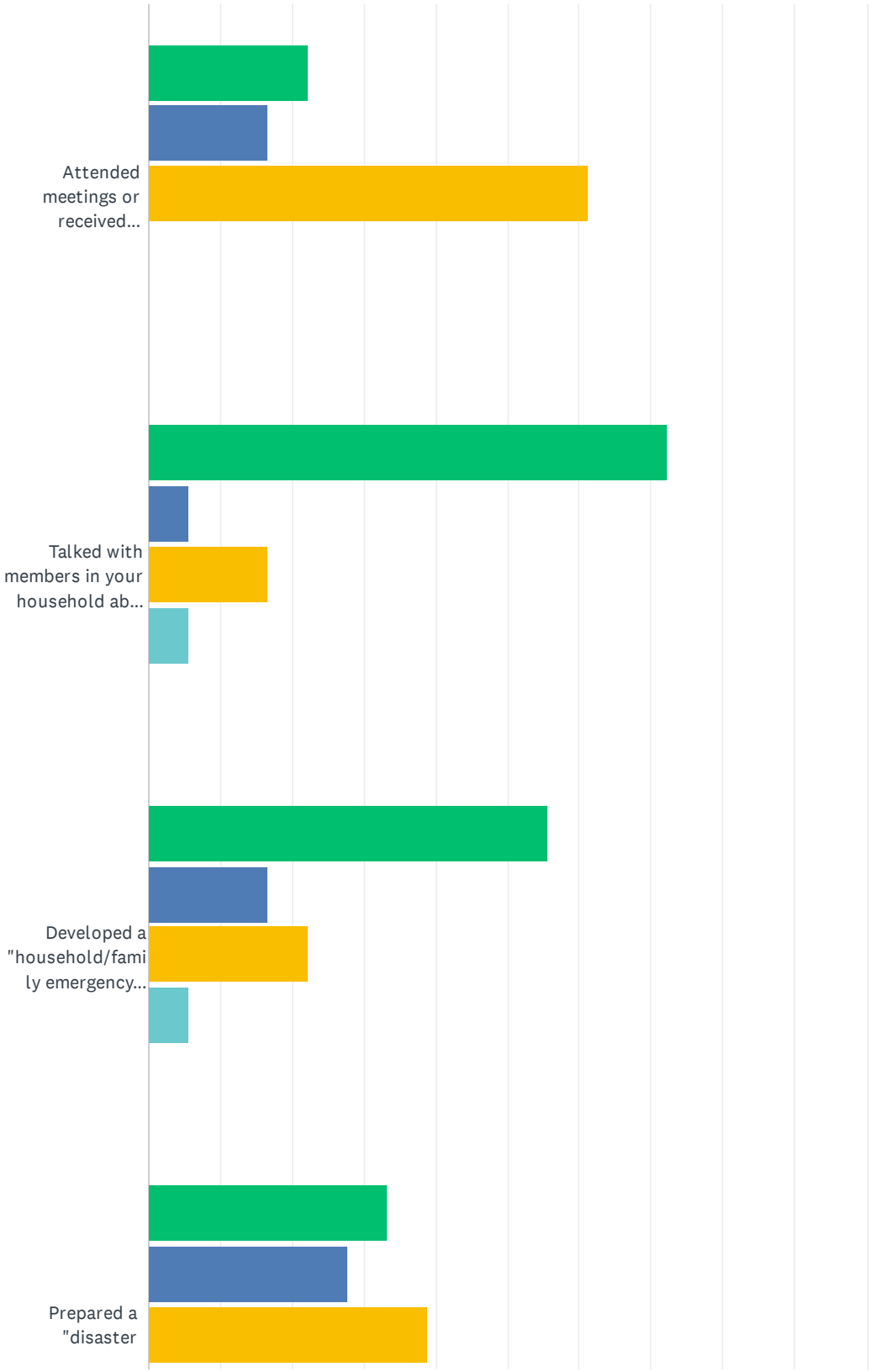

Enhancing the function of natural...
Protecting historical and cultural...
Protecting and reducing damage to utilities
Strengthening emergency services (e....

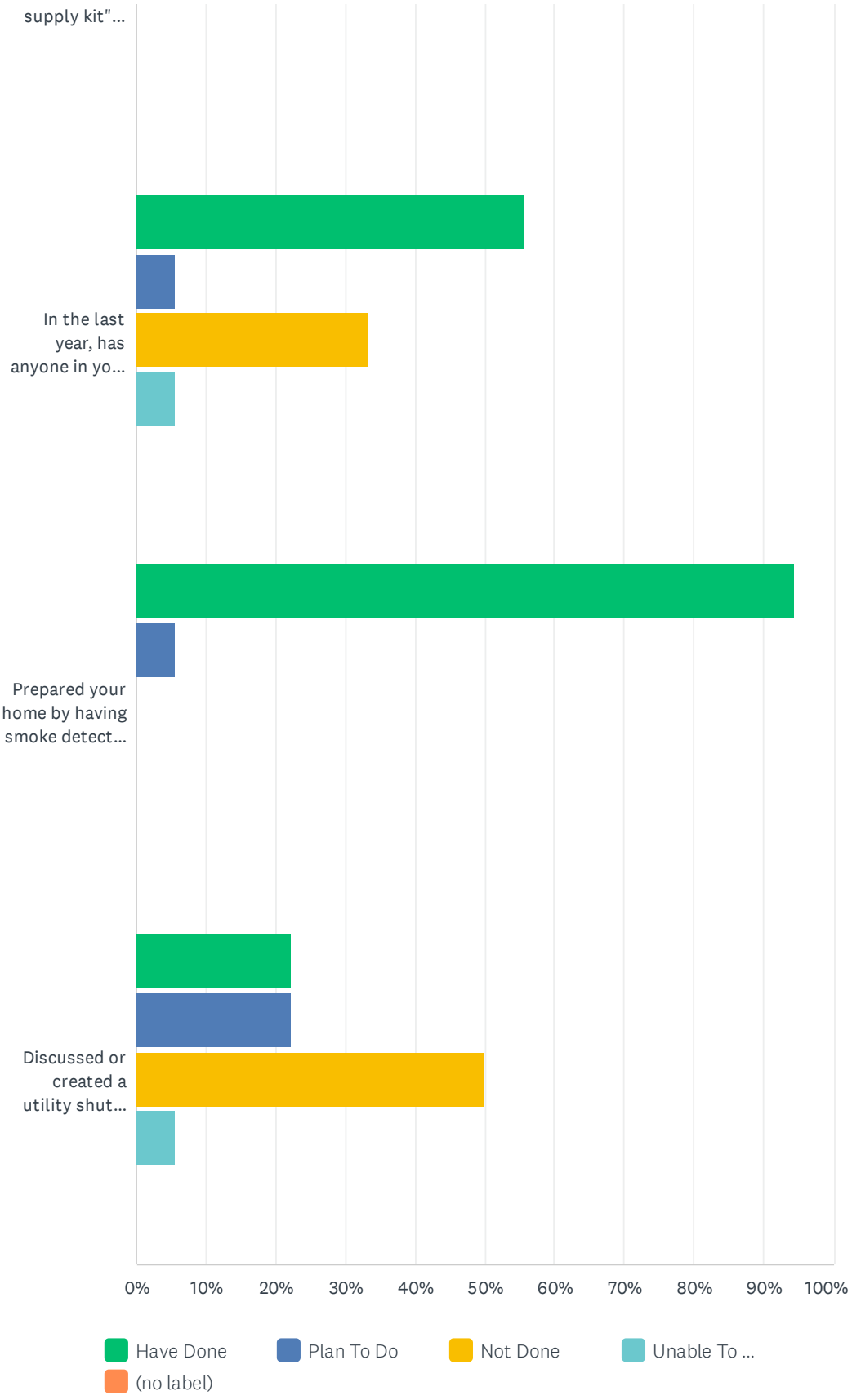


	VERY IMPORTANT	SOMEWHAT IMPORTANT	NEUTRAL	NOT VERY IMPORTANT	NOT IMPORTANT	TOTAL
Protecting private property	61.11% 11	27.78% 5	5.56% 1	5.56% 1	0.00% 0	18
Protecting critical facilities (transportation networks, hospitals, fire stations)	100.00% 18	0.00% 0	0.00% 0	0.00% 0	0.00% 0	18
Preventing development in hazard prone areas	22.22% 4	50.00% 9	22.22% 4	5.56% 1	0.00% 0	18
Enhancing the function of natural features (e.g. streams, wetlands)	22.22% 4	55.56% 10	22.22% 4	0.00% 0	0.00% 0	18
Protecting historical and cultural landmarks	27.78% 5	38.89% 7	27.78% 5	5.56% 1	0.00% 0	18
Protecting and reducing damage to utilities	88.89% 16	11.11% 2	0.00% 0	0.00% 0	0.00% 0	18
Strengthening emergency services (e.g. police, fire, ambulance)	72.22% 13	27.78% 5	0.00% 0	0.00% 0	0.00% 0	18
Disclosing natural hazard risks during real estate transactions	55.56% 10	38.89% 7	5.56% 1	0.00% 0	0.00% 0	18
Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses	55.56% 10	44.44% 8	0.00% 0	0.00% 0	0.00% 0	18

Q14 In the following, please check those activities that you have done in your household, plan to do in the near future, or are unable to do.

Answered: 18 Skipped: 0

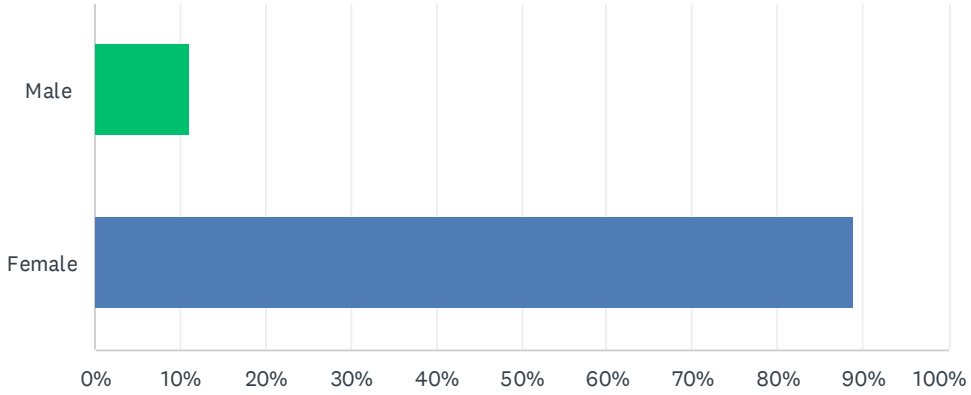



supply kit"...
In the last year, has anyone in yo...
Prepared your home by having smoke detect...
Discussed or created a utility shut...
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Have Done
Plan To Do
Not Done
Unable To ...
(no label)

	HAVE DONE	PLAN TO DO	NOT DONE	UNABLE TO DO	(NO LABEL)	TOTAL
Attended meetings or received written information on natural disasters or emergency preparedness	22.22% 4	16.67% 3	61.11% 11	0.00% 0	0.00% 0	18
Talked with members in your household about what to do in case of a natural disaster or emergency	72.22% 13	5.56% 1	16.67% 3	5.56% 1	0.00% 0	18
Developed a "household/family emergency plan" in order to decide what everyone would do in the event of a disaster	55.56% 10	16.67% 3	22.22% 4	5.56% 1	0.00% 0	18
Prepared a "disaster supply kit" (stored extra food, water, batteries, or other emergency supplies)	33.33% 6	27.78% 5	38.89% 7	0.00% 0	0.00% 0	18
In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)	55.56% 10	5.56% 1	33.33% 6	5.56% 1	0.00% 0	18
Prepared your home by having smoke detectors on each level of the house	94.44% 17	5.56% 1	0.00% 0	0.00% 0	0.00% 0	18
Discussed or created a utility shutoff procedure in the event of a natural disaster	22.22% 4	22.22% 4	50.00% 9	5.56% 1	0.00% 0	18

Q15 Gender?

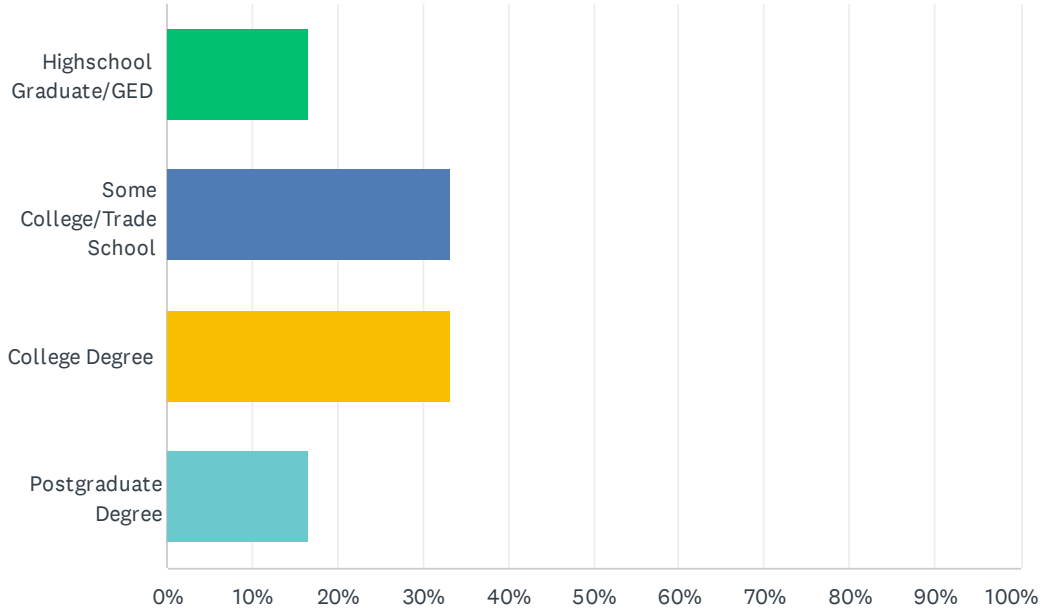
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Male	11.11%	2
Female	88.89%	16
TOTAL		18

Q16 Please indicate your level of education.

Answered: 18 Skipped: 0



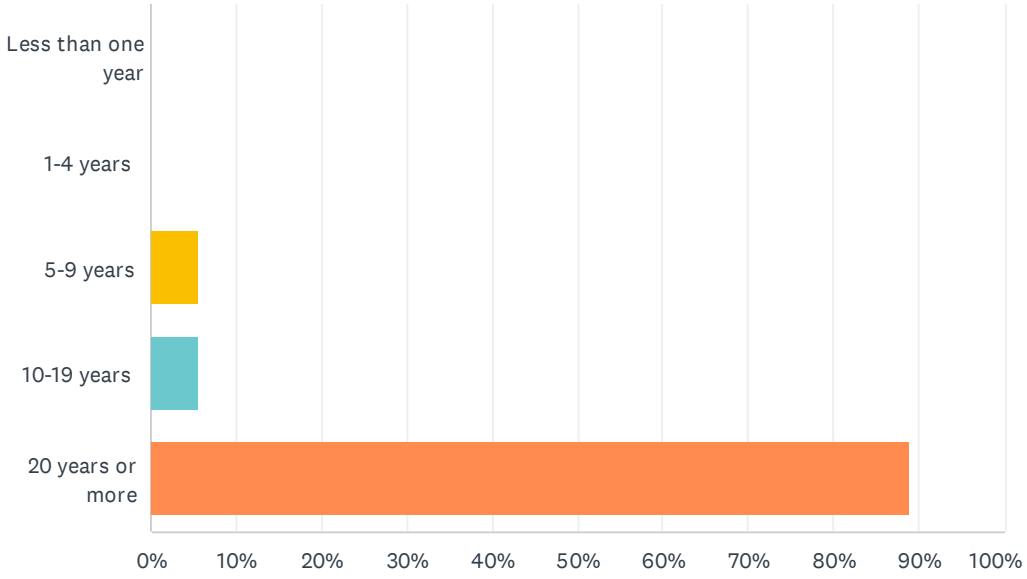
ANSWER CHOICES	RESPONSES	
Highschool Graduate/GED	16.67%	3
Some College/Trade School	33.33%	6
College Degree	33.33%	6
Postgraduate Degree	16.67%	3
TOTAL		18

Q17 Zip Code

Answered: 18 Skipped: 0

Q18 How long have you lived in Carroll County?

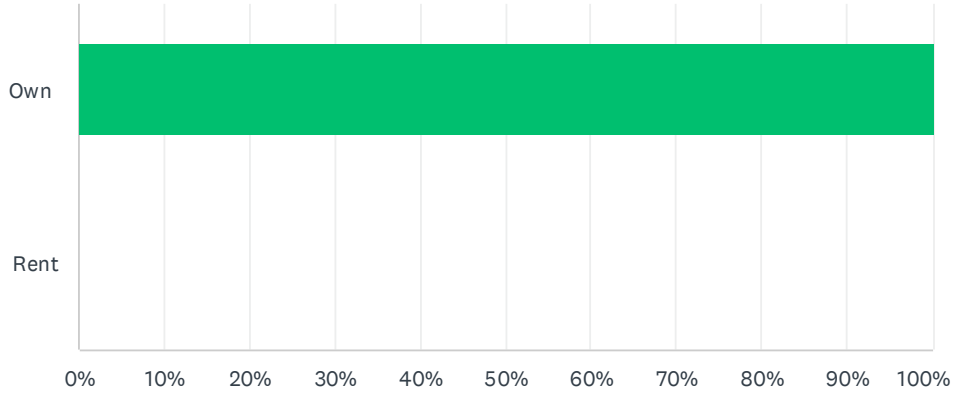
Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than one year	0.00%	0
1-4 years	0.00%	0
5-9 years	5.56%	1
10-19 years	5.56%	1
20 years or more	88.89%	16
TOTAL		18

Q19 Do you own or rent your home?

Answered: 18 Skipped: 0



ANSWER CHOICES	RESPONSES	
Own	100.00%	18
Rent	0.00%	0
TOTAL		18

Q20 Please feel free to provide any additional comments in the space provided.

Answered: 0 Skipped: 18

Appendix D: List of Critical Facilities (Redacted From Public View)

Appendix E: Resolutions of Adoptions

Norborne R-VIII School District, Norborne, Missouri RESOLUTION NO. 20

A RESOLUTION OF THE Norborne R-VIII School District ADOPTING THE CARROLL COUNTY Multijurisdictional Hazard Mitigation Plan

WHEREAS the Norborne R-VIII School District recognizes the threat that natural hazards pose to people and property within the Norborne R-VIII School District; and

WHEREAS the Norborne R-VIII School District has participated in the preparation of a multi-jurisdictional local hazard mitigation plan, hereby known as the Carroll County Multijurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Norborne R-VIII School District from the impacts of future hazards and disasters; and

WHEREAS the Norborne R-VIII School District recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Norborne R-VIII School District will endeavor to integrate the *Plan* into the comprehensive planning process; and

WHEREAS adoption by the Norborne R-VIII School District demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan.*

NOW THEREFORE, BE IT RESOLVED BY THE NORBORNE R-VIII SCHOOL DISTRICT, in the State of Missouri, THAT:

In accordance with Norborne R-VIII Board Policy, the Norborne R-VIII School District adopts the final *FEMA-approved Plan.*

ADOPTED by a vote of 7 in favor and 0 against, and __ abstaining, this 8th day of December, 2025.

By (Sig): Chris Lecka
Print name: Chris Lecka

ATTEST:

By (Sig.): Jennifer Courtney
Print name: Jennifer Courtney

APPROVED AS TO FORM:

By (Sig.): Shawna Bartlett
Print name: Shawna Bartlett

Tina-Avalon R-II School District of Tina, Missouri RESOLUTION NO. 25-1

A RESOLUTION OF THE Tina-Avalon R-II School District ADOPTING THE Carroll Multijurisdictional Hazard Mitigation Plan

WHEREAS the Tina-Avalon R-II School District recognizes the threat that natural hazards pose to people and property within the (local governing body/school district); and

WHEREAS the Tina-Avalon R-II School District has participated in the preparation of a multi-jurisdictional local hazard mitigation plan, hereby known as the Linn County Multijurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Tina-Avalon R-II School District from the impacts of future hazards and disasters; and

WHEREAS the Tina-Avalon R-II School District Board of Education recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Tina-Avalon R-II School District will endeavor to integrate the *Plan* into the comprehensive planning process; and

WHEREAS adoption by the Tina-Avalon R-II School District demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*.

NOW THEREFORE, BE IT RESOLVED BY THE Tina-Avalon R-II School District in the State of Missouri, THAT:

In accordance with P0510 the Tina-Avalon R-II School District adopts the final *FEMA-approved Plan*.

ADOPTED by a vote of 7 in favor and 0 against, and 0 abstaining, this 11 day of December, 2025.

By (Sig): _____ BOE President
Print name: Dwight Harper

ATTEST:

By (Sig.): _____ BOE Secretary.
Print name: Wyatt Davenport

APPROVED AS TO FORM:

By (Sig.): _____
Print name: