CONTRIBUTORS

Gentry County Hazard Mitigation Planning Committee

Jurisdictional Representatives

Name		Title	Department	Jurisdiction/Agency /Organization
Corey	Sloan	County Emergency Manager	County	Unincorporated Gentry County
Mike	Sager	Presiding Commissioner	County	Unincorporated Gentry County
Roger	Rice	District 2 Commissioner	County	Unincorporated Gentry County
Shelia	Clark	County Clerk	County	Unincorporated Gentry County
Denise	Harris	City Clerk	City	City of King City
Donald	Combe	Mayor	City	City of King City
Derek	Brown	City Administrator	City	City of Albany
Jill	Cottrill	City Clerk	City	City of Albany
Barbara	Murray	Mayor	City	City of Albany
Christy	Williams	City Clerk	City	City of Stanberry
Laverne	Smithson	Administrator	City	City of Stanberry
Shanda	Parrish	Mayor	City	City of Stanberry
Dustin	Freeman	Superintendent	School	Albany R-III School
Danny	Johnson	Superintendent	School	King City R-I School
John	Davidson	Superintendent	School	Stanberry R-II School

Stakeholder Representatives

Name		Title	Department	Agency/Organization
Cindy	Capps	Citizen	Emergency Services	Tri-County Health Department
Mackenzie	Manring	Economic Developer	City of Albany	City of Albany
Kaysie	Tunks	King City City Council	City of King City	City of King City
Clint	Harris	Road Manager	Athens Township	Gentry County
Shawn	Manceross	Road Crew	Athens Township	Gentry County
Garrett	Louiselle	Firefighter	Emergency Services	Gentry County
Earl	Hampton	Deputy Sherriff	Emergency Services	Gentry County
Christy	Allen	Deputy Clerk	Gentry County	Gentry County
Julie	Slagle	Elementary Principal	Albany R-III Schools	Albany R-III Schools

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EXECUTIVE SUMMARY

The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Gentry 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 the County and its communities and school/special districts. The plan is an update of a plan that was approved on March 11, 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 County Multi-Hazard Mitigation Plan is a multi-jurisdictional plan that covers the following jurisdictions that participated in the planning process:

- Unincorporated Gentry County
- City of Albany
- City of King City
- City of Stanberry
- Albany R-III School District
- King City R-I School District
- Stanberry R-II School District

The communities of Darlington, Gentry and McFall were invited to participate in the planning process but did not meet all of the established requirements for official participation. When the future five-year update is developed for this plan, these communities will be invited again to participate.

Gentry 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 Gentry County and participating jurisdictions. The MPC updated the risk assessment that identified and profiled hazards that pose a risk to Gentry 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 tornadoes 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: Preserve human life, health, and safety from the adverse effects of disasters.

Goal 2: Defend the continuity of government and essential services and processes from the adverse effects of disasters.

Goal 3: Protect public and private property from the adverse effects of disasters.

Goal 4: Safeguard community tranquility from the adverse effects of disasters.

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
	Prevention							
1.3	Host and provide biannual and on-demand weather spotter training courses and implement training within local fire and police departments in cooperation with the National Weather Service. Invite the public and responders so they are able to better identify early warning signs for severe weather.	U, A, KC, S	High	1	ST, SWW, T	X		
	Structure and Infrastructure Projects							
1.5	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.	U, A, AS, KC, KCS, S, SS	High	2	ST, T	X	X	
2.2	Evaluate existing city structures and infrastructure for ability to with low to moderately intense earthquakes. Contract a structural engineer to do the evaluations	U, A, KC, S	Low	3	EQ	X		
3.2	Construct or modify storm drains, culverts, levees, floodwalls and berms to lessen the frequency and severity of flooding	U, A, KC, S	Medium	3	D, L, F	X	X	X
Natural Systems Protection								
2.3	Mitigate the risk to life and property by identifying and removing dead standing trees along with overgrown trees near roadways and drainage systems	U, A, KC, S	Medium	3	D, L, ST, SWW, F	X	X	
	Emergency Services							
1.1	Conduct a comprehensive review of current outdoor warning siren coverage across all municipalities and unincorporated areas of Gentry County. Identify coverage gaps using GIS mapping and National Weather Service alert zones. Procure and install new sirens with battery or solar backup systems in under-served areas. Upgrade existing sirens with remote activation, automated alert synchronization, and redundant communication pathways (radio, cellular, and internet-based activation).	U, A, KC, S	High	1	T, ST	X	X	X

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.2	Establish and maintain a GIS-based registry of elderly and medically vulnerable residents at risk from extreme heat and cold, coordinated with Tri-County Health Department and local emergency services. Create an outreach program so residents are aware of the program.	U, A, KC, S	Medium	1	ET, SWW	X		
2.1	Implement a countywide, multi-modal citizen alert system capable of distributing emergency notifications through SMS text messages, mobile app push alerts, email, social media, and voice calls. Integrate the system with NOAA Weather Radio, FEMA's IPAWS, and outdoor sirens for seamless message delivery. Conduct community outreach campaigns to register residents, with a focus on rural and vulnerable populations, including the elderly and individuals with disabilities.	A, KC, S	Medium	1	ST, SWW, T	X		
2.4	Purchase backup emergency generators for use during severe weather events. Generators will ensure critical facilities and emergency communication remain operable during these events. Assist critical facilities in creating emergency communication plans with particular focus on non-profit organizations, nursing homes, community center(s), and schools.	A, KC, S	Medium	2	ST, SWW, T	X	X	
	Education and Outreach							
1.4	Provide emergency preparedness information and resources related to all natural disasters to the general public and businesses through active education and outreach programs.	U, A, KC, S	Medium	1	F, D, L, EQ, DR, W, ET, ST, SWW, T	X		
1.6	Provide emergency preparedness information and resources related to all natural disasters to the school district through active education and outreach programs. Host educational events with students regarding emergency preparedness as part of the annual start of school procedures	U, A, AS, KC, KSC, S, SS	Medium	1	F, D, L, EQ, DR, W, ET, ST, SWW, T	X		
3.1	Develop a plan/ordinance to monitor drought conditions on a regular basis and identify areas at risk of wildfire. As part of this plan, design policies in conjunction with city officials to conserve water supplies during drought conditions, restrict burning, and make information available to the public. Enact burn bans via the Fire Chief if/when necessary.	A, KC, S	Low	3	DR, W	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 D, 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.

- Unincorporated Gentry County
- City of Albany
- City of King City
- City of Stanberry
- Albany R-III School District
- King City R-I School District
- Stanberry R-II School District

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 the (local governing body/school district); and

WHEREAS the (*local governing body/school district*) has participated in the preparation of a multi-jurisdictional local hazard mitigation plan, hereby known as the (*plan name*), 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 *(local governing body/school district*) from the impacts of future hazards and disasters; and

WHEREAS the (*local governing body*) recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the (*local governing body/school district*) will endeavor to integrate the *Plan* into the comprehensive planning process; and

WHEREAS adoption by the (*local governing body/school district*) demonstrates their 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:

In accordance with (*local rule for adopting resolutions*), the (*local governing body/school district*) adopts the final *FEMA-approved Plan*.

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

1.1 PURPOSE

The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Gentry County, participating jurisdictions and the school districts developed this multi-jurisdictional local hazard mitigation plan update to reduce future losses from hazard events to the County, its communities and the school districts. The plan is an update of a plan that was approved on March 11, 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. Communities that choose not to be part of the multi-jurisdictional plan will not qualify for FEMA hazard mitigation grant funds when there is a declared disaster based on the following legislation: The Disaster Mitigation Act of 2000 (Public Law 106-390) and 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. (Hereafter, these requirements and regulations will be referred to collectively as the Disaster Mitigation Act or DMA). The regulations established the requirements for local hazard mitigation plans are in the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288).

1.2 BACKGROUND AND SCOPE

The 2021 Gentry County Multi-jurisdictional Hazard Mitigation Plan was approved on March 11, 2021. FEMA requires a plan update every five years. The current plan developed in this update will constitute the 2026 Gentry County Multi-jurisdictional Hazard Mitigation Plan to continue to guide hazard mitigation for the next five years to better protect people and property of this multi-jurisdictional planning area from the effects of natural hazards. The plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future.

The four jurisdictions and three school districts listed below participated in the previously approved plan as well as the update.

- Unincorporated Gentry County
- City of Albany
- City of King City
- City of Stanberry
- Albany R-III School District

- King City R-I School District
- Stanberry R-II School District

1.3 PLAN ORGANIZATION

The Gentry County Multi-Jurisdictional Plan update is organized into five sections. See Table 1.1 below for summary of Changes Made in Plan Update.

- Chapter 1: Introduction and Planning Process
- Chapter 2: Planning Area Profile and Capabilities
- Chapter 3: Risk Assessment
- Chapter 4: Mitigation Strategy
- Chapter 5: Plan Implementation and Maintenance
- Appendices

The update of the Plan will follow the latest formatting advice from SEMA. The 2021 update required major changes to the plan's organization. The current update required only minor formatting alterations. Table 1.1 below identifies significant changes in the 2026 update.

Table 1.1. Changes Made in Plan Update

Plan Section	Summary of Updates
Executive Summary	• Only updates to the information in the executive summary was necessary
Section 1: Introduction and Planning Process	• Updated members of the Mitigation Planning Committee (MPC) and participating jurisdictions formally adopted the MPC.
Section 2: Planning Area Profile and Capabilities	• Reviewed 2021 plan and updated demographic data using Census 2022 and most recent 5-year estimates from the American Community Survey information • Updated charts, graphs, maps, and information, where necessary • Updating of data collection questionnaires by participating jurisdictions.
Section 3: Risk Assessment	• Hazards revisited; no new hazards added • All assets-at-risk and other assets data updated • Updated land use and development information • Previous events updated per disaster • Discussion of each hazard's impact updated to include consideration changing future conditions
Section 4: Mitigation Strategy	• 2021 mitigation goals and strategies reviewed by planning committee with input from stakeholders, and updated • Addition of action item worksheets; discussion of actions per jurisdiction added • The mitigation category of each action was added to the action worksheets.
Section 5: Plan Maintenance	• Revised the monitoring and evaluation process

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.

The Northwest Missouri Regional Council of Governments was commissioned to facilitate Gentry County's Multi-jurisdictional Hazard Mitigation Plan update. Participants providing the data for this project included the county commission, emergency management director, and interested members of the public from within Gentry County. In addition, officials from each municipality and school district within Gentry County were directly invited to participate in these meetings.

The Regional Council's responsibilities under this scope of work include the following:

- Assist in establishing a Mitigation Planning Committee (MPC) as defined by the Disaster Mitigation Act (DMA).
- Find out if the MPC established for the previously approved plan was a standing committee that met in the interim and set forth any changes in the MPC membership and procedures since adoption of the previous plan.
- Assess whether there was adherence to the process set forth in the previously approved plan for maintenance, explain how adherence occurred, and/or why it did not occur.
- Ensure 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).
- Facilitate the entire plan development process.
- Identify the data that MPC participants could provide and conduct the research and documentation necessary to augment that data.
- Assist in soliciting public input; and
- Produce the draft and final plan update in a FEMA-approvable document and Coordinate the Missouri State Emergency Management Agency (SEMA) and (FEMA) plan reviews.

Active participation in the plan development effort is of paramount importance. All jurisdictional representatives met with Regional Council staff at a public meeting or in a special meeting to update the Questionnaire and Action Worksheets. The towns of Darlington, Gentry, and McFall were contacted multiple times by phone, mail, and email over the course of the plan update. Between July and October of 2025, there was no participation by these three communities, and it appears they have chosen not to participate in the update. The jurisdictions of Unincorporated Gentry County, Albany, King City, Stanberry, including the school districts, met their responsibilities: attend at least one meeting; complete the MOU; complete data Questionnaire; review and return the Action Worksheets. All jurisdictions returned the Adoption Resolutions found in Appendix D.

Table 1.2 displays the MPC members and the entities they represent, along with their titles.

Table 1.2. Jurisdictional Representatives of Gentry County MPC

Name		Title	Department	Jurisdiction/Agency /Organization
Corey	Sloan	County Emergency Manager	County	Unincorporated Gentry County
Mike	Sager	Presiding Commissioner	County	Unincorporated Gentry County
Roger	Rice	District 2 Commissioner	County	Unincorporated Gentry County
Shelia	Clark	County Clerk	County	Unincorporated Gentry County
Denise	Harris	City Clerk	City	City of King City
Donald	Combe	Mayor	City	City of King City
Derek	Brown	City Administrator	City	City of Albany
Jill	Cottrill	City Clerk	City	City of Albany
Barbara	Murray	Mayor	City	City of Albany
Christy	Williams	City Clerk	City	City of Stanberry
Laverne	Smithson	Administrator	City	City of Stanberry
Shanda	Parrish	Mayor	City	City of Stanberry
Dustin	Freeman	Superintendent	School	Albany R-III School
Danny	Johnson	Superintendent	School	King City R-I School
John	Davidson	Superintendent	School	Stanberry R-II School

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 identify 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 this plan was gathered in part through a series of public meetings held within Gentry County. The planning process for the Gentry County Hazard Mitigation Plan began during the month of July 2025, with presentations to elected officials, community members and other

interested parties, and the planning committee was formed. (See above Table 1.2: Jurisdictional Representatives of the Gentry County MPC.) These individuals were invited to attend these meetings, with a special effort to invite participants representing various business and service interests throughout Gentry County communities. Those that could not attend the meetings submitted required worksheets for their perspective jurisdiction. Participants 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 Regional Council staff.

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, or sections of the plan, was presented for review. Press releases of meetings were placed in the local newspaper, the Tri-County News. Input from each public official (city and county) was solicited by emailing an explanatory letter with notice of the posted draft on the Regional Council website. These emails or mailings 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:

- Unincorporated Gentry County
- City of Albany
- City of King City
- City of Stanberry
- Village of Darlington
- Village of Gentry
- Village of McFall
- Albany R-III School District
- King City R-I School District
- Stanberry R-II School District

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 and a Public Survey available through QuestionPro, the Regional Council of Governments website and other local jurisdiction locations. Surrounding jurisdictions were invited to review the county's plan draft via the Regional Council website. Numerous citizens, public organizations, and elected officials have participated in this process. Implementation, monitoring, and evaluation will be sustainable over the long-term because it enjoys a grassroots support that stems from a sense of county.

In an effort to counteract the limited number of full-time staff across various jurisdictions, meeting locations were spread out across the major population centers of Gentry County. One of the significant challenges faced during the planning process was the lack of public participation. Despite extensive efforts to engage the community—through organized meetings and a public survey—only 10 responses were received from the survey, and there was no attendance from the general public at any of the meetings.

Table 1.3 below shows the representation of each participating jurisdiction at the planning meetings, the provision of responses to the Data Collection Questionnaire and the update or development of mitigation actions. Sign-in sheets and other documentation for participation are in Appendix B.

Table 1.3. Jurisdictional Participation in Planning Process

Jurisdiction	Kick-off Meeting	Meeting #2	Meeting #3	Data Collection Questionnaire Response	Update/Develop Mitigation Actions
Unincorporated Gentry County	X	X	X	X	X
City of Albany	-	-	X	X	X
City of King City	-	X	-	X	X
City of Stanberry	X	X	X	X	X
Village of Darlington	-	-	-	-	-
Village of Gentry	-	-	-	-	-
Village of McFall	-	-	-	-	-
Albany R-III School District	-	X	-	X	X
King City R-I School District	X	X	X	X	X
Stanberry R-II School District	-	-	X	X	X

1.4.2 The Planning Steps

Background and statistical data for this plan were collected from a variety of sources, including 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 Agricultural, Resources and Environmental Systems at the University of Missouri-Columbia, Gentry County HAZUS data, and the National Climatic Data Center. The Missouri State Hazard Mitigation Plan was last updated in 2023 and provided information regarding tornado, earthquake, and flood hazards affecting Gentry County. Other documents utilized as guidance during the update include FEMA's Local Mitigation Planning Handbook (May 2023), Local Mitigation Planning Review Guide (April 19, 2023), and Integrating Hazard Mitigation Into Local Planning: Case Studies and Tools for Community Officials (March 1, 2013). Other sources utilized for applicability to 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, and Flood Mitigation Assistance Program. Table 1.5 illustrates this process.

Table 1.4. County Mitigation Plan Update Process

Community Rating System (CRS) Planning Steps (Activity 510)	Local Mitigation Planning Handbook 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 4: Review Community Capabilities 44 CFR 201.6(b)(2) & (3)
Step 4. Assess the hazard	Task 5: Conduct a Risk Assessment

Step 5. Assess the problem	44 CFR 201.6(c)(2)(i) 44 CFR 201.6(c)(2)(ii) & (iii)
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 4)

The initial kickoff meeting for the Gentry County Multi-Jurisdictional 2026 Plan Update was held on August 25, 2025**.** Before the public meeting, The Regional Council staff met by conference call with the Atchison County Commissioners and planned for contacting jurisdictional representatives and scheduling the public meetings. To encourage participation and minimize travel burdens, the three meetings were hosted at locations in the 3 largest population centers in the county: Stanberry City Hall**,** King City R-I School District**,** and the Albany Community Center**.**

- **Kickoff Meeting:** August 25, 2025 – Stanberry City Hall
- **Risk Assessment Meeting (#2):** September 19, 2025 – King City R-I Schools
- **Mitigation Strategies Meeting (#3):** October 27, 2025 – Albany Community Center

Invitations were sent to the Gentry County Planning Committee by email for each meeting, as well as public notice posted in the local paper and on Facebook. A stakeholder list was also developed, and stakeholders were invited to participate in Meetings #2 and #3. In addition, press releases announcing the meetings were sent to the local newspaper serving Gentry County to promote public awareness and engagement.

Table 1.5. Schedule of MPC Meetings

Meeting	Topic	Date
Kick-off Meeting	The presentation began with an overview of the purpose of hazard mitigation planning, including a discussion of the grant programs associated with an approved plan and the advantages of a multi-jurisdictional approach. The hazard mitigation planning process was then reviewed, covering participation requirements, public involvement expectations, and the use of data collection questionnaires. The planning committee engaged in a discussion of the hazards with the potential to impact Gentry County, supported by preliminary research on each identified hazard. The group also reviewed the data sources used to develop the GIS layer of critical facilities, and additional sources suggested by committee members were recorded for inclusion. The meeting concluded with a review of the next steps in the planning process, ensuring all participants understood upcoming tasks and timelines	08/25/2025
Planning Meeting #2	The meeting began with a brief review of the purpose of Hazard Mitigation Plans and an update on the public survey conducted as part of this planning effort. The discussion also covered participation requirements and the current status of each jurisdiction, an overview of the plan update format, and sample results from the risk assessment. In addition, the group reviewed the updated mitigation goals, discussed progress on previously identified mitigation actions, and concluded with an outline of the next steps in the planning process.	09/19/2025
Planning Meeting #3	This meeting provided a summary of previously discussed topics, including a brief review of the purpose of the Hazard Mitigation Plan, the public survey results, and the identified problem statements. The group then reviewed the STAPLEE worksheet template in preparation for the upcoming STAPLEE analyses of each proposed hazard mitigation action. Additional discussions covered Hazard Mitigation Assistance grant opportunities, as well as plan maintenance and implementation procedures. The meeting concluded with a review of the next steps in the planning process.	10/27/2025

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 the MPC Kickoff Meeting, the committee agreed to gather public input on the planning process through a public survey and press releases. Press releases were distributed to invite community members to participate in hazard mitigation planning meetings. Additional outreach was conducted through informal methods, including postings on the Northwest Missouri Regional Council of Governments (NWMORCOG) website and Facebook page.

A Public Survey, created using QuestionPro, was launched in August 2025 and introduced at the Kickoff Meeting. The survey link was posted on the Regional Council's website, and press releases were distributed to encourage jurisdictions to share the information with their residents. The survey link and QR code were also shared on the Regional Council's Facebook page, and an article promoting participation was included in the monthly Newsflash newsletter.

The Public Survey closed in October 2025, yielding ten (10) responses. Results were analyzed to help determine which hazards should be included in the plan. The findings showed a strong correlation between public perception of risk and the data collected during the plan update. Figure 1.1 shows the results of Question 2, illustrating the perceived likelihood of impact for each hazard.

Figure 1.1. Public Survey Question 2

The hazards addressed in the Multi-jurisdictional Hazard Mitigation Plan Update are listed below. Please indicate your opinion on the likelihood for each hazard to impact YOUR JURISDICTION. Please rate each hazard as Unlikely, Occasional, Likely, or Highly Likely.

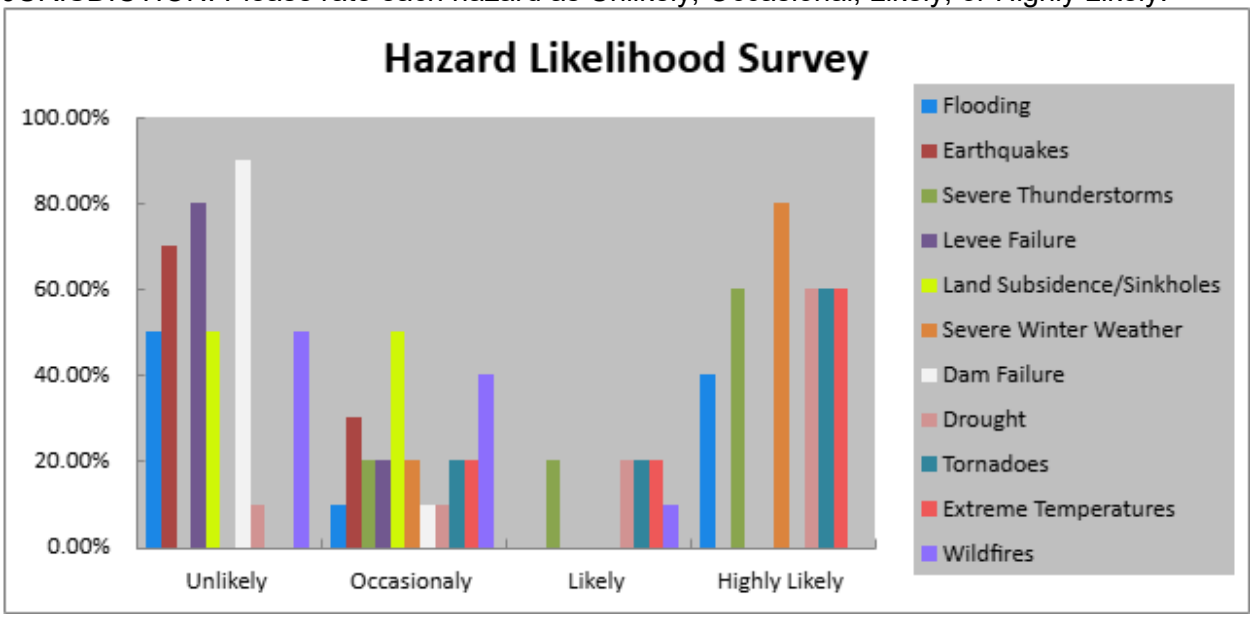


Figure 1.2. Public Survey Question 3

Please indicate your opinion on the potential magnitude of each hazard's impact on YOUR JURISDICTION. Please rate EACH Hazard as Negligible, Limited, Critical, or Catastrophic.

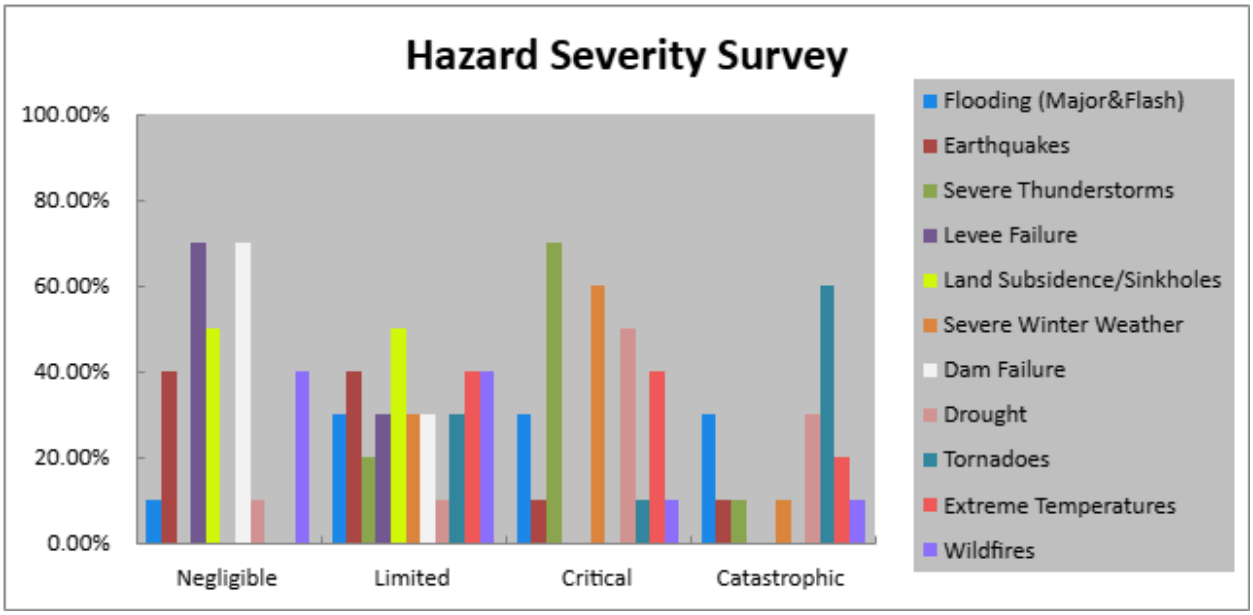
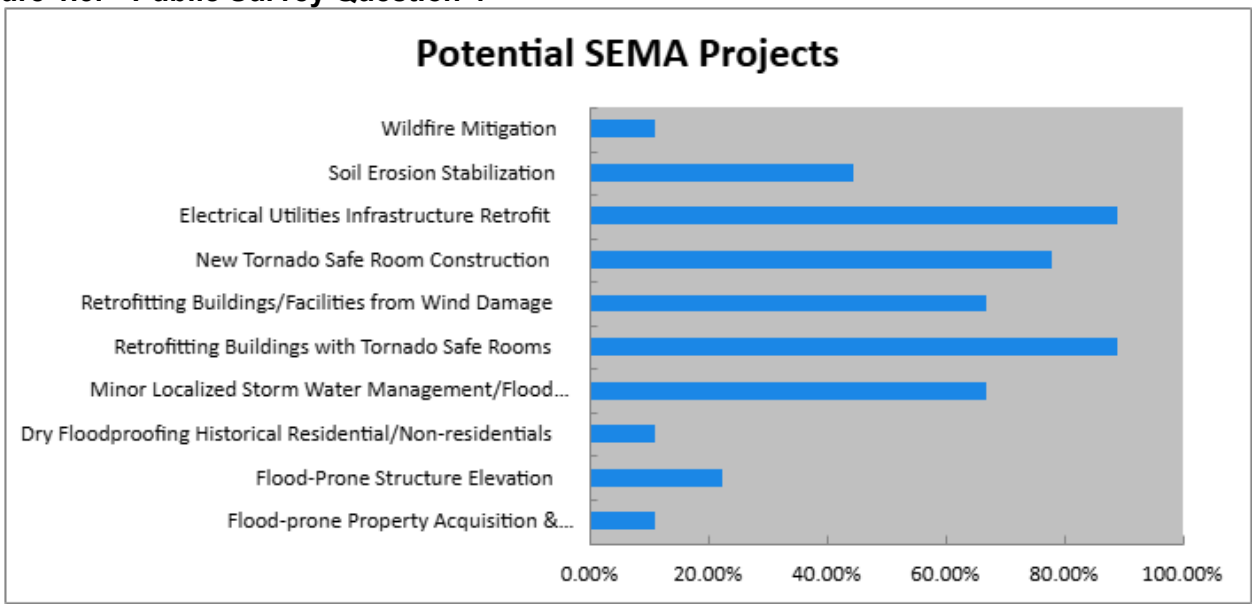


Figure 1.3. Public Survey Question 4



The draft risk assessment was posted for public review October 1, 2025 to October 23, 2025.

Prior to the plan approval, the public had an opportunity to provide comments on the first draft of the Gentry County Multi-jurisdictional Hazard Mitigation Plan. The Plan was made available for public review December 10, 2025, with the commenting period ending December 31, 2025.

Step 3: Coordinate with Other Departments and Agencies and Incorporate Existing Information
(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: (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.

At the Plan Kickoff Meeting on August 25, 2025, attendees discussed strategies for obtaining public input throughout the planning process. City and county officials were encouraged to invite representatives from county, state, and federal agencies, as well as local businesses and organizations with an interest in contributing to the plan's development. Stakeholders were invited to participate through mail and email correspondence, and public input was further encouraged through press releases and announcements at public gatherings. Citizens, public organizations, and elected officials actively participated in this process.

Once a draft of the plan update was completed and submitted to SEMA for initial review, it was distributed to the Mitigation Planning Committee (MPC) for feedback and posted on the Northwest Missouri Regional Council of Governments website for public access. Surrounding jurisdictions, stakeholders, and community members were invited to review the draft and provide comments. Public feedback will be reviewed by the Hazard Mitigation Planning Committee and incorporated into the plan as appropriate.

To ensure broad awareness, individual emails and letters were sent to jurisdictions and stakeholders inviting their review and comment, and a press release was issued to local newspapers announcing the plan's availability. Jurisdictions and stakeholders were also encouraged to participate in the process through public meetings. A complete list of agencies solicited for participation is provided in Appendix B.

Coordination with FEMA Risk MAP Project

The flood hazard and flood risk products developed through the Risk MAP program provide communities with multiple resources and tools to assist in the identification and implementation of mitigation actions which, if implemented, can reduce the loss of life, number of injuries, and property damage from flood events. These resources and tools, produced as both regulatory and non-regulatory Risk MAP products, include flood hazard information, mapping, and flood risk assessment tools. In 2013 a Flood Risk Report was conducted on the Upper Grand Watershed. Special Flood Hazard Area (SFHA) boundaries within the Upper Grand Watershed were updated due to new engineering analysis performed within the Flood Risk Project. The updated modeling produced new flood zone areas and new base flood elevations in some areas and leveraged recently

developed LiDAR-based (light detection and ranging) topographic data for the Flood Risk Project.

A large portion Gentry County has been included as part of the Upper Grand Watershed Risk MAP study and was used in the evaluation of risks for that area for this Plan. Figure 1.4 provides the status of Risk Mapping activity in Gentry County and indicates that there are currently Effective FIS/FIRM maps available for Gentry County. The areas of Gentry County that are susceptible to flooding are clearly defined in Section 3.4.1.

Figure 1.4. Map of Risk MAP Projects

Integration of Other Data, Reports, Studies, and Plans

Northwest Missouri Regional Council of Governments staff further collected and reviewed data from several other documents and plans while compiling information for this update, including the mitigation plans of the state and adjacent counties, 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, Maryville Capital Improvement Plan, and US Department of Agriculture's (USDA) Risk Management Agency Crop Insurance Statistics. To provide relevant data, the latest American Community Survey 5-year estimates were used to update the plan.

A review of the most current data, reports, studies, and Plans relating to hazard mitigation planning in Gentry County were analyzed in order to provide an updated understanding of existing conditions within the county. Relevant data collected from multiple sources was incorporated into the plan update to produce an accurate illustration of the current conditions within each jurisdiction.

Step 4: Assess the Hazard: Identify and Profile Hazards
(Handbook Task 5)

During the Kickoff Meeting on August 25, 2025, attendees reviewed the hazards identified in the 2021 Hazard Mitigation Plan. After examining declared disasters from the past five years and reviewing data questionnaires submitted by each participating jurisdiction, the group confirmed that the previously identified hazards should remain in the 2026 Plan Update.

A new hazard, Sinkholes and Land Subsidence, was added for consideration following the formation of two new sinkholes in Gentry County, where none had been reported previously. The Northwest Regional Council planning staff subsequently prepared a draft Risk Assessment for the existing and new hazards, which was presented at the second planning meeting on September 19, 2025.

Additional details on the Risk Assessment and the problems identified can be found in Section 3 of this plan.

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

To adequately assess the issues, resources available on the Internet, existing reports and plans, information provided by jurisdictions on their 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, information available from local resources such as the Emergency Management Director. In cases where vulnerability estimates were unavailable, data from the 2023 State Hazard Mitigation Plan was utilized as the best and most recent data available.

Step 6: Set Goals
(Handbook Task 6)

During the second planning meeting on September 19, 2025, attendees reviewed the goals from the 2021 Gentry County Multi-Jurisdictional Hazard Mitigation Plan. After discussion and comparison with the 2023 State Hazard Mitigation Plan, the committee refined and updated the goals to better align with current priorities and conditions. The updated goals are as follows:

Goal 1: Preserve human life, health, and safety from the adverse effects of disasters
Goal 2: Defend the continuity of government and essential services and processes from the adverse effects of disasters
Goal 3: Protect public and private property from the adverse effects of disasters
Goal 4: Safeguard community tranquility from the adverse effects of disasters

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

At the Mitigation Priorities meeting #3, attendees reviewed the status of 2021 mitigation Action Worksheets that were continued into the 2026 plan.

The STAPLEE review from a meeting of Staff and the Gentry County Emergency Management Director provided a baseline for each jurisdiction to consider the priority for their jurisdiction. Each jurisdiction will have their own Action Worksheet in the plan for each action that they want to be a part of. A block at the top of each Action Worksheet will indicate what action belongs to a jurisdiction. The STAPLEE scores were discussed and participants gained insight into how the evaluation system worked.

The FEMA publication Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013) was used as a reference to provide some suggested action projects. 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.

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)

The Gentry County Multi-Jurisdictional Hazard Mitigation Plan was completed in December of 2025 and submitted to the planning committee members for final review via email with the link to the plan posted on the Regional Council website. The public was also provided with the opportunity to comment on the plan's contents by visiting the Regional Council's website at www.nwmorcog.org. Before the first draft was sent to FEMA for review, Resolutions were sent to all participating jurisdictions. All adopted resolutions may be found in Appendix D.

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

At the final planning meeting held on October 27th, 2025, the planning committee developed and agreed upon an overall strategy for implementing, monitoring, and maintaining the Gentry County Hazard Mitigation Plan. A complete explanation of this process can be found in Chapter 5. Many of the following recommendations in this plan should not be considered final solutions, but rather short-term efforts that will ultimately have long-term strategic implications.

To be sure, this process should be an ongoing effort that is annually reviewed to ensure that information is still relevant and appropriate for the region. The goals and recommendations in the plan include broad implementation strategies, possible partners, and time frames for completion. Under the direction of the Gentry County Emergency Management Director, the mitigation strategy will be forwarded for integration into other appropriate planning mechanisms.

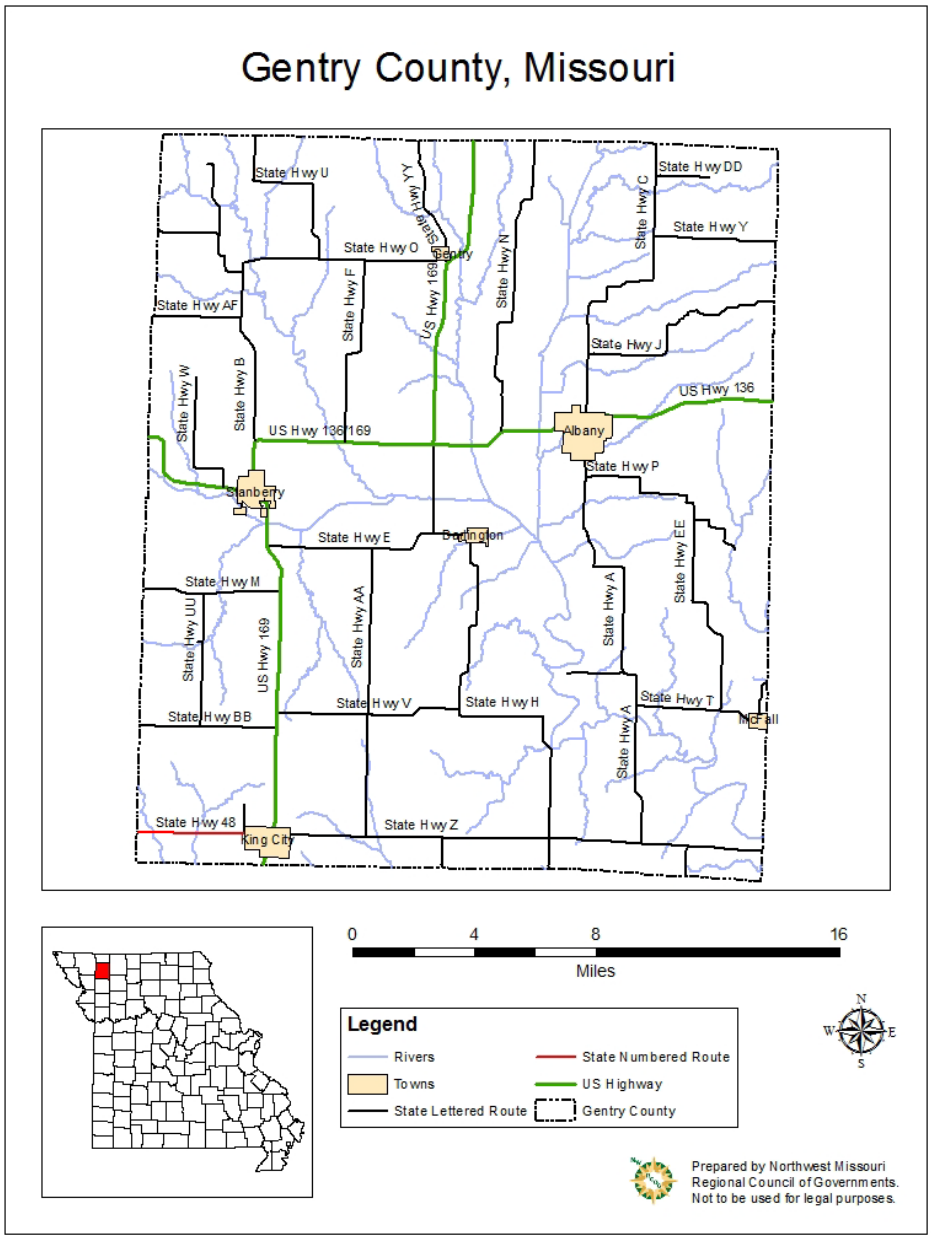
2 PLANNING AREA PROFILE AND CAPABILITIES

2.1 GENTRY COUNTY PLANNING AREA PROFILE

Gentry County is located in northwest Missouri and is located south of Worth County, west of Harrison, north of DeKalb, and east of Nodaway and Andrew Counties. Within Gentry County are the City of Albany, City of King City, and City of Stanberry. The school districts in Gentry County are Albany R-III School District, King City R-I School District, and Stanberry R-II School District.

Figure 2.1 provides a map of the Gentry County planning area, indicating the boundaries of unincorporated Gentry County, and the communities located within.

Figure 2.1 Map of Gentry County



According to the 2020 Census, Gentry County has a population of 6,162 individuals. Since 2020, Gentry

County's population has decreased 8.5 percent; its population growth remains behind the statewide population increase of 2.8 percent and the nationwide increase of 7.4 percent.

Gentry County's median household income trails below the statewide and nationwide averages. With Gentry County's median household income topping off at $53,799 in 2022, Gentry County has experienced a 51.3% increase since 2010. From 2010-2020, Missouri's average median household income has increased 14.0 percent, the United States' median household income has increased 14.4 percent. Information regarding Gentry County's median household income is found in Table 2.1.

Table 2.1 Median Household Income Comparison

Community	2010	2020	Percentage of Change
United States	51,914	74,755	+14.4%
Missouri	46,262	64,811	+14.0%
Gentry County	35,556	53,799	+51.3%

Source: U.S. Census

Additionally, the median housing value percentage growth in Gentry County is comparable to the statewide values and below the nationwide values, while the housing value trails the state and nationwide values. The median house value in Gentry County has increased by 45.2%, while Missouri's median house value has increased 44.8 percent and the median house value in the United States has increased 50 percent since 2010. Table 2.2 compares the median house value between Gentry County, Missouri, and the United States.

Table 2.2 Median Housing Value Comparison

Community	2010	2022	Percentage of Change
United States	188,400	281,900	+50.0%
Missouri	137,700	199,400	+44.8%
Gentry County	79,500	115,400	+45.2%

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

2.1.1 Geography, Geology and Topography

Gentry County, Missouri is in the rolling prairie region of the state's northwestern corner. Gentry County is south of Worth County, west of Harrison, north of DeKalb, and east of Nodaway and Andrew Counties (Figure 2.1).

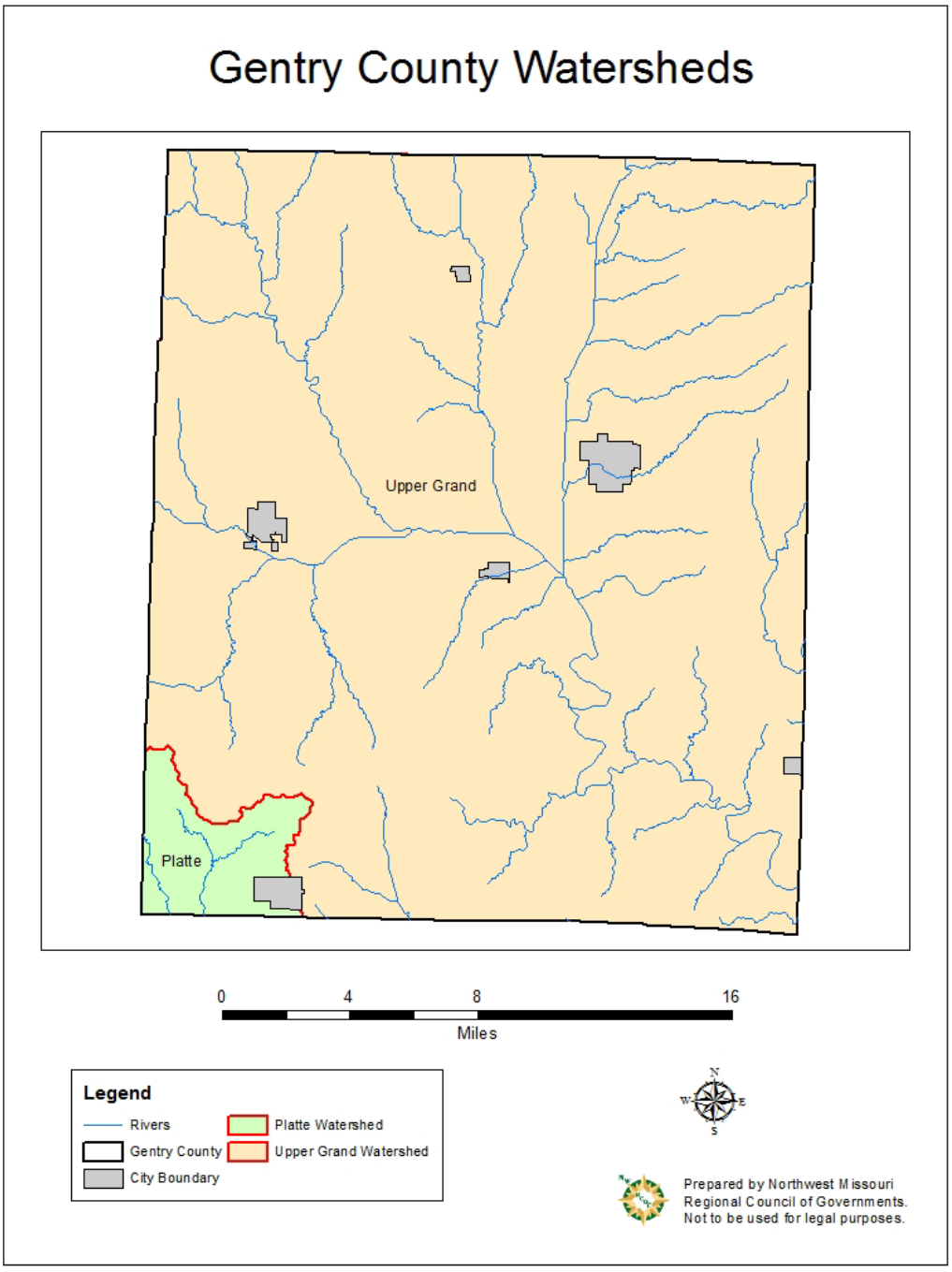
Gentry County encompasses approximately 493 square miles, or about 315,443 acres. Most of the county ranges from gently undulating to hilly in nature. The Grand River has formed a flood plain one-half to two miles in width across the greater part of the county. It consists of three forks: West, Middle, and East. These join south and west of Albany and continue south-easterly out of the county. Numerous smaller streams and tributaries provide drainage for the county and numerous wetland habitats. Additionally, the Platte River slope begins in the extreme southwestern part of the county. Finally, the elevation ranges from approximately 780 feet in the southeastern part of the county to nearly 1,100 feet in the northwestern corner.

Due to the population, location, and the use of land in Gentry County, Gentry County is rural in nature. Its economy thrives on agriculture. The primary use of land in Gentry County is for growing crops, such as soybeans and corn. The major types of livestock in the area are hogs and pigs.

There are two watersheds located in Gentry County: Upper Grand and Platte. Figure 2.2 depicts the

location of watersheds in Gentry County.

Figure 2.2 Map of Gentry County watershed



2.1.2 Climate

Gentry County's climate is continental in nature–cold winters and long, hot summers. Heavy rains occur mainly in spring and early summer when moist air from the Gulf of Mexico interacts with the drier

continental air. In winter, the average temperature is 28 degrees Fahrenheit and the average daily minimum temperature is 17 degrees. The lowest temperature on record, recorded at Bethany, Missouri in nearby Harrison County on January 12, 1974, is minus 29 degrees. In the summer, the average temperature is 75 degrees, and the average daily maximum temperature is 87 degrees. The highest recorded temperature, also recorded at Bethany, Missouri, is 108 degrees which occurred on July 17, 1954.

The total annual precipitation per year is 35 inches. Of this, 24.5 inches, or 70 percent, usually falls from April through September. In four years out of ten, the rainfall during this period is less than 20 inches. The heaviest 1-day rainfall during this ten-year period was 3.64 inches on August 15, 2014. The heaviest 1-day rainfall overall on record was 6.09 inches on October 11, 1973. Thunderstorms occur on about 56 days each year, and most occur in summer. The average seasonal snowfall is 30 inches. The greatest snow depth at any one time during the period of record was 18 inches. On average, 20 days per year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The prevailing wind is from the south and the average wind speed is highest, 13 miles per hour, in spring. Tornadoes and severe thunderstorms occur occasionally but are local and of short duration. Damage varies and is spotty. Hailstorms occur during the warmer part of the year but only in small areas in an irregular pattern.

2.1.3 Population/Demographics

Table 2.1 compares the populations of the United States, Missouri, Unincorporated Gentry County and each City located within Gentry County for 2010 and 2020. In terms of percent change, one jurisdiction increased in population while all other jurisdictions decreased. It is estimated that the population of Gentry County is 6,162 people.

Table 2.1 Gentry County Population 2010-2020 by Jurisdiction

Jurisdiction	2010 Population	2020 Population	# Change (2010-2020)	% Change (2010-2020)
United States	308,745,538	331,449,281	+22,703,743	+7.4%
Missouri	5,988,927	6,154,913	+165,986	+2.8%
Gentry County	6,738	6162	-576	-8.5%
City of Albany	1,730	1,679	-51	-2.9%
Village of Darlington	121	66	-55	-45.4%
Village of Gentry	72	56	-16	-22.2%
City of King City	1013	799	-214	-21.1%
City of McFall	93	119	+26	+30.0%
City of Stanberry	1185	1,129	-56	-4.7%

Source: U.S. Bureau of the Census, Decennial Census, annual population estimates/ 5-Year American Community Survey 2022;
*population includes the portions of these cities in adjacent counties

Based on the latest American Community Survey 5-year estimate for Gentry County, 6.8% of the population are under the age of 5 and 18.7% of the population is over the age of 65. In Missouri, 5.7% are under the age of 5 and 18% are over the age of 65. For the United States, 5.5% are under the age of 5 and 17.3% are over the age of 65. There are 2347 households in Gentry County, with the average household size being 3.28. The average household size in Missouri is 3.0, and in the United States 3.1.

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 contributes 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.

As listed on the Social Vulnerability Index (SoVI ®), Gentry County received a 1.41 score. Compared to the other counties in Missouri, Gentry County has a medium high social vulnerability to environmental hazards. The county in Missouri with the highest vulnerability to environmental hazards is Pemiscot with a score of 4.0. On the other side of the spectrum, St. Charles is the least vulnerable county in Missouri with a score of -5.56.

Table 2.2 provides additional demographic and economic indicators for Gentry County from the latest American Community Survey 5-year estimates.

Table 2.2 Unemployment, Poverty, Education, and Language Percentage Demographics, Gentry 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
United States	169,093,585	5.3%	12.6%	89.1%	35.7%	21.7%
Missouri	3,107,514	4.3%	13.2%	91.3%	32.2%	6.4%
Gentry County	2,801	1.7%	15.2%	43.0%	21.1%	4.8%
City of Albany	896	1.8%	19.6%	44.1%	21.6%	1.2%
Village of Darlington	43	0.0%	17.0%	42.5%	12.5%	0.0%
Village of Gentry	53	4.8%	14.1%	45.9%	0.0%	0.0%
City of King City	355	1.0%	15.9%	47.1%	16.9%	0.0%
City of McFall	73	5.7%	16.3%	28.7%	20.8%	0.0%
City of Stanberry	579	2.2%	14.5%	48.0%	21.9%	1.5%

Source: U.S. Census, 2022 American Community Survey, 5-year Estimates.

2.1.4 History

The first pioneers came to present day Gentry County around 1834. Most early settlers came from Kentucky, Virginia, and Tennessee. Gentry County was established in 1841 and fully organized in 1845. The county is named for General Richard Gentry of the Missouri Militia. Albany, the county seat, was platted in 1845 and was briefly called Athens. Stanberry, the second largest city in the county, was laid out in 1879. Originally, some 60,000 acres of scattered groves and forests provided early pioneers with timber for shelter, fuel, building, and implements. The great quantity of native grasses provided pasture and hay, and deer, turkey, grouse, pheasant, and fish were found in abundance.

Today, Gentry County is in northwest Missouri with a population of 6162 people. The county consists of six incorporated communities and three school districts and operates as a third-class county. Gentry County's economy is largely based on agricultural businesses. Within Gentry County are the Grand River Regional Ambulance District and four fire districts. Each district serves the county to save lives and to reduce the impact of a disaster.

2.1.5 Occupations

Table 2.6 provides occupation statistics in Gentry County.

Table 2.3 Occupation Statistics, Gentry 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
United States	72,764,575	27,682,444	31,944,244	13,842,802	21,058,801
Missouri	1,290,744	504,311	597,160	261,338	428,625
Gentry County	963	547	362	395	539
City of Albany	205	188	134	91	206
City of King City	124	90	59	47	44
City of Stanberry	219	101	83	56	104
City of McFall	5	11	14	9	27
Village of Darlington	0	0	0	2	2
Village of Gentry	9	14	3	19	11

Source: U.S. Census, 2022 American Community Survey, 5-year Estimates.

This information comes from the American Community Survey 5-year estimates that can be accessed through the American Factfinder website. See details above.

2.1.6 Agriculture

According to the 2022 Census of Agriculture, Gentry County consists of 629 farms that cover 268,094 acres of land. The average farm size in Gentry County is 426 acres, and the average sales per farm is $100,758. The top crops in the county are soybeans for beans. Corn for grain, oats for grain, wheat for grain, and corn for silage or green chop. Most livestock in the county are cattle, primarily beef cows. In Gentry County, there are 415 farm jobs. This makes up 15 percent of the labor force in Gentry County.

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

Gentry County has not been awarded any FEMA Hazard Mitigation Assistance (HMA) grants.

2.1.8 FEMA Public Assistance (PA) Grants in Planning Area

Table 2.7 displays the FEMA Public Assistance (PA) Grants awarded in Gentry County from 2014-2025.

Table 2.4 FEMA PA Grants in County from 2014-2025

Disaster Declaration	Number of Projects	Project Size	Project Total
4200	9	Small	$238,083.40
4238	1	Large	$197,790.79

4238	21	Small	$619,753.25
4451	1	Large	$222,741.35
4451	9	Small	$302,585.31
4490	2	Small	$10,497.90
4741	4	Small	$279,682.97

Source: Federal Emergency Management Agency, 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 county is profiled first, followed by the incorporated communities, the special districts, and the public school districts.

2.2.1 Gentry County

Gentry County utilizes a traditional commissioner form of government, whose jurisdiction includes all unincorporated areas within its boundaries. The county is divided into two geographic districts, each represented by a district commissioner. The two district commissioners are joined by a presiding commissioner to create a three-member commission. The three-member county commission is generally the final authority on County issues.

Gentry County operates as a third-class county. The County does not have floodplain regulations, stormwater regulations, and building regulations in effect. The County's government consists of the following offices and departments:

Board of Commissioners, Circuit Clerk, Coroner, County Assessor, County Clerk, County Collector, County Sheriff, County Treasurer, Emergency Management, Prosecuting Attorney, Public Administrator

Mitigation Initiatives/Capabilities

The County's emergency services consist of four area fire departments and the Grand River Regional Ambulance District. Law Enforcement in Gentry County includes the Gentry County Sheriff's Department, and at the local-level, Stanberry Police Department and the King City Police Department. The sources of water and sewer services in the county, including Municipal Water Services, City of Albany, City of King City, City of Stanberry, Gentry County Public Water Supply District #1, and Worth County Public Water Supply District #1. City of Albany, City of Stanberry, United Electric, Evergy, Ameren Missouri, and the Empire District Electric Company are the sources of electricity in Gentry County. The City of Albany, the City of Stanberry, and Spire Missouri, Inc. are the sources of gas within the county.

Gentry County's Emergency Management Director establishes relationships with the surrounding communities and ensures emergency management related efforts are in place within the county. Gentry County has several other roles and responsibilities regarding mitigation initiatives and capabilities. There are eleven outdoor warning sirens in Gentry County. These sirens are operated by 911 dispatch services. Gentry County also utilizes TextCaster for emergencies, although funding issues may threaten this in the near future.

Table 2.5 depicts Unincorporated Gentry County's mitigation capabilities.

Table 2.5 Unincorporated Gentry County Mitigation Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive or Land-Use Plan	No
Capital Improvement Plan	Yes
Transportation Plan	No
Emergency Operations Plan	Yes
Local Recovery Plan	No
Debris Management Plan	Yes
Firewise or other fire mitigation plan	No
Economic Development Plan	No
Policies/Ordinance	
Zoning Ordinance	No
Building Code	Yes
Floodplain Ordinance	No
Drainage/Stormwater Ordinance	Yes
Site Plan Review Requirements	Yes
Historic Preservation Ordinance	No
Program	
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System (CRS) program	No
National Weather Service (NWS) Storm Ready	Yes
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	Rating: 4
Public Education or information programs (i.e. responsible water use, fire safety, household preparedness, or environmental education)	No
Mutual Aid Agreements	No
Studies/Reports/Maps	
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Staff/Department	
Building Code Official / Building Inspector	Yes
Engineer	Yes
Development Planner	No
NFIP Floodplain Administrator	No
Mapping Specialist (GIS)	No
Public Works Official	Yes
Emergency Management Coordinator	Yes
Local Emergency Planning Committee	No
Sanitation Department	No
Highway/Transportation Department	N/A
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/Post
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	No
Financial Resources: Is your jurisdiction able to? Yes or No	
Apply for Community Development Block Grants	Yes

Fund projects through Capital Improvements funding	Yes
Authority to levy taxes for specific purposes	No
Fees for water, sewer, gas, or electric services	Yes
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, August 29, 2025

2.2.2 City of Albany

The City of Albany is in eastern Gentry County along Highway 136 and Highway 84. Albany has a Mayor/Council form of government consisting of four members. Located in Albany is Albany R-III School District. According to the U.S. Census, the population of Albany is 1,855 and has experienced a 12% decrease in population in the last ten years.

The City of Albany supplies its own water and sewer service, as well as its own electricity and natural gas services. The City of Albany is part of the Albany Community Fire Protection District and Grand River Regional Ambulance District. Law enforcement is provided by the Gentry County Sheriff's Department. The City of Albany has three outdoor warning sirens which the Gentry County 911 Dispatch activates.

According to the U.S. Census, 2023 American Community Survey, 5-year estimates, 18 percent of families in Albany are living below the poverty level. Only 1.8 percent of the population speaks a language other than English.

The mitigation capability for the City of Albany is detailed in Table 2.6.

Table 2.6 Albany Mitigation Capabilities

Capability	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive or Land-Use Plan	No
Capital Improvement Plan	No
Transportation Plan	No
Emergency Operations Plan	No
Local Recovery Plan	No
Debris Management Plan	No
Firewise or other fire mitigation plan	No
Economic Development Plan	No
Policies/Ordinance	
Zoning Ordinance	Yes
Building Code	No
Floodplain Ordinance	Yes, 1/6/2015
Drainage/Stormwater Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Program	
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) Program	No
National Weather Service (NWS) Storm Ready Certification	No
Firewise Community Certification	No
Building Code Effectiveness Grading	No
ISO Fire Rating	Rating: 6
Public Education or information programs (i.e. responsible water use, fire safety, household preparedness, or environmental education)	No

Capability	Status Including Date of Document or Policy
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Staff/Department	
Building Code Official / Building Inspector	No
Engineer	No
Development Planner	No
NFIP Floodplain Administrator	Yes
Mapping Specialist (GIS)	No
Public Works Official	No
Emergency Management Coordinator	No
Local Emergency Planning Committee	No
Sanitation Department	No
Highway/Transportation Department	Yes
Economic Development Department	Yes
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	Yes
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes
Financial Resources: Is your jurisdiction able to? Yes or No	
Ability to 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	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activities	No
Withhold spending in hazard prone areas	No

Source: Data Collection Questionnaire, September 22, 2025

2.2.3 Village of Darlington

The Village of Darlington is in central Gentry County along Highway H. Darlington has a Mayor/Council form of government consisting of five members. According to the U.S. Census, the population of Darlington is 35 and has experienced a 45% decrease in population in the last ten years.

The Village of Darlington relies on Gentry County Public Water Supply District #1 for water and sewer service, and United Electric Cooperative, Inc sources of electricity. The Village of Darlington is part of the Albany Community Fire Protection District and the Grand River Regional Ambulance District. Law enforcement is provided by the Gentry County Sheriff's Department. The Village of Darlington has one outdoor warning siren which the Gentry County 911 Dispatch activates.

According to the U.S. Census, 2022 American Community Survey, 5-year estimates, 23 percent of families in Darlington are living below the poverty level. Zero percent of the population speaks a language other than English.

The Village of Darlington was contacted multiple times by phone and email over the course of the plan update. The Village of Darlington had between July and October to respond to requests for information-

There was no participation by this community, and it appears they have chosen not to participate in the update.

2.2.4 Village of Gentry

The Village of Gentry is in northern Gentry County along Highway 169. Gentry has a Mayor/Council form of government consisting of five members. According to the U.S. Census, the population of Gentry is 71 and has experienced a 13% increase in the last ten years.

The Village of gentry relies on Worth County Public Water Supply District #1 for water and sewer service and Evergy for electricity services. The Village of Gentry is part of the Albany Community Fire Protection District and the Grand River Regional Ambulance District. Law enforcement is provided by the Gentry County Sheriff's Department. The Village of Gentry has one outdoor warning siren which the Gentry County 911 Dispatch activates.

According to the U.S. Census, 2022 American Community Survey, 5-year estimates, 7.4 percent of families in Gentry are living below the poverty level. Zero percent of the population speaks a language other than English.

The Village of Gentry was contacted multiple times by phone, mail, and email over the course of the plan update. The Village of Gentry had between July and October to respond to requests for information- **There was no participation by this community, and it appears they have chosen not to participate in the update.**

2.2.5 City of King City

The City of King City is in southeastern Gentry County along Highway 169. King City has a Mayor/Council form of government consisting of five members. Located in King City is King City R-I School District. According to the U.S. Census, the population of King City is 745 and has experienced a 23% decrease in the last ten years.

The City of King City supplies its own water and sewer service, and Evergy is the source of electricity. The City of King City is part of the King City Fire Protection District and the Grand River Regional Ambulance District. Law enforcement is provided by the Gentry County Sheriff's Department. The City of King City has three outdoor warning sirens which the Gentry County 911 Dispatch activates.

According to the U.S. Census, 2022 American Community Survey, 5-year Estimates, 14 percent of families in King City are living below the poverty level. Zero percent of the population speaks a language other than English.

The mitigation capability for the City of King City is detailed in Table 2.7.

Table 2.7 King City Mitigation Capabilities

Capability	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive or Land-Use Plan	No
Capital Improvement Plan	Yes
Transportation Plan/ Highway Department	No
Emergency Operations Plan	Yes
Local Recovery Plan	No
Debris Management Plan	Yes
Firewise or other Fire Mitigation Plan	No

Economic Development Plan	No
Policies/Ordinance	
Zoning Ordinance	No
Building Code	Yes
Floodplain Ordinance	No
Drainage / Stormwater Ordinance	Yes
Site Plan Review Requirements	Yes
Historic Preservation Ordinance	No
Program	
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System (CRS) Program	No
National Weather Service (NWS) Storm Ready Certification	Yes
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	Yes (4)
Public Education or information programs (i.e. responsible water use, f safety, household preparedness, or environmental education)	No
Mutual Aid Agreements	No
Studies/Reports/Maps	
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Staff/Department	
Building Code Official / Building Inspector	Yes
Engineer	Yes
Development Planner	No
NFIP Floodplain Administrator	No
Mapping Specialist (GIS)	No
Public Works Official	Yes
Emergency Management Coordinator	Yes
Local Emergency Planning Committee	No
Sanitation Department	No
Highway/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/Post
Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	No
Financial Resources: Is your jurisdiction able to? 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	No
Impact fees for new development	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activities	No
Withhold spending in hazard prone areas	No

Source: Data Collection Questionnaire, September 2, 2025

2.2.6 City of McFall

The City of McFall is in southwestern Gentry County along Highway T. McFall has a Mayor/Council form of government consisting of three members. According to the U.S. Census, the population of McFall is 135 and has experienced a 42% increase in the last ten years.

The City of McFall relies on Gentry County Public Water Supply District #1 for its water and sewer service, and Ameren Missouri is the source of electricity. The City of McFall is part of the McFall Fire Protection District and the Grand River Regional Ambulance District. Law enforcement is provided by the Gentry County Sheriff's Department. The City of McFall has one outdoor warning siren which the Gentry County 911 Dispatch activates.

According to the U.S. Census, 2022 American Community Survey, 5-year estimates, 10.4 percent of families in McFall are living below the poverty level. Zero percent of the population speaks a language other than English.

The City of McFall was contacted multiple times by phone, mail, and email over the course of the plan update. The City of McFall had between July and October to respond to requests for information- **There was no participation by this community, and it appears they have chosen not to participate in the update.**

2.2.7 City of Stanberry

The City of Stanberry is in western Gentry County along Highway 136. Stanberry has a Mayor/Council form of government consisting of five members. Located in Stanberry is Stanberry R-II School District. According to the U.S. Census, the population of Stanberry is 1190 and has experienced a 3% decrease in the last ten years.

The City of Stanberry supplies its own water and sewer service, as well as their own electricity and natural gas. The City of Stanberry is part of the Stanberry Fire Protection District and the Grand River Regional Ambulance District. Law enforcement is provided by the Stanberry Police Department. The City of Stanberry has two outdoor warning sirens which the Stanberry Police Department 911 Dispatch activates.

According to the U.S. Census, 2022 American Community Survey, 5-year estimates, 21 percent of families in Stanberry are living below the poverty level. Only 1.7 percent of the population speaks a language other than English.

The mitigation capability for the City of Stanberry is detailed in Table 2.8.

Table 2.8 Stanberry Mitigation Capabilities

Capability	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive or Land-Use Plan	Yes
Capital Improvement Plan	No
Transportation Plan/ Highway Department	No
Emergency Operations Plan	Yes, Fall 2020
Local Recovery Plan	No
Debris Management Plan	No
Firewise or other fire mitigation Plan	No
Economic Development Plan	No

Policies/Ordinance	
Zoning Ordinance	Yes (9/12/77)
Building Code	Yes (Current)
Floodplain Ordinance	Yes (9/12/77)
Drainage/Stormwater Ordinance	Yes (9/12/77)
Site Plan Review Requirements	Yes (9/12/77)
Historic Preservation Ordinance	No
Program	
National Flood Insurance Program (NFIP)	Yes (6/12/03)
NFIP Community Rating System (CRS) Program	Yes (06/6Y)
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	Rating: 05
Public Education or information programs (i.e. responsible water use, fire safety, household preparedness, or environmental education)	No
Mutual Aid Agreements	Yes – Included in the Gentry County Emergency Operations Plan
Studies/Reports/Maps	
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Staff/Department	
Building Code Official / Building Inspector	Yes
Engineer	No
Development Planner	No
NFIP Floodplain Administrator	Yes
Mapping Specialist (GIS)	Yes
Public Works official	No
Emergency Management Coordinator	Yes
Local Emergency Planning Committee	No
Sanitation Department	Yes
Highway/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 - VFW
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes
Financial Resources: Is your jurisdiction able to? 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
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activities	Yes
Withhold spending in hazard prone areas	Yes

Source: Data Collection Questionnaire, August 19, 2025

2.2.8 Summary of Jurisdictional Capabilities

Table 2.9 Mitigation Capabilities Summary Table

CAPABILITIES	Uninc. Gentry County	City of Albany	City of King City	City of Stanberry
Planning Capabilities				
Comprehensive or Land-Use Plan	No	No	No	Yes
Capital Improvement Plan	Yes	No	Yes	No
Transportation Plan / Highway Department	No	No	No	No
Emergency Operations Plan	Yes	No	Yes	Yes
Local Recovery Plan	No	No	No	No
Debris Management Plan	Yes	No	Yes	No
Firewise or other Fire Mitigation Plan	No	No	No	No
Economic Development Plan	No	No	No	No
Policies/Ordinance				
Zoning Ordinance	No	Yes	No	Yes
Building Code	Yes	No	Yes	Yes
Floodplain Ordinance	No	Yes	No	Yes
Drainage / Stormwater Ordinance	Yes	No	Yes	Yes
Site Plan Review Requirements	Yes	No	Yes	Yes
Historic Preservation Ordinance	No	No	No	No
Program				
National Flood Insurance Program (NFIP)	No	Yes	No	Yes
NFIP Community Rating System (CRS) Program	No	No	No	Yes
National Weather Service (NW) Storm Ready	Yes	No	Yes	No
Firewise Community Certification	No	No	No	No
Building Code Effectiveness Grading (BCEGs)	No	No	No	No
ISO Fire Rating	Rating: 4	Rating: 6	Rating: 4	Rating: 5
Public Education or information programs (i.e., responsible water use, fire safety, household preparedness, or environmental education)	No	No	No	No
Mutual Aid Agreements	No	Yes	No	Yes
Studies/Reports/Maps				
Critical Facilities Inventory	No	No	No	No
Vulnerable Population Inventory	No	No	No	No
Staff/Department				
Building Code Official / Building Inspector	Yes	No	Yes	Yes
Engineer	Yes	No	Yes	No
Development Planner	No	No	No	No
NFIP Floodplain Administrator	No	Yes	No	Yes
Mapping Specialist (GIS)	No	No	No	Yes
Public Works Official	Yes	No	Yes	No
Emergency Management Coordinator	Yes	No	Yes	Yes
Local Emergency Planning Committee	No	Yes	No	No
Sanitation Department	No	No	No	Yes
Highway / Transportation Department	No	Yes	No	No
Economic Development Department	No	Yes	No	No
Housing Department	No	No	No	No
Historic Preservation	No	No	No	No
Non-Governmental Organizations (NGOs)				
American Red Cross	No	No	No	No
Salvation Army	No	No	No	No
Veterans Groups	Yes	Yes	Yes	Yes
Environmental Organization	No	No	No	No

CAPABILITIES	Uninc. Gentry County	City of Albany	City of King City	City of Stanberry
Homeowner Associations	No	No	No	No
Neighborhood Associations	No	No	No	No
Chamber of Commerce	No	Yes	No	Yes
Community Organizations	No	Yes	No	Yes
Financial Resources – Is your jurisdiction able to?				
Apply for Community Development Block Grants	Yes	Yes	Yes	Yes
Fund projects through Capital Improvements funding	Yes	Yes	Yes	Yes
Authority to levy taxes for specific purposes	No	Yes	Yes	Yes
Fees for water, sewer, gas, or electric services	Yes	Yes	No	Yes
Impact fees for new development	No	No	No	Yes
Incur debt through general obligation bonds	No	Yes	No	Yes
Incur debt through special tax bonds	No	Yes	No	Yes
Incur debt through private activities	No	No	No	Yes
Withhold spending in hazard prone areas	No	No	No	Yes

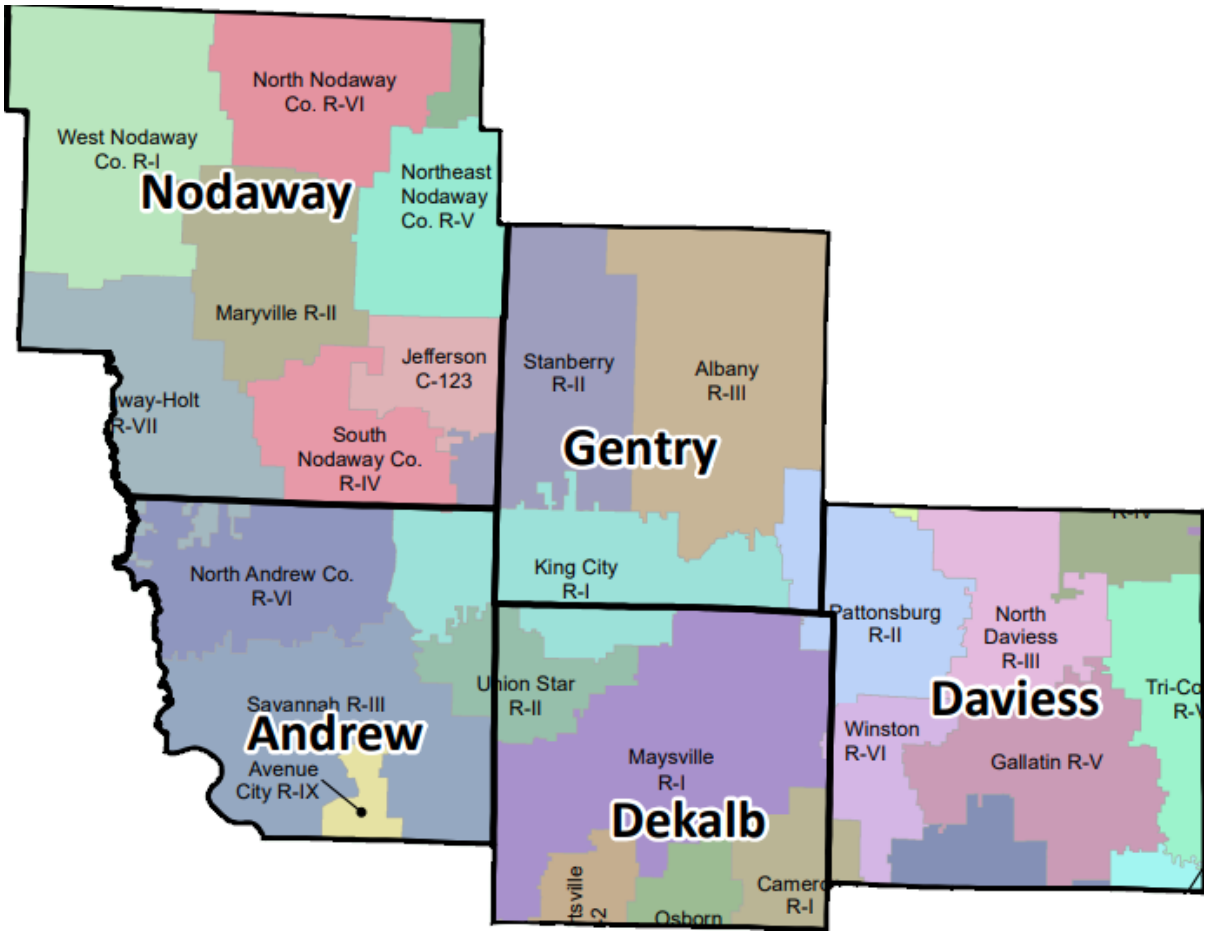
Source: Data Collection Questionnaires, 2025

2.2.9 Public School District Profiles and Mitigation Capabilities

Gentry County contains three public schools within its borders: Albany R-III School District, King City R-1 School District, and Stanberry R-II School District. The boundary of Albany R-III School District does not leave Gentry County. King City R-I School District boundary crosses into the northern part of Dekalb County and the northeastern part of Andrew County. The boundary of King City R-I School District crosses over into the southeastern corner of Nodaway County.

Figure 2.4 shows the boundaries of each public school district within Gentry County.

Figure 2.3 Gentry County Public School Boundaries



Source: Missouri Department of Elementary & Secondary Education Missouri School District Map

Albany R-III is located in northeastern Gentry County. The elementary, middle, and high school located in the City of Gentry. The school district receives students coming from the City of Albany, the Village of Darlington, and the Village of Gentry. Virginia E. George Elementary employs 23 staff, with a student population of 224, grades K-05. Albany Middle School employs 19 staff, with a student population of 96, grades 06-08. Albany High School employs 21 staff, with a student population of 130, grades 09-12.

King City R-I is located in southern Gentry County. The middle and high school are located in the City of King City. The school district receives students coming from King City. King City Elementary employs 23 staff, with a student population of 180, grades PK-06. King City High employs 23 staff, with a student population of 156, grades 07-12.

Stanberry R-II School District is located in northwestern Gentry County. The elementary and high school are located in the City of Stanberry. The school district receives students from the City of Stanberry. The elementary school employs 28 staff, with a student population of 249, grades K-06. The high school employs 22 staff, with a student population of 155, grades 07-12.

Table 2.13 below provides information on the buildings and enrollment for each school district within Gentry County.

Table 2.10 Gentry County School Districts' Buildings and Enrollment Data, 2025

District Name	Building Name	Building Enrolment
Albany R-III School District	Albany High	224
Albany R-III School District	Albany Middle	96
Albany R-III School District	Virginia E. George Elem.	130
King City R-I School District	King City Elementary	180
King City R-I School District	King City High	156
Stanberry R-II School District	Stanberry Elementary	249
Stanberry R-II School District	Stanberry High	155

Source: MCDS Portal | Missouri Department of Elementary and Secondary Education - MCDS

Mitigation capabilities can vary drastically in Gentry County due to the diverse impacts from natural hazards. To determine the various capabilities, the three public school districts in Gentry County completed a Data Collection Questionnaire, reporting on their planning processes, personnel, fiscal, and other capabilities related to mitigation programs. Table 2.14 provides a summary of the school's' capabilities.

Table 2.11 Summary of Mitigation Capabilities- Albany R-III, King City R-I, Stanberry R-II School Districts

Capability	Albany R-III School District	King City R-I School District	Stanberry R-II School District
Planning Elements			
Master Plan/ Date	No	Yes	Yes (2022)
Capital Improvement Plan/Date	Yes (August 2025)	Yes (Spring 2025)	Yes (2021 – 2026)
School Emergency Plan / Date	Yes (August 2025)	Yes (Fall 2025)	Yes (August 2025)
Weapons Policy/Date	Yes (July 2025)	Yes (March 2010)	Yes
Personnel Resources			
Full-Time Building Official (Principal)	Yes	No	Yes
Emergency Manager	Yes	No	Yes
Grant Writer	No	No	No
Public Information Officer	Yes	No	Yes
Financial Resources			
Capital Improvements Project Funding	No	No	Yes
Local Funds	Yes	Yes	Yes
General Obligation Bonds	No	No	No
Special Tax Bonds	No	No	No
Private Activities/Donations	Yes	No	No
State and Federal Funds/Grants	Yes	No	Yes
Other			
Public Education Programs	No	No	No
Privately or Self- Insured?	Privately-Insured	Privately-Insured	Self-Insured
Fire Evacuation Training	Yes	Yes	
Tornado Sheltering Exercises	Yes	Yes	
Public Address/Emergency Alert System	Yes	Yes	Yes (Installed 2019)
NOAA Weather Radios	Yes	Yes	Yes
Lock-Down Security Training	Yes	Yes	Yes
Mitigation Programs	Yes	Yes	Yes
Tornado Shelter/Saferoom	No	No	Yes
Campus Police	No	No	No

Source: Data Collection Questionnaire, September 2025

3 RISK ASSESSMENT

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.

This update of the Gentry County Multi-Jurisdictional Natural Hazard Mitigation Plan only addresses natural hazards. Human-caused and technological hazards are out of the scope of the plan. The risk assessment for Gentry County addresses individual jurisdictions' risk only when there is a notable difference in the impact relative to the entire county.

3.1.1 Review of Existing Mitigation Plans

In Missouri, local hazard mitigation plans typically contain only natural hazards as required by federal regulations. TABLE 3.1 below compares the hazards covered by this updated plan with the latest update to the state plan as well as Gentry County's previous plan.

Table 3.1. Comparison of Hazards Addressed by Existing Mitigation Plans

2025 State Plan	2021 Gentry County Plan	2025 Gentry Count Plan Update
Natural Hazards	Natural Hazards	Natural Hazards
Flooding	Flooding (Major and Flash)	Flooding
Levee Failure	Levee Failure	Levee Failure
Dam Failure	Dam Failure	Dam Failure
Earthquake	Earthquake	Earthquake
Land Subsidence/Sinkholes	Land Subsidence/Sinkholes	Land Subsidence/Sinkholes
Drought	Drought	Drought
Extreme Temperature	Extreme Temperature	Extreme Temperature
Severe Thunderstorms	Severe Thunderstorms	Severe Thunderstorms
Severe Winter Weather	Severe Winter Weather	Severe Winter Weather
Tornadoes	Tornadoes	Tornadoes
Wildfire	Wildfire	Wildfire
Human-Caused/Technological Hazards	Manmade & Other Hazards	Human-Caused/Technological Hazards
Civil Disorder Cyber Disruption Hazardous Materials Mass Transportation Accidents Nuclear Power Plants Public Health Emergencies Environmental Health Emergencies Special Events Terrorism Fires (Urban/Structural) Utilities (Interruptions and System Failures)	*Not included*	*Not included*

Because they do not threaten Missouri, the following natural hazards are not included in this analysis: avalanches, coastal erosion, coastal storms, hurricanes, tsunamis, and volcanoes.

3.1.2 Review Disaster Declaration History

Twenty federal disaster declarations have included Gentry County since 1965. Federal Disaster Declarations may be granted when the severity and magnitude of an event surpasses the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. If the disaster is so severe that both the local and state governments' capacities are exceeded; a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance.

TABLE 3.2 lists the federal FEMA disaster declarations that included the planning area from 1965 to present.

Table 3.2. FEMA Disaster Declarations that included Gentry County, Missouri, 1965-2025

Disaster Number	Description	Declaration Date	Individual Assistance (IA) Public Assistance (PA)
372	Heavy Rains, Tornadoes, Flooding	April 19, 1973	IA & PA
407	Severe Storms, Flooding	November 1, 1973	IA & PA
3017	Drought	September 24, 1976	IA & PA
713	Severe Storms, Flooding	June 31, 1984	IA & PA
995	Flooding, Severe Storms	July 9, 1993	IA & PA
1054	Severe Storm, Tornadoes, Hail, Flooding	June 2, 1995	IA & PA
1524	Severe Storms, Tornadoes, and Flooding	June 11, 2004	IA
3232	Hurricane Katrina Evacuation	September 10, 2005	PA
1708	Severe Storms and Flooding	June 11, 2007	IA & PA
1736	Severe Winter Storms	December 27, 2007	PA
3281	Severe Winter Storms	December 12, 2007	IA & PA
1773	Severe Storms and Flooding	June 25, 2008	IA & PA
3303	Severe Winter Storm	January 30, 2009	IA & PA
1934	Severe Storms, Flooding, and Tornadoes	August 17, 2010	PA
3317	Severe Winter Storm	February 3, 2011	IA & PA
4200	Severe Storms, Tornadoes, Straight-line Winds, and Flooding	October 31, 2014	PA
4238	Severe Storms, Tornadoes, Straight-line Winds, and Flooding	August 7, 2015	PA
4451	Severe Storms, Tornadoes, and Flooding	July 9, 2019	IA & PA
3482	COVID-19	March 13, 2020	IA
4490	COVID-19 Pandemic	March 26, 2020	PA

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

3.1.3 Research Additional Sources

This update to the Gentry County Multi-jurisdictional Hazard Mitigation Plan will use all readily available sources to obtain the most complete and most recent data available in determining the risks of natural hazards on the lives and property of the residents of Gentry County. The following is a list of the sources used:

- Missouri Hazard Mitigation Plan (2018, 2023)
- Previously approved planning area Hazard Mitigation Plan (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 Public Safety, State Emergency Management Agency (SEMA)
- 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);
- Gentry County Emergency Management
- Gentry 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 (citations to the sources will be given in the body of 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 events. 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. 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 previous paragraph. 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. Zeroes entered do not mean that no damage occurred with the event, but there was no damage reported to the NWS.

The database currently contains data from January 1950 to the present as entered by the NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of records available depending on the type of event. From 1950 through 1954, only tornado events were recorded. 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. 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

Natural hazards in northwestern 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 Gentry County:

• Dam Failure	• Drought	• Earthquake
• Extreme Temperature	• Flooding (Major and Flash)	• Land Subsidence/Sinkholes
• Levee Failure	• Severe Thunderstorms	• Severe Winter Weather
• Tornadoes	• Wildfires	

The above ten hazards were chosen for further analysis. They significantly impact the planning area. Not all hazards impact every jurisdiction. The following table shows the hazards by jurisdiction. The symbols used in TABLE 3.3 are "X" to indicate the jurisdiction is impacted by the hazard, and a "-" indicates the hazard is not applicable to that jurisdiction. Since Gentry County is a very rural county there are not many variations. Most of the jurisdictions are taking mitigation actions to address all the hazards addressed in the plan. Many of the actions are focused on planning and education, therefore, address all the hazards regardless of the impact.

Table 3.3. Hazards Identified for Each Jurisdiction

Jurisdiction / Hazard	Dam Failure	Drought	Earthquake	Extreme	Flooding (River	Sinkholes	Levee Failure	Severe Winter	Thunderstorm/ Lightning/Hail/	Tornado	Wildfire	
Gentry County	x	x	x	x	x	-	x	x	x	x	x	
City of Albany	x	x	x	x	x	-	x	x	x	x	x	
Village of Darlington												Non-participant
Village of Gentry												Non-participant
City of King City	x	x	x	x	x	-	x	x	x	x	x	
City of McFall												Non-participant
City of Stanberry	x	x	x	x	x	-	x	x	x	x	x	
Schools and Special Districts												
Albany R-III School District	-	x	x	x	x	-	-	x	x	x	x	
King City R-I School District	-	x	x	x	x	-	-	x	x	x	x	
Stanberry R-II School District	-	x	x	x	x	-	-	x	x	x	x	

3.1.5 Multi-Jurisdictional Risk Assessment

This Hazard Mitigation Plan for Gentry County is an update of the 2021 Plan. This is a multi-jurisdictional plan that addresses the unincorporated area of Gentry County, the seven communities within its boundaries and the three public school districts.

The plan is set up to address each hazard with an individual profile to detail risks associated with the hazard across the region and specifically for each jurisdiction participating. Each hazard profile will address hazard risk variations and describe variances.

Gentry County is uniform in terms of climate, topography and building construction characteristics. Most of the town centers date back to the middle years of the last century with little new construction. The communities are all small jurisdictions.

The development trends for Gentry County are flat. Since so much of the county is farmland, the rural areas have agricultural assets (crops/livestock) that are vulnerable to losses from weather-related hazards. These differences in vulnerability to damages will be discussed in greater detail in the vulnerability section of each hazard profile.

All municipalities and government subunits within Gentry County participated in the creation of this hazard mitigation plan, and unless otherwise noted, the actions prescribed within pertain to all jurisdictions without bias. Gentry County hazards tend to be either geographically random or regional in scope. Using historical events and data compiled from the National Weather Service and other sources including information from each jurisdiction, an analysis for each identified natural hazard affecting Gentry County is included in the following pages. The most recent declared disasters for the County were for the COVID-19 Pandemic in 2020.

The hazards that may vary across the planning area in terms of risk include dam failure, wildfires, levee failure, riverine flood, and flash flood. The details of these differences are detailed in each hazard profile under a separate heading.

3.2 ASSETS AT RISK

This section assesses the planning area population, structures, critical facilities and infrastructure, and other important assets that may be at risk to hazards. If there have been any changes in the planning area since the previously approved plan was adopted, these changes are summarized, and any new risks assessed.

The best data available for Gentry County regarding assets is from HAZUS 4.2 data and the 2023 Missouri State Hazard Mitigation Plan. With the 2023 Hazard Mitigation Plan Update, SEMA now provides online access to risk assessment data and associated mapping for the counties in the State (http://bit.ly/MoHazardMitigationPlanViewer2023). The tables, maps, and charts within this update to the Gentry County Plan are based on this data unless otherwise cited. There are FIRM maps included for each jurisdiction participating in the plan further in this section.

3.2.1 Total Exposure of Population and Structures

Unincorporated County and Incorporated Cities

In the following three tables, population data is based on 2023 Census Bureau estimates. Building counts and building exposure values are based on census tract data provided using the FEMA HAZUS 4.2 database. 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 MH 2.1 and are defined below TABLE 3.7. 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 in TABLE 3.4 only.

On the following pages, TABLE 3.4 shows the total population, building count, estimated value of buildings, estimated value of contents and estimated total exposure to parcels for the unincorporated portions of Gentry County and each incorporated city. TABLE 3.5 provides the building value exposures for the county and each city in the planning area broken down by usage type. Finally, TABLE 3.6 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). Different sources were used to compile the data in these tables. TABLE 3.4 uses data from SEMA Mitigation Management GIS Database to arrive at the number of buildings in each jurisdiction. TABLE 3.5 and TABLE 3.6 use information from HAZUS 4.2 to populate the cells and does not include educational, religious or some other types of structures in its calculations.

Table 3.4. Maximum Population and Building Exposure by Jurisdiction

Jurisdiction	2023 Annual Population Estimate	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)
City of Albany	1,855	1,010	$114,162	$61,857	$176,019
Village of Darlington	35	80	$6,414	$3,296	$9,710
Village of Gentry	71	NA	NA	NA	NA

City of King City	745	575	$61,559	$35,904	$97,463
City of McFall	135	73	$6,902	$3,496	$10,399
City of Stanberry	1,190	710	$75,064	$43,673	$118,737
Gentry County(unincorp.)	6,224	6,165	$169,799	$90,231	$260,031
Totals	**10,225**	**8,613**	**$433,900**	**$238,457**	**$672,359**

Source: U.S. Bureau of the Census, Annual population estimates/ 5-Year American Community Survey 2019-2023; Building Count and Building Exposure, Missouri GIS Database from SEMA Mitigation Management; Contents Exposure derived by applying multiplier to Building Exposure based on Hazus MH 2.1 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 3.5. Building Values/Exposure by Usage Type

Jurisdiction	Agricultural	Commercial	Government	Industrial	Residential
City of Albany	$306	$14,467	$1,832	$1,384	$86,963
Village of Darlington	$84	$261	$0	$0	$6,070
Village of Gentry	NA	NA	NA	NA	NA
City of King City	$237	$13,033	$523	$0	$44,695
City of McFall	$40	$130	$0	$0	$6,732
City of Stanberry	$291	$12,251	$1,178	$1,107	$57,166
Gentry County incorp.	$17,541	$16,683	$1,832	$4,845	$128,899
Total	**$18,499**	**$56,825**	**$5,365**	**$7,336**	**$330,525**

Source: Missouri GIS Database, SEMA Mitigation Management Section

Table 3.6. Building Counts by Usage Type

Jurisdiction	Agricultural Counts	Commercial Counts	Government Counts	Industrial Counts	Residential Counts
City of Albany	84	111	14	10	788
Village of Darlington	23	2	NA	NA	55
Village of Gentry	NA	NA	NA	NA	NA
City of King City	65	100	4	NA	405
City of McFall	11	1	NA	NA	61
City of Stanberry	80	94	9	8	518
Gentry County	4820	128	14	35	1168
Totals	4976	323	27	43	2152

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

The number of enrolled students at the participating public-school districts is provided in TABLE 3.7 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 3.7. Population and Building Exposure by Jurisdiction-Public School Districts

Public School District	Enrollment	Building Count	Building Exposure ($)	Contents Exposure ($)	Total Exposure ($)	Assessed Evaluation
Albany R-III School District	450	3				$44,327,002
King City R-I School District	336	2				$30,449,959
Stanberry R-I School District	404	9	$ 14,720,290	$ 2,465,935	$17,186,225	$32,770,634

Source: https://dese.mo.gov/mcds, Data Collection Questionnaires from Public School Districts.

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 that 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 3.8, on the following page, includes a summary of the inventory of critical and essential facilities and infrastructure in the planning area.

Table 3.8. 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	Federal 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
City of Albany						1	1	1				1					1			1			1	7
Village of Darlington																								
Village of Gentry																								
City of King City			2				1	1				2			1	1	1			1				10
City of McFall							1	1																2
City of Stanberry							1	1	2						2					1			1	8
Gentry County				7	3			1			16					1	2							30
Totals			2	7	3	1	4	5	2		16	3			3	2	4			3			2	57

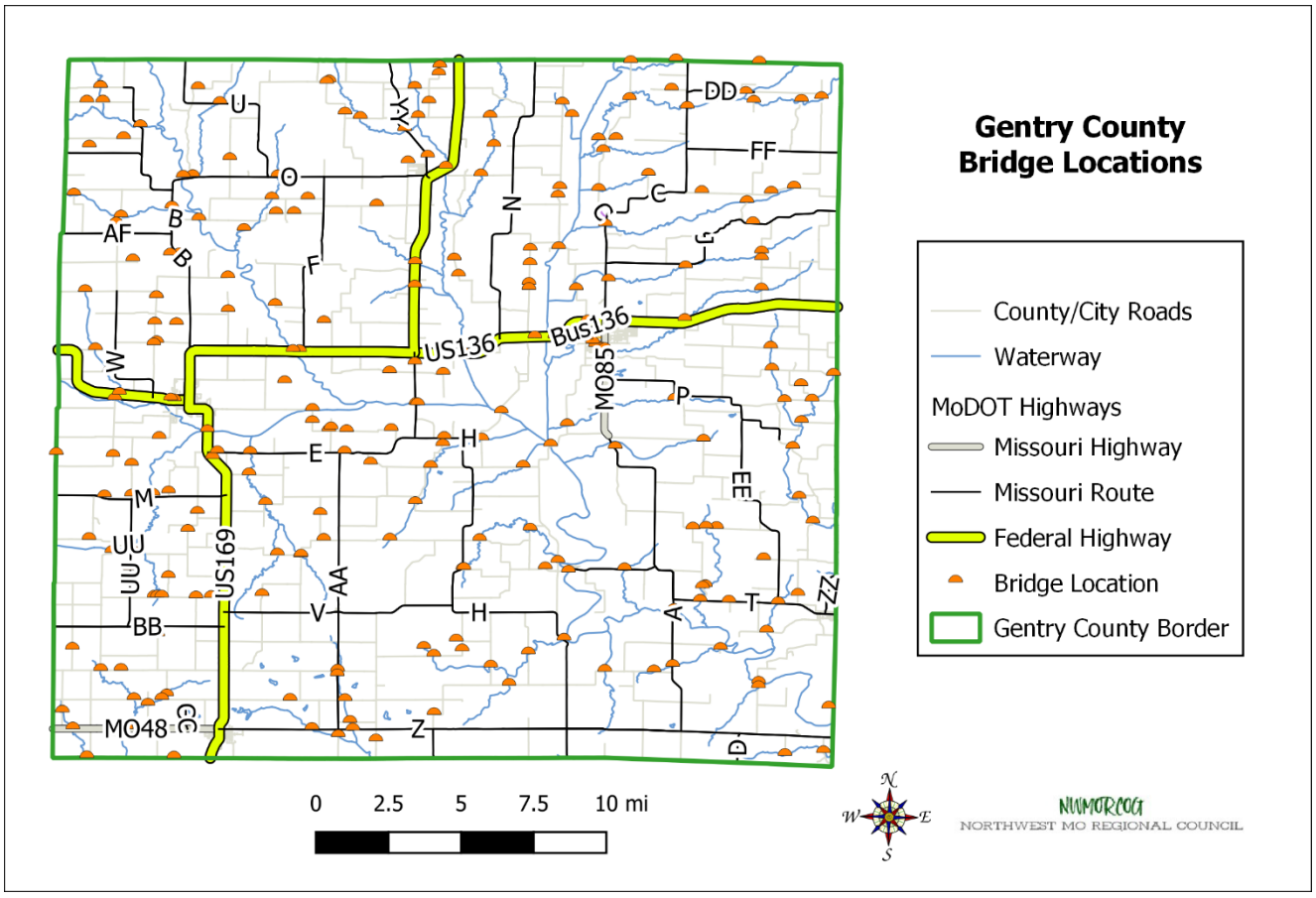
Source: Missouri 2023 State Hazard Mitigation Plan and Hazard Mitigation Viewer; Data Collection Questionnaires; HAZUS

The list was compiled from the Data Collection Questionnaires submitted by each participating jurisdiction, as well as the following sources: FEMA HAZUS 4.2, Missouri Spatial Data information Service (MSDIS), Missouri State Emergency Management Agency (SEMA), 2023 Missouri State Hazard Mitigation Plan using the Hazard Mitigation Viewer and input from the Gentry County Emergency Management Director (EMD).

Bridges:

Gentry County is a land of rolling hills and numerous streams and rivers. The transportation network of federal, state, county and local roads is necessary for the survival of the economic and social life of the residents of the County. These highways, roads, and streets are served by 247 bridges across Gentry County. Of these, 130 are in Good condition, 84 in Fair condition, and 33 in Poor condition. The bridges are shown in **FIGURE 3.1.**

Figure 3.1. Location of Gentry County Bridges

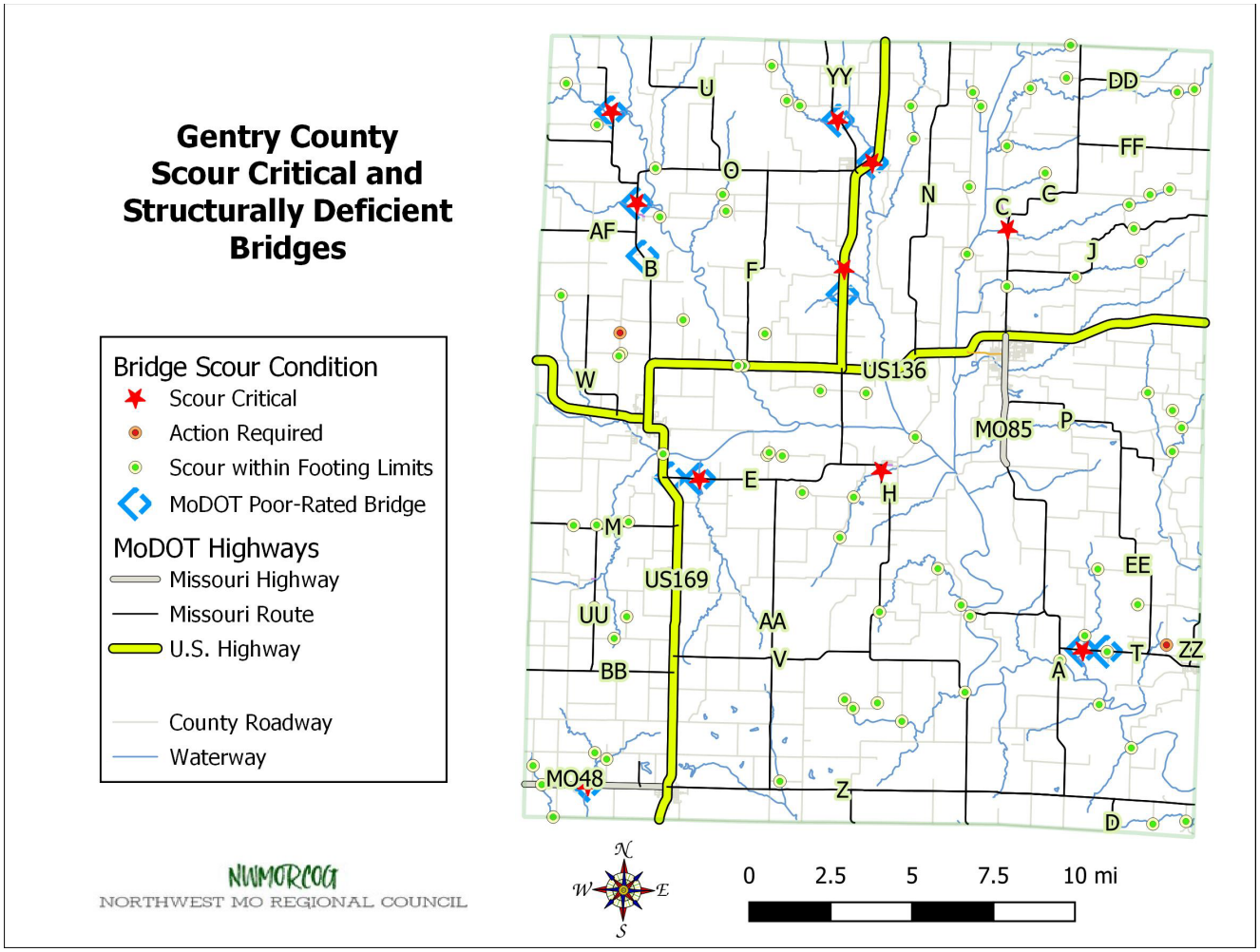


"Scour critical" refers to one of the database elements in the National Bridge Inventory. This element is quantified using a "scour index", which is a number indicating the vulnerability of a bridge to scour during a flood. Bridges with a scour index between 1 and 3 are considered "scour critical", or a bridge with a foundation determined to be unstable for the observed or evaluated scour condition. A scour critical bridge is one with abutment or pier foundations which are rated as unstable due to either observed scour at the bridge site or a scour potential as determined from a scour evaluation study. There are 10 bridges in the county with a scour index of 3. These bridges are scour critical and are all located in unincorporated areas of the county. In addition, there are 2 bridges within the county that have a scour index rating of 4. These bridges are at a moderate risk of damage due to scour. There are numerous bridges with a scour index of 5. These structures are considered stable, but scouring is noted. **FIGURE 3.2** shows the location of the those with scour issues.

The Missouri Department of Transportation (MoDOT) is responsible for maintaining nearly 10,400 bridges on the state system. The average age of our bridges is 48 years and most of them were designed to last 50 years. Sixty percent of Missouri's bridges are beyond their original intended life.

Bridges are rated on a nine-point scale, with 9 being a new bridge and 2 being a closed bridge. Missouri's poor bridges carry a rating of 4 or less. The location of bridges earning a poor rating are shown in FIGURE 3.2.

Figure 3.2. Gentry County Scour Critical/Structurally Deficient 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.

Threatened and Endangered Species: TABLE 3.9 displays the Federally Threatened, Endangered, Proposed and Candidate Species in Gentry county.

Table 3.9. Threatened and Endangered Species in Gentry County

Common Name	Scientific Name	Status
Eastern Hellbender	Cryptobranchus alleganiensis alleganiensis	Endangered
Ozark Hellbender	Cryptobranchus alleganiensis bishopi	Endangered
Curtis Pearlymussel	Epioblasma curtisii	Endangered
Higgens Eye Pearlymussel	Lampsilis higginsii	Endangered
Pink mucket Pearlymussel	Lampsilis abrupta	Endangered
Scaleshell mussel	Leptodea leptodon	Endangered
Sheepnose mussel	Plethobasus cyphyus	Endangered
Snuffbox mussel	Epioblasma triquetra	Endangered
Spectaclecase mussel	Cumberlandia monodonta	Endangered
Western fanshell	Cyprogenia aberti	Threatened
Winged mapleleaf	Quadrula fragosa	Endangered
Big Creek Crayfish	Faxonius peruncus	Threatened
St. Francis River Crayfish	Faxonius quadruncus	Threatened
Grotto Sculpin	Cottus specus	Endangered
Niangua Darter	Etheostoma nianguae	Threatened
Topeka Shiner	Notropis topeka (=tristis)	Experimental Population, Non-Essential
Decurrent false aster	Boltonia decurrens	Threatened
Eastern prairie fringed orchid	Platanthera leucophaea	Threatened
Mead's Milkweed	Asclepias meadii	Threatened
Missouri Bladderpod	Physaria filiformis	Threatened
Western Prairie Fringed Orchid	Platanthera praeclara	Threatened
American Burying Beetle	Nicrophorus americanus	Experimental Population, Non-Essential
Hine's emerald dragonfly	Somatochlora hineana	Endangered
Gray Bat	Myotis grisescens	Endangered
Indiana Bat	Myotis sodalist	Endangered
Northern Long-eared Bat	Myotis septentrionalis	Threatened
Tumbling Creek cavesnail	Antrobia culveri	Endangered

Source: U.S. Fish and Wildlife Service

Natural Resources: The Missouri Department of Conservation provides an online atlas which contains information about land the MDC owns, leases, or manages for public use. TABLE 3.10 provides information about the sites that the MDC manages or owns in Gentry County.

Table 3.10. Parks in Gentry County

Park / Conservation Area	Address	City
Denton (Andy) Access	From King City, take Route Z east to Berlin, then Route H north 3 miles to area entrance.	Miller Township
Elam Bend CA	From Albany: take Route A south 10.50 miles, then 430th Street east 1.50 miles to the area entrance. From I-35: take Exit 68, then Highway 69 north 7 miles, then Route Z west 7.80 miles, then Route A north 3.10 miles, then 430th Street to the area entrance.	McFall
King Lake CA	From King City, take Route Z east 5 miles, then CR 500 south 1 mile to the area.	King City
Limpp CL	From King City, take Highway 48 west 1 mile, then Route CC north 0.50 mile.	King City
Emmett and Leah seat Mem. CA	From Albany, take Route C north for 11 miles, then Route M east 1 mile.	McFall
Stanberry City Park	E Main St and N Locust St	Stanberry
Albany Community Park	Bethany St off Highway 85 South	Albany
Ada Yarrington Park	East Daniel Street	Albany

Source: Missouri Department of Conservation, County & 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.

Properties in Gentry County that are on the National Register of Historic Places are listed in TABLE 3.11.

Table 3.11. Gentry Properties on the National Register of Historic Places

Property	Address	City	Date Listed
Albany Carnegie Public Library	101 W. Clay St.	Albany	2/23/90
Gentry County Courthouse	Public Square	Albany	9/18/80
Opera Hall Block	101-103 West Vermont/1010-103 South Connecticut	King City	5/9/02
Peery, Samuel and Pauline, House	1105 N. Hundley St.	Albany	8/11/05

Source: Missouri Department of Natural Resources – Missouri National Register Listings by County

Economic Resources: The following table (TABLE 3.12) summarizes the largest employers for Gentry County.

Table 3.12. Major Non-Government Employers in Gentry County

Employer Name	Main Locations	Product or Service	Employees
King City R-I School District	King City	Education	30 (20-49)
Caseys	King City, Stanberry	Retail	23 (20-49)
Novis Ag	Stanberry	Agricultural	18
Pineview Manor	Stanberry	Assisted Living	50-99

Opportunity Workshop	Stanberry	Employment Assistance	50-99
Stanberry R-III School District	Stanberry	Education	50-99
Grand River Ambulance	Stanberry	Health Services	20 (20-49)
Stanberry Grocery & Spirits	Stanberry	Retail	15
Ag Power	Stanberry	Agricultural	15
G&M Services	Stanberry	Concrete Construction	15
JCI, Inc	Albany	HVAC	150-199
Mosaic Medical Center	Albany	Medical	150-199
GHS Paper Tube & Core	Albany	Manufacturing	50-99
Albany School District	Albany	Education	50-99

Source: Data Collection Questionnaires; **Missouri Economic Research & Information Center, 2020**

Agriculture: According to the 2022 Census of Agriculture, Gentry County consists of 629 farms that cover 268,094 acres of land. The average farm size in Gentry County is 426 acres. The top crops in the county are wheat and corn. Most livestock in the county are cattle and hogs. In Gentry County, there are 336 farm jobs. This makes up 12 percent of the workforce in Gentry County.

The following TABLE 3.13 shows information about agriculture-related jobs in Gentry County.

Table 3.13. Agriculture-Related Jobs in Gentry County

	Hired Farm Labor	Unpaid Workers
Farms	117	202
Workers	415	508
Payroll	$11,441,000	

Source: USDA 2022 Census of Agriculture

3.3 LAND USE AND DEVELOPMENT

This section provides information on land use and development in Gentry County and the incorporated communities within its boundaries.

3.3.1 Development Since Previous Plan Update

Development in Gentry County has been flat since the adoption of the 2021 Hazard Mitigation Plan. TABLE 3.14 summarizes the trends in population and TABLE 3.15 housing changes for the different jurisdictions.

Table 3.14. Gentry County Population Growth, 2018-2023

Jurisdiction	Total Population 2023	2018-2023 # Change	2018-2023 % Change
City of Albany	1,855	-251	-11.9%
Village of Darlington	35	-29	-45.3%
Village of Gentry	71	+8	+12.7%
City of King City	745	-217	-22.6%
City of McFall	135	+40	+42.1%
City of Stanberry	1,190	-30	-2.7%
Gentry County	6,224	-441	-6.6%

Source: U.S. Bureau of the Census, Annual Population Estimates, American Community Survey 5-year Estimates 2014-2018, 2019-2023; Population Statistics are for entire incorporated areas as reported by the Census bureau

Table 3.15. Change in Housing Units, 2018-2023

Jurisdiction	Housing Units 2023	2018-2023 # Change	2018-2023 % Change
City of Albany	889	-79	-8.2%
Village of Darlington	22	-35	-61.4%
Village of Gentry	38	+8	+26.7%
City of King City	331	-124	-27.3%
City of McFall	85	+32	+60.4%
City of Stanberry	575	+0	+0.0%
Gentry County	2,928	-280	-8.7%

Source: U.S. Bureau of the Census, American Community Survey 5-year Estimates 2014-2018, 2019-2023; Population Statistics are for entire incorporated areas as reported by the U.S. Census Bureau

3.3.2 Future Land Use and Development

Gentry County is part of the trend in northwest Missouri of declining populations and limited if any growth and development. As seen above in TABLE 3.14 the County has had a loss of 6% of its population. The number of small communities has decreased and those that have survived have lost residents, especially those age groups of active employment age. It is estimated that the County's current population of 6,224 will shrink to 4,356 by the year 2035, a decrease of 30%.

City of Albany

In the last ten years, Albany has experienced a decrease of 12% in its population. There has also been a decrease of 8% in housing units during this period. There is no significant development planned in the next 5 years.

City of King City

King City has had a major decrease of 22% of its population and a decrease of 27% in housing units since 2019. There is no significant development planned in the next 5 years.

City of Stanberry

Stanberry has had a slight decrease of 3% population growth over the last 5 years. No change in the number of housing units was recorded. There is no significant development planned in the next 5 years.

School District's Future Development

Albany R III School District

Enrollment of pre-kindergarten through 12th grade classes has remained steady from 446 in 2019 to 450 in 2025. Renovation of the Elementary School, Middle School and High Schools are planned in the next 5 years.

King City R I

Total student numbers at King City R I Schools have remained the same, with a change from 338 to 336 since 2019. There is no significant development planned in the next 5 years.

Stanberry R II

Student enrollment has increased from 354 to 404, an increase of 14%, at Stanberry R II. There is no significant development planned in the next 5 years.

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.

Each hazard identified in Section **3.1** will be profiled individually in this section in alphabetical order. 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 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, maps will be used 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.

Severity/Magnitude/Extent:

This includes information about the severity, magnitude, and extent of a hazard. For some hazards, this is accomplished with 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. Include tables if not already existing

Probability of Future Occurrence:

The frequency of recorded past events is used to estimate the likelihood of future occurrences. Probability was determined by dividing the number of recorded events by the number of years and multiplying by 100. This gives the percent chance of the event happening in any given year. For events occurring more than once annually, the probability will be reported as 100% in a 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 will 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: In addition to the probability of future occurrence, changing future conditions will also be considered, including the effects of long-term changes in weather patterns and climate on the identified hazards. NOAA has a new tool, NOAA Climate Explorer, https://toolkit.climate.gov/tools/climate-explorer, that will be used to discuss this issue.

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 damage from natural hazards. The vulnerability assessments will be based on the best available data. The vulnerability assessments will be partially based on data that was collected for the 2023 State Hazard Mitigation Plan Update. With the 2023 Hazard Mitigation Plan Update, SEMA provided 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.

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 to 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/MoHazardMitigationPlanViewer2018.

The vulnerability assessments in the Gentry County 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.

Within the Vulnerability Assessment, the following sub-headings will be addressed:

Vulnerability Overview

Each hazard included in the plan has a general statement of vulnerability. 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. This statement also describes whether the hazard affects the entire region or if specific jurisdictions have greater vulnerabilities.

Potential Losses to Existing Development

When data is available, the potential losses to existing development is stated for each hazard. The rural nature of the region makes the available data an estimated value that may not reflect the true vulnerability. The impact will describe the consequences of hazards effects on the jurisdiction and its assets. The assets, determined by the community, include people, structures, facilities, systems, capabilities, and/or activities that have value to the community.

Previous and Future Development

This section will include information about how changes in development have impacted the community's vulnerability to this hazard. Any changes in development that occurred in known hazard prone areas since the previous plan that have increased or decreased the community's vulnerability will be described. Since Gentry County and most of the jurisdictions within the county are losing or maintaining population, there is not much future development anticipated in the county.

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 will conclude with a brief summary of the problems created by the hazard in the planning area, and possible ways to resolve those problems. The focus of the problem statements sub-section will be 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 will be as specific as possible; relating to specific jurisdictions as well as specific assets or areas of the planning area that are problematic. These problem statements will be used in the 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 the chapters for each of those hazards 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 the dam's 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

The jurisdictions that lie in the Special Flood Hazard Area are more susceptible to the potential damage from a flooding event. The jurisdictions include Albany, Stanberry and Darlington.
In the event of a flood, up to 15% of any given jurisdiction may be at risk for flood-related damage in a 100-year event. Flash flooding occurs in SFHA and those other 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. Detailed maps for each incorporated community are included in the Vulnerability section for this hazard. Over the last 25 years there have been 19 flood incidents impacting Gentry County. **TABLE 3.16** shows the locations of recorded flood events.

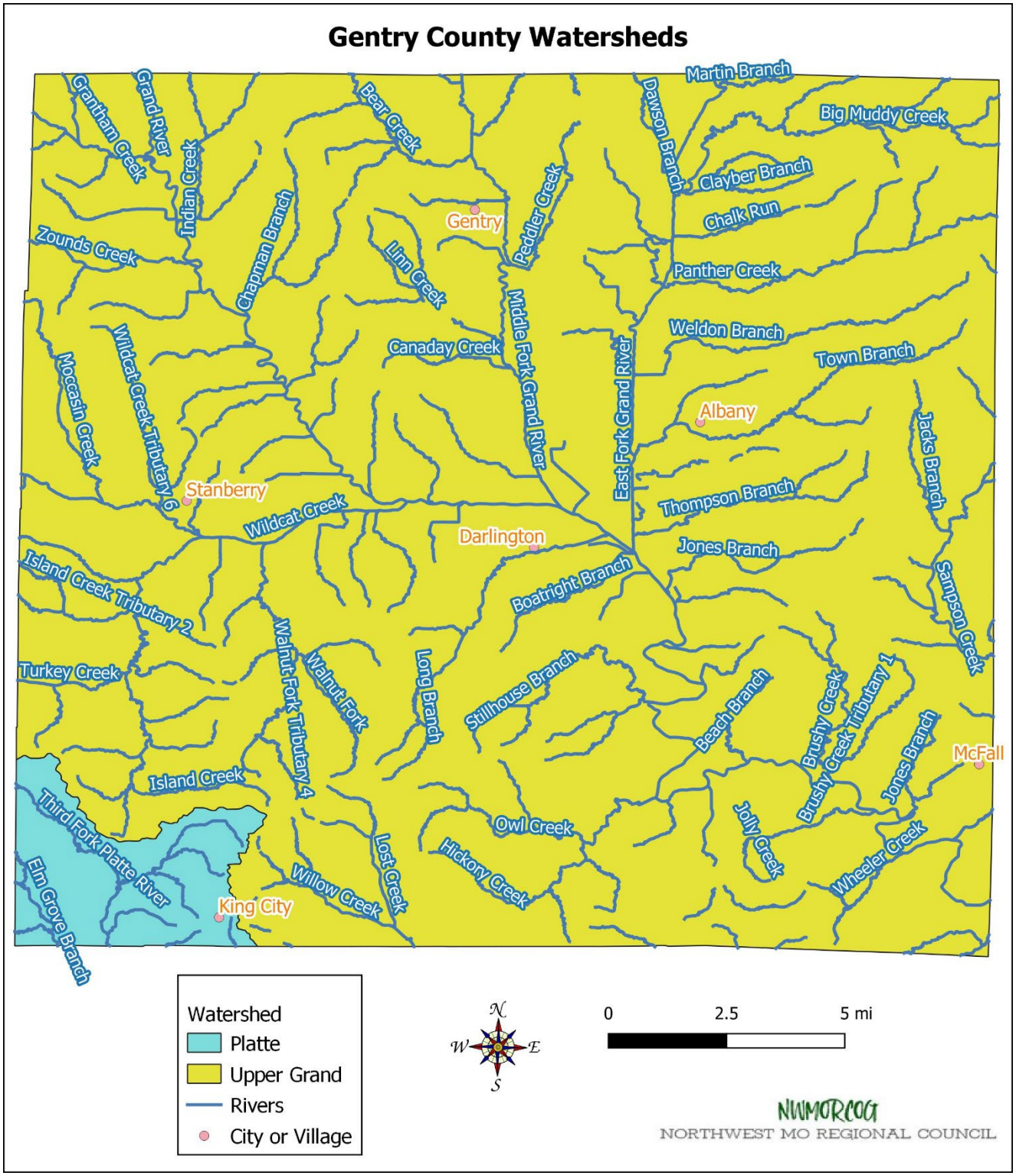
Table 3.16. Gentry County NCEI Flood Events by Location, 2000-2025

Location	Flash Flood Events	Riverine Flood Events
Unincorporated Gentry County	7	1
City of Albany	4	None reported
Village of Darlington	2	None reported
Village of Gentry	1	None reported
City of King City	1	None reported
City of McFall	0	None reported
City of Stanberry	4	None reported
Totals	19	1

Source: National Centers for Environmental Information, 9/23/2025

The following map in **FIGURE 3.3** shows that most of Gentry County lies in the Upper Grand watershed. The exception is the southeast corner of the County which includes King City. This area is in the Platte watershed.

Figure 3.3. Rivers and Watersheds of Gentry County



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.

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 because of flood activity. Examples are bulk propane tanks. When this happens, 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 presenting a health hazard. Please refer to Figure 3.2 where scour critical bridges were identified, to see a discussion of high waters effects on transportation infrastructure.

National Flood Insurance Program (NFIP) Participation

Two of the County's communities currently participate in the National Flood Insurance Program. The NFIP aims to reduce the impact of flooding on private and public structures. It 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 following tables, TABLE 3.17 and TABLE 3.18, show information about NFIP in Gentry County.

Table 3.17. NFIP Participation in Gentry County

Community ID #	Community Name	NFIP Participant (Y/N/Sanctioned)	Current Effective Map Date	Regular-Emergency Program Entry Date
290145A	City of Albany	Y	06/16/15	08/19/85
290147A	City of Stanberry	Y	06/16/15	09/04/85
290146A	City of Darlington	N Sanctioned 08/19/85	06/16/15	08/19/85 (S)
290802A	Gentry County	N Sanctioned 06/16/16	06/16/15	06/16/16
291001A	Village of Gentry	N Sanctioned 06/16/16	06/16/15	06/16/16

Source: NFIP Community Status Book

Table 3.18. NFIP Policy and Claim Statistics

Community Name	Policies in Force	Insurance in Force	Closed Losses	Total Payments
City of Albany	2	$245,000	2	$35,554.40
City of Stanberry	1	$200,000	0	0

Source: NFIP Community Status Book, [03/24/2020]; BureauNet, http://bsa.nfipstat.fema.gov/reports/reports.html; *Closed Losses are those flood insurance claims that resulted in payment. Loss statistics are for the period from 1978 to 2025.

Repetitive Loss/Severe Repetitive Loss Properties

Repetitive Loss Properties are those properties with at least two flood insurance payments of $5,000 or more in a 10-year period. According to the Flood Insurance Administration, jurisdictions included in the planning area have one repetitive loss property as seen in TABLE 3.19.

Table 3.19. Gentry County Repetitive Loss Properties

Jurisdiction	Number of Properties	Number Mitigated	Building Payments	Content Payments	Total Payments	Average Payment
City of Albany	1	1	$17,416	$18,138	$35,554	$17,777
Source: Flood Insurance Administration as of September 30, 2019						

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 were no SRL properties reported for Gentry County.

Previous Occurrences

Since 1965, there have been 12 declared disasters that have made funds available to Gentry County residents to aid in the recovery from storms that produced flooding. Information about these declared disasters was previously summarized in section 3.1.2. The reports of flash flooding within the county for the past 20 years are summarized in the table below. The NCEI database enters a zero for property damage when the amount is unknown.

As seen in TABLE 3.20, there have been 19 flash flood events reported in Gentry County during the last twenty-five years.

Table 3.20. NCEI Gentry County Flash Flood Events Summary, 2000 to 2025

Year	# of Events	# of Deaths	# of Injuries	Property Damages	Crop Damages
2000-2003	None reported				NA
2004	5	0	0	$100,000	$106,602
2005-2007	None reported				$552,635
2008	3	0	0	0	$477,184
2009	1	0	0	0	$6,925
2010	None reported				$190,276
2011	1	0	0	0	$0
2012-2013	None reported				$0
2014	1	0	0	0	$0
2015	5	0	0	0	$33,902
2016	None reported				$0
2017	1	0	0	0	$0
2018	None Reported				$975
2019	1	0	0	0	$686,142
2020	1	0	0	0	
Totals	19	0	0	$100,000	$2,054,641.00
Source: NCEI, data accessed 09/23/2025					

There are limitations to the property damage amounts listed by NCEI. Damage estimates are not available when the event is reported and follow-up does not always occur. Riverine events are recorded in the following table, TABLE 3.21. Most of these events have affected agricultural assets. The Stanberry Schools reported $120,000 loss from flash flooding in 2019.

Table 3.21. NCEI Gentry County Riverine Flood Events Summary, 2000 to 2019

Year	# of Events	# of Deaths	# of Injuries	Property Damages	Crop Damages
2000-2018	None reported				Damages from all flooding types are listed in Flash Flood Table
2019	1	0	0	0	
Totals	1	0	0	0	
Source: NCEI 09/23/2025					

Probability of Future Occurrence

Based on twenty-five years of data, there is a 76% probability of a flash flooding event in any given year with 19 events reported. With 1 recorded riverine flood events there is a 4% probability of a riverine flooding event in any given year

Changing Future Conditions Considerations

From 2023 State Hazard Mitigation Plan: *If departure from normal with respect to increased precipitation intensity continues, frequency of floods in Missouri is likely to increase as well. Over the last half century, average annual precipitation in most of the Midwest has increased by 5 to 10 percent. For Missouri specifically, annual precipitation has been generally above average since 1990, while summer precipitation has been variable, with no extended periods of above or below average levels. Rainfall during the four wettest days of the year has increased about 35 percent, and the amount of water flowing in most streams during the worst flood of the year has increased by more than 20 percent.*

The U.S. Climate Resilience Toolkit indicates that Gentry County's annual precipitation levels may not vary much from historical levels but predicts that more of that amount will occur in the spring and

less during the summer months. This could put further stress on infrastructure designed to handle snow melt and rainfall during the first half of the year.

Vulnerability

Vulnerability Overview

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, 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 presenting a health hazard.

Potential Losses to Existing Development

The 2023 Missouri State Hazard Plan used HAZUS data to analyze the county's vulnerability to flooding. A summary of the findings is shown in TABLE 3.22.

Table 3.22. HAZUS Estimation of Gentry County Vulnerability to Flood

Building Exposure	Structural Damage	Contents Loss	Inventory Loss	Total Direct Loss	Total Income loss	Total Direct and Income Loss
$838,279,112	$4,148,214	$3,862,533	$217,625	$8,228,399	$8,510	$8,236,910

Source: 2023 Missouri State HMP, Table 3.26

Impact of Previous and Future Development

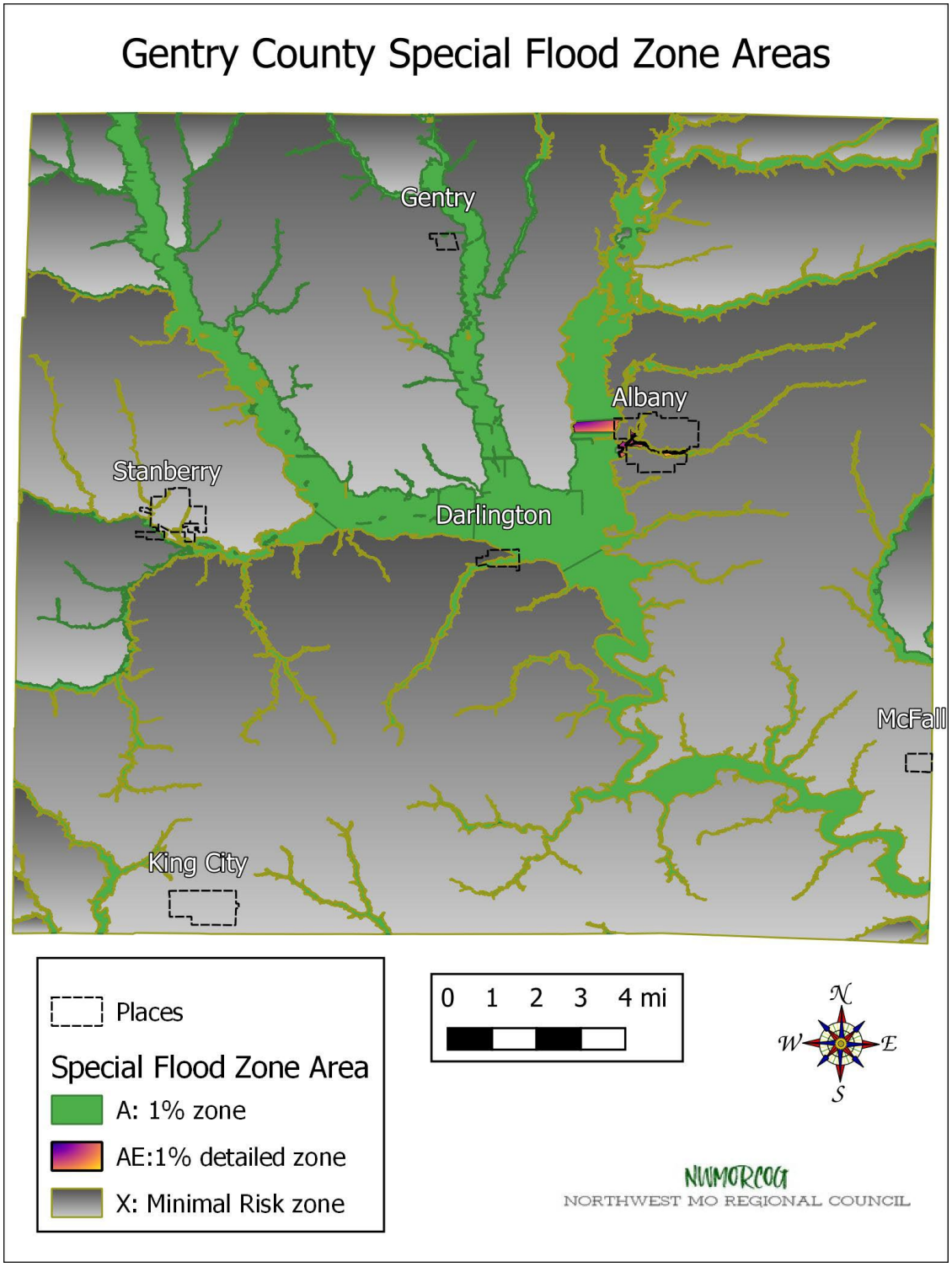
Since the largest communities of Albany and Stanberry participate in the NFIP and regulate development in Special Flood Hazard Areas (SFHA) there is no significant increase in vulnerable structures anticipated in those jurisdictions.

Since the County and the remaining jurisdictions have chosen not to participate in NFIP, there is the possibility of development in vulnerable locations where interior drainage systems are not adequate to provide drainage during heavy rainfall events. Future development would also increase impervious surfaces causing additional water run-off and drainage problems during heavy rainfall events.

Hazard Summary by Jurisdiction

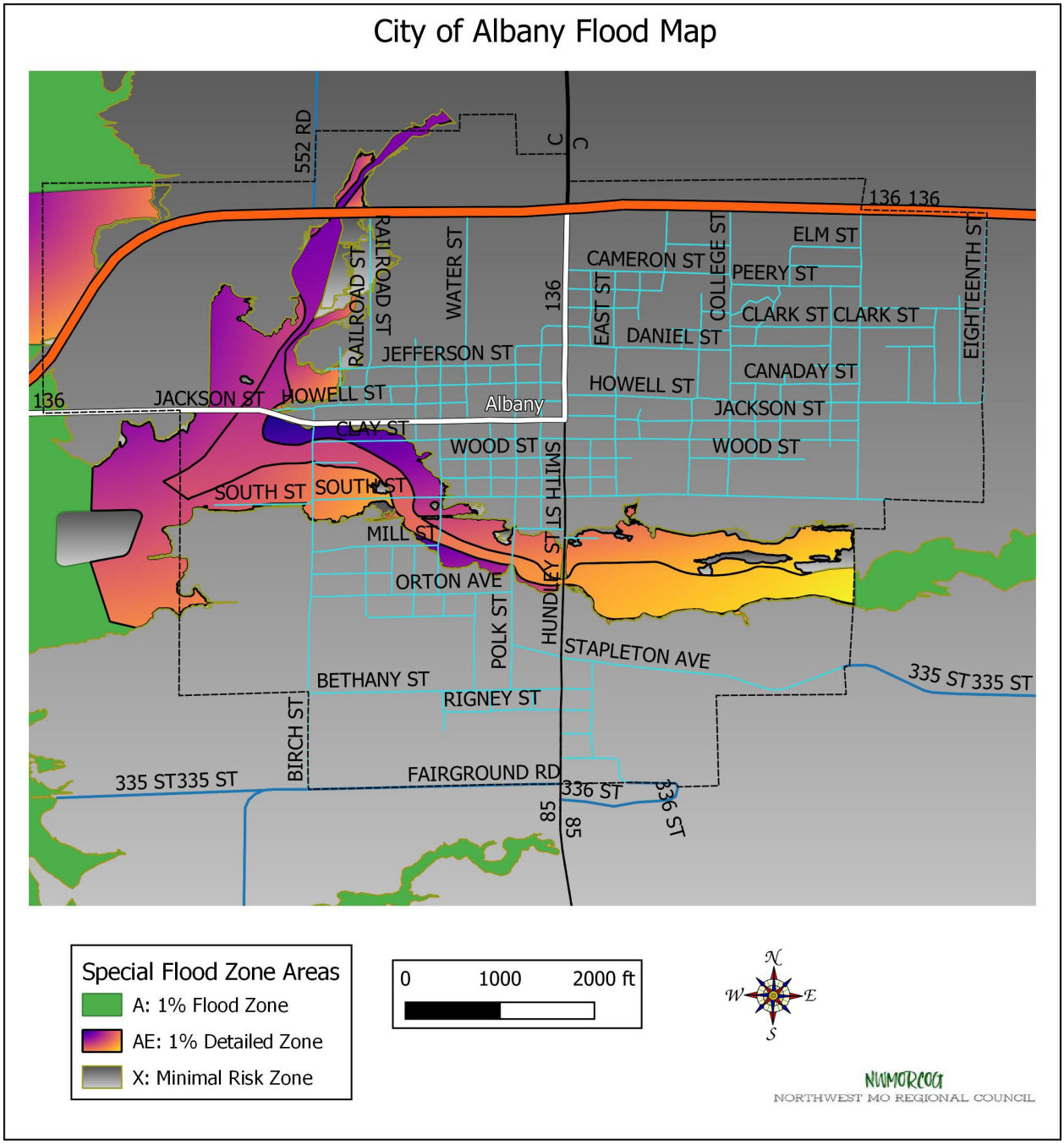
The following maps, starting with FIGURE 3.4 show the floodplains of the County as a whole and then the flood map for each of the communities in Gentry County.

Figure 3.4. Flood Zone Map of Gentry County



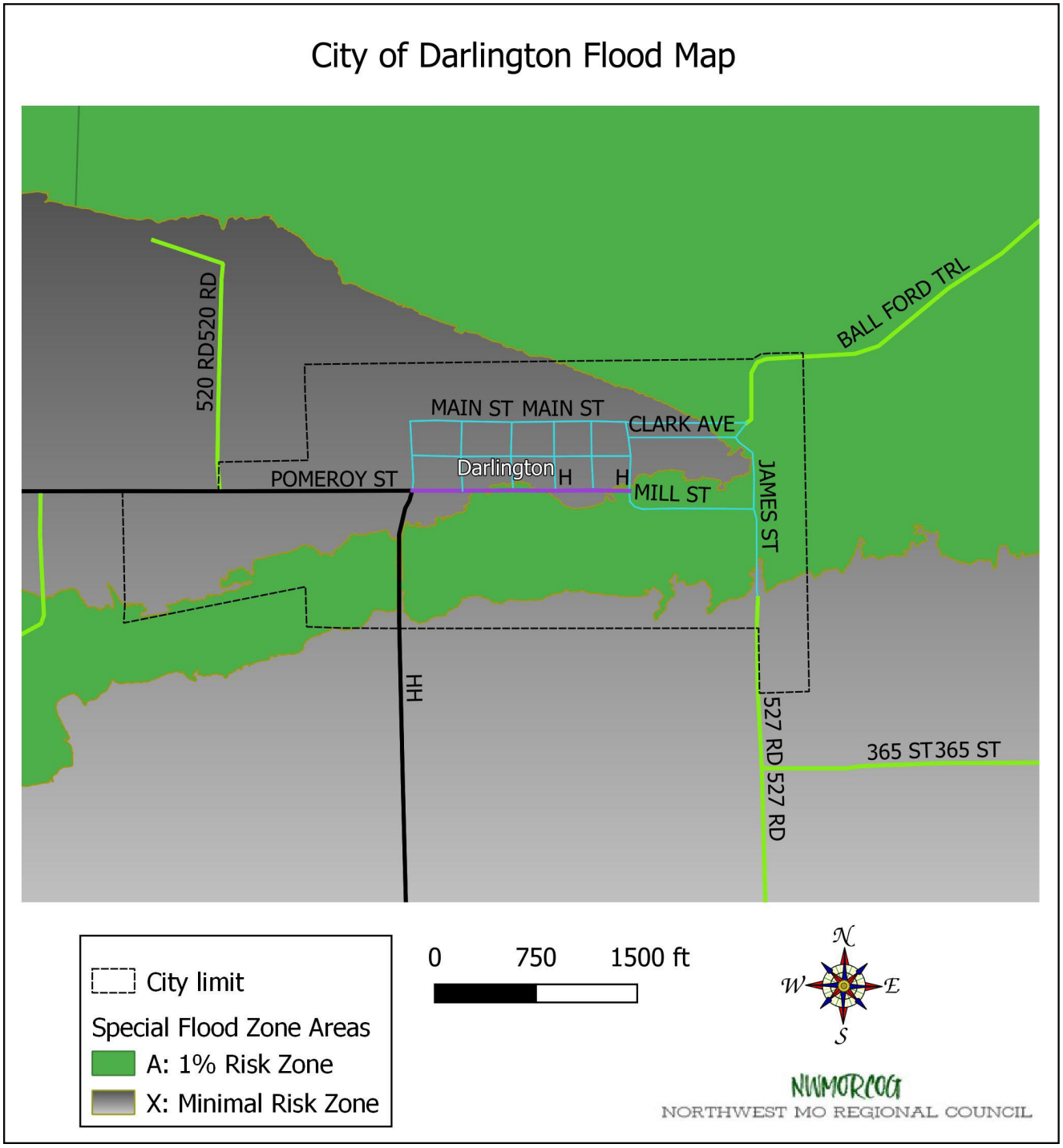
The following map for the City of Albany shows an area along the eastern portion of the city and another running through the south part that lie in the 100-year flood zone of two tributaries of the East Fork of the Grand River. A detailed study has been completed to assist the City in mitigating this area.

Figure 3.5. Flood Zone Map for the City of Albany



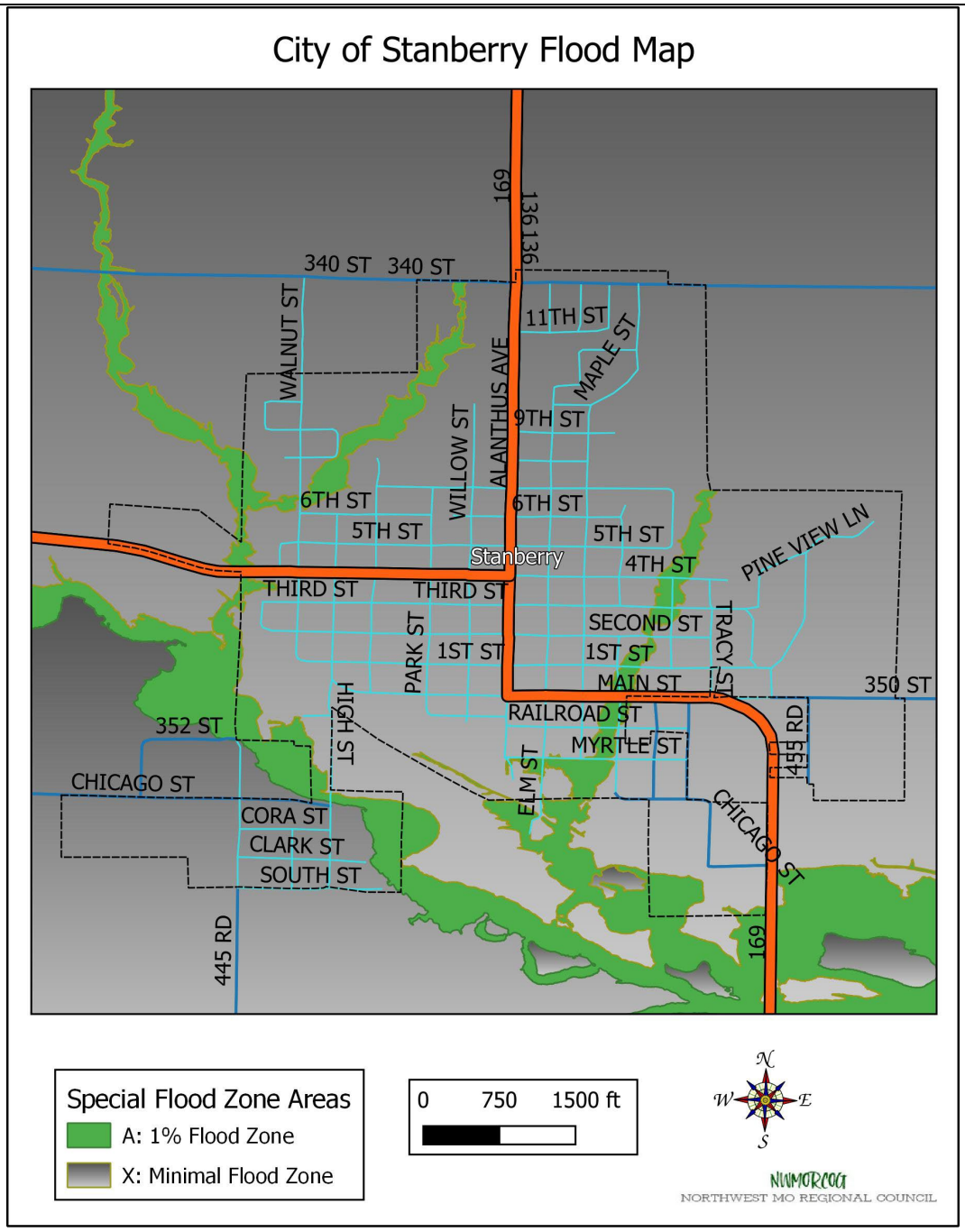
Access to the City of Darlington may be compromised in a significant flooding event. As seen in the following map FIGURE 3.6 the eastern and southern portions of the City lie in the 1% Flood zone.

Figure 3.6. Flood Zone Map for the City of Darlington



Stanberry lies north of Wildcat Creek whose tributaries pose a flooding risk to portions of the community as seen in the following map FIGURE 3.7.

Figure 3.7. Flood Zone Map for the City of Stanberry



The remaining communities of Gentry, King City and McFall do not have any SFHA within their limits. There are many unincorporated areas of flood risk where only agricultural assets are vulnerable.

Problem Statement

While the HAZUS estimate is over $8 million in potential loss to flood in the county, the losses have historically been agricultural crop loss. The City of Albany has suffered the most of any incorporated place and is prone to flash flood events. Possible solutions would be to consider the relocation of repetitive flood structures and NFIP regulations should prohibit the building of any new assets within SFHA.

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 rise above the height of a levee and flow over its crest. As water flows over the top, it can erode the levee's surface, weakening its structure and potentially leading to a breach, which can significantly worsen flooding conditions.

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.

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).

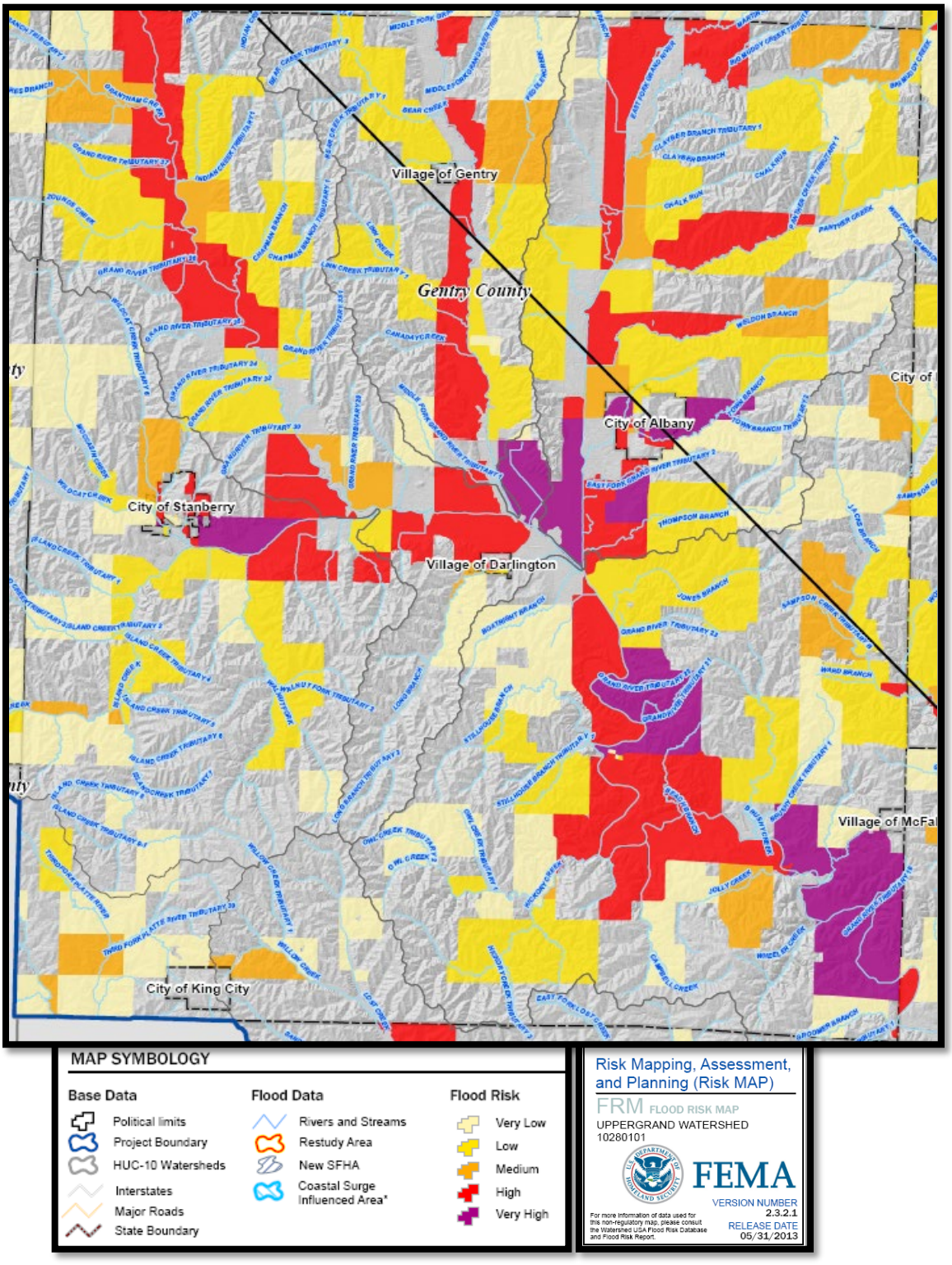
It is likely that agricultural levees and other non-regulated levees within the planning area exist that are

not inventoried or inspected. These levees 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 considered 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 would be discussed and further analyzed. Many levees in the county are low-head agricultural levees, the breach of which would not cause widespread damages. There are some levees along the Grand River and its tributaries that have caused damage to homes and roads. It is noted that increased discharges are being considered in revision of the flood maps as part of RiskMap efforts. This may result in changes to the flood protection level that existing levees are certified as providing.

A FEMA Risk MAP assessment has been completed on the Upper Grand Watershed. A detail from a map from this assessment is shown in FIGURE 3.8. This project's area includes the entire county. No levees are identified on this map, nor are levees identified by USACE. It is likely those agricultural levees and other non-regulated levees within the planning area exist that are not inventoried or inspected. These levees 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 considered in the loss estimates provided in the Flood Hazard Section 3.4.

Figure 3.8. Detail of FEMA RiskMAP of the Upper Grand Watershed



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

There were no documented cases of levee failure found in any recent state hazard plan for the County of Gentry. No community-returned survey questionnaires mentioned levee failure as a previous hazard or potential one.

Probability of Future Occurrence

With zero previous occurrences, the probability of future levee failure is estimated to be less than 1%.

Changing Future Conditions Considerations

From 2023 State Hazard Mitigation Plan: *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).

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 3.9 below defines the three ratings.

Figure 3.9. 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.

There are no USACE regulated levees in Gentry County.

Potential Losses to Existing Development

With only low-head agricultural levees in the county, the main vulnerability of levee failure will be to agricultural assets. Other at-risk properties will be discussed in the Flood Hazard section of this update.

Impact of Previous and Future Development

Development in areas protected by levees is at greater risk for flooding due to possible flooding. Local officials will need to monitor any future development in those areas.

Hazard Summary by Jurisdiction

The areas that are at risk from possible levee failure have been addressed in the Flood Hazard **3.4.1**.

Problem Statement

Although there are no regulated levees in Gentry County and a listing of existing low-head levees is not available, the potential for damage from a levee failure does exist. Mitigation planning would be aided by the creation of a directory of existing levees in the County. Until more information is available, officials at the most local level will need to be aware of the levees under their jurisdiction and discourage development in vulnerable areas.

3.4.3 Dam Failure

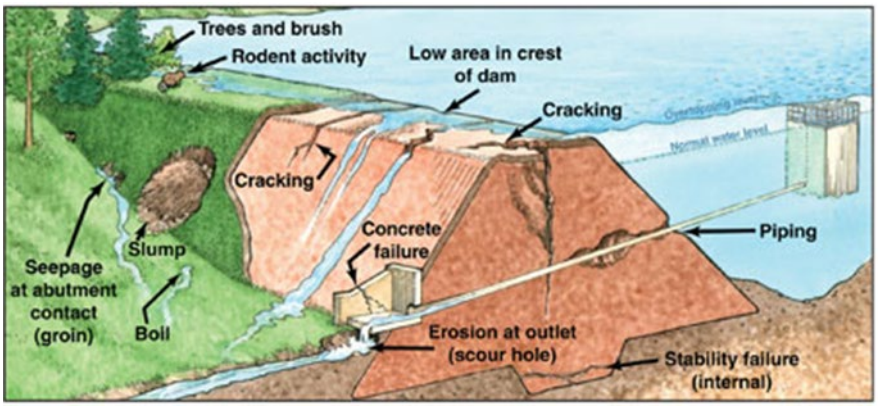
Hazard Profile

Hazard Description

A dam is defined as a barrier constructed across a watercourse for storage, control, or diversion of water. Dams are designed to help with flood control, stabilize a grade, provide water for livestock or fire protection, and/or for recreational activities. Dams are typically constructed of earth, rock, concrete, or mine tailings. Dam owners have primary responsibility for the safe design, operation, and maintenance of their dams. Dam owners also have the responsibility for inspections and providing early warning of problems at the dam which could result in dam failure.

A dam failure is characterized by an uncontrolled release of water from behind a dam. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, damage caused by wildlife, vandalism, and terrorism can all cause a dam to fail. FIGURE 3.10 illustrates some of these common causes of dam failure. When a dam failure occurs, an enormous amount of water is suddenly released, destroying infrastructure, and flooding the area downstream of the dam.

Figure 3.10. Causes of Dam Failure



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.

Dams in Gentry County are subject to classification by the State of Missouri and by the federal government. TABLE 3.23 shows the system of classification used by the Missouri Department of Natural Resources (MoDNR). A hazard classification is assigned to each dam during the initial permit process.

Table 3.23. MoDNR Dam Hazard Classification Definitions

Hazard Class	Definition
Class I	Represents the most severe threat to public safety based on the downstream environment
Class II	Represents a serious threat to public safety
Class III	Represents the least threat to public safety

Source: Missouri Department of Natural Resources

The U.S. Army Corps of Engineers has compiled a National Inventory of Dams (NID) for the United States. The NID consists of dams meeting at least one of the following criteria:

1) High hazard classification - loss of human life is likely if the dam fails,
2) Significant hazard classification - possible loss of human life and likely significant property or environmental destruction,
3) Equal or exceed 25 feet in height and exceed 15 acre-feet in storage,
4) Equal or exceed 50 acre-feet storage and exceed 6 feet in height.

TABLE 3.24 gives information about the hazard classification system used in the National Inventory of Dams. There is not a direct correlation between the State Hazard classification and the NID classifications. However, most dams that are in the State's Classes 1 and 2 are considered NID High Hazard Dams.

Table 3.24. NID Dam Hazard Classification Definitions

Hazard Class	Definition
Low Hazard	Where dam failure or operational errors result in no probable loss of human life and low economic and/or environmental losses
Significant Hazard	Where dam failure or operational errors result in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns
High Hazard	Where dam failure or operational errors will likely result in the loss of at least one human life

Source: National Inventory of Dams

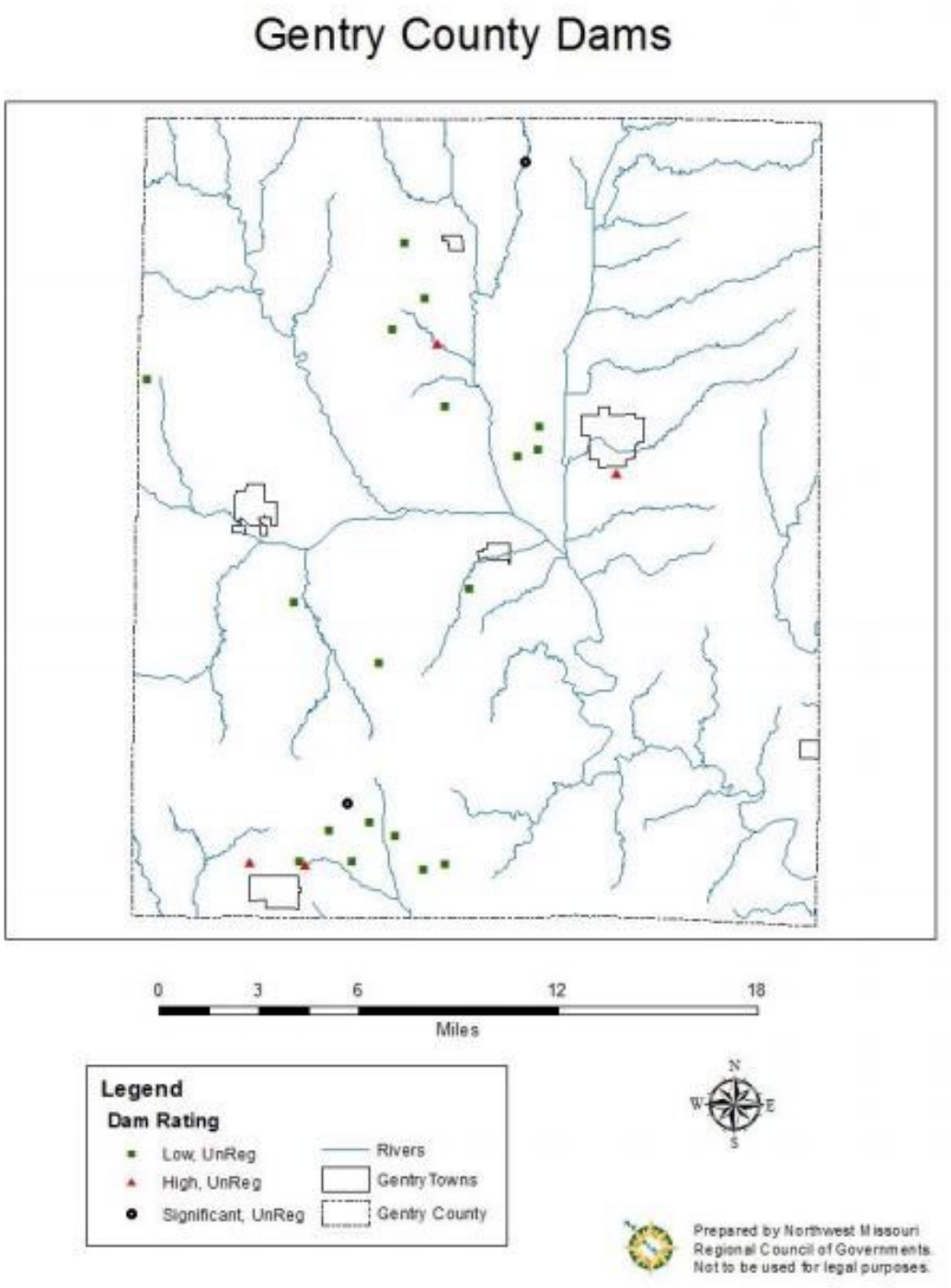
Geographic Location

Dams Located Within the Planning Area

The Missouri Dam and Reservoir Safety Program is leading an effort to help develop Emergency Action Plans, or EAPs, for regulated dams in the state. Completion of EAPs can help save lives and reduce property damage during a dam safety emergency. Plans increase preparedness by organizing emergency contact information and evacuation procedures into an official document and by providing enhanced communications between dam owners and local emergency management officials.

The Missouri Department of Natural Resources (MoDNR) has identified 22 dams in Gentry County. Four are high hazard dams (see TABLE 3.25), two are significant hazard dams, and sixteen are low hazard dams. One dam is owned by the Missouri Department of Conservation. The location of all dams is shown in FIGURE 3.11.

Figure 3.11. Dam Locations in Gentry County



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

Table 3.25. High Hazard Dams in the Gentry County Planning Area

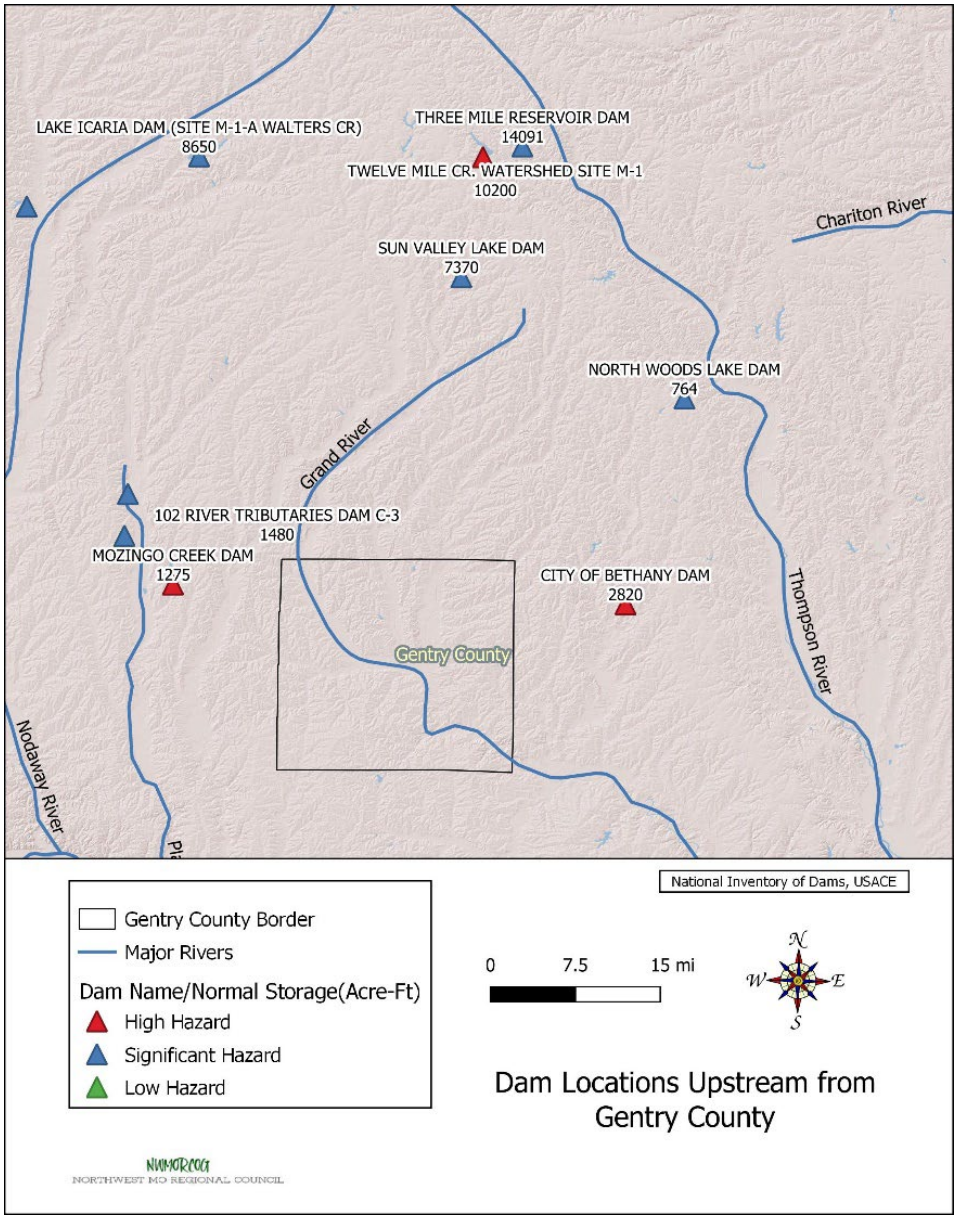
Dam Name	Emergency Action Plan (EAP)AP	Dam Height (Ft)	Normal Storage (Acre-Ft)	Last Inspection Date	River	Nearest Downstream City	Distance To Nearest City (Miles)	Dam Owner
Middle Fork Water Company Dam	Not required	35	842	--	Linn Creek	Darlington	8	Public Utility
Curt Lee Dam	Not required	34	338	5/15/1979	East Fork Grand River	Albany	2	Curt Lee
Limpp Lake Dam	Not required	25	205	--	3rd Fork Platte River	Union Star	0	MO Dept of Conservation
King City New Reservoir Dam	Not required	34	395	--	Tri-Willow Creek	Santa Rosa	29	City of King City

Sources: Missouri Department of Natural Resources and National Inventory of Dams

Upstream Dams Outside the Planning Area

There are a few dams on the branches of the Grand River within the Upper Grand Watershed. County in Ringold and Union Counties in Iowa. In FIGURE 3.12, the location of these dams is indicated. A dam failure in any of the upstream dams does carry the risk of flooding for assets near these rivers. The distance and the size of these reservoirs limit the potential for consequences for assets within Gentry County. The High Hazard rated dam of Twelve Mile Creek, and the large capacity of Three Mile Reservoir are in the Thompson Watershed. The only dam of concern is the Low Hazard rated Sun Valley Lake Dam, whose distance from Gentry County should minimize its effects to agricultural assets along the Grand River. The failure of Mozingo Lake Dam or the City of Bethany Dam will not directly affect Gentry County.

Figure 3.12. Upstream Dams Outside Gentry County



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

Strength/Magnitude/Extent

It can be stated that the severity/magnitude of dam failure would be similar in some cases to the impacts associated with flood events (see flood hazard vulnerability analysis and discussion). Based on the hazard class definitions, failure of any of the High Hazard/Class I dams could result in a serious threat of loss of human life, serious damage to residential, industrial or commercial areas, public utilities, public buildings, or major transportation facilities. Catastrophic failure of any high hazard dam has the potential to result in greater destruction due to the potential speed of onset and greater depth, extent, and velocity of flooding. Note that for this reason, dam failures could flood areas outside of mapped flood hazards.

Previous Occurrences

No records were found to indicate any dam failures in Gentry County which caused injury, loss of life,

or imposed a considerable cost due solely to dam failure.

Probability of Future Occurrence

Without no reported dam failures or incidents reported in the County over the last 20 years, the probability of occurrence is estimated to be less than 5%. However, the probability for dam failure in any given year for the state of Missouri is 45% and the likelihood of a dam incident is 100%.

Increasing the number of inspections of regulated dams and periodic inspections of the remainder of the dams would increase the likelihood of early detection of potential problems. This would reduce the probability of dam failure.

Changing Future Conditions Considerations

With the prediction of more frequent and more intense rain events, the likelihood of increased stress on dams in the future seems possible. The majority of the dams in the county are decades or more of an age which leads to the susceptibility of failure.

Vulnerability

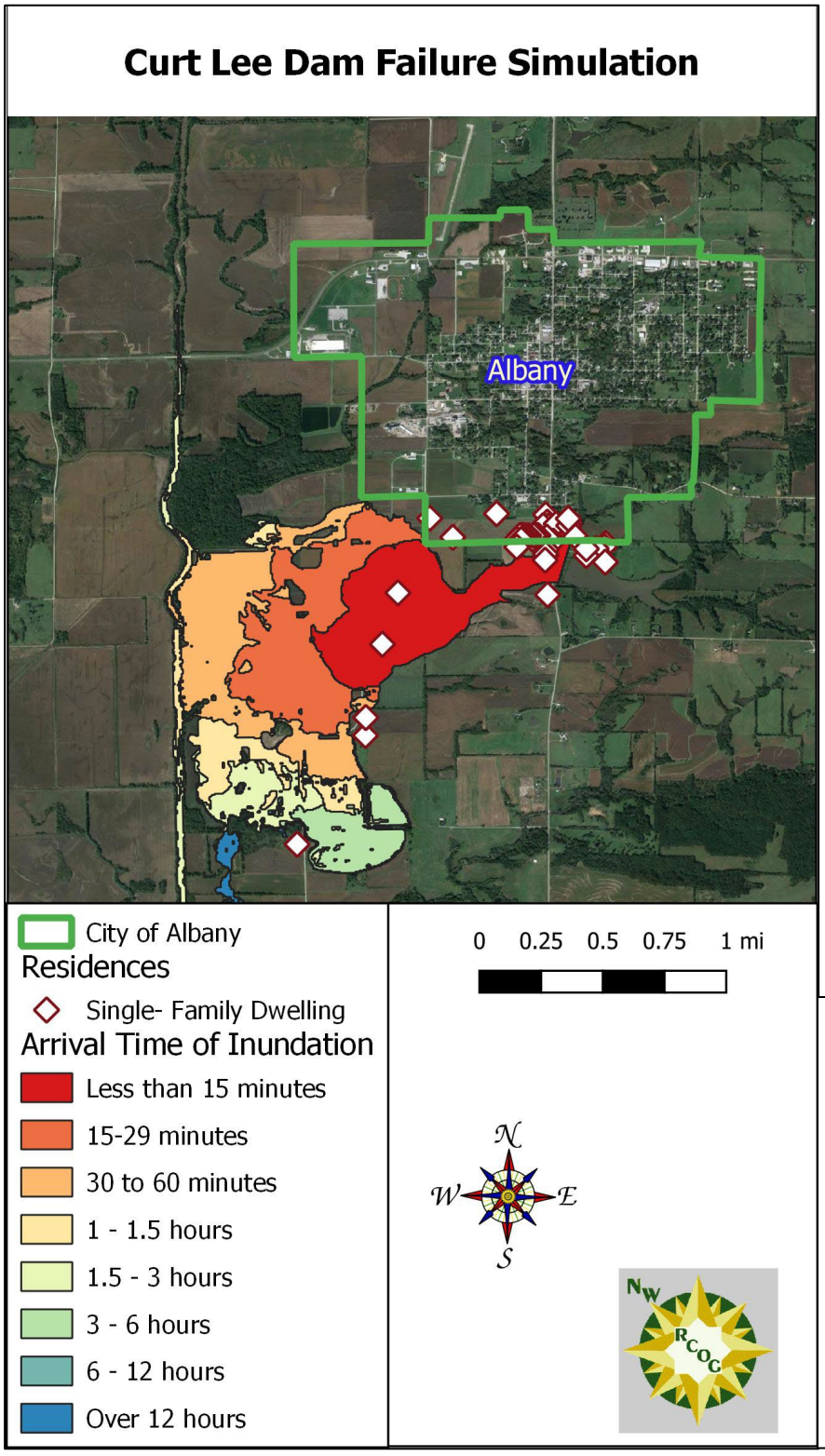
Vulnerability Overview

Most of Gentry County's vulnerability in the event of dam failure is loss of agriculture assets. Some of the dams are located close enough to major highways, a compromise in the integrity of a dam could threaten to close or damage roadways.

Potential Losses to Existing Development:

A Decision Support System for Water Infrastructure Security (DSS-WISE) simulation was run to estimate the consequences of a complete failure of the High-Risk Curt Lee Dam near Albany. As can be seen in FIGURE 3.13, there are several residences that would be subject to almost immediate consequence from a complete dam failure. North-south oriented highway MO85 would receive an inundating surge of water in minutes after a failure.

Figure 3.13. Simulation of Curt Lee Dam Failure



Another High-Hazard dam, Middle Fork Water Company Dam, is in a low-density population area, but a failure would immediately flood highway US 169 as well as a few scattered farm residences. The released water would quickly spill down Linn Creek and spread out across the floodplain of the West Fork of the Grand River, eventually impacting highway US 136, north of Darlington.

The Limpp Lake Dam has a smaller reservoir than the previous dams discussed but a failure would have sudden effects on MO Route CC and a farm residence directly below the dam. The final high-hazard dam, King City New Reservoir Dam, does not appear to immediately imperil any residences in the case of a failure. The released waters would move away from King City down Willow Creek floodplain impacting agricultural assets.

Impact of Previous and Future Development

Gentry County has been proactive in the placement of dams to ensure population areas would not be in the path of released water in the event of a dam failure. Most of the assets in the zones are agricultural in nature. The county has monitored and discouraged any development in areas that would be affected by a dam failure.

Hazard Summary by Jurisdiction

As discussed previously the areas affected by dam failure would primarily be in the unincorporated areas of the County. A small area at the south edge of Albany was shown to be a potential zone of damage in the event of an incident at the Curt Lee Dam. It is estimated that dam failure would not affect the assets of any of the school districts of the County and it appears that there are no critical facilities at risk although some major highways could be affected.

Problem Statement

A lack of regular inspection/maintenance of un-regulated high hazard dams was noted by the Mitigation Planning Committee. Possible solutions include the development of a regular maintenance schedule, identification of qualified staff and/or consultant to assist, and maintenance report submittal requirements.

3.4.4 Earthquakes

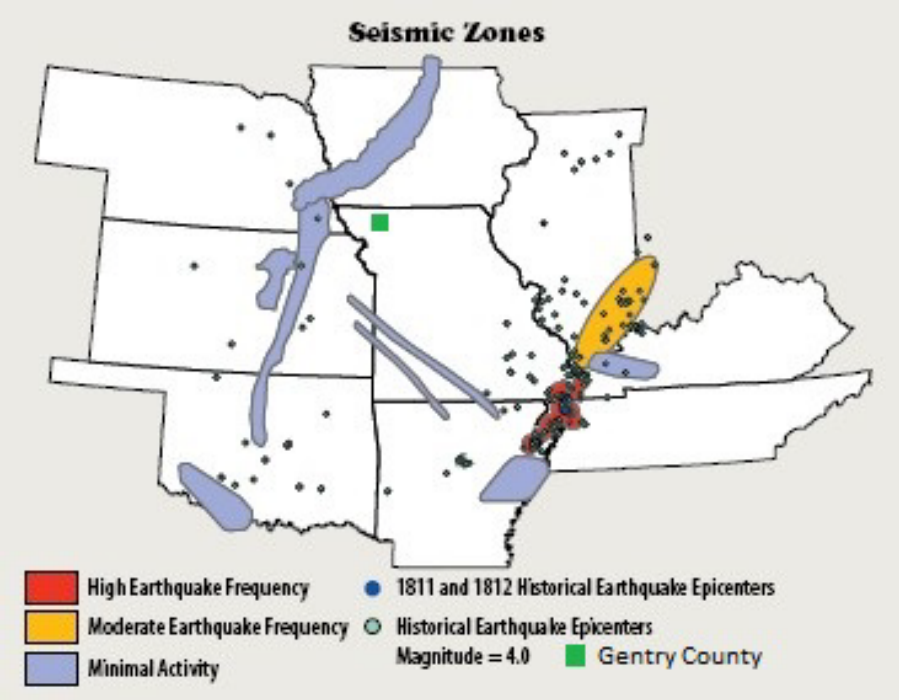
Hazard Profile

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. The heaviest damage generally occurs near 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 energy to buildings and other structures on the earth's surface.

There are two primary fault areas as shown in FIGURE 3.14 that can impact Gentry County: the Nemaha Fault in eastern Kansas and the New Madrid fault in southeast Missouri.

Figure 3.14. Primary Faults Impacting Gentry County



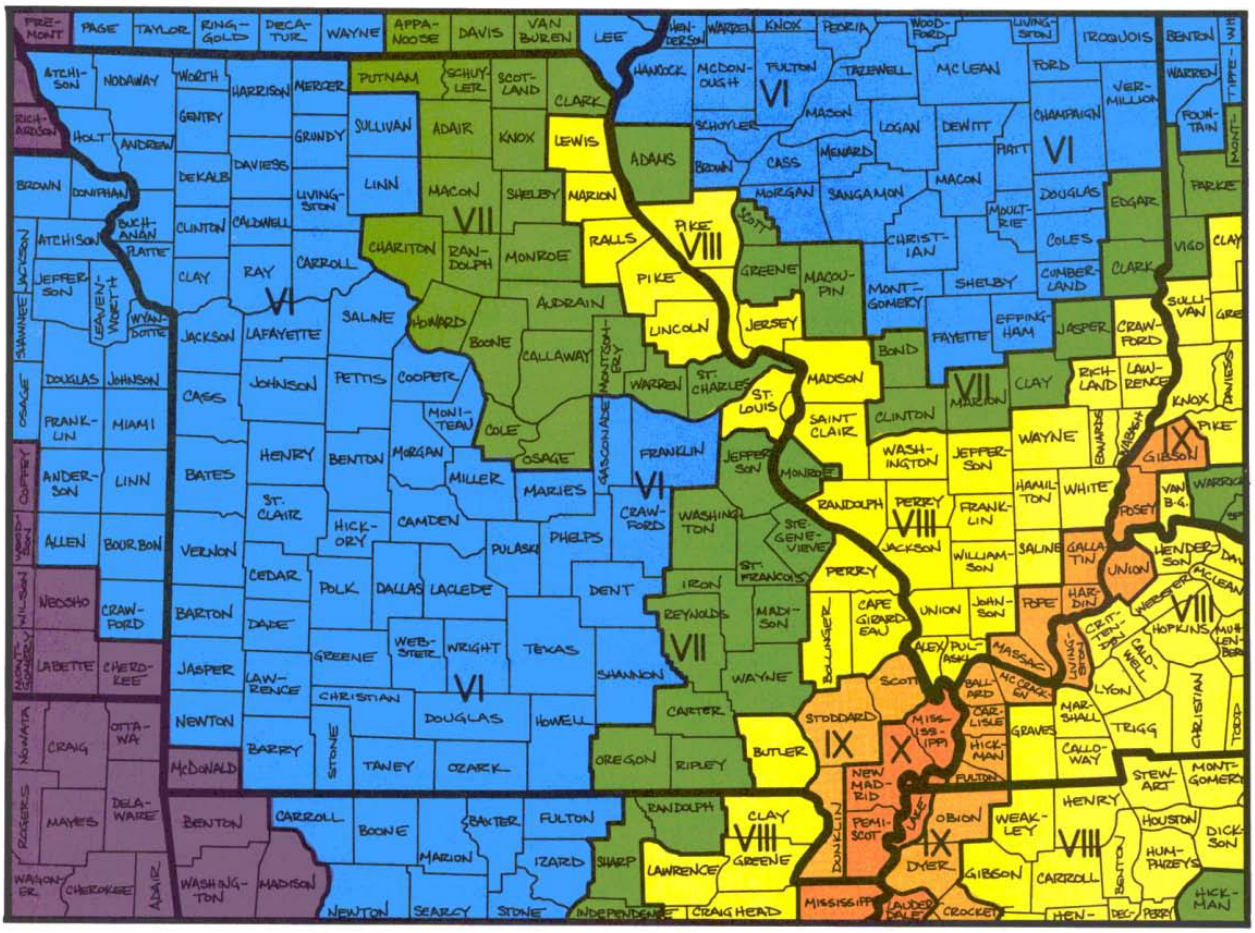
Source: MDNR Publication Geologic Hazards-https://dnr.mo.gov/pubs/pub2467.pdf

Geographic Location

As Gentry County is located near the middle of the North American Continent, far away from mountains, volcanoes, and historic earthquake zones, many incorrectly assume that the community is not subject to the risk of an earthquake. While very infrequent and often only barely detectable, earthquakes can and will occur in the Gentry County area. The potential for damage from earthquakes in the entire state of Missouri comes from the New Madrid fault zone. Data indicates that earthquake intensity will not vary across the planning area, which will be the case in most Missouri counties.

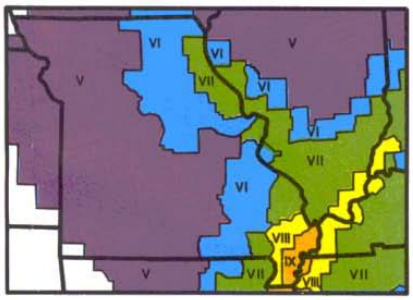
In FIGURE 3.15, the larger map at the top shows that Gentry County would be in Zone VI in the event of an earthquake with a magnitude of 7.6. The smaller maps show that for an earthquake of 6.7, the County lies in Zone V, and for the more severe 8.6 earthquake, the zone would be VII. The projected consequences of an earthquake on locations in each zone are shown in the following explanation of the Modified Mercalli Intensity Scale in FIGURE 3.16.

Figure 3.15. 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.

6.7

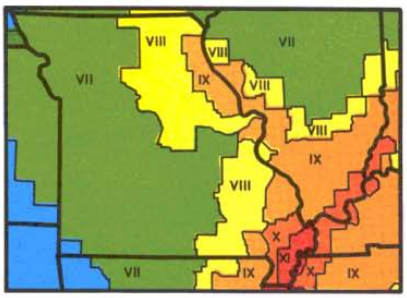


This map shows the highest projected Modified Mercalli intensities by county from a potential magnitude – 6.7 earthquake whose epicenter could be anywhere along the length of the New Madrid seismic zone.

7.6

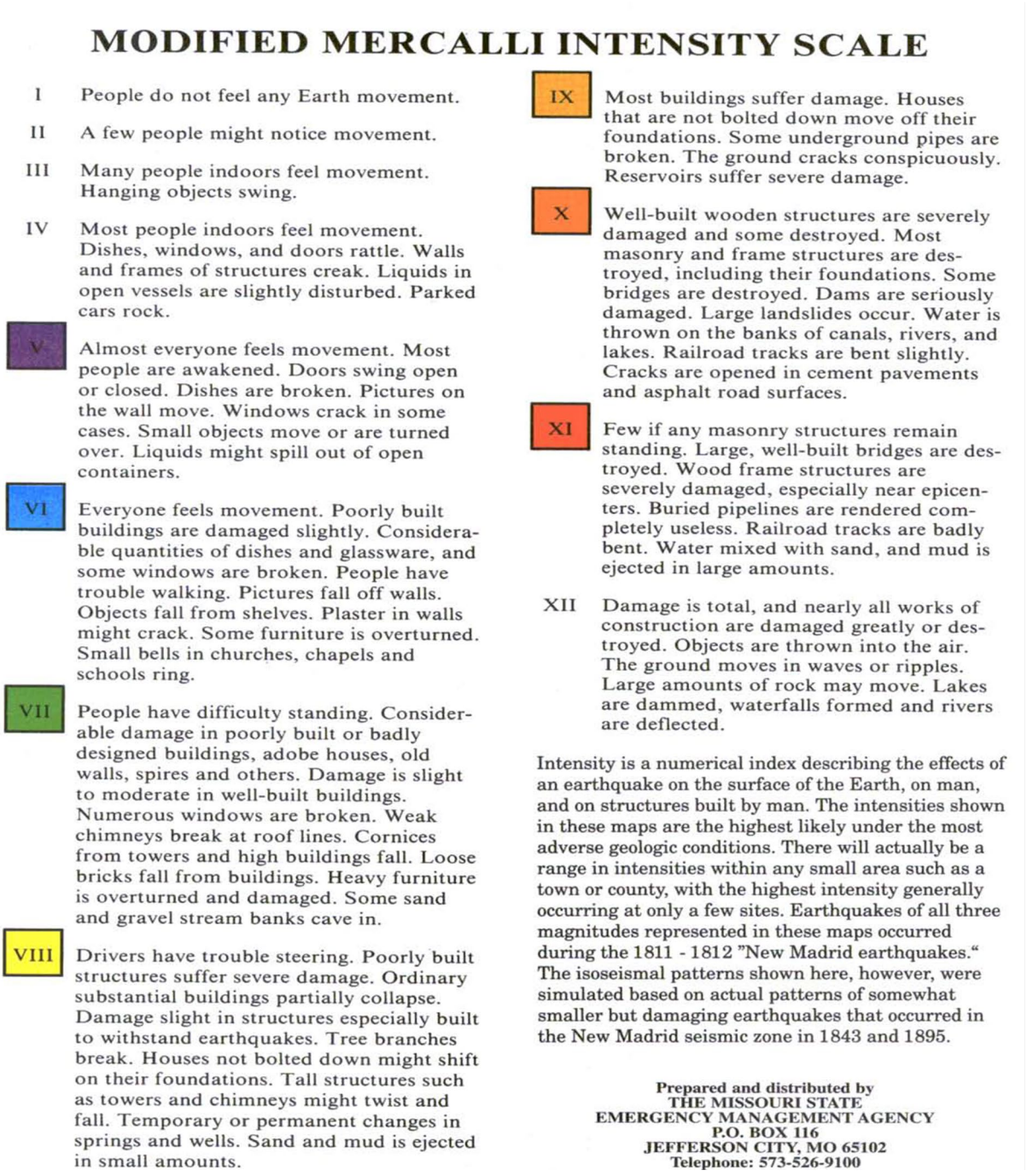
This map shows the highest projected Modified Mercalli intensities by county from a potential magnitude – 8.6 earthquake whose epicenter could be anywhere along the length of the New Madrid seismic zone.

8.6



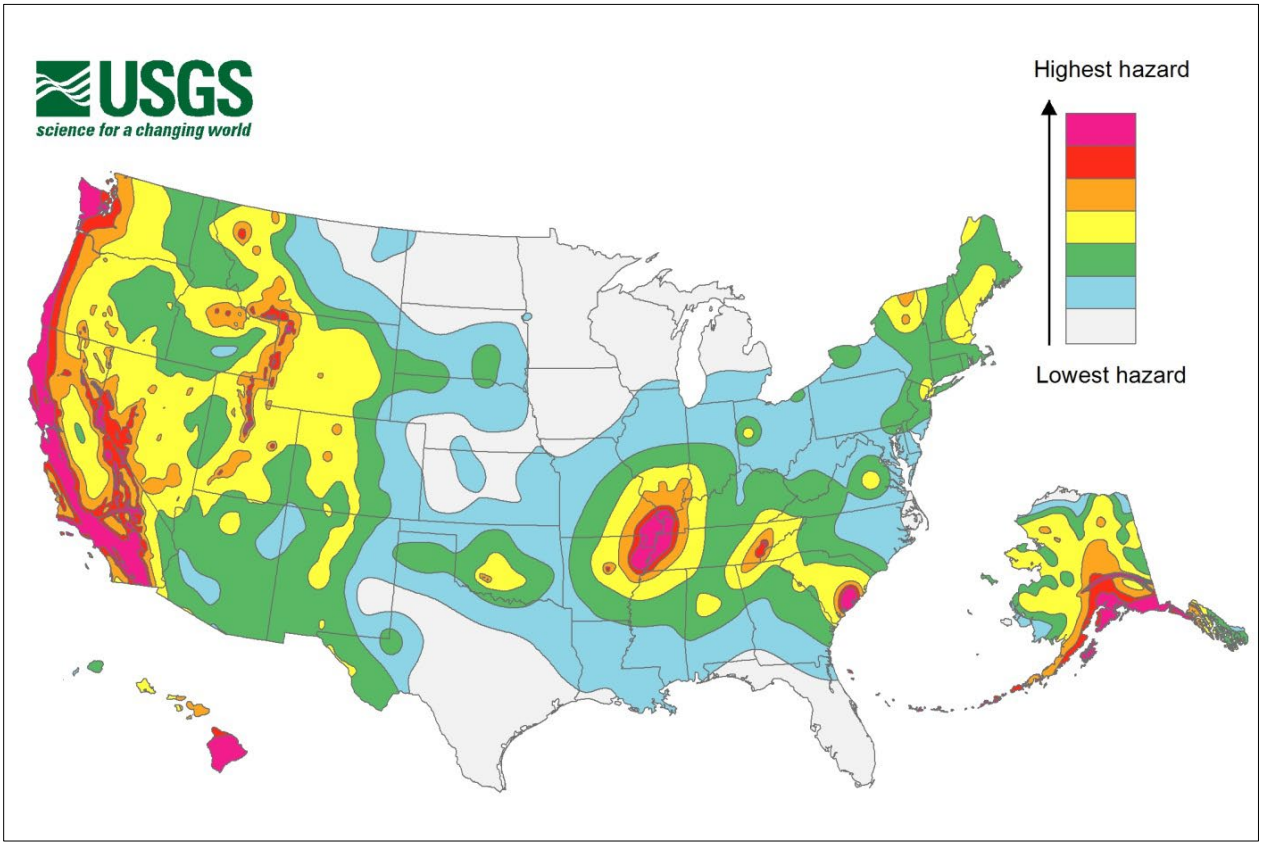
Source: https://sema.dps.mo.gov/docs/EQ_Map.pdf

Figure 3.16. Projected Earthquake Intensities



Gentry County is split between the lowest two risk categories on the following map of seismic hazards, FIGURE 3.17.

Figure 3.17. United States Seismic Hazard Map



Source: United States Geological Survey at
https://earthquake.usgs.gov/hazards/hazmaps/conterminous/2014/images/HazardMap2014_lg.jpg

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

All jurisdictions have very low earthquake risk, with no recorded earthquakes. No damages have been reported. Three documented M>4 events associated with the Nemaha Uplift were in Lawrence, Kansas in 1867 (magnitude 5.1), Eastern Nebraska in 1877 (magnitude 5.0) and in Enid, Oklahoma in 1952 (magnitude 5.1).

Probability of Future Occurrence

Gentry County is at low risk for earthquake damage. The probability of having an earthquake over 6.8 is near zero. The New Madrid fault is the source of the most intense earthquake activity in Missouri, and it is located nearly 500 miles to the south and east of Gentry County. This fault has been under study for some time and seismologists expect that it is only a matter of time before the New Madrid fault moves, creating a substantial earthquake that would affect the entire Midwest region.

TABLE 3.26 below, shows the probability that there will be an earthquake with a magnitude greater than 5.0 in any given year. The risk for all jurisdictions is less than one percent within 50 years.

Table 3.26. Probability of Magnitude 5.0 or Greater Earthquake within 50 Years

Jurisdiction	Probability >5.0 in 50 Years
Albany	0.21%
Darlington	0.23%
Gentry	0.23%
King City	0.26%
McFall	0.20%
Stanberry	0.27%
Gentry County	0.23%

Source: https://www.homefacts.com/earthquakes/Missouri/Gentry-County.html (09/18/2025)

Changing Future Conditions Considerations

From the 2023 State HMP: *Direct effects from changing climate conditions such as an increase in droughts and could contribute to an increase in sinkholes. These changes raise the likelihood of torrential rain and flooding conditions which often lead to the exposure of sinkholes. Certain events such as a heavy precipitation following a period of drought can trigger a sinkhole due to low levels of groundwater combined with a heavy influx of rain.*

Vulnerability

Vulnerability Overview

Besides the risk to human life, earthquakes pose a risk to the buildings and infrastructures of the area. Most homeowner's insurance policies do not cover damage from earthquakes. Those who do have this additional coverage have experienced their average premium for Earthquake Coverage increase of

155% from 2000–2018. This led to a decrease in covered residences from 13% in 2000 to 5.2% in 2018. (2018 Missouri Insurance Report). To assess Gentry County's exposure to this risk, the 2023 Missouri State Hazard Mitigation Plan was used.

Potential Losses to Existing Development

Hazus analyses were run using Level 1 building inventory database compromised of updated demographic and aggregated data based on the 2010 census. An annualized loss scenario that enabled an "apples to apples" comparison of earthquake risk for each county was synthesized from a FEMA nationwide annualized loss study (FEMA P-366 Hazus Estimated Annualized Earthquake losses for the United States April 2017). The estimates for Gentry County show an annualized building loss of $3,000.

A second scenario, based on an event with a 2% probability of exceedance in 50 years, was done to model a worst-case scenario. The methodology is based on probabilistic seismic hazard shaking grids developed by the U.S. Geological Survey (USGS) for the National Seismic Hazard Maps that are included with Hazus. The USGS maps provide estimates of peak ground acceleration and spectral acceleration at periods of 0.3 second and 1.0 second, respectively, which have a 2% probability of exceedance in the next 50 years. The International Building Code uses this level of ground shaking for building design in seismic areas. This scenario used a 7.7 driving magnitude in HAZUS-MH, which is the magnitude used for typical New Madrid fault planning scenarios in Missouri. While the 2% probability of exceedance in the next 50 years ground motion maps incorporate the shaking potential from all faults with earthquake potential in and around Missouri, the most severe shaking is predominately generated by the New Madrid Fault. TABLE 3.27 shows the results of this scenario for Gentry County.

Table 3.27. HAZUS-MH Earthquake Loss Estimation: 2% Probability of Exceedance in 50 Years Scenario for Gentry County

Structural Damage	Non-Structural Damage	Contents Damage and Inventory Loss	Relocation Loss	Total Economic Loss*
$519,000	$875,000	$237,000	$324,000	$2,273,000

*Total economic loss includes the four listed categories plus capital-related loss, wages loss, and rental income loss
Source: 2023 Missouri State Hazard Mitigation Plan

Impact of Previous and Future Development

Liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Liquefaction causes the normally solid ground to act like a viscous liquid, unable to support the structures built upon it. Most of the recent development has been in areas of low liquefaction potential. Future development would add to the county's exposure in the event of an earthquake, especially that which occurs in the high potential areas.

Hazard Summary by Jurisdiction

Referring to FIGURE 3.19, it is clear that the number of assets in the high liquefaction potential areas poses a risk if a higher magnitude event were to occur in the County. The City of Stanberry has several residences and critical infrastructure in the higher risk of damage zone. The major highways of US136 and US169 both repeatedly pass through the high potential areas impacting the ability of emergency services to respond. According to 2020 US Census data 35% of the structures in the

County were built before 1940. Typically, older homes will sustain more damage than those of more recent construction. The following graph FIGURE 3.18 shows that largest percentage of older homes are located in the lower populated jurisdictions of the County.

Figure 3.18. Location of Older Structures in Gentry County

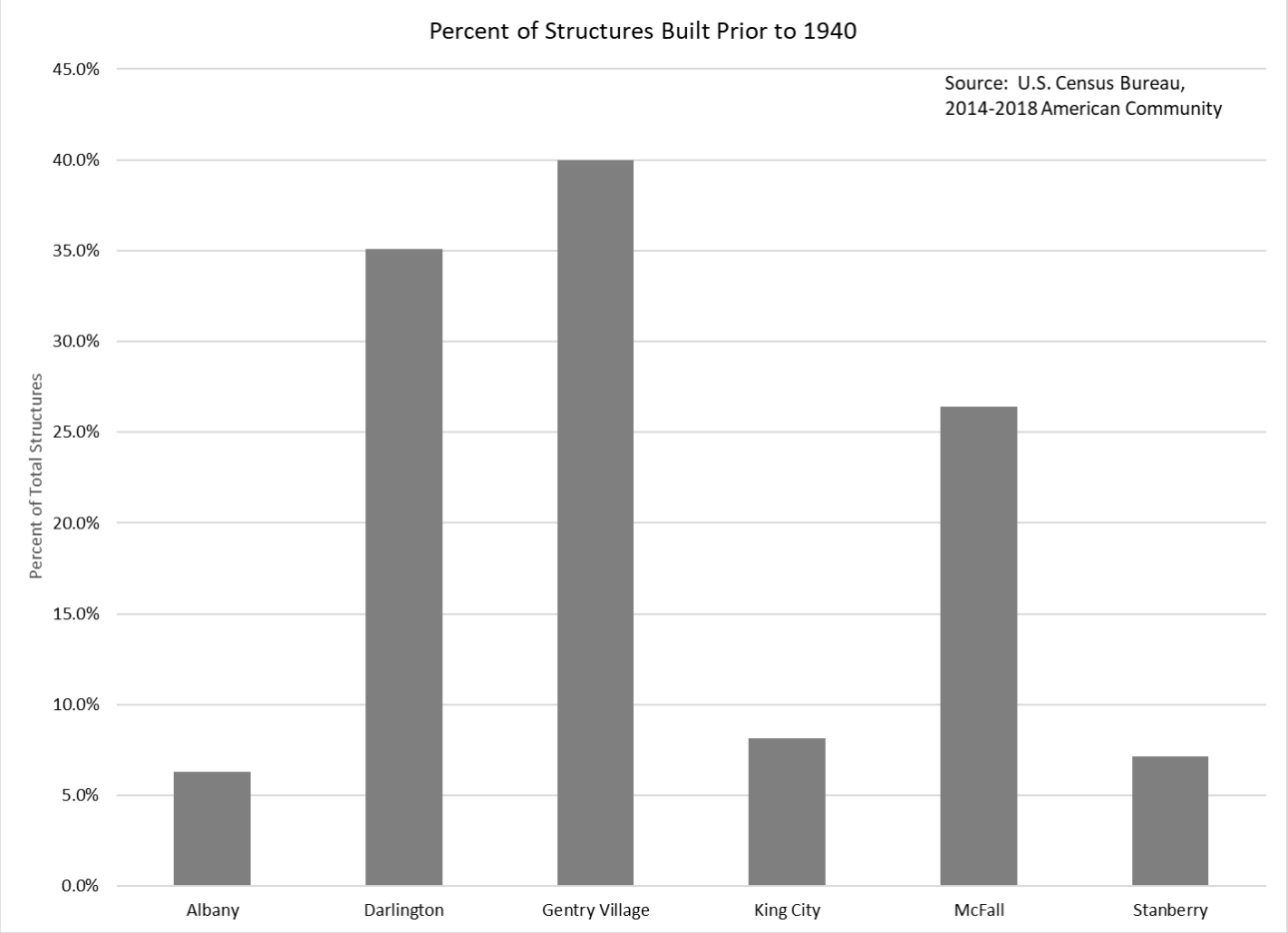
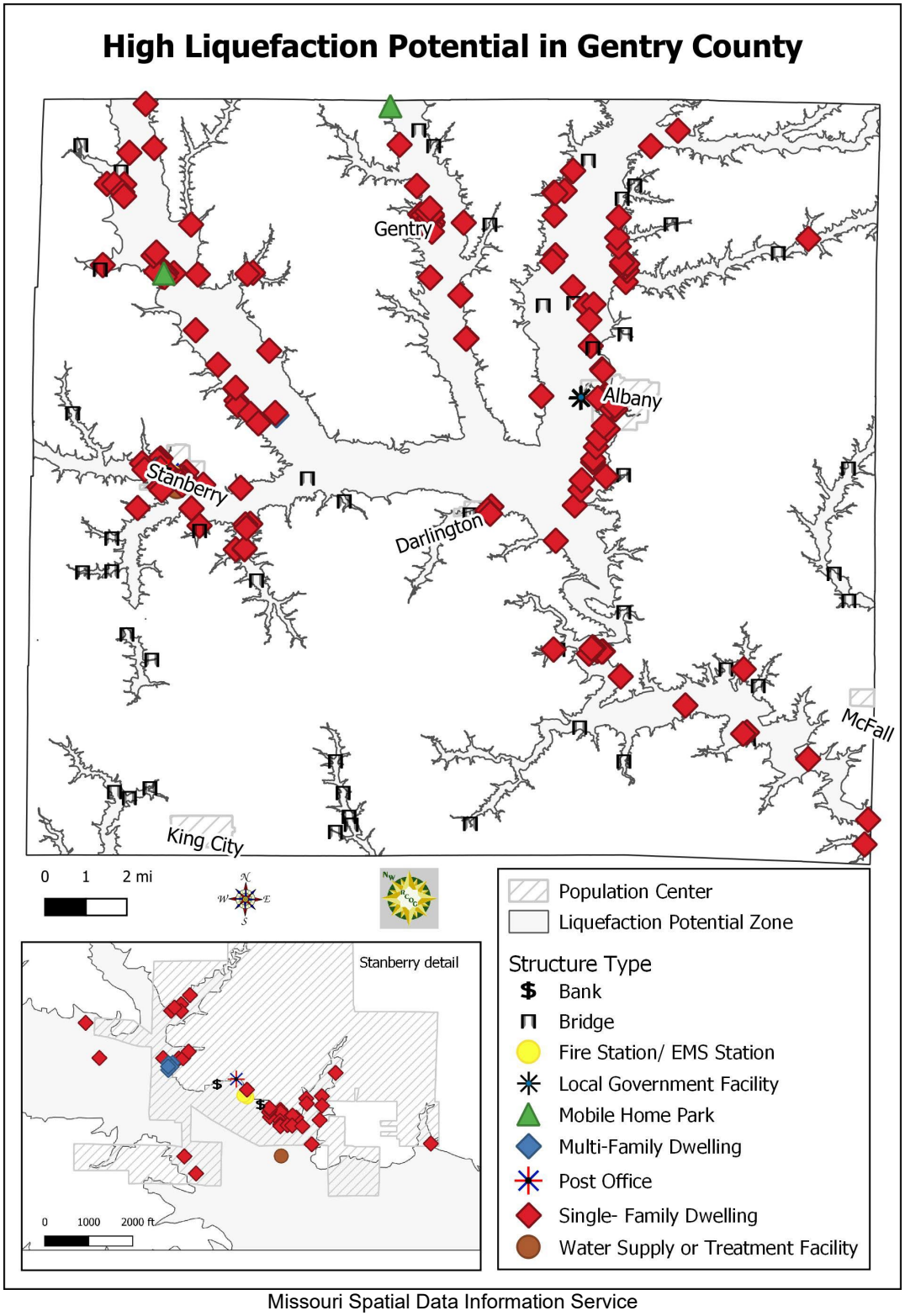


Figure 3.19. Areas of High Liquefaction Potential in Gentry County



Missouri Spatial Data Information Service

Problem Statement

The risk for damages from earthquakes is possible, but unlikely. The history shows that any earthquakes perceived by the population were only minor shaking causing no damages. Residents

should be aware that earthquakes can happen on any active fault, large or small. The largest faults are the Nemaha Fault or the New Madrid fault. Earthquakes of higher magnitude might be felt in this area from movement on those two faults.

3.4.5 Land Subsidence/Sinkholes

Hazard Profile

Hazard Description

Sinkholes are common where the rock below the land surface is limestone, carbonate rock, salt beds, or rocks that naturally can be dissolved by ground water circulating through them. As the rock dissolves, spaces and caverns develop underground. The sudden collapse of the land surface above them can be dramatic and range in size from broad, regional lowering of the land surface to localized collapse. However, the primary causes of most subsidence are human activities: underground mining of coal, groundwater or petroleum withdrawal, and drainage of organic soils. In addition, sinkholes can develop as a result of subsurface void spaces created over time due to the erosion of subsurface limestone (karst).

Land subsidence occurs slowly and continuously over time, as a general rule. On occasion, it can occur abruptly, as in the sudden formation of sinkholes. Sinkhole formation can be aggravated by flooding.

In the case of sinkholes, the rock below the surface is rock that has been dissolving by circulating groundwater. As the rock dissolves, spaces and caverns form, and ultimately the land above the spaces collapse. In Missouri, sinkhole problems are usually a result of surface materials above openings into bedrock caves eroding and collapsing into the cave opening. These collapses are called “cover collapses” and geologic information can be applied to predict the general regions where collapse will occur. Sinkholes range in size from several square yards to hundreds of acres and may be quite shallow or hundreds of feet deep.

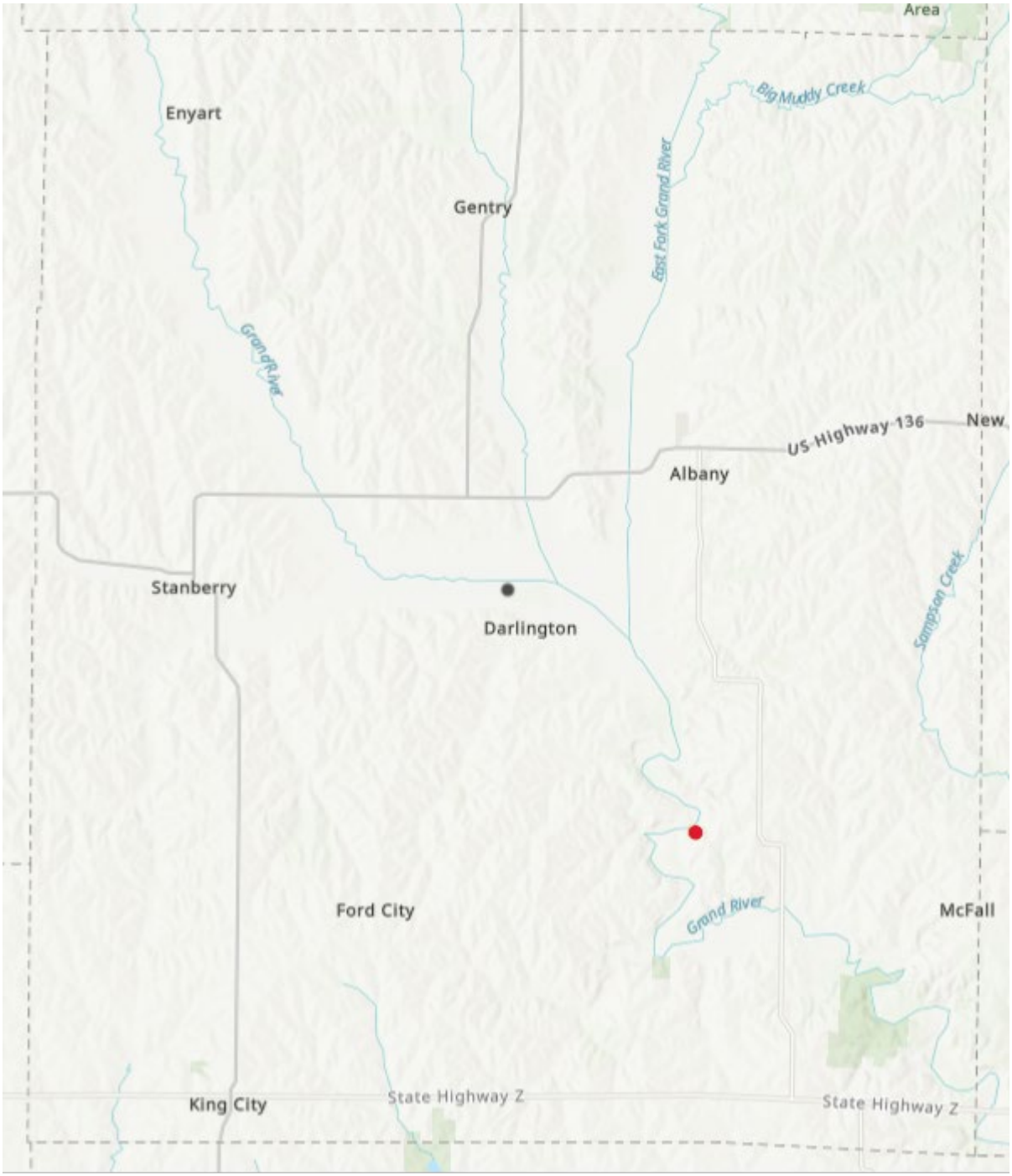
According to the U.S. Geological Survey (USGS), the most damage from sinkholes tends to occur in Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania. Fifty-nine percent of Missouri is underlain by thick, carbonate rock that makes Missouri vulnerable to sinkholes. Sinkholes occur in Missouri on a fairly frequent basis. Most of Missouri’s sinkholes occur naturally in the State’s karst regions (areas with soluble bedrock). They are a common geologic hazard in southern Missouri but also occur in the central and northeastern parts of the State. Missouri sinkholes have varied from a few feet to hundreds of acres and from less than one to more than 100 feet deep. The largest known sinkhole in Missouri encompasses about 700 acres in western Boone County southeast of where Interstate 70 crosses the Missouri River. Sinkholes can also vary is shape like shallow bowls or saucers whereas others have vertical walls. Some hold water and form natural ponds.

According to the 2023 Missouri State Hazard Mitigation Plan, there are 86 mining locations in Gentry County.

Geographic Location

There were two documented sinkhole locations identified on the most recent map available from MSDIS. Located in an agricultural area distant from any structures, the two locations are within feet of each other. The area is about equal distance from Darlington, Albany and McFall, just east of the Grand River. FIGURE 3.20 shows the location of the known sinkholes in Gentry County.

Figure 3.20. Documented Sinkhole Locations in Gentry County



Strength/Magnitude/Extent

Sinkholes vary in size and location, and these variances will determine the impact of the hazard. A sinkhole could result in the loss of a personal vehicle, a building collapse, or damage to infrastructure such as roads, water, or sewer lines. Groundwater contamination is also possible from a sinkhole. Because of the relationship of sinkholes to groundwater, pollutants captured or dumped in sinkholes could affect a community's groundwater system. Sinkhole collapse could be triggered by large earthquakes. Sinkholes located in floodplains can absorb floodwaters but make detailed flood hazard

studies difficult to model. Unlike earthquakes or other geologic hazards, there currently is no scale for measuring or determining the severity of sinkholes.

Previous Occurrences

As noted in the 2023 State Plan, sinkholes are a regular occurrence in Missouri, but rarely are events of any significance. There have been two reported events associated with sinkholes in the Gentry County since the last plan update.

Probability of Future Occurrence

With 2 sinkholes being reported over the past 20 years, the probability of future occurrence is 10%.

Changing Future Conditions Considerations

Direct effects from changing climate conditions such as an increase in droughts could contribute to an increase in sinkholes. These changes raise the likelihood of extreme weather, meaning the torrential rain and flooding conditions which often lead to the exposure of sinkholes are likely to become increasingly common. Certain events such as heavy precipitation following a period of drought can trigger a sinkhole due to low levels of groundwater combined with a heavy influx of rain (2023 State Hazard Mitigation Plan).

Vulnerability

Vulnerability Overview

Gentry County is considered to be at low risk for sinkholes. Gentry County has had 2 previous occurrences regarding sinkholes, and there are 84 mines located within the County.

Potential Losses to Existing Development

No hazard areas are known at this time.

Impact of Previous and Future Development

Future development over abandoned mines will increase vulnerability to this hazard.

Hazard Summary by Jurisdiction

Historically, there have only been 2 sinkholes reported in Gentry County- however, due to these being recent occurrences, the likelihood for future sinkholes developing has increased. Sinkholes will not be included as a focus hazard in the Gentry County Hazard Mitigation Plan because, although two sinkholes have appeared within the last five years, both occurred in the same isolated area and do not present any ongoing or widespread threat to life, property, or infrastructure. Their limited extent and lack of current or anticipated impacts place them outside the scope of hazards requiring targeted mitigation strategies. As a result, sinkholes will not be considered for the purposes of developing action items within the plan.

Problem Statement

The absence of karst topography in the County makes the likelihood of this hazard becoming a widespread concern very low. Any development in the area of the documented sinkholes should be avoided.

3.4.6 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 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.

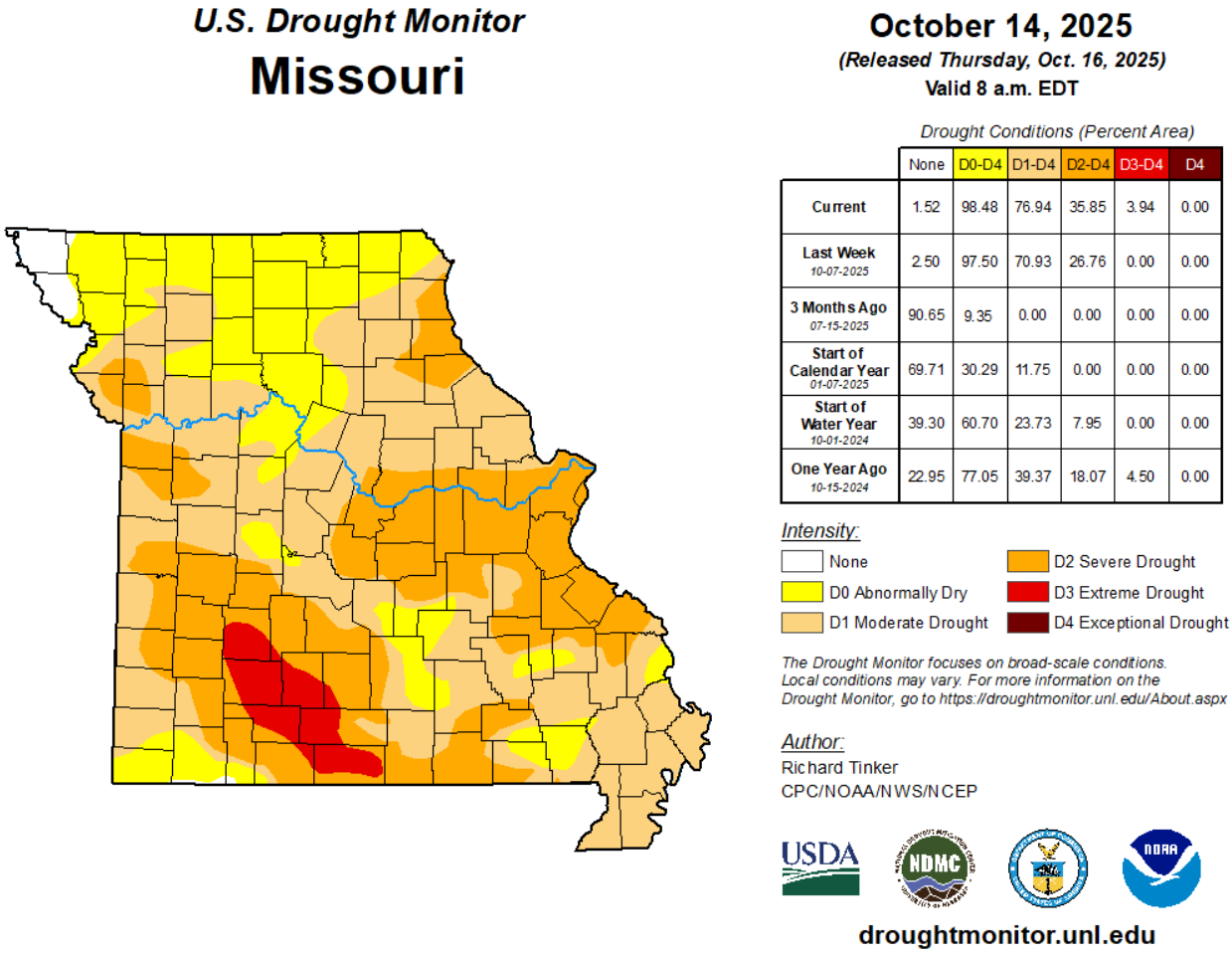
Geographic Location

Northwest Missouri is a region that is subject to drought. The impacts are predominately concentrated in the agricultural sector, but when the drought period extends into extreme conditions, water supplies for communities are also affected. In 2018, Gentry County experienced a historic drought that affected a large area of the central United States.

Gentry County has 238,570 acres in agriculture. The importance of agriculture in the region's economy is high. The annual market value of Gentry County's agriculture products was $207,526,000 according to the 2022 U.S. Census of Agriculture. Even though the most productive land in the county is found along the rivers and creeks, these areas are located throughout the county so that a drought in any part of the county affects agricultural assets.

FIGURE 3.21 below shows the current drought conditions for Gentry County.

Figure 3.21. U.S. Drought Monitor Map of Missouri on October 14, 2025



Source: U.S. Drought Monitor

Strength/Magnitude/Extent

The National Drought Monitor Center at the University of Nebraska at Lincoln summarized the potential severity 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.

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.

The National Drought Mitigation Center uses a scale to show the intensity of drought that goes from D0 to D4. FIGURE 3.22 shows the correlation of this scale to the Palmer Index. Reports from NCEI Storm Database use the D0-D4 scale in their narratives.

Figure 3.22. Drought Intensity Scale Comparison

Category	Description	Possible Impacts	Palmer Drought Severity Index (PDSI)
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

Source: National Drought Mitigation Center

Previous Occurrences

In the past 10 years, Gentry County was subject to periods of drought that resulted in crop indemnities. The year of the highest losses was 2012, when a prolonged drought caused $15,382,739 worth of

damage throughout the county with the continuing effects lasting into 2013. The consequences of the 2018 drought shown in FIGURE 3.21 resulted in claims paid out for $4,559,694 in crop losses. The crops affected by drought in Gentry County over the past 10 years were corn, grain sorghum, soybeans, and wheat. Gentry County has received USDA Indemnity Payments totaling $37,594,000.00 in the years from 2012 through 2021. TABLE 3.28 shows the amount of the drought losses for each of the past 12 years.

Table 3.28. USDA Indemnity Payments for Losses due to Drought 2014-2024

Year	Losses
2014	$6,555
2015	$14,105
2016	$20,046
2017	$178,566
2018	$4,559,693
2019	$2,449
2020	$1,623,310
2021	$818,306
2022	$1,529,894
2023	$221,687
2024	$329,054
Total	$9,303,665

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

According to the Storm Database of the NCEI, there have been five periods of drought in the past 20 years. The information from the Storm Events Database is summarized in TABLE 3.29. A short period in 2000, then an extended period from 2012 through mid-2013. The drought resumed in 2013-2014. Drought returned in mid to late 2018. The last drought during this period was during the last months of 2023. The period in 2012-2013 and in 2018 brought hardships to crop and livestock farmers in the County. Pastures and water supplies dried up resulting in the liquidation of numerous livestock operations.

Table 3.29. Drought Report Events for Gentry County 2000-2025

Duration	Report Date	Event Report
July 1999 to February 2001	April, 2000	April 2000 was the driest on record in the state of Missouri, according to the Midwestern Climate Center. The areas hardest hit by the long-term drought were along Missouri's northern border, where rainfall deficits had reached 15 to 20 inches.
June 2012 to April 2013	July, 2012	Below normal precipitation continued through July, with D2 severe drought conditions across the county. Albany reported 2.09 inches of rain for the month. Stanberry reported 1.44 inches of rain for the month.
	August, 2012	Below normal precipitation continued through August, with D3 extreme drought conditions across the county. Albany reported 2.39 inches of rain for the month.
	September, 2012	The remnants of Hurricane Isaac brought some much-needed relief to drought conditions across the area, on the 1st of September. This helped improve drought conditions from D4 and D3 to D3 and D2. Rainfall totals with the remnants of Isaac, ranged from around one inch near the Iowa border
	November, 2012	The drought continued across the area during the month of November. Slight improvement was noted, with D1 to D2 conditions prevailing. Rainfall deficits were generally in the 10 to 16-inch range for the year.
	February, 2013	Short-term drought conditions continue to improve over northern Missouri, through the month of February 2013. Recent rains and snowstorms have led to this improvement in the short-term, with retention ponds, streams, and rivers, beginning to return to normal or near normal levels. Long-term impacts continue to be the prevailing source for our drought conditions, but with the magnitude of the recent snow melt and rains,

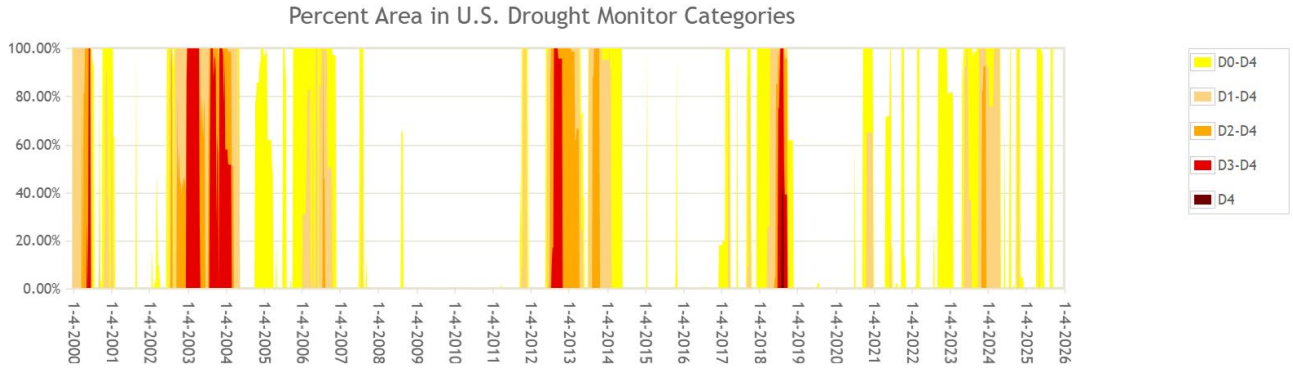
		even the long-term impacts have diminished. As a result, a one category improvement to moderate drought (D1) was made, across mostly north central and central Missouri. The rest of the area also improved but remained in severe drought (D2) conditions.
August through November 2013	September 2013	A persistent upper-level ridge of high pressure centered over the lower Missouri Valley, in late August, caused D2 drought conditions to redevelop across portions of north central Missouri.
May 2018 through October 2018	June 2018	Starting at the very end of May and going into June, the US Drought Monitor at the University of Nebraska declared portions of Gentry County in a D2 or worse drought.
	August 2018	Gentry 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 throughout the month to warrant D4 status maintenance. The direct impact to Gentry County is unclear, but statewide drought impacts are estimated 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.
November 2023 to December 2023	November 2023	Drought conditions worsened to severe drought (D2) for Gentry, Nodaway, and Andrew Counties in NW Missouri beginning with the Nov 14th installment of the US Drought Monitor. This continued through the end of the month.
	December 2023	Severe drought continued through much of December for portions of western Missouri before improving by late December.

Source: NCEI Storm Event Database Accessed 09/232025

Probability of Future Occurrence

Data from the year 2010–2025 period was available for analysis from the National Drought Mitigation Center. There is a 70% probability that the entire county will experience drought conditions of at least D1 drought. Based on this data, there is a 40% probability of the county being subjected to D2 conditions and a 20% chance of a D3 drought covering 100% of Gentry County. This data is shown in FIGURE 3.24. Although drought is not predictable, long-range outlooks and predicted impacts of climate change could indicate an increased chance of drought.

Figure 3.23. Percent of Area Affected by Drought 2000-2025



Changing Future Conditions Considerations

Severe drought, a natural part of Missouri's climate, is a risk to this agriculture-dependent state. Future increases in evaporation rates due to higher temperatures may increase the intensity of naturally

occurring droughts. Although springtime in Missouri is likely to be wetter, summer droughts are likely to be more severe. Higher evaporation and lower summer rainfall are likely to reduce river flows. The number of heavy rainfall events is predicted to increase, yet researchers currently expect little change in total rainfall amounts, indicating that the periods between heavy rainfalls will be marked by an increasing number of dry days. Higher temperatures and increased evapotranspiration increase the likelihood of drought. This could lead to agricultural drought and suppressed crop yields.

Vulnerability

Vulnerability Overview

The Missouri Drought Plan divided the state into four regions of susceptibility based on water resources and climate data. Most of northern Missouri, including Gentry County, fell into Region C. This is how the Missouri Drought Plan described Region C: “Region C has severe surface and groundwater supply drought vulnerability. Surface water sources usually become inadequate during extended drought. Groundwater resources are naturally of poor quality and typically only supply enough water for domestic needs. Irrigation is generally not feasible.” See FIGURE 3.25.

Figure 3.24. Drought Susceptibility Map

Water Resources Report Number 44 https://dnr.mo.gov/pubs/WR44.pdf

Agricultural assets are the most readily susceptible to drought. The agricultural assets are in the unincorporated areas of Gentry County. However, many of the other businesses in the incorporated parts of the county rely on a strong agricultural economy to ensure their success. Therefore, the most of county is vulnerable to the effects of a prolonged drought.

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.

From 1995 to 2024, $78,135,000 was paid to Gentry County farmers for losses. This is an annualized amount of $2,604,500. This figure is the baseline for estimating potential loss due to drought on an annual basis with the realization that losses related to livestock and other businesses is not included in this amount.

Impact of Previous and Future Development

Although the reported number of acres in cropland in Gentry County has remained the same between the 2017 and 2022 Ag Census, the net cash farm income produced on the remaining acres has increased 72%. Gentry County is the 12th largest livestock producer in the state. Due to declining population growth in most communities and a trend of fewer acres of cropland planted, the potential losses due to drought should remain steady or decrease slightly, depending on current market value of the crops.

Changing Future Conditions Considerations

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 because 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 U.S., including areas that may currently be described as experiencing water shortages of some degree. This study shows a moderate risk of water shortage in 2050 for Gentry County.

Hazard Summary by Jurisdiction

As discussed previously, the risk to agricultural assets is spread throughout the unincorporated portions of the county. Gains have been made in the county to provide a reliable source of water to all areas with the expansion of the rural water systems in both capacity and in coverage.

Problem Statement

Drought is a moderate risk to farming in any year in all jurisdictions in Gentry County. It is not a predictable hazard, but it is a hazard that can have lasting impact. Livestock is particularly susceptible to severe drought and farmers are often obligated to sell off their herds because they do not have access to adequate water supply. Crop insurance is the best way to provide protection from crop losses in times of drought. Conservation of the water supply, planting drought-resistant hybrid crops, and utilizing moisture-conserving farming methods will help farmers to endure drought conditions as is shown in the historical data presented. Communities should continue their efforts to cooperatively interconnect their water distribution systems with neighboring districts to help ensure water supply to drought-stricken areas when needed.

3.4.7 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 3.26 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.

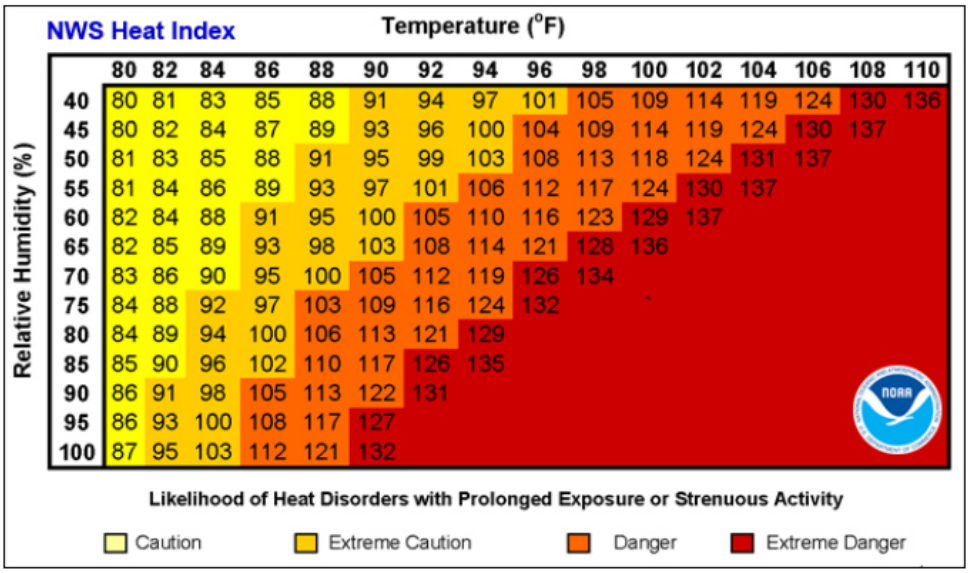
Geographic Location

Location within the county is not a factor when facing an extreme temperature event. Specific climatic factors, such as the two previously discussed, 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 his/her ability to deal with excessive temperatures. 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 and heated 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 nighttime 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. 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 3.26 uses both factors to produce a guide for the apparent temperature or relative intensity of heat conditions.

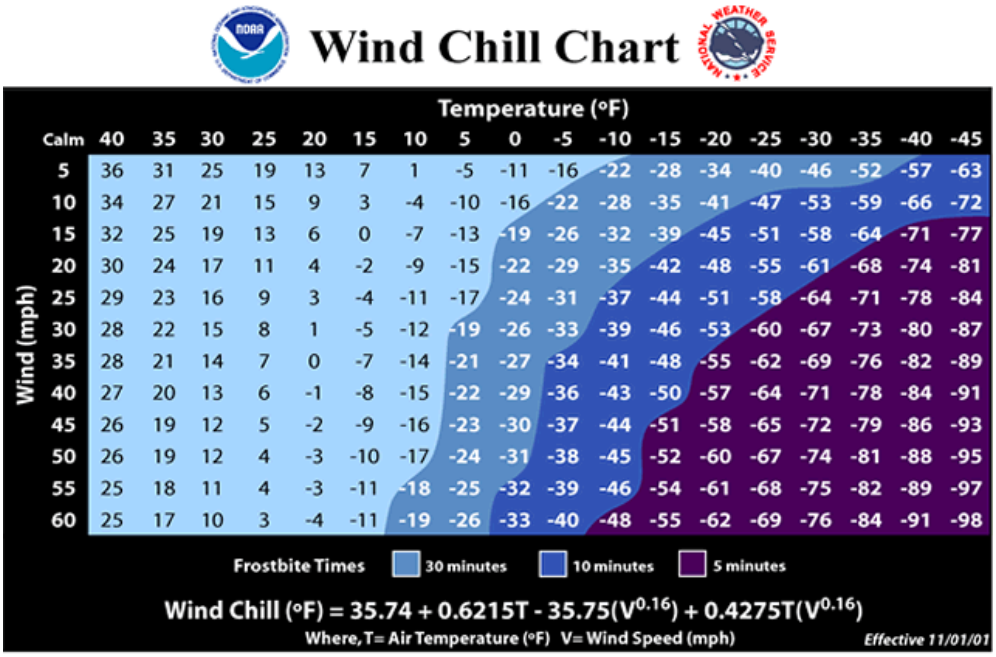
Figure 3.25. Heat Index (HI) Chart



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. FIGURE 3.27 provides the NOAA Wind Chill Chart.

Figure 3.26. Wind Chill Chart



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

Previous Occurrences

For the 25-year period, 2000-2025, the National Weather Service has issued warnings for heat events 12 times. Information regarding those events is shown in TABLE 3.30.

Table 3.30. NCEI Recorded Heat Events from 2000–2025 for Gentry County

Start of the event	Duration in days	Details
August 28, 2000	7	Heat indices as high as 110 degrees
July 6, 2001	3	Dew points as high as 80 degrees, 2 deaths in KC area
July 17, 2001	8	Oppressive heat and humidity, 2 elderly deaths in KC
August 1, 2001	5	4 fatalities in the KC metro area due to heat
August 9, 2001	1	Afternoon heat indices ranged from 105 to 110 degrees. One death
July 14, 2003	5	Oppressive heat and humidity with heat indices to 110 degrees
July 21, 2005	5	Heat indices reached from 105 to 110 degrees
July 16, 2006	5	Heat indices from 105 to 115 degrees, highest heat index 121
July 29, 2006	6	Heat indices from 105 to 115 degrees
August 6, 2007	11	The combination of heat and humidity produced heat index readings in the 105 to 115 degree range.
July 18, 2012	7	Temperatures topped out from 100 to 110 degrees.
August 19, 2023	7	Heat indices ranged from 110-120 degrees

Source: NCEI Storm Event Database (09/23/2025)

The following, TABLE 3.31, shows the cold extreme temperature events recorded for the County.

Table 3.31. NCEI Recorded Cold Events from 2000–2015 for Gentry County

Start of the event	Duration in days	Details
October 6, 2000	4	An unusually strong early season Arctic high pressure system built into the central Plains with below freezing for 5 consecutive days and record low temperatures
December 10, 2000	21	Temperatures remained below freezing throughout the entire period. Snow cover persisted from the 13th through the end of the month.
February 6, 2014	1	Cold temperatures and north winds combined to bring wind chill values down to around 30 below zero.
February 14, 2021	3	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.
December 12, 2022	2	An arctic air mass sent temperatures below zero along with strong winds. Minimum wind chills across the region generally ranged from -30 to -40 degrees between roughly 10 am on 12/22 to noon on 12/23.
January 12, 2024	5	The coldest wind chill recorded during this cold air outbreak at Lamoni was -44 degrees at 6 AM on Jan 14th. This was the coldest wind chill at Lamoni since Jan 20, 1985 (-45). The 4-day period of Jan 13-16 was the 7th coldest 4-day period on record in Lamoni, with an average temperature of -7.3 degrees. (Period of record begins Aug 13, 1897).
February 18, 2025	4	The ASOS at St. Joseph airport reported a minimum wind chill of 23 degrees below zero at 8z on Feb 20th (temp of minus 7). Wind

		chills of -17 or colder were reported for multiple time frames between Feb 18 and Feb 20.
7 events	40 days	

Source: NCEI Storm Event Database (09/29/2025)

Probability of Future Occurrence

The likelihood of an excessive heat event in Gentry County over any given summer is likely. Limited data identifying such events makes it difficult to calculate reliable probability results. Based on data available, there were twelve events in a 25-year period. The probability of an event in any given year is 48% with past events averaging a length of 6.6 days. Data analysis was based on NCEI events occurring between 2000 and 2025. The same period of time and data source was used to analyze cold events. Although wind chill watches and warnings are issued for the area a few times during most winters, these do not show up in the NCEI Storm Database. Based on available data, 6 events occurring over 25 years, there is 24% chance of a cold event of three consecutive days or longer.

Changing Future Conditions Considerations

Under a higher emissions pathway, historically unprecedented warming is projected by the end of the century. Even under a pathway of lower greenhouse gas emissions, average annual temperatures are projected to most likely exceed historical record levels by the middle of the 21st century. Temperature increases will cause future heat waves to be more intense, a concern for this region which already experiences hot and humid conditions.

Vulnerability

Vulnerability Overview

All jurisdictions (municipalities and educational institutions) within the county are equally susceptible to damage stemming from a heat wave as these types of events tend to be regional in nature. With the main agriculture crops of corn and soybeans, farmers are at the mercy of the weather patterns to provide sufficient growing degree days without excessive heat or hot winds, to produce sufficient yields to make a profit.

Extreme temperatures can cause stress for crops and animals. Extreme temperatures can also strain electricity delivery infrastructure overloaded during peak use of air conditioning and furnaces during extreme 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. Extreme cold temperatures can also lead to infrastructure damage.

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

Table 3.32. 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 is highly likely with continued exposure

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

Potential Losses to Existing Development

According to the USDA Risk Management Agency, insured crop losses throughout the State of Missouri because of excessive heat for the ten-year period of 2012–2021 totaled $82,691,733. Excessive heat ranked 5th in the State for insured crop losses. Hot winds in Missouri totaled $6,305,066 in insured crop losses during the same timeframe. (2023 State of Missouri HMP).

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. Many of the smaller communities have experienced declining populations according to the 2020 census with an increasing average age of residents.

Hazard Summary by Jurisdiction

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 2019–2023 ACS 5-Year Estimates 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 3.33, below, summarizes vulnerable populations in the different jurisdictions Note that the school districts are not included in the table because students and those working for districts are not customarily in these age groups. Most of those persons at risk are closely split percentage wise between the incorporated and the unincorporated areas of the county.

Table 3.33. Gentry County Population Under Age 5 and Over Age 65, 2023 Estimates

Jurisdiction	Population Under 5 yrs.	Percent Under 5 yrs.	Population 65 yrs. and over	Percent Over 65 yrs.
Albany	140	7.5	412	22.2
Darlington	0	0	7	20.0
Gentry	5	7.0	0	0
King City	32	4.3	128	17.2
McFall	15	11.1	11	8.1
Stanberry	82	6.9	194	16.4
Unincorporated areas	154	7.0	414	18.9
Totals	428	6.9	1,166	18.7

Source: U.S. Census Bureau, 2019–2023 ACS 5-Year Estimates

While Gentry County mirrors the state and national averages on population percentage under 5 years of age, the percentage of residents over 65 years of age is higher. Two jurisdictions and the unincorporated areas top the State of Missouri statistic of 18.7% and the United States number of 18.0% of the population aged 65 years or greater. The jurisdictions of Gentry and McFall also have drastically lower population percentages below the state and national average.

Schools have improved their facilities by adding air conditioning and other upgrades to maintain an environment that is safe for the county's youth. The same is true for the nursing home facilities in the county. Some of the smaller communities in the county have informal systems of monitoring their older residents during prolonged periods of extreme temperatures.

Problem Statement

All jurisdictions within the county are equally susceptible to damage stemming from a heat wave as these types of events tend to be regional in nature. The large percentage of residents that are over 65 years of age means that many are at risk during extreme heat events. The rural nature of the county does work in its favor, as statistically more deaths occur in urban areas during a heat wave.
Jurisdictions should include mitigation strategies which include the opening of cooling centers in case of a severe heat event. As with extreme cold temperatures, special consideration must be given to the potential impact upon the young, disabled, and elderly populations. Overutilization of the electrical power grid during heat waves can lead to brownouts or power failures. Gentry County should continue to provide cooling centers or portable fans for the elderly and those populations without air conditioning during sustained high temperatures. Availability of cooling stations will reduce the threat of heat stroke due to hyperthermia in vulnerable groups of the population.

3.4.8 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 3.4.1) and tornadoes (discussed separately in 3.4.10).

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

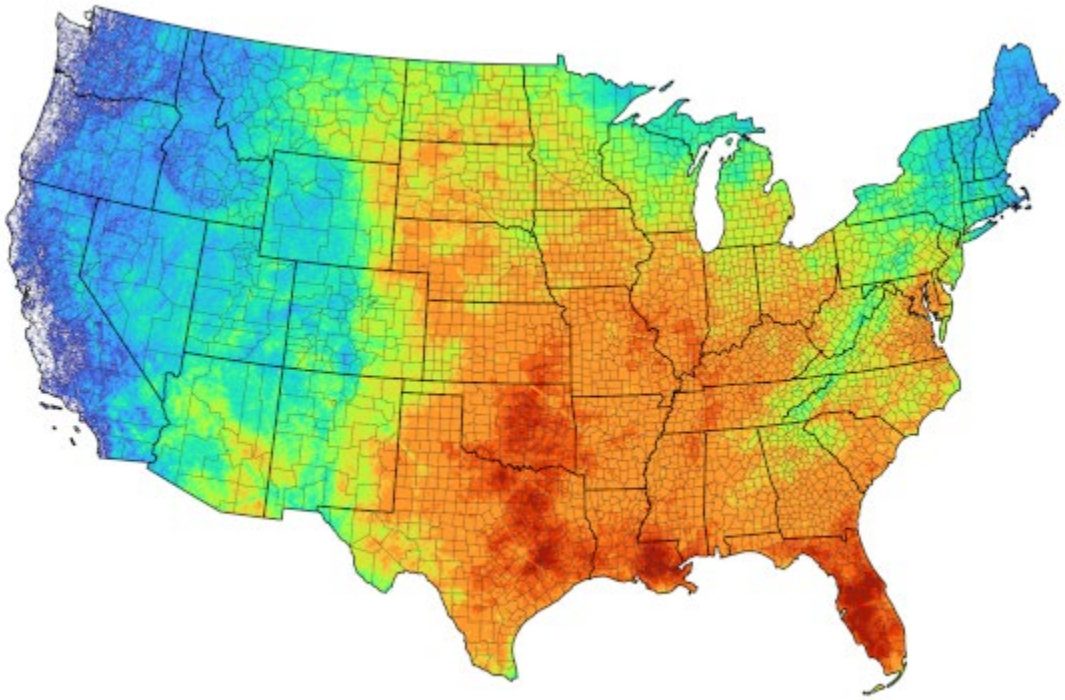
contact with super-cooled water which will freeze on contact with the frozen rain droplet. This frozen droplet can continue to grow and form hail. As long as the updraft forces can support or suspend the weight of the hailstone, hail can continue to grow before it hits the earth. At the time when the 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.

Gentry County's location in the Midwest puts it in an area where lightning storms are common. The county can expect about 19 flashes per square mile on average each year as shown in the map below in FIGURE 3.28.

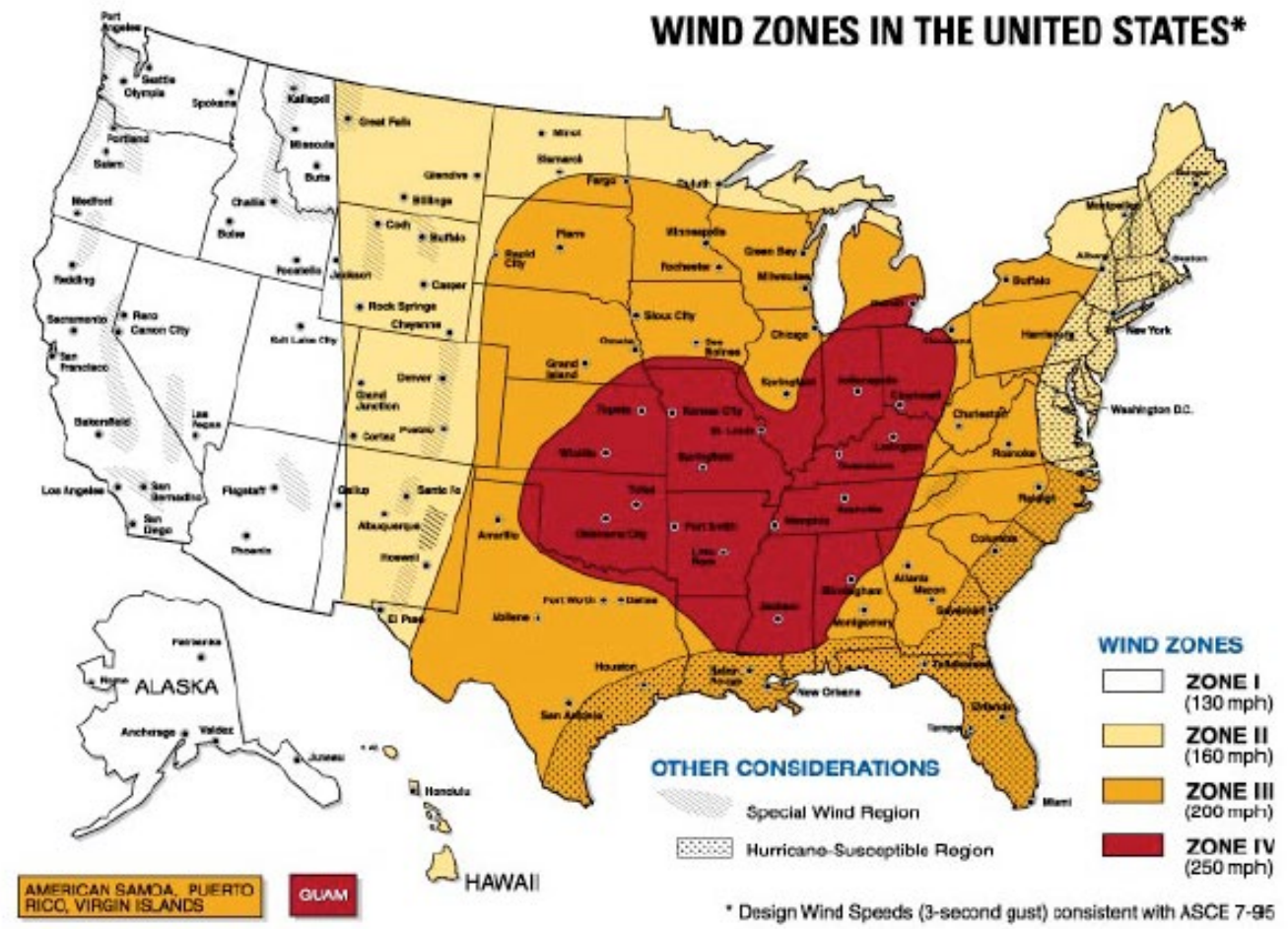
Figure 3.27. Location and Frequency of Lightning in Missouri



Source: National Weather Service

The wind zone map (FIGURE 3.29) shows that the entire state of Missouri is in Zone IV with winds up to 250 miles per hour. Gentry County, located in the northwest part of the state, is well within this highest velocity zone.

Figure 3.28. 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

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 most 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.

Based on information provided by the Tornado and Storm Research Organization (TORRO), TABLE 3.34 below describes typical damage impacts of the various sizes of hail.

Table 3.34. 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 tables below (TABLE 3.35 through TABLE 3.36) 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.

Table 3.35. Crop Insurance Claims Paid from Thunderstorms, 2014—2024

Crop Year	Cause of Loss Description	Insurance Paid
2014	Excess Moisture/Precipitation/Rain	$1,083,859
2015		$10,937,656
2016		$1,731,492
2017		$2,206,750
2018		$228,586
2019		$4,630,111
2020-2022		Data Unavailable
2023		$948,080
2024		$4,227,569
Total		$25,994,103

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

Table 3.36. Crop Insurance Claims Paid from High Winds, 2014—2024

Crop Year	Cause of Loss Description	Insurance Paid
2014	Wind/Excess Wind	$775
2015		$0
2016		$5,777
2017		$520
2018-2019		$0
2020-2022		Data Unavailable
2023		$0
2024		$0
Total		$7,072

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

Table 3.37. Crop Insurance Claims Paid from Lightning, 2014—2024

Crop Year	Cause of Loss Description	Insurance Paid
2014–2019	Other (Lightning, etc.)	$0
2020-2022		Data Unavailable
2023-2024		$0
Total		$0

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

Table 3.38. Crop Insurance Claims Paid from Hail, 2014—2024

Crop Year	Cause of Loss Description	Insurance Paid
2014	Hail	$2,305
2015		$5,247
2016		$130,533
2017		$17,159
2018		$19,289
2019		$0
2020-2022		Data Unavailable
2023		$0
2024		$642,722
Total		$814,255

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

The total amount collected from federal crop insurance from 2014–2024 for damages from all thunderstorm perils was $26,818,430. The only precaution available to farmers is to insure their crops against damage. 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

The following two tables, TABLE 3.39 and TABLE 3.40 show the reported thunderstorm hail and wind episodes that occurred during the ten-year period 2008-2017. There were no reports for lightning or heavy rain. Limitations to using NCEI data for these events are reported lightning events include the only lightning events that result in fatality, injury and/or property and crop damage. Stanberry Schools reported lightning damage of $20,000 to electronic equipment in 2019. Heavy rain events usually coincide with flooding events, and those events are discussed in the hazard section on floods. NCEI relies not only on law enforcement and trained spotters to report storms, but also on input from the public. The information is often estimated and when a zero is recorded in the property

damage column it means that the amount is unknown.

Table 3.39. Gentry County Hail Events (diameter 1 inch or greater), 2015-2025

Date	Size (inches)	Locations	Deaths/ Injuries	Property Damage ($)
6/21/2015	1	McFall	0/0	0
7/10/2017	1.75	Albany	0/0	0
6/7/2022	2	Unincorporated areas, Stanberry, Darlington	0/0	0
5/6/2023	1.5	Albany	0/0	0
8/11/2023	1.75	Gentry	0/0	0
5 days with events				

Source: NCEI, data accessed 9/29/2025

Table 3.40. Gentry County Thunderstorm Wind Events, 2015-2025

Date	Estimated Wind (mph)	Locations	Deaths/ Injuries	Property Damage ($)
6/11/2015	60	Unincorporated areas	0/0	$0
8/8/2015	60	Stanberry	0/0	$0
3/23/2016	60	Unincorporated areas	0/0	$0
3/6/2017	75	McFall, rural areas	0/0	$0
6/16/2017	65	Albany	0/0	$0
6/28/2017	70	Unincorporated areas	0/0	$0
6/11/2018	60	Unincorporated areas	0/0	$0
8/6/2018	65	Unincorporated areas	0/0	$0
5/27/2019	65	Stanberry	0/0	$20,000
7/30/2021	60	McFall	0/0	$0
6/29/2023	81	Stanberry, Albany	0/0	$0
7/29/2023	64	Stanberry, McFall	0/0	$0
6/25/2024	64	Albany	0/0	$0
13 events, Average wind speed of 65 mph				

Source: NCEI, data accessed 9/29/2025

Probability of Future Occurrence

Based on information from the National Centers for Environmental Information (NCEI) there has been an annual average of 1.3 days of thunderstorm wind activity in Gentry County during the previous ten-year period. During this period there was a 90% probability of a hail-storm event with one-inch or larger hailstones. The database provided by NCEI did not contain reports of lightning for the ten-year period. However, as has been discussed earlier, this database does not report these events unless there is a confirmed fatality or property damage because of the event. The data from the 2023 Missouri HMP put the annual likelihood of high winds at 3.3% and for hail at 3.1%, and FEMA's National Risk Index lists Gentry County's Hail Risk as Relatively Moderate.

Changing Future Conditions Considerations

Predicted increases in temperature could help create atmospheric conditions that are fertile breeding

grounds for severe thunderstorms and tornadoes in Missouri. NASA's Earth Observatory provides an analysis on how climate change could, theoretically, increase potential storm energy by warming the surface and putting more moisture in the air through evaporation. Possible impacts include an increased risk to life and property in both the public and private sectors.

Predicted increases in temperature could help create atmospheric conditions that are fertile breeding grounds for severe thunderstorms and tornadoes in Missouri. Possible impacts include an increased risk to life and property in both the public and private sectors. Public utilities and manufactured housing developments will be especially prone to damages. Jurisdictions already affected should be prepared for more of these events and should thus prioritize mitigation actions such as construction of safe rooms for vulnerable populations, retrofitting and/or hardening existing structures, improving warning systems and public education, and reinforcing utilities and additional critical infrastructure (2023 State Hazard Mitigation Plan).

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.

Potential Losses to Existing Development

The factors used to arrive at the vulnerability rating are summarized in TABLE 3.41. The overall vulnerability rating given to Gentry County was 2, Low Medium.

Table 3.41. Gentry County Exposure to Severe Thunderstorms

Housing Units/sq. mi.	Total Building Exposure	Mobile Homes	Social Vulnerability Index (1-5)
6.53	$734,656,000	4%	4 (medium-high)

Source: 2023 Missouri State Hazard Mitigation Plan

The main potential loss to the County due to thunderstorms is damage to crops with an annualized loss of $2,681,843. Using the 2023 MO HMP data summarized in TABLE 3.41, above, the average annual property due to thunderstorm hail is $266,667 and for wind is $6,164.

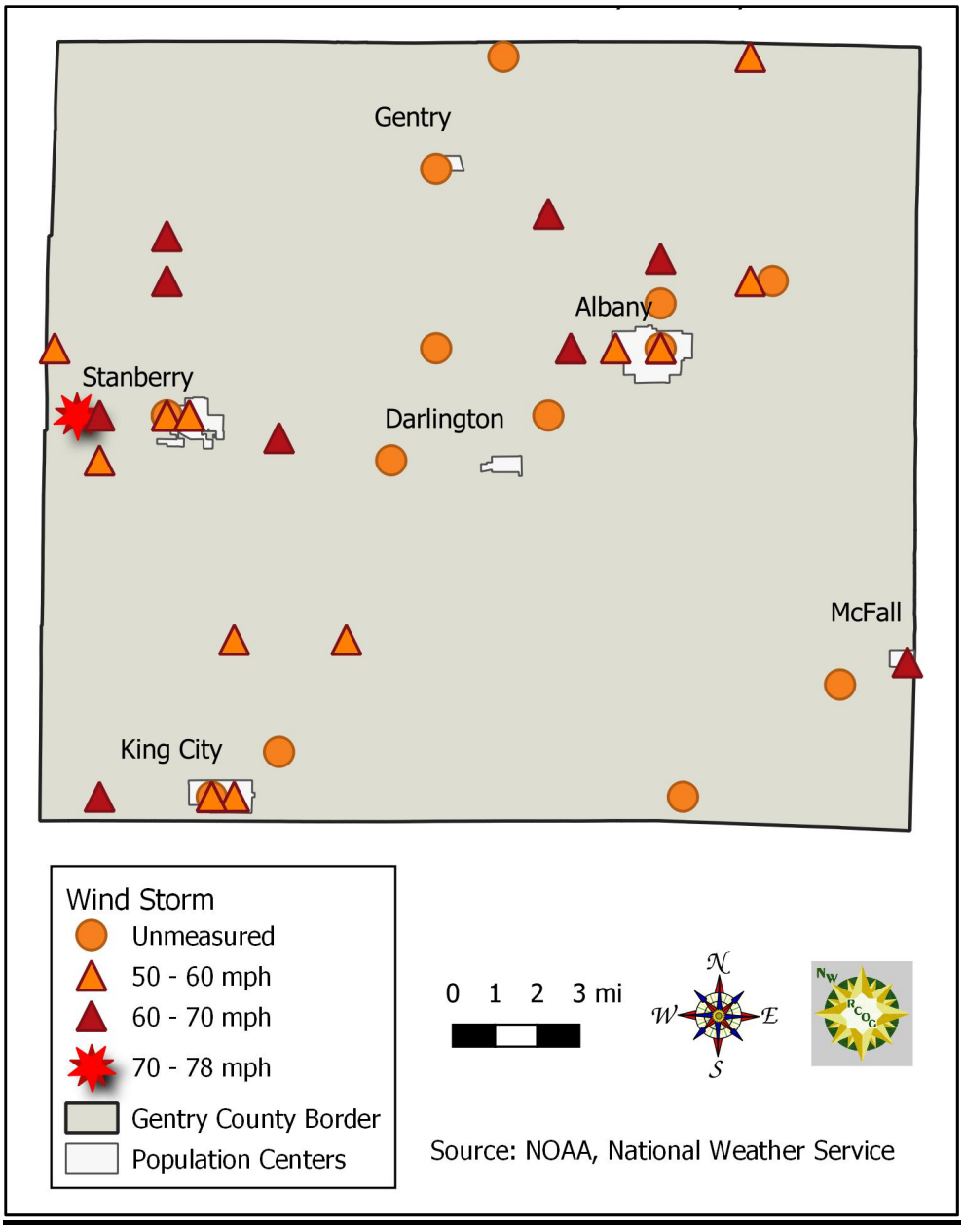
Previous and Future Development

Additional development results in the exposure of more homes and businesses to the threat of damage from thunderstorms. With the declining population trend for most of the County, no significant development is anticipated. The amount of crop acreage vulnerable to damage is expected to remain steady.

Hazard Summary by Jurisdiction

The hazards from thunderstorms are county-wide. The narratives from the NCEI database included storms affecting all parts of the county with equal likelihood. The following map, FIGURE 3.32, shows the location and magnitude of windstorms affecting Gentry County.

Figure 3.29. Location and Magnitude of Gentry County Windstorms



Problem Statement

Early warnings are possibly the best hope for residents when severe weather strikes. Cities that do not already possess warning systems should plan to purchase a system. Additional public awareness also includes coverage by local media sources. Local governments should encourage residents to purchase weather radios to ensure that everyone has sufficient access to information in times of severe weather. Storm shelters are another important means of mitigating the effects of severe thunderstorms. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes. Residents should also be encouraged to build their own storm shelters to prepare for emergencies. Early warnings and available safe rooms will reduce the number of residents at-risk of injury or death from this type of hazard.

3.4.9 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.

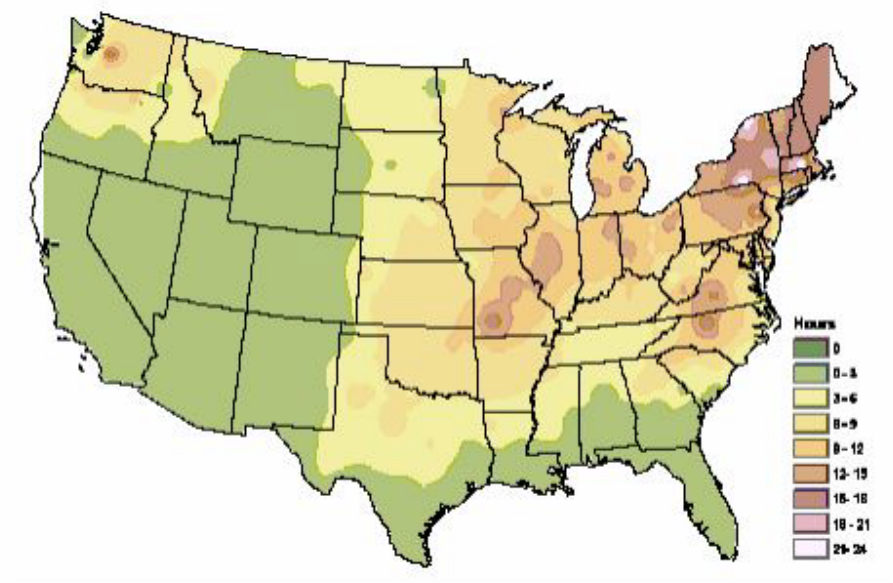
- **Blizzard**—Winds of 35 miles per hour or more with snow and blowing snow reducing visibility to less than ¼ mile for at least three hours.
- **Blowing Snow**—Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.
- **Snow Squalls**—Brief, 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 surfaces and does not typically stick to objects.

Geographic Location

Like thunderstorms, severe winter weather events tend to occur over wide geographic areas, encompassing an entire county or a large group of counties. According to SEMA, severe winter weather events such as snow, ice storms and extreme cold can cause injuries, deaths and property damage in a variety of ways. Winter storms are considered deceptive killers because most deaths are not directly related to the storm. Causes of death range from traffic accidents during adverse driving conditions to heart attacks caused by overexertion while shoveling snow. Hypothermia or frostbite may be considered the most direct cause of death and injuries attributed to winter storms and/or severe cold. Economic costs are difficult to measure. Heavy accumulations of ice can bring down trees, electric power lines and poles, telephone lines and communications towers. Crops, trees and livestock can be killed or injured due to deep snow, ice or severe cold. Buildings and automobiles may be damaged from falling tree limbs, power lines and poles. Local governments, homeowners, business owners, and power companies can be faced with spending millions of dollars for restoration of services, debris removal and landfill hauling.

Gentry County, located in northwest Missouri, is shown on the map below (FIGURE 3.33) to have 3–6 hours of freezing rain per year. Freezing rain events typically last less than six hours but can last more than 24 hours, increasing the risk for catastrophic damages. High winds also contribute to the amount of damage sustained during freezing rain events.

Figure 3.30. 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 extreme cold, heavy snowfall, ice, and strong winds which can push the windchill well below zero degrees in the planning area. 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 because 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 also 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 damages 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 2009 BCA Reference Guide, the economic impact as a result of loss of power is $126 per person per day of lost service.

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

During the period from 1965-2019, there has been one Presidential Major Disaster Declaration for this hazard that has included Gentry County. In December 2007, a series of ice storms lead to widespread damage that left thousands without power across the state. Three FEMA emergency declarations were made during this same period; an earlier ice storm in 2007 plus a January 2008 ice and heavy snow event. Then a blizzard hit the region at the end of January 2011 that carried on into February of 2011, leaving many roads impassable. All the winter weather events recorded by the National Centers for Environmental Information for past 20 years are summarized in TABLE 3.42.

Table 3.42. NCEI Gentry County Winter Weather Events Summary, [2005-2025]

Type of Event	Date(s)	Magnitude	# of Injuries	Property Damages	Crop Damages
Winter Storm	1/3/2005		0	0	0
Winter Storm	1/4/2005		0	0	0
Winter Weather	1/20/2006		0	0	0
Ice Storm	12/1/2007	One quarter of an inch of ice across the county was reported.	0	0	0
Ice Storm	12/10/2007	Ice accumulations of 3/4 inch were reported across the county. Many tree branches and power lines were down.	0	$25,000	0
Winter Storm	12/22/2007	Six to nine inches of snow was reported across southern portions of the county.	0	0	0
Heavy Snow	2/5/2008	Six to nine inches of snow was reported across the county. Stanberry measured 9.4 inches of snow.	0	0	0

Type of Event	Date(s)	Magnitude	# of Injuries	Property Damages	Crop Damages
Winter Storm	2/16/2008	Two to four inches of snow fell across the county. There was blowing and drifting snow.	0	0	0
Ice Storm	12/18/2008	One half inch of ice was reported.	0	0	0
Blizzard	12/7/2009	Blizzard conditions were observed across the area. Snowfall amounts ranged from 7 to 10 inches.	0	0	0
Winter Storm	12/24/2009	Up to 13 inches of snow fell across the county. Gusty northwest winds caused blowing and drifting of the snow.	0	0	0
Winter Storm	2/21/2010	The southern portion of the county had up to 6 inches of snow. Blowing and drifting snow caused hazardous driving conditions.	0	0	0
Winter Storm	3/19/2010	Up to six inches of snow was reported across the county.	0	0	0
Winter Weather	1/10/2011	Five to seven inches of snow was reported across the county.	0	0	0
Winter Storm	1/22/2011	Six inches of snow was estimated in Albany.	0	0	0
Winter Storm	2/1/2011	Up to 7.5 inches of snow was measured in Albany. Visibilities were as low as 1/4 mile at times, in the blowing and drifting snow. Winds occasionally gusted as high as 45 mph.	0	0	0
Winter Storm	2/24/2011	The combination of up to 5 inches of snow, and blowing and drifting snow, led to hazardous driving conditions across the county.	0	0	0
Winter Weather	11/9/2011	Up to one inch of snow was reported in Stanberry.	0	0	0
Winter Weather	2/13/2012	One to two inches of snow was measured across the county.	0	0	0
Winter Weather	2/23/2012	One half inch of snow was measured in Albany.	0	0	0
Blizzard	12/20/2012	The combination of high winds and snowfall of one to three inches caused blizzard conditions across the county.	0	0	0
Winter Storm	2/21/2013	Four to six inches of snow fell across the county.	0	0	0
Heavy Snow	12/21/2013	Light to moderate snow picked up during the afternoon hours on December 21. Preceding the snow freezing rain produced some minor icing in and around the area. Once the snow began it quickly accumulated between 6 and 9 inches across the area. The highest reported amount in the county came from Albany, Missouri where 7 to 8 inches of snow fell. While there were several vehicle spinouts across the area, and despite the ice accumulation the widespread effects were rather minimal.	0	0	0
Heavy Snow	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.	0	0	0
Heavy Snow	1/31/2015	Light snow fell for a long duration across northern Missouri through the evening and overnight hours on January 1 through the early morning hours on February 2. Strong winds moved into the area while the snow was falling and caused visibility problems and drifting on the roads. Generally, 6 to 8 inches fell across the county with the highest reported total from the county coming from Albany, where 7 inches fell. Numerous vehicle accidents occurred due to the poor driving conditions, but no serious injuries were reported.	0	0	0

Type of Event	Date(s)	Magnitude	# of Injuries	Property Damages	Crop Damages
Heavy Snow	2/1/2015	Light snow fell for a long duration across northern Missouri through the evening and overnight hours on January 1 through the early morning hours on February 2. Strong winds moved into the area while the snow was falling and caused visibility problems and drifting on the roads. Generally, 6 to 8 inches fell across the county with the highest reported total from the county coming from Albany, where 7 inches fell. Numerous vehicle accidents occurred due to the poor driving conditions, but no serious injuries were reported.	0	0	0
Winter Storm	12/27/2015	Several areas across northeast Kansas and northwest Missouri saw ice accumulations approaching a quarter inch as well as sleet ranging from a quarter to a half inch in most locations, with some locations reporting over an inch of sleet. Once the sleet ended another 3 to 4 inches of snow fell before the system moved out.	0	0	0
Ice Storm	1/15/2017	To finish off a prolonged freezing rain event across northeast Kansas and northwest Missouri light rain lifted north into far northern Missouri causing ice to accumulate through the day on Sunday and overnight into Monday morning. Several trained weather spotters from across northern Missouri reported a quarter inch of ice on all surfaces. Several area roads were ice covered through the day on Sunday and into Monday morning before temperatures warmed above freezing Monday morning.	0	0	0
Blizzard	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 46 mph for nearly 4 hours, creating whiteout conditions, officially measured by the ASOS at nearby KLWD 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.	0	0	0
Winter Storm	1/11/2019	Between 8 and 10 inches of snow fell across Gentry County, with most of it falling over the course of the first 12 hours. Light snow continued into the next day (January 12), but it was fairly light and only accounted for 1 to 2 inches.	0	0	0
Winter Storm	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.	0	0	0
Winter Storm	4/16/2020	Light snow fell off and on through the day on Thursday, accumulating about an inch; however, by mid-to-late afternoon the snow picked up intensity. One to two inches per hour snow rates were reported across the area for periods. Numerous reports of very low visibility due to very heavy snow were also received. The heavier snow came to an end on the evening of April 16 and gradually tapered to a stop by early morning on April 17. When all was said and done there was about 6 to 8 inches of snow reported across portions of the county.	0	0	0
Winter Storm	12/29/2020	During the day on December 29, a potent winter storm moved into the area. The precipitation started primarily as snow during the morning hours producing a couple inches of	0	0	0

Type of Event	Date(s)	Magnitude	# of Injuries	Property Damages	Crop Damages
		accumulation but switched to freezing rain just before 10 am as warm air aloft moved over the area. Moderate, to at times heavy rain ensued through the rest of the morning and early to middle afternoon hours, before eventually moving out by the evening hours. The main impact from this storm was several power outages around the area. Due to the rain rates, not all of the nearly 1 inch of liquid precipitation accreted on surfaces, but a quarter to half inch did accrete, causing a significant disruption to the power, and closing numerous roads.			
Winter Storm	1/25/2020	Light to moderate snow moved into far northwest Missouri on the morning of January 25, by mid-day roughly 6 inches of snow fell, and by the end of the event roughly 6 to 7 inches of snow fell across the county.	0	0	0
Heavy Snow	2/11/2025	Northern portions of Gentry County received five inches of snow or more. 5.5 of snow was reported in Albany and 5 was reported in Gentry.	0	0	0
		Totals	0	$25,000	0
Source: NCEI, data accessed 9/29/2025					

Winter storms, cold, frost and freeze take a toll on crop production in the planning area. **TABLE 3.43** shows the USDA's Risk Management Agency payments for insured crop losses in Gentry County as a result of cold conditions and snow for the past 10 years.

Table 3.43. Crop Insurance Claims Paid due to Cold Conditions or Snow 2014—2024

Crop Year	Cause of Loss Description	Insurance Paid
2014	Cold Wet Weather/Frost/Freeze	$221,249
2015	Cold Wet Weather	$6,394
2016	Cold Winter	$3,739
2017	Cold Wet Weather	$37,767
2018	Cold Winter	$11,910
2019	Cold Wet Weather	$14,705
2020-2022		Data Unavailable
2023	Cold Wet Weather	$172,629
2024		$0
Total		$468,393

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

Probability of Future Occurrence

There were 35 events involving some type of winter weather occurring in the 20-year period summarized in the table above. The average for the period is 1.75 events per year. The duration of these events varied from hours to days. Based on the NCEI information the annualized damage from winter weather events is $2,500 realizing that most damage is not reported to NCEI. The average annual crop insurance payments to the County's farmers was $46,893 for losses related to winter weather. While it is highly likely that Gentry County will experience a winter weather event in any given year, the severity of the event could vary from a nuisance to a life-threatening situation.

Changing Future Conditions Considerations

From the 2023 State HMP: *A shorter overall winter season and fewer days of extreme cold may have both positive and negative indirect impacts. Warmer winter temperatures may result in changing distributions of native plant and animal species and/or an increase in pests and non-native species. Warmer winter temperatures will result in a reduction of lake ice cover. Reduced lake ice cover impacts aquatic ecosystems by raising water temperatures. Water temperature is linked to dissolved oxygen levels and many other environmental parameters that affect fish, plant, and other animal populations. A lack of ice cover also leaves lakes exposed to wind and evaporation during a time of year when they are normally protected. As both temperature and precipitation increase during the winter months, freezing rain will be more likely. Additional wintertime precipitation in any form will contribute to saturation and increase the risk and/or severity of spring flooding. A greater proportion of wintertime precipitation may fall as rain rather than snow.*

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 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 2009 BCA Reference Guide, the economic impact as a result of loss of power is $126 per person per day of lost service.

Severe Winter Weather including snow, ice, and severe cold has caused more damage for Missourians in recent years with numerous Presidential Declarations, including all or parts of the state, since 2007.The method used by the State of Missouri 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 2016), HAZUS Building Exposure Value data, housing density data from the U.S. Census (2015 ACS), 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 this statistical data collected, the following factors were considered in determining overall severe winter storm vulnerability as follows: housing density, building exposure, social vulnerability, likelihood of occurrence, and average annual property loss.

The rating values of all factors were then combined to determine the overall vulnerability rating. TABLE 3.44 below, provides the factors considered, the rating values assigned, and the rating that Gentry County received on each factor.

Table 3.44. Vulnerability Analysis of Rating Factors Applied to Gentry County

Factors Considered	Measure	Rating
Housing Density	6.52 per sq. mi.	1 Low
Building Exposure	$689,499,000	1 Low
Social Vulnerability	Score = 4	Medium-High
Annual Likelihood of Occurrence	45 events 1.73 annual average	2 Medium-Low
Annualized Property Loss	$58,654	2 Medium-Low
Overall Vulnerability	Score = 9	Medium-Low

Source: 2023 Missouri State Hazard Mitigation Plan

This most recent analysis in the State HMP places Gentry County in the Medium Low category with a total of 9 points out of a maximum of 25.

Potential Losses to Existing Development

The following, TABLE 3.45, provides the annualized property losses due to different types of severe winter weather. These are the common data elements for the analysis of severe winter weather. The data was compiled from the storm database of NCEI. NCEI damages represent early estimates. It should be noted that the information in the following table is from the 2023 State HMP which used a set of data from a different period of years that was used earlier in this section.

Table 3.45. Annualized Damages due to Winter Weather in Gentry County

Blizzard	Heavy Snow	Ice Storm	Winter Storm	Winter Weather	Total Annualized Property Loss
$0	$57,692	$962	$0	$0	$58,654

Source: 2023 Missouri State Hazard Mitigation Plan

The data from the 2023 update to the state plan lists the annualized property loss at $57,692 and an overall vulnerability rating of Medium-Low for Severe Winter Weather.

Previous and Future Development

With the declining population trend for most of the County, no significant development is anticipated.

Hazard Summary by Jurisdiction

All jurisdictions within the county are equally susceptible to damage stemming from severe winter weather, particularly snow and ice events. In the event of a severe winter storm, 26-50% of any given jurisdiction may be at risk of damage. In the case of extreme cold temperatures, and power outages, special consideration must be given to the potential impact upon the young, disabled, and elderly populations.

Problem Statement

Severe winter weather is common with an average of 1 to 2 events per year affecting all jurisdictions. The electrical grid and transportation systems are most effected by severe winter weather. Shelters with auxiliary power supplies should be available to residents affected by power outages. Preparedness remains the best option to limit the threats of these events on the residents of Gentry County.

3.4.10 Tornado

Hazard Profile

Hazard Description

The NWS defines a tornado as “a violently rotating column of air extending from a thunderstorm to the ground.” It is usually spawned by a thunderstorm and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. Often, vortices remain suspended in the atmosphere as funnel clouds. When the lower tip of a vortex touches the ground, it becomes a tornado.

High winds not associated with tornadoes are profiled separately in this document in 3.4.8

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 upwards 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 miles.

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

Any person or structure at any location in Gentry County could be impacted by a tornado. The amount of damage depends on 1) the strength of the tornado, 2) the tornado's proximity to the person/structure, 3) the strength of the structure, 4) how well a person is sheltered.

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 3.46) 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 3.46. 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 3.47. 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.

Table 3.47. 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 completely 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 distance.
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. 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. As noted for other hazards, a zero in the property or crop damages columns means the amount is unknown. TABLE 3.48 below details the tornado history of Gentry County.

Table 3.48. Recorded Tornadoes in Gentry County, 2000–2025

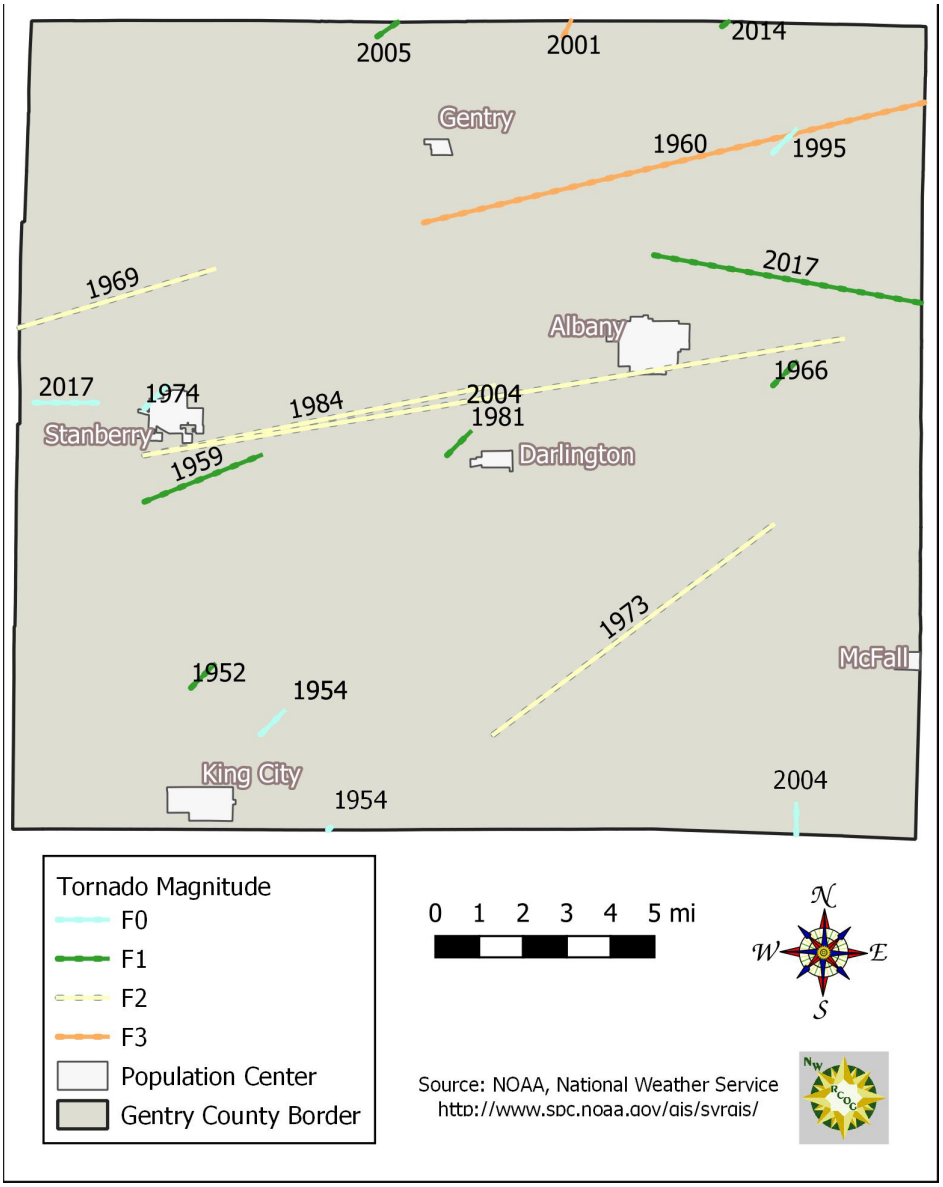
Date	Beginning Location	Ending Location	Length (miles)	Width (yards)	F/EF Rating	Death	Injury	Property Damage	Crop Damage
2001-04-11	40.38, -94.37	40.4, -94.3	2	100	1	0	0	--	--
2003-04-30	40.37, -94.17	40.38, -94.17	1	50	0	0	0	--	--
2004-05-24	39.95, -93.4	39.95, -93.4	17	250	2	0	1	$10.000,000	--
2005-06-04	40.38, -94.47	40.38, -94.47	.5	100	1	0	0	--	--
2005-06-04	40.23, -94.55	40.23, -94.55	1	50	0	0	0	--	--
2005-06-04	40.17, -94.22	40.17, -94.22	.5	50	0	0	0	--	--
2014-06-30	40.38, -94.30	40.39, -94.3	0.22	50	0	0	0	--	--
2017-06-28	40.29, -94.33	40.28, -94.22	6.06	75	0	0	0	--	--
2017-06-28	40.22, -94.6	40.22, -94.57	1.44	25	0	0	0	--	--
2024-04-27	40.3, -94.42	40.35, -94.22	11.64	250	1	0	0	--	--
	Total: 10						1	$10,000,000	

Source: National Centers for Environmental Information

The most destructive storm occurred on May 24, 2004. This F2 tornado was consistently on the ground from one mile south of Stanberry east-northeast through Albany. Multiple vortices were noticed on chaser video. Extensive damage was observed in Albany. Three homes were destroyed. There were 34 buildings with major damage, and 70 buildings had minor damage.

Using information from the National Centers for Environmental Information the following map FIGURE 3.34 shows the paths of tornadoes that occurred 1950-2024.

Figure 3.31. Gentry County Map of Historic Tornado Events



According to the USDA Risk Management Agency, there have not been any indemnity payments to Gentry County farmers during the past 10 years for losses suffered due to tornado activity. It is possible that any damages that occurred from tornadic activity were listed as wind damage or excess precipitation, which usually accompanies the storms that spawn tornadoes.

Probability of Future Occurrence

There have been 10 tornadoes recorded over the last 25 years. This puts Gentry County's risk for a tornado at 4% for any given year.

Changing Future Conditions Considerations

From the 2018 State HMP: *Scientists do not know how the frequency and severity of tornadoes will change. 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 U.S. The number of days with large outbreaks have been increasing since the 1950s and that densely concentrated*

tornado outbreaks are on the rise. Areas already subject to tornado activity are seeing more densely packed tornadoes.

Vulnerability

Vulnerability Overview

Although the boundaries of Tornado Alley, shown in FIGURE 3.35, are debatable (depending on which criteria you use—frequency, intensity, or events per unit area), the region from central Texas, northward to northern Iowa, and from central Kansas and Nebraska east to western Ohio is often collectively known as Tornado Alley. Meteorologically, the region is ideally situated for the formation of supercell thunderstorms, often the producers of violent (EF-2 or greater) tornadoes.

Overall, most tornadoes (around 77%) in the United States are considered weak (EF-0 or EF-1) and about 95% of all United States tornadoes are below EF-3 intensity. The remaining small percentage of tornadoes are categorized as violent (EF-3 and above). Of these violent twisters, only a few (0.1% of all tornadoes) achieve EF-5 status, with estimated winds over 200 mph and nearly complete destruction. However, given that on average over 1,000 tornadoes hit the United States each year, which means that 20 can be expected to be violent and one might possibly be so intense as to be described as incredible.

Figure 3.32. Tornado Alley in the U.S.

Source: http://www.tornadochaser.net/tornalley.html

In the 2023 update to its hazard mitigation plan, the State of Missouri looked at statistical analysis of data from several sources: HAZUS building exposure value data, population density and mobile home data from the U.S. Census (2020 ACS), 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, 2016) from the National Centers for Environmental Information (NCEI). 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. The data for Gentry County is given in the following TABLE 3.49.

Table 3.49. Tornado Vulnerability Data for Gentry County

Likelihood of Occurrence	0.278 or 27.8%	Medium-Low
Total Annualized Property Loss	$146,708	Low
Percent Mobile Homes	4.0%	Medium
Social Vulnerability Rating	4	Medium-High
Population Density	13.37	Low
Building Exposure	$734,656,000	Low
Overall Vulnerability	12	Low-Medium

Source: Missouri State Hazard Mitigation Plan 2023

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 and 5-High. The combined vulnerability rating for Gentry County was 12 (Low-Medium).

Potential Losses to Existing Development

The rural nature of the county lessens the likelihood of a tornado striking a densely populated area. The 2020 U.S. Census data showed a population density of 13 persons per square mile and a housing density of 6 units per square mile. This means most damage would probably occur to agricultural assets.

The last several years have seen a decrease in the likelihood of tornadoes in the; however, the intensity of the storms has been less. The damage from these lower-scale storms is usually light-to-moderate, which limits the potential losses to the County. There has been no reported property damage from tornadoes since 2005.

Previous and Future Development

The county has seen a decrease in population since the last census, with many of the small communities losing residents. The total building exposure at risk to tornadoes is $734,656,000. Only a small increase in exposure is foreseen at this time.

Hazard Summary by Jurisdiction

Mobile homes, which offer little protection from tornadoes, make up about 4% of the housing for Gentry County. These homes are located throughout the county, but a higher percentage of mobile homes are found in Darlington at 30% and in Gentry 70% of the homes were built before 1940. Occupants of mobile homes or in older homes are at greater risk during tornadoes. (See **FIGURE 3.18).**

Problem Statement

Gentry County has been fortunate that the tornadoes that have occurred over the last 15 years have all been of the lowest intensity. The risk of a devastating tornado cannot be ignored. Residents must immediately be aware when an area will be facing a severe weather incident. Jurisdictions that do not already possess warning systems should plan to purchase a system. Storm shelters are another important means of mitigating the effects of tornados. Additional public awareness also includes coverage by local media sources. 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. Schools should consider the construction of safe rooms for their students. A shared facility between city and school is a possibility.

3.4.11 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 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 to 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

Damages due to wildfires would be higher in communities with more wildland-urban interface (WUI) areas. The term refers to the zone of transition between unoccupied land and human development and needs to be defined in the plan. Within the WUI, there are two specific areas identified: 1) Interface and 2) Intermix. The interface areas are those areas that abut wildland vegetation and the Intermix areas are those areas that intermingle with wildland areas.

Wildfires are included in the plan because, like most other natural hazards, there is always a possibility of occurrence. When there are periods of extreme heat and drought the risk of wildfire increases.

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 to 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

Of the 3 fires in Gentry County reported to the Missouri Department of Conservation over the last ten years, no fires were acknowledged as being the result of lightning. The remaining causes with frequency in parentheses were classified as: equipment (1), controlled burn (1), unknown (1). The largest reported fire burned 40 acres with its cause attributed to equipment. The data is summarized in TABLE 3.50.

Table 3.50. Wildfire Reports from Gentry County, 2015–2025

Fire Reporting Agency	# of Fires	Acres Burned
Pattonsburg Rescue & Fire Protection District	1	10
TRI-C Fire Department	1	1
Union Star Fire Protection District	1	40
Totals		51

Source: Missouri Dept. of Conservation: Fire Reporting
https://mdc12.mdc.mo.gov/Applications/MDCFireReporting/

There were no records received of fire events affecting school districts, and structural fires are not included in this assessment.

Probability of Future Occurrence

For the period from 2004-2021, there were 316 fires reported in Gentry County. That is an average of 18.5 fires a year, with an average number of acres burned per fire at 460.7 acres. The likelihood of a fire happening in a given year is 17.6%. Sometimes agricultural prescribed fires become out of control and burn more acres than is intended. The lack of details on these fire events makes it difficult to assess the initial causes of the fires. The data that is available supports the idea that most of these fires were caused by human error.

Changing Future Conditions Considerations

The effects of higher temperatures on the potential for wildfires in the County could be offset by higher precipitation levels. Lower rainfall amounts during the warmer summer months have the potential to lead to more drought conditions which increase the likelihood of wildfires.

Vulnerability

Vulnerability Overview

The 2023 Missouri State HMP used Department of Conservation data to assess the vulnerability of each county to the effects of wildfire. The factors considered in the analysis were the likelihood of occurrence and the annualized acres burned.

Potential Losses to Existing Development

The data available from the 2023 update to the State HMP found 5 residential and 10 agricultural structures in Gentry County at risk from wildfire, with the value of structures at $931,713 and the at-risk population at 13 persons. Potential losses are listed at $4,287,329.

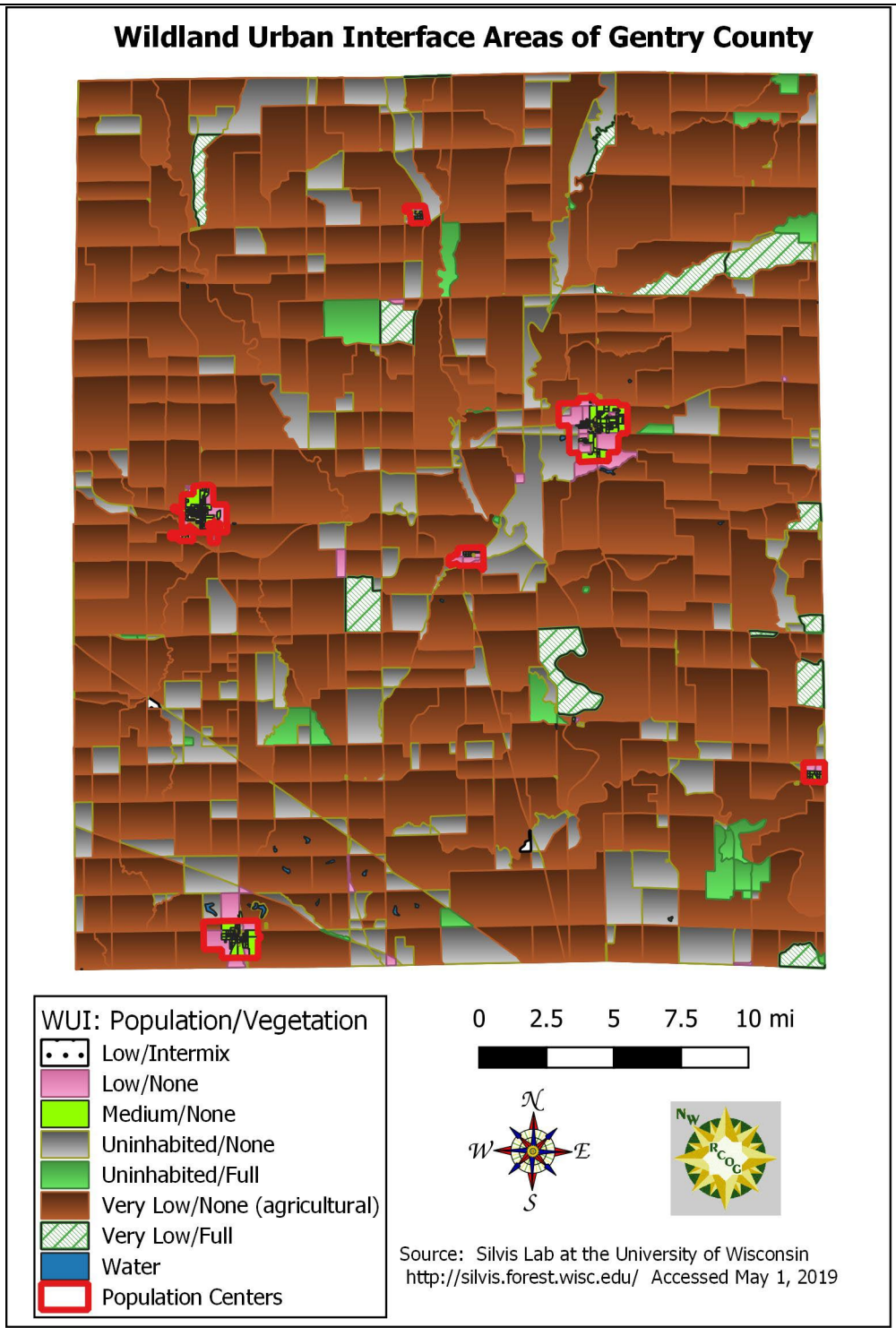
Impact of Previous and Future Development

The areas of WUI in Gentry County are found only in one area of Stanberry. There has been no additional development in this Intermix area or any plans to do so in the near future.

Hazard Summary by Jurisdiction

The map below (FIGURE 3.36) shows the Wildland-Urban Interface for Gentry County. The entire Northwest Region of the State is comparable to Gentry County with low risk of damages in the area. A very small area in the southwest part of Stanberry is the only significant location on the WUI map. This is an area of Intermix WUI where low density housing and vegetation intermingle. There is no other intermix areas of medium or high population density. The bulk of the county is designated as having NonWUI vegetation as illustrated on the map, reflecting the agricultural nature of the county. Most of the county has low or very low housing density that is located in agricultural or non-vegetated areas so that there will be little difference between jurisdictions for this hazard. None of the public-school buildings are located in intermix zones.

Figure 3.33. Population Density and Vegetation Levels in Gentry County



Problem Statement

While wildfires have no history of causing considerable damage in Gentry County, there is a possibility that a wildfire could happen in any given year. The most-likely type of wildfire would be an out-of-control agricultural grassfire. Communications to reach residents to inform them of impending danger due to a wildfire can be improved by using text/caster and other county-wide warning systems of National

Weather Service issued fire weather watches and red flag warnings. During a wildfire situation, evacuation is essential to save lives. Since wildfires can move very fast if there are high wind conditions, emergency notification of evacuation orders need to be disseminated quickly to provide accurate information to lead residents to safety.

44 CFR Requirement §201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

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 Hazard Mitigation Review Guide (October 1, 2012)*.

- **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

44 CFR Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

This planning effort is an update to Gentry County's existing hazard mitigation plan approved by FEMA on March 11, 2021. Therefore, the goals from the 2021 Gentry 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 goals were reviewed at the Risk Assessment Meeting #2 of the planning process. There was consensus from the committee that the 2021 Goals should be revised to better align with the updated State HMP goals for the 2025 plan update. The following are the agreed upon goals for the 2025 update of the Gentry County multi-jurisdictional Hazard Mitigation Plan.

- GOAL 1: Preserve human life, health, and safety from the adverse effects of disasters.
- GOAL 2: Defend the continuity of government and essential services and processes from the adverse effects of disasters.
- GOAL 3: Protect public and private property from the adverse effects of disasters.
- GOAL 4: Safeguard community tranquility from the adverse effects of disasters.

4.2 Identification and Analysis of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

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, Ongoing 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 mitigate risks in the planning area.

The focus of Meeting #3 was update of the mitigation strategy. For a comprehensive range of mitigation actions to consider, the MPC reviewed the following information during Meeting #3:

- A list of actions proposed in the previous mitigation plan, the current 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.
- 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. 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 0 completed actions, 12 continuing actions (either ongoing or modified), and 15 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
Unincorporated Gentry County	-	1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 3.1, 3.2	1.1.2, 1.2.1, 1.2.5, 1.2.6, 1.3.1, 1.3.2, 2.1.4, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.6
City of Albany	-	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 3.1	1.1.2, 1.2.1, 1.2.5, 1.2.6, 1.2.7, 1.3.1, 1.3.4, 2.1.3, 2.1.4, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.6
City of King City	-	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 3.1	1.1.2, 1.2.1, 1.3.1, 2.1.4, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.6
City of Stanberry	-	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2, 2.3, 2.4, 3.1	1.1.2, 1.2.1, 1.2.5, 1.2.6, 1.2.7, 1.3.1, 1.3.4, 2.1.4, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.2.6
Albany R-III School District	-	1.5, 1.6	1.2.1, 2.2.5
King City R-I School District	-	1.5, 1.6	1.2.1, 2.2.5
Stanberry R-II School District	-	1.5, 1.6	1.2.1, 2.2.5

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)
None	None
Deleted Actions	**Reason for Deletion**
Unincorporated Gentry County	
1.1.2 Coordinate with MoDOT and utility companies to maintain operation of transportation systems and electrical grids during severe winter weather. Pavement and weather conditions will be monitored to ensure an efficient and timely removal of snow. Utilities will be monitored during severe winter weather to ensure power outages are adequately repaired in a timely	Action was planning and preparedness, not a mitigation action
1.2.1 Keep school district involved in hazard mitigation efforts by annually reassessing and updating the district's all-hazards plan	Action was planning and preparedness, not a mitigation action
1.2.5 Continue to monitor for repetitive flood loss properties for buyout.	Action was planning and preparedness, not a mitigation action

1.2.6 Continue to monitor DFIRM development for plan inclusion when available.	Action was planning and preparedness, not a mitigation action
1.3.1 Continue to identify critical facilities within the county and in city jurisdictions that have the most potential for losses from a disaster event and identify needed structural upgrades. (This recommendation addresses existing buildings and infrastructure.)	Action was planning and preparedness, not a mitigation action
1.3.2 Collect and process data concerning Gentry County dams, both regulated and unregulated, in order to create inundation data as well as a mitigation strategy that can reduce the risks associated with dam failure.	Gentry County has no plans to collect dam data
2.1.4 Continue to develop a system to ensure that storm drains are not blocked and are able to receive water in flood-prone areas.	Routine maintenance actions removed from Action Items
2.2.1 Maintain and continuously update a publicly accessible list of names, positions, contact information, roles, and responsibilities for all public safety positions and departments.	Action was planning and preparedness, not a mitigation action
2.2.2 Execute and maintain mutual aid agreements with all relevant agencies	Action was planning and preparedness, not a mitigation action
2.2.3 Assist property owners, businesses, and occupants of hazard-prone areas in participating in mitigation planning along with their public officials.	Action was not a mitigation action
2.2.5 Annual assessment and update of Hazard Mitigation Plans.	Plan maintenance is not a mitigation action
2.2.6 Reassess the existing Hazard Mitigation Plan with commissioners monthly and annually using the committee-created Annual Assessment worksheet and report to the County Commissioners concerning the status of each mitigation action.	Plan maintenance is not a mitigation action
City of Albany	
1.1.2 Coordinate with MoDOT and utility companies to maintain operation of transportation systems and electrical grids during severe winter weather. Pavement and weather conditions will be monitored to ensure an efficient and timely removal of snow. Utilities will be monitored during severe winter weather to ensure power outages are adequately repaired in a timely manner.	Action was planning and preparedness, not a mitigation action
1.2.1 Keep school district involved in hazard mitigation efforts by annually reassessing and updating the district's all-hazards plan.	Plan maintenance is not a mitigation action
1.2.5 Continue to monitor for repetitive flood loss properties for buyout.	Action was planning and preparedness, not a mitigation action
1.2.6 Continue to monitor DFIRM development for plan inclusion when available.	Action was planning and preparedness, not a mitigation action
1.2.7 Review floodplain ordinances within the county using Risk MAP products annually.	Action was not a mitigation action
1.3.1 Continue to identify critical facilities within the county and in city jurisdictions that have the most potential for losses from a disaster event and identify needed structural upgrades. (This recommendation addresses existing buildings and infrastructure.)	Action was planning and preparedness, not a mitigation action
1.3.4 In floodplain areas enforce community floodplain regulations, continue to ensure that new development & redevelopment occurs outside of floodplains.	Action was not a mitigation action
2.1.3 Participate in the Great Northwest Wholesale Water Commission to help provide potential new sources of water during extreme drought	Funding to participate in the Great Northwest Wholesale Water Commission no longer exists
2.1.4 Continue to develop a system to ensure that storm drains are not blocked and are able to receive water in flood-prone areas.	Routine maintenance actions removed from Action Items

2.2.1 Maintain and continuously update a publicly accessible list of names, positions, contact information, roles, and responsibilities for all public safety positions and departments.	Action was planning and preparedness, not a mitigation action
2.2.2 Execute and maintain mutual aid agreements with all relevant agencies	Action was planning and preparedness, not a mitigation action
2.2.3 Assist property owners, businesses, and occupants of hazard-prone areas in participating in mitigation planning along with their public officials.	Action was not a mitigation action
2.2.5 Annual assessment and update of Hazard Mitigation Plans.	Plan maintenance is not a mitigation action
2.2.6 Reassess the existing Hazard Mitigation Plan with commissioners monthly and annually using the committee-created Annual Assessment worksheet and report to the County Commissioners concerning the status of each mitigation action.	Plan maintenance is not a mitigation action
City of King City	
1.1.2 Coordinate with MoDOT and utility companies to maintain operation of transportation systems and electrical grids during severe winter weather. Pavement and weather conditions will be monitored to ensure an efficient and timely removal of snow. Utilities will be monitored during severe winter weather to ensure power outages are adequately repaired in a timely manner.	Action was planning and preparedness, not a mitigation action
1.2.1 Keep school district involved in hazard mitigation efforts by annually reassessing and updating the district's all-hazards plan.	Plan maintenance is not a mitigation action
1.3.1 Continue to identify critical facilities within the county and in city jurisdictions that have the most potential for losses from a disaster event and identify needed structural upgrades. (This recommendation addresses existing buildings and infrastructure.)	Action was planning and preparedness, not a mitigation action
2.1.4 Continue to develop a system to ensure that storm drains are not blocked and are able to receive water in flood-prone areas.	Routine maintenance actions removed from Action Items
2.2.1 Maintain and continuously update a publicly accessible list of names, positions, contact information, roles, and responsibilities for all public safety positions and departments.	Action was planning and preparedness, not a mitigation action
2.2.2 Execute and maintain mutual aid agreements with all relevant agencies	Action was planning and preparedness, not a mitigation action
2.2.3 Assist property owners, businesses, and occupants of hazard-prone areas in participating in mitigation planning along with their public officials.	Action was not a mitigation action
2.2.5 Annual assessment and update of Hazard Mitigation Plans.	Plan maintenance is not a mitigation action
2.2.6 Reassess the existing Hazard Mitigation Plan with commissioners monthly and annually using the committee-created Annual Assessment worksheet and report to the County Commissioners concerning the status of each mitigation action.	Plan maintenance is not a mitigation action
City of Stanberry	
1.1.2 Coordinate with MoDOT and utility companies to maintain operation of transportation systems and electrical grids during severe winter weather. Pavement and weather conditions will be monitored to ensure an efficient and timely removal of snow. Utilities will be monitored during severe winter weather to ensure power outages are adequately repaired in a timely manner.	Action was planning and preparedness, not a mitigation action

1.2.1 Keep school district involved in hazard mitigation efforts by annually reassessing and updating the district's all-hazards plan.	Plan maintenance is not a mitigation action
1.2.5 Continue to monitor for repetitive flood loss properties for buyout.	Action was planning and preparedness, not a mitigation action
1.2.6 Continue to monitor DFIRM development for plan inclusion when available.	Action was planning and preparedness, not a mitigation action
1.2.7 Review floodplain ordinances within the county using Risk MAP products annually.	Action was not a mitigation action
1.3.1 Continue to identify critical facilities within the county and in city jurisdictions that have the most potential for losses from a disaster event and identify needed structural upgrades. (This recommendation addresses existing buildings and infrastructure.)	Action was planning and preparedness, not a mitigation action
1.3.4 In floodplain areas enforce community floodplain regulations, continue to ensure that new development & redevelopment occurs outside of floodplains.	Action was not a mitigation action
2.1.4 Continue to develop a system to ensure that storm drains are not blocked and are able to receive water in flood-prone areas.	Routine maintenance actions removed from Action Items
2.2.1 Maintain and continuously update a publicly accessible list of names, positions, contact information, roles, and responsibilities for all public safety positions and departments.	Action was planning and preparedness, not a mitigation action
2.2.2 Execute and maintain mutual aid agreements with all relevant agencies	Action was planning and preparedness, not a mitigation action
2.2.3 Assist property owners, businesses, and occupants of hazard-prone areas in participating in mitigation planning along with their public officials.	Action was not a mitigation action
2.2.5 Annual assessment and update of Hazard Mitigation Plans.	Plan maintenance is not a mitigation action
2.2.6 Reassess the existing Hazard Mitigation Plan with commissioners monthly and annually using the committee-created Annual Assessment worksheet and report to the County Commissioners concerning the status of each mitigation action.	Plan maintenance is not a mitigation action
Albany R-III School District	
1.2.1 Keep school district involved in hazard mitigation efforts by annually reassessing and updating the district's all-hazards plan.	Plan maintenance is not a mitigation action
2.2.5 Annual assessment and update of Hazard Mitigation Plans.	Plan maintenance is not a mitigation action
King City R-I School District	
1.2.1 Keep school district involved in hazard mitigation efforts by annually reassessing and updating the district's all-hazards plan.	Plan maintenance is not a mitigation action
2.2.5 Annual assessment and update of Hazard Mitigation Plans.	Plan maintenance is not a mitigation action
Stanberry R-II School District	
1.2.1 Keep school district involved in hazard mitigation efforts by annually reassessing and updating the district's all-hazards plan.	Plan maintenance is not a mitigation action
2.2.5 Annual assessment and update of Hazard Mitigation Plans.	Plan maintenance is not a mitigation action

Source: Previously approved County Hazard Mitigation Plan; Data Collection Questionnaires.

4.3 Implementation of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include an action strategy describing how the actions identified in paragraph (c)(2)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefits review of the proposed projects and their associated costs.

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 closely 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[7(a)]. 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 points
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.

Table 4.3 Mitigation Action Matrix

Jurisdiction Abbreviations: U- Unincorporated Gentry County, A- City of Albany, KC- City of King City, S- City of Stanberry, AS- Albany R-III School District, KCS- King City R-I School District, SS- Stanberry R-II School District

Hazard Abbreviations: F- Flooding (Riverine and Flash), L- Levee Failure, D- Dam Failure, EQ- Earthquake, DR- Drought, W- Wildfire, ET- Extreme Temperature, ST- Severe Thunderstorms, SWW- Severe Winter Weather, T- Tornadoes

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
	Prevention							
1.3	Host and provide biannual and on-demand weather spotter training courses and implement training within local fire and police departments in cooperation with the National Weather Service. Invite the public and responders so they are able to better identify early warning signs for severe weather.	U, A, KC, S	High	1	ST, SWW, T	X		
	Structure and Infrastructure Projects							
1.5	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.	U, A, AS, KC, KCS, S, SS	High	2	ST, T	X	X	
2.2	Evaluate existing city structures and infrastructure for ability to with low to moderately intense earthquakes. Contract a structural engineer to do the evaluations	U, A, KC, S	Low	3	EQ	X		
3.2	Construct or modify storm drains, culverts, levees, floodwalls and berms to lessen the frequency and severity of flooding	U, A, KC, S	Medium	3	D, L, F	X	X	X
Natural Systems Protection								
2.3	Mitigate the risk to life and property by identifying and removing dead standing trees along with overgrown trees near roadways and drainage systems	U, A, KC, S	Medium	3	D, L, ST, SWW, F	X	X	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
	Emergency Services							
1.1	Conduct a comprehensive review of current outdoor warning siren coverage across all municipalities and unincorporated areas of Gentry County. Identify coverage gaps using GIS mapping and National Weather Service alert zones. Procure and install new sirens with battery or solar backup systems in under-served areas. Upgrade existing sirens with remote activation, automated alert synchronization, and redundant communication pathways (radio, cellular, and internet-based activation).	U, A, KC, S	High	1	T, ST	X	X	X
1.2	Establish and maintain a GIS-based registry of elderly and medically vulnerable residents at risk from extreme heat and cold, coordinated with Tri-County Health Department and local emergency services. Create an outreach program so residents are aware of the program.	U, A, KC, S	Medium	1	ET, SWW	X		
2.1	Implement a countywide, multi-modal citizen alert system capable of distributing emergency notifications through SMS text messages, mobile app push alerts, email, social media, and voice calls. Integrate the system with NOAA Weather Radio, FEMA's IPAWS, and outdoor sirens for seamless message delivery. Conduct community outreach campaigns to register residents, with a focus on rural and vulnerable populations, including the elderly and individuals with disabilities.	A, KC, S	Medium	1	ST, SWW, T	X		
2.4	Purchase backup emergency generators for use during severe weather events. Generators will ensure critical facilities and emergency communication remain operable during these events. Assist critical facilities in creating emergency communication plans with particular focus on non-profit organizations, nursing homes, community center(s), and schools.	A, KC, S	Medium	2	ST, SWW, T	X	X	

#	Action	Jurisdiction	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
	Education and Outreach							
1.4	Provide emergency preparedness information and resources related to all natural disasters to the general public and businesses through active education and outreach programs.	U, A, KC, S	Medium	1	F, D, L, EQ, DR, W, ET, ST, SWW, T	X		
1.6	Provide emergency preparedness information and resources related to all natural disasters to the school district through active education and outreach programs. Host educational events with students regarding emergency preparedness as part of the annual start of school procedures	U, A, AS, KC, KSC, S, SS	Medium	1	F, D, L, EQ, DR, W, ET, ST, SWW, T	X		
3.1	Develop a plan/ordinance to monitor drought conditions on a regular basis and identify areas at risk of wildfire. As part of this plan, design policies in conjunction with city officials to conserve water supplies during drought conditions, restrict burning, and make information available to the public. Enact burn bans via the Fire Chief if/when necessary.	A, KC, S	Low	3	DR, W	X		

The towns of Darlington, Gentry, and McFall were contacted multiple times by phone, mail, and email over the course of the plan update. During the course of the HMP plan update, there was no participation by these three communities, and it appears they have chosen not to participate in the update.

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Current outdoor warning siren coverage is incomplete in several populated and rural areas. Many existing sirens are aging, lack backup power, and do not integrate with modern emergency alert systems. This limits the ability to notify residents of imminent severe weather, especially at night or during power outages. Additional public awareness also includes coverage by local media sources.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.1-U (previously 1.1.1)
Name of Action or Project:	Outdoor Warning Siren Modernization and Expansion Project
Mitigation Category:	Emergency Services
Action or Project Description:	Conduct a comprehensive review of current outdoor warning siren coverage across all municipalities and unincorporated areas of Gentry County. Identify coverage gaps using GIS mapping and National Weather Service alert zones. Procure and install new sirens with battery or solar backup systems in under-served areas. Upgrade existing sirens with remote activation, automated alert synchronization, and redundant communication pathways (radio, cellular, and internet-based activation).
Estimated Cost:	Approximately $1,000 annually to maintain existing system, $40,000 to install new sirens. $500,000 total
Benefits:	Enhance public safety by ensuring timely and reliable warnings during severe weather events, reducing injuries and fatalities from tornadoes and severe storms, and improving interoperability with regional emergency management systems.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Management Agency, Local Jurisdictions
Action/Project Priority:	High
Timeline for Completion:	2026-2028
Potential Fund Sources:	State and Federal HMPG funds, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP, Hazard Mitigation Plan, County Capital Improvement Plan
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Existing sirens are in working order, new siren construction and retrofitting of existing systems if funds become available.

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	All jurisdictions within the county are equally susceptible to temperature extremes, as these types of events tend to be regional in nature. The large percentage of residents that are over 65 years of age means that many are at risk during extreme heat events.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters
Action/Project Number:	1.2-U (previously 1.1.4)
Name of Action or Project:	Population Identification
Mitigation Category:	Emergency Services
Action or Project Description:	Establish and maintain a GIS-based registry of elderly and medically vulnerable residents at risk from extreme heat and cold, coordinated with Tri-County Health Department and local emergency services. Create an outreach program so residents are aware of the program
Estimated Cost:	$1,000
Benefits:	Safe and Secure “at risk” populace
Plan for Implementation	
Responsible Organization/Department:	Gentry County Sheriff’s Department
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing mission.
Potential Fund Sources:	County budget for Emergency Preparedness
Local Planning Mechanisms to be Used in Implementation, if any:	Local Emergency Operations Plan (LEOP)
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	County EMD continues to work with local Emergency Services to keep the list up to date.

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornadoes
Problem being Mitigated:	The general public has limited access to warning systems during times of severe weather.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.3-U (previously 1.2.2)
Name of Action or Project:	Weather Spotter Training
Mitigation Category:	Prevention
Action or Project Description:	Host and provide biannual and on-demand weather spotter training courses and implement training within local fire and police departments in cooperation with the National Weather Service. Invite the public and responders so they are able to better identify early warning signs for severe weather.
Estimated Cost:	$1,000
Benefits:	Weather spotter trainings will train residents to provide early warnings of severe weather, thus giving the population more time to prepare and take shelter.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Manager
Action/Project Priority:	High
Timeline for Completion:	Ongoing
Potential Fund Sources:	Local Emergency Services and Emergency Management staff time
Local Planning Mechanisms to be Used in Implementation, if any:	National Weather Service (NWS) Storm Ready program
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Weather spotter training continues to be held; public outreach will be expanded.

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.4-U (previously 1.2.4)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the general public and businesses through active education and outreach programs.
Estimated Cost:	$5,000
Benefits:	An informed and prepared populace can prepare and mitigate the effects of hazards that may affect them.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Manager
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	County budget for Emergency Preparedness, Local Tax revenue
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Information and resources continue to be refined and updated. As circumstances and funding allow, outreach programs will be scheduled.

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Storm shelters are an important means of mitigating the effects of tornados and severe storms. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes, to minimize the potential loss of life.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.5-U (previously 2.1.6)
Name of Action or Project:	Safe Rooms and Storm Shelters
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.
Estimated Cost:	Estimated $500,000 - $1,000,000
Benefits:	Storm shelters in public buildings will protect the lives of individuals in a hazard event who may not have any other option for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Manager
Action/Project Priority:	High
Timeline for Completion:	2031, As funding becomes available
Potential Fund Sources:	State and Federal HMPG Grants, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	County Comprehensive Plan
Progress Report	
Action Status:	Continued, Not Started
Report of Progress:	All County Schools and Public Structures have this as a prime mission, and would like to install or retrofit storm shelters if funding becomes available

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Severe Winter Weather, Tornadoes
Problem being Mitigated:	Many residents, especially in rural areas, rely solely on outdoor sirens for alerts and may not receive timely warnings indoors, at night, or when sirens malfunction. A lack of integration between county emergency management systems and modern digital communication tools limits the reach and redundancy of public alerts.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters
Action/Project Number:	2.1-U (previously 1.1.3)
Name of Action or Project:	Gentry County Multi-Channel Emergency Alert and Notification System
Mitigation Category:	Education and Awareness/ Emergency Services
Action or Project Description:	Implement a countywide, multi-modal citizen alert system capable of distributing emergency notifications through SMS text messages, mobile app push alerts, email, social media, and voice calls. Integrate the system with NOAA Weather Radio, FEMA's IPAWS, and outdoor sirens for seamless message delivery. Conduct community outreach campaigns to register residents, with a focus on rural and vulnerable populations, including the elderly and individuals with disabilities.
Estimated Cost:	$12,000 (CivicPlus Annual)
Benefits:	Provides faster, more reliable communication during emergencies, ensuring all residents, including those without outdoor siren access, receive alerts. Reduces response time for evacuation or sheltering and enhances community resilience.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Management Agency; Tri-County Health Department; Local Municipal Governments
Action/Project Priority:	High
Timeline for Completion:	2026-2027
Potential Fund Sources:	State and Federal HMGP, local city/county budgets, or private donations
Local Planning Mechanisms to be Used in Implementation, if any:	County Hazard Mitigation Plan; County Emergency Operations Plan; Public Information and Warning Annex
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action expanded from previous plan update

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquakes
Problem being Mitigated:	Building and Infrastructure failure
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.2-U (previously 1.3.3)
Name of Action or Project:	Earthquake Resiliency
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Evaluate existing city structures and infrastructure for ability to with low to moderately intense earthquakes. Contract a structural engineer to do the evaluations
Estimated Cost:	$50,000
Benefits:	Protect and preserve essential service buildings and infrastructure from potential earthquake damage
Plan for Implementation	
Responsible Organization/Department:	Local Government Officials
Action/Project Priority:	Low
Timeline for Completion:	2031
Potential Fund Sources:	State and Federal HMPG grants
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action has been modified from previous version, progress contingent on funding.

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Levee Failure, Dam Failure, Severe Thunderstorms, Severe Winter Weather
Problem being Mitigated:	Critical facilities, assets, and transportation routes are vulnerable to disruption caused by downed trees during weather events.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.3-U (previously 2.1.2)
Name of Action or Project:	Debris Removal
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Mitigate the risk to life and property by identifying and removing dead standing trees along with overgrown trees near roadways and drainage systems.
Estimated Cost:	$100,000
Benefits:	Mitigating problems by proactively removing debris will help keep roadways and drainage systems clear during emergencies. Emergency services can respond to emergencies faster, and there will be a reduced risk of flooding or disruption to critical facilities and services.
Plan for Implementation	
Responsible Organization/Department:	Road & Bridge Department
Action/Project Priority:	Medium
Timeline for Completion:	2031
Potential Fund Sources:	County and Township Tax Revenue, MoDOT, NFIP grants
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Debris is removed following severe weather, vegetation near critical facilities checked for potential issues needing to be flagged for removal.

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Drought, Wildfire
Problem being Mitigated:	Drought is a moderate risk to farming in any year for all jurisdictions in Gentry County. It is not a predictable hazard, but it is a hazard that can have lasting impact. Drought also causes an increased risk for Wildfires.
Action or Project	
Applicable Goal Statement:	Protect public and private property from the adverse effects of disasters
Action/Project Number:	3.1-U (previously 1.2.3)
Name of Action or Project:	Water Conservation and Fire Awareness
Mitigation Category:	Prevention/ Public Education
Action or Project Description:	Develop a plan/ordinance to monitor drought conditions on a regular basis and identify areas at risk of wildfire. As part of this plan, design policies in conjunction with city officials to conserve water supplies during drought conditions, restrict burning, and make information available to the public. Enact burn bans via the Fire Chief if/when necessary.
Estimated Cost:	$1,000
Benefits:	Informed populace about resource conservation will cause a decreased impact to agricultural businesses and mitigate possible wildfire events.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Public Water Supply District #1, Worth County Public Water Supply District #1, Local Government officials.
Action/Project Priority:	Ongoing
Timeline for Completion:	2031
Potential Fund Sources:	Local Emergency Services and City Officials/Staff time
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action has been modified to include local ordinances for water conservation and burn bans during periods of extreme drought.

Action Worksheet	
Name of Jurisdiction:	Unincorporated Gentry County
Risk / Vulnerability	
Hazard(s) Addressed:	Flood, Levee Failure, Dam Failure
Problem being Mitigated:	Poor road infrastructure can cause an increased risk of injury and death to the general public, as well as affect businesses and residences.
Action or Project	
Applicable Goal Statement:	Protect public and private property from the adverse effects of disasters
Action/Project Number:	3.2-U (previously 2.1.5)
Name of Action or Project:	Flood Risk Reduction Projects
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Construct or modify culverts, levees, floodwalls and berms to lessen the frequency and severity of flooding
Estimated Cost:	$100,000
Benefits:	The construction or modification of culverts, levees, floodwalls, berms, etc. can decrease the risk of floodwaters damaging homes, businesses, and roadways.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Road & Bridge Department
Action/Project Priority:	Medium
Timeline for Completion:	2031, As funding becomes available
Potential Fund Sources:	County and Township Tax Revenue, State and Federal HMPG grants, NFIP grants
Local Planning Mechanisms to be Used in Implementation, if any:	Regional Transportation Plan
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Elevation and culvert sizing/replacement is an ever-present mission. Existing culverts and drain conditions are monitored during heavy rain events

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Current outdoor warning siren coverage is incomplete in several populated and rural areas. Many existing sirens are aging, lack backup power, and do not integrate with modern emergency alert systems. This limits the ability to notify residents of imminent severe weather, especially at night or during power outages. Additional public awareness also includes coverage by local media sources.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.1-A (previously 1.1.1)
Name of Action or Project:	Outdoor Warning Siren Modernization and Expansion Project
Mitigation Category:	Emergency Services
Action or Project Description:	Conduct a comprehensive review of current outdoor warning siren coverage across all municipalities and unincorporated areas of Gentry County. Identify coverage gaps using GIS mapping and National Weather Service alert zones. Procure and install new sirens with battery or solar backup systems in under-served areas. Upgrade existing sirens with remote activation, automated alert synchronization, and redundant communication pathways (radio, cellular, and internet-based activation).
Estimated Cost:	Approximately $1,000 annually to maintain existing system, $40,000 to install new sirens. $500,000 total
Benefits:	Enhance public safety by ensuring timely and reliable warnings during severe weather events, reducing injuries and fatalities from tornadoes and severe storms, and improving interoperability with regional emergency management systems.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Management Agency, City of Albany – City Administrator
Action/Project Priority:	High
Timeline for Completion:	2026-2028
Potential Fund Sources:	State and Federal HMPG funds, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP, Hazard Mitigation Plan, County Capital Improvement Plan
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Existing sirens are in working order, new siren construction and retrofitting of existing systems if funds become available.

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	All jurisdictions within the county are equally susceptible to temperature extremes, as these types of events tend to be regional in nature. The large percentage of residents that are over 65 years of age means that many are at risk during extreme heat events.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters
Action/Project Number:	1.2-A (previously 1.1.4)
Name of Action or Project:	Population Identification
Mitigation Category:	Emergency Services
Action or Project Description:	Establish and maintain a GIS-based registry of elderly and medically vulnerable residents at risk from extreme heat and cold, coordinated with Tri-County Health Department and local emergency services. Create an outreach program so residents are aware of the program
Estimated Cost:	$1,000
Benefits:	Safe and Secure “at risk” populace
Plan for Implementation	
Responsible Organization/Department:	Albany Community Fire Protection District
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	N/A
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	County EMD continues to work with local Emergency Services to keep the list up to date.

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornadoes
Problem being Mitigated:	The general public has limited access to warning systems during times of severe weather.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.3-A (previously 1.2.2)
Name of Action or Project:	Weather Spotter Training
Mitigation Category:	Prevention
Action or Project Description:	Host and provide biannual and on-demand weather spotter training courses and implement training within local fire and police departments in cooperation with the National Weather Service. Invite the public and responders so they are able to better identify early warning signs for severe weather.
Estimated Cost:	$1,000
Benefits:	Weather spotter trainings will train residents to provide early warnings of severe weather, thus giving the population more time to prepare and take shelter.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Manager, Albany Community Fire Protection District
Action/Project Priority:	High
Timeline for Completion:	Ongoing
Potential Fund Sources:	Local Emergency Services and Emergency Management staff time
Local Planning Mechanisms to be Used in Implementation, if any:	National Weather Service (NWS) Storm Ready program
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Weather spotter training continues to be held; public outreach will be expanded.

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.4-A (previously 1.2.4)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the general public and businesses through active education and outreach programs.
Estimated Cost:	$5,000
Benefits:	An informed and prepared populace can prepare and mitigate the effects of hazards that may affect them.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Manager, Albany Community Fire Protection District
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	County budget for Emergency Preparedness, Local Tax revenue
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Information and resources continue to be refined and updated. As circumstances and funding allow, outreach programs will be scheduled.

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Storm shelters are an important means of mitigating the effects of tornados and severe storms. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes, to minimize the potential loss of life.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.5-A (previously 2.1.6)
Name of Action or Project:	Safe Rooms and Storm Shelters
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.
Estimated Cost:	Estimated $500,000 - $1,000,000
Benefits:	Storm shelters in public buildings will protect the lives of individuals in a hazard event who may not have any other option for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	City of Albany Economic Development Department
Action/Project Priority:	High
Timeline for Completion:	2031, As funding becomes available
Potential Fund Sources:	State and Federal HMPG Grants, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	County Comprehensive Plan
Progress Report	
Action Status:	Continued, Not Started
Report of Progress:	All County Schools and Public Structures have this as a prime mission, and would like to install or retrofit storm shelters if funding becomes available

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.6-A (previously 1.2.8)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	School Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the school district through active education and outreach programs. Host educational events with students regarding emergency preparedness as part of the annual start of school procedures.
Estimated Cost:	$1,000
Benefits:	School Districts, students and parents will have a better understanding of how to prepare for natural hazards events occurring within their jurisdiction.
Plan for Implementation	
Responsible Organization/Department:	Albany Community Fire Protection District, School Administration Personnel
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Revenue, School and Emergency Services staff time
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Local jurisdictions have been working with their local school district to develop an education program covering all local hazards that could occur.

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Severe Winter Weather, Tornadoes
Problem being Mitigated:	Many residents, especially in rural areas, rely solely on outdoor sirens for alerts and may not receive timely warnings indoors, at night, or when sirens malfunction. A lack of integration between county emergency management systems and modern digital communication tools limits the reach and redundancy of public alerts.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters
Action/Project Number:	2.1-A (previously 1.1.3)
Name of Action or Project:	Gentry County Multi-Channel Emergency Alert and Notification System
Mitigation Category:	Education and Awareness/ Emergency Services
Action or Project Description:	Implement a countywide, multi-modal citizen alert system capable of distributing emergency notifications through SMS text messages, mobile app push alerts, email, social media, and voice calls. Integrate the system with NOAA Weather Radio, FEMA's IPAWS, and outdoor sirens for seamless message delivery. Conduct community outreach campaigns to register residents, with a focus on rural and vulnerable populations, including the elderly and individuals with disabilities.
Estimated Cost:	$12,000 (CivicPlus Annual)
Benefits:	Provides faster, more reliable communication during emergencies, ensuring all residents, including those without outdoor siren access, receive alerts. Reduces response time for evacuation or sheltering and enhances community resilience.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Management Agency; Tri-County Health Department; City of Albany- City Administrator
Action/Project Priority:	High
Timeline for Completion:	2026-2027
Potential Fund Sources:	State and Federal HMGP, local city/county budgets, or private donations
Local Planning Mechanisms to be Used in Implementation, if any:	County Hazard Mitigation Plan; County Emergency Operations Plan; Public Information and Warning Annex
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action expanded from previous plan update

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquakes
Problem being Mitigated:	Building and Infrastructure failure
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.2-A (previously 1.3.3)
Name of Action or Project:	Earthquake Resiliency
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Evaluate existing city structures and infrastructure for ability to with low to moderately intense earthquakes. Contract a structural engineer to do the evaluations
Estimated Cost:	$50,000
Benefits:	Protect and preserve essential service buildings and infrastructure from potential earthquake damage
Plan for Implementation	
Responsible Organization/Department:	Local Government Officials
Action/Project Priority:	Low
Timeline for Completion:	2031
Potential Fund Sources:	State and Federal HMPG grants
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action has been modified from previous version, progress contingent on funding.

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Levee Failure, Dam Failure, Severe Thunderstorms, Severe Winter Weather
Problem being Mitigated:	Critical facilities, assets, and transportation routes are vulnerable to disruption caused by downed trees during weather events.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.3-A (previously 2.1.2)
Name of Action or Project:	Debris Removal
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Mitigate the risk to life and property by identifying and removing dead standing trees along with overgrown trees near roadways and drainage systems.
Estimated Cost:	$100,000
Benefits:	Mitigating problems by proactively removing debris will help keep roadways and drainage systems clear during emergencies. Emergency services can respond to emergencies faster, and there will be a reduced risk of flooding or disruption to critical facilities and services.
Plan for Implementation	
Responsible Organization/Department:	Road & Bridge Department
Action/Project Priority:	Medium
Timeline for Completion:	2031
Potential Fund Sources:	County and Township Tax Revenue, MoDOT, NFIP grants
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Debris is removed following severe weather, vegetation near critical facilities checked for potential issues needing to be flagged for removal.

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Severe Winter Weather, Tornadoes, Flooding
Problem being Mitigated:	Critical facilities that are relied upon by the general public are susceptible to power-outages during a severe weather events.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.4-A (previously 2.1.1)
Name of Action or Project:	Critical Facilities Back-up
Mitigation Category:	Emergency Services
Action or Project Description:	Purchase backup emergency generators for use during severe weather events. Generators will ensure critical facilities and emergency communication remain operable during these events. Assist critical facilities in creating emergency communication plans with particular focus on non-profit organizations, nursing homes, community center(s), and schools.
Estimated Cost:	$150,000
Benefits:	Critical facilities can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	City of Albany Utility Director
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	State and Federal HMPG grants
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	Continued In Progress
Report of Progress:	Generator locations and sizes have been discussed, but progress has stalled due to a lack of funding to install generators.

Action Worksheet	
Name of Jurisdiction:	City of Albany
Risk / Vulnerability	
Hazard(s) Addressed:	Drought, Wildfire
Problem being Mitigated:	Drought is a moderate risk to farming in any year for all jurisdictions in Gentry County. It is not a predictable hazard, but it is a hazard that can have lasting impact. Drought also causes an increased risk for Wildfires.
Action or Project	
Applicable Goal Statement:	Protect public and private property from the adverse effects of disasters
Action/Project Number:	3.1-A (previously 1.2.3)
Name of Action or Project:	Water Conservation and Fire Awareness
Mitigation Category:	Prevention/ Public Education
Action or Project Description:	Develop a plan/ordinance to monitor drought conditions on a regular basis and identify areas at risk of wildfire. As part of this plan, design policies in conjunction with city officials to conserve water supplies during drought conditions, restrict burning, and make information available to the public. Enact burn bans via the Fire Chief if/when necessary.
Estimated Cost:	$1,000
Benefits:	Informed populace about resource conservation will cause a decreased impact to agricultural businesses and mitigate possible wildfire events.
Plan for Implementation	
Responsible Organization/Department:	City of Albany Water Department
Action/Project Priority:	Ongoing
Timeline for Completion:	2031
Potential Fund Sources:	Local Emergency Services and City Officials/Staff time
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action has been modified to include local ordinances for water conservation and burn bans during periods of extreme drought.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Current outdoor warning siren coverage is incomplete in several populated and rural areas. Many existing sirens are aging, lack backup power, and do not integrate with modern emergency alert systems. This limits the ability to notify residents of imminent severe weather, especially at night or during power outages. Additional public awareness also includes coverage by local media sources.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.1-KC (previously 1.1.1)
Name of Action or Project:	Outdoor Warning Siren Modernization and Expansion Project
Mitigation Category:	Emergency Services
Action or Project Description:	Conduct a comprehensive review of current outdoor warning siren coverage across all municipalities and unincorporated areas of Gentry County. Identify coverage gaps using GIS mapping and National Weather Service alert zones. Procure and install new sirens with battery or solar backup systems in under-served areas. Upgrade existing sirens with remote activation, automated alert synchronization, and redundant communication pathways (radio, cellular, and internet-based activation).
Estimated Cost:	Approximately $1,000 annually to maintain existing system, $40,000 to install new sirens. $500,000 total
Benefits:	Enhance public safety by ensuring timely and reliable warnings during severe weather events, reducing injuries and fatalities from tornadoes and severe storms, and improving interoperability with regional emergency management systems.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Management Agency, City of King City – City Manager
Action/Project Priority:	High
Timeline for Completion:	2026-2028
Potential Fund Sources:	State and Federal HMPG funds, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP, Hazard Mitigation Plan, County Capital Improvement Plan
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Existing sirens are in working order, new siren construction and retrofitting of existing systems if funds become available.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	All jurisdictions within the county are equally susceptible to temperature extremes, as these types of events tend to be regional in nature. The large percentage of residents that are over 65 years of age means that many are at risk during extreme heat events.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters
Action/Project Number:	1.2-KC (previously 1.1.4)
Name of Action or Project:	Population Identification
Mitigation Category:	Emergency Services
Action or Project Description:	Establish and maintain a GIS-based registry of elderly and medically vulnerable residents at risk from extreme heat and cold, coordinated with Tri-County Health Department and local emergency services. Create an outreach program so residents are aware of the program
Estimated Cost:	$0
Benefits:	Safe and Secure “at risk” populace
Plan for Implementation	
Responsible Organization/Department:	King City Fire Protection District
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	N/A
Local Planning Mechanisms to be Used in Implementation, if any:	N/A
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	County EMD continues to work with local Emergency Services to keep the list up to date.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornadoes
Problem being Mitigated:	The general public has limited access to warning systems during times of severe weather.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.3-KC (previously 1.2.2)
Name of Action or Project:	Weather Spotter Training
Mitigation Category:	Prevention
Action or Project Description:	Host and provide biannual and on-demand weather spotter training courses and implement training within local fire and police departments in cooperation with the National Weather Service. Invite the public and responders so they are able to better identify early warning signs for severe weather.
Estimated Cost:	$1,000
Benefits:	Weather spotter trainings will train residents to provide early warnings of severe weather, thus giving the population more time to prepare and take shelter.
Plan for Implementation	
Responsible Organization/Department:	King City Fire Protection District
Action/Project Priority:	High
Timeline for Completion:	Ongoing
Potential Fund Sources:	Local Emergency Services and Emergency Management staff time
Local Planning Mechanisms to be Used in Implementation, if any:	National Weather Service (NWS) Storm Ready program
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Weather spotter training continues to be held; public outreach will be expanded.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.4-KC (previously 1.2.4)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the general public and businesses through active education and outreach programs.
Estimated Cost:	$5,000
Benefits:	An informed and prepared populace can prepare and mitigate the effects of hazards that may affect them.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Manager, King City Fire Protection District
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	County budget for Emergency Preparedness, Local Tax revenue
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Information and resources continue to be refined and updated. As circumstances and funding allow, outreach programs will be scheduled.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Storm shelters are an important means of mitigating the effects of tornados and severe storms. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes, to minimize the potential loss of life.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.5-KC (previously 2.1.6)
Name of Action or Project:	Safe Rooms and Storm Shelters
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.
Estimated Cost:	Estimated $500,000 - $1,000,000
Benefits:	Storm shelters in public buildings will protect the lives of individuals in a hazard event who may not have any other option for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	City of King City Engineer
Action/Project Priority:	High
Timeline for Completion:	2031, As funding becomes available
Potential Fund Sources:	State and Federal HMPG Grants, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	County Comprehensive Plan
Progress Report	
Action Status:	Continued, Not Started
Report of Progress:	All County Schools and Public Structures have this as a prime mission, and would like to install or retrofit storm shelters if funding becomes available

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.6-KC (previously 1.2.8)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	School Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the school district through active education and outreach programs. Host educational events with students regarding emergency preparedness as part of the annual start of school procedures.
Estimated Cost:	$1,000
Benefits:	School Districts, students and parents will have a better understanding of how to prepare for natural hazards events occurring within their jurisdiction.
Plan for Implementation	
Responsible Organization/Department:	King City Fire Protection District, School Administration Personnel
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Revenue, School and Emergency Services staff time
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Local jurisdictions have been working with their local school district to develop an education program covering all local hazards that could occur.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Severe Winter Weather, Tornadoes
Problem being Mitigated:	Many residents, especially in rural areas, rely solely on outdoor sirens for alerts and may not receive timely warnings indoors, at night, or when sirens malfunction. A lack of integration between county emergency management systems and modern digital communication tools limits the reach and redundancy of public alerts.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters
Action/Project Number:	2.1-KC (previously 1.1.3)
Name of Action or Project:	Gentry County Multi-Channel Emergency Alert and Notification System
Mitigation Category:	Education and Awareness/ Emergency Services
Action or Project Description:	Implement a countywide, multi-modal citizen alert system capable of distributing emergency notifications through SMS text messages, mobile app push alerts, email, social media, and voice calls. Integrate the system with NOAA Weather Radio, FEMA's IPAWS, and outdoor sirens for seamless message delivery. Conduct community outreach campaigns to register residents, with a focus on rural and vulnerable populations, including the elderly and individuals with disabilities.
Estimated Cost:	$12,000 (CivicPlus Annual)
Benefits:	Provides faster, more reliable communication during emergencies, ensuring all residents, including those without outdoor siren access, receive alerts. Reduces response time for evacuation or sheltering and enhances community resilience.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Management Agency; Tri-County Health Department; City of King City – City Manager
Action/Project Priority:	High
Timeline for Completion:	2026-2027
Potential Fund Sources:	State and Federal HMGP, local city/county budgets, or private donations
Local Planning Mechanisms to be Used in Implementation, if any:	County Hazard Mitigation Plan; County and Local Emergency Operations Plan; Public Information and Warning Annex
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action expanded from previous plan update

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquakes
Problem being Mitigated:	Building and Infrastructure failure
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.2-KC (previously 1.3.3)
Name of Action or Project:	Earthquake Resiliency
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Evaluate existing city structures and infrastructure for ability to with low to moderately intense earthquakes. Contract a structural engineer to do the evaluations
Estimated Cost:	$50,000
Benefits:	Protect and preserve essential service buildings and infrastructure from potential earthquake damage
Plan for Implementation	
Responsible Organization/Department:	King City Building Inspector
Action/Project Priority:	Low
Timeline for Completion:	2031
Potential Fund Sources:	State and Federal HMPG grants
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action has been modified from previous version, progress contingent on funding.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Levee Failure, Dam Failure, Severe Thunderstorms, Severe Winter Weather
Problem being Mitigated:	Critical facilities, assets, and transportation routes are vulnerable to disruption caused by downed trees during weather events.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.3-KC (previously 2.1.2)
Name of Action or Project:	Debris Removal
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Mitigate the risk to life and property by identifying and removing dead standing trees along with overgrown trees near roadways and drainage systems.
Estimated Cost:	$100,000
Benefits:	Mitigating problems by proactively removing debris will help keep roadways and drainage systems clear during emergencies. Emergency services can respond to emergencies faster, and there will be a reduced risk of flooding or disruption to critical facilities and services.
Plan for Implementation	
Responsible Organization/Department:	Road & Bridge Department
Action/Project Priority:	Medium
Timeline for Completion:	2031
Potential Fund Sources:	County and Township Tax Revenue, MoDOT, NFIP grants
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Debris is removed following severe weather, vegetation near critical facilities checked for potential issues needing to be flagged for removal.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Severe Winter Weather, Tornadoes, Flooding
Problem being Mitigated:	Critical facilities that are relied upon by the general public are susceptible to power-outages during a severe weather events.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.4-KC (previously 2.1.1)
Name of Action or Project:	Critical Facilities Back-up
Mitigation Category:	Emergency Services
Action or Project Description:	Purchase backup emergency generators for use during severe weather events. Generators will ensure critical facilities and emergency communication remain operable during these events. Assist critical facilities in creating emergency communication plans with particular focus on non-profit organizations, nursing homes, community center(s), and schools.
Estimated Cost:	$150,000
Benefits:	Critical facilities can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	King City Public Works Official
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	State and Federal HMPG grants
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	Continued In Progress
Report of Progress:	Generator locations and sizes have been discussed, but progress has stalled due to a lack of funding to install generators.

Action Worksheet	
Name of Jurisdiction:	City of King City
Risk / Vulnerability	
Hazard(s) Addressed:	Drought, Wildfire
Problem being Mitigated:	Drought is a moderate risk to farming in any year for all jurisdictions in Gentry County. It is not a predictable hazard, but it is a hazard that can have lasting impact. Drought also causes an increased risk for Wildfires.
Action or Project	
Applicable Goal Statement:	Protect public and private property from the adverse effects of disasters
Action/Project Number:	3.1-KC (previously 1.2.3)
Name of Action or Project:	Water Conservation and Fire Awareness
Mitigation Category:	Prevention/ Public Education
Action or Project Description:	Develop a plan/ordinance to monitor drought conditions on a regular basis and identify areas at risk of wildfire. As part of this plan, design policies in conjunction with city officials to conserve water supplies during drought conditions, restrict burning, and make information available to the public. Enact burn bans via the Fire Chief if/when necessary.
Estimated Cost:	$1,000
Benefits:	Informed populace about resource conservation will cause a decreased impact to agricultural businesses and mitigate possible wildfire events.
Plan for Implementation	
Responsible Organization/Department:	King City Water Department
Action/Project Priority:	Ongoing
Timeline for Completion:	2031
Potential Fund Sources:	Local Emergency Services and City Officials/Staff time
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action has been modified to include local ordinances for water conservation and burn bans during periods of extreme drought.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Current outdoor warning siren coverage is incomplete in several populated and rural areas. Many existing sirens are aging, lack backup power, and do not integrate with modern emergency alert systems. This limits the ability to notify residents of imminent severe weather, especially at night or during power outages. Additional public awareness also includes coverage by local media sources.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.1-S (previously 1.1.1)
Name of Action or Project:	Outdoor Warning Siren Modernization and Expansion Project
Mitigation Category:	Emergency Services
Action or Project Description:	Conduct a comprehensive review of current outdoor warning siren coverage across all municipalities and unincorporated areas of Gentry County. Identify coverage gaps using GIS mapping and National Weather Service alert zones. Procure and install new sirens with battery or solar backup systems in under-served areas. Upgrade existing sirens with remote activation, automated alert synchronization, and redundant communication pathways (radio, cellular, and internet-based activation).
Estimated Cost:	Approximately $1,000 annually to maintain existing system, $40,000 to install new sirens. $500,000 total
Benefits:	Enhance public safety by ensuring timely and reliable warnings during severe weather events, reducing injuries and fatalities from tornadoes and severe storms, and improving interoperability with regional emergency management systems.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Management Agency, Stanberry Emergency Services
Action/Project Priority:	High
Timeline for Completion:	2026-2028
Potential Fund Sources:	State and Federal HMPG funds, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP, Hazard Mitigation Plan, County Capital Improvement Plan
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Existing sirens are in working order, new siren construction and retrofitting of existing systems if funds become available.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	All jurisdictions within the county are equally susceptible to temperature extremes, as these types of events tend to be regional in nature. The large percentage of residents that are over 65 years of age means that many are at risk during extreme heat events.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters
Action/Project Number:	1.2-S (previously 1.1.4)
Name of Action or Project:	Population Identification
Mitigation Category:	Emergency Services
Action or Project Description:	Establish and maintain a GIS-based registry of elderly and medically vulnerable residents at risk from extreme heat and cold, coordinated with Tri-County Health Department and local emergency services. Create an outreach program so residents are aware of the program
Estimated Cost:	$0
Benefits:	Safe and Secure “at risk” populace
Plan for Implementation	
Responsible Organization/Department:	Stanberry Fire Protection District
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	N/A
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Awareness Program
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	County EMD continues to work with local Emergency Services to keep the list up to date.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornadoes
Problem being Mitigated:	The general public has limited access to warning systems during times of severe weather.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.3-S (previously 1.2.2)
Name of Action or Project:	Weather Spotter Training
Mitigation Category:	Prevention
Action or Project Description:	Host and provide biannual and on-demand weather spotter training courses and implement training within local fire and police departments in cooperation with the National Weather Service. Invite the public and responders so they are able to better identify early warning signs for severe weather.
Estimated Cost:	$1,000
Benefits:	Weather spotter trainings will train residents to provide early warnings of severe weather, thus giving the population more time to prepare and take shelter.
Plan for Implementation	
Responsible Organization/Department:	Stanberry Fire Protection District
Action/Project Priority:	High
Timeline for Completion:	Ongoing
Potential Fund Sources:	Local Emergency Services and Emergency Management staff time
Local Planning Mechanisms to be Used in Implementation, if any:	National Weather Service (NWS) Storm Ready program
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Weather spotter training continues to be held; public outreach will be expanded.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.4-S (previously 1.2.4)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the general public and businesses through active education and outreach programs.
Estimated Cost:	$5,000
Benefits:	An informed and prepared populace can prepare and mitigate the effects of hazards that may affect them.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Manager, Stanberry Police Department
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	County budget for Emergency Preparedness, Local Tax revenue
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Information and resources continue to be refined and updated. As circumstances and funding allow, outreach programs will be scheduled.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Storm shelters are an important means of mitigating the effects of tornados and severe storms. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes, to minimize the potential loss of life.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.5-S (previously 2.1.6)
Name of Action or Project:	Safe Rooms and Storm Shelters
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.
Estimated Cost:	Estimated $500,000 - $1,000,000
Benefits:	Storm shelters in public buildings will protect the lives of individuals in a hazard event who may not have any other option for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	City of Stanberry Building Code Official
Action/Project Priority:	High
Timeline for Completion:	2031, As funding becomes available
Potential Fund Sources:	State and Federal HMPG Grants, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	County Comprehensive Plan
Progress Report	
Action Status:	Continued, Not Started
Report of Progress:	All County Schools and Public Structures have this as a prime mission, and would like to install or retrofit storm shelters if funding becomes available

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.6-S (previously 1.2.8)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	School Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the school district through active education and outreach programs. Host educational events with students regarding emergency preparedness as part of the annual start of school procedures.
Estimated Cost:	$1,000
Benefits:	School Districts, students and parents will have a better understanding of how to prepare for natural hazards events occurring within their jurisdiction.
Plan for Implementation	
Responsible Organization/Department:	Stanberry Fire Protection District, School Administration Personnel
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Revenue, School and Emergency Services staff time
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Local jurisdictions have been working with their local school district to develop an education program covering all local hazards that could occur.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Severe Winter Weather, Tornadoes
Problem being Mitigated:	Many residents, especially in rural areas, rely solely on outdoor sirens for alerts and may not receive timely warnings indoors, at night, or when sirens malfunction. A lack of integration between county emergency management systems and modern digital communication tools limits the reach and redundancy of public alerts.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters
Action/Project Number:	2.1-S (previously 1.1.3)
Name of Action or Project:	Gentry County Multi-Channel Emergency Alert and Notification System
Mitigation Category:	Education and Awareness/ Emergency Services
Action or Project Description:	Implement a countywide, multi-modal citizen alert system capable of distributing emergency notifications through SMS text messages, mobile app push alerts, email, social media, and voice calls. Integrate the system with NOAA Weather Radio, FEMA's IPAWS, and outdoor sirens for seamless message delivery. Conduct community outreach campaigns to register residents, with a focus on rural and vulnerable populations, including the elderly and individuals with disabilities.
Estimated Cost:	$12,000 (CivicPlus Annual)
Benefits:	Provides faster, more reliable communication during emergencies, ensuring all residents, including those without outdoor siren access, receive alerts. Reduces response time for evacuation or sheltering and enhances community resilience.
Plan for Implementation	
Responsible Organization/Department:	Gentry County Emergency Management Agency; Tri-County Health Department; Stanberry Police Department
Action/Project Priority:	High
Timeline for Completion:	2026-2027
Potential Fund Sources:	State and Federal HMGP, local city/county budgets, or private donations
Local Planning Mechanisms to be Used in Implementation, if any:	County Hazard Mitigation Plan; County and Local Emergency Operations Plan; Public Information and Warning Annex
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action expanded from previous plan update

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquakes
Problem being Mitigated:	Building and Infrastructure failure
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.2-S (previously 1.3.3)
Name of Action or Project:	Earthquake Resiliency
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Evaluate existing city structures and infrastructure for ability to with low to moderately intense earthquakes. Contract a structural engineer to do the evaluations
Estimated Cost:	$50,000
Benefits:	Protect and preserve essential service buildings and infrastructure from potential earthquake damage
Plan for Implementation	
Responsible Organization/Department:	City of Stanberry Building Code Official
Action/Project Priority:	Low
Timeline for Completion:	2031
Potential Fund Sources:	State and Federal HMPG grants
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action has been modified from previous version, progress contingent on funding.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Levee Failure, Dam Failure, Severe Thunderstorms, Severe Winter Weather
Problem being Mitigated:	Critical facilities, assets, and transportation routes are vulnerable to disruption caused by downed trees during weather events.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.3-S (previously 2.1.2)
Name of Action or Project:	Debris Removal
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Mitigate the risk to life and property by identifying and removing dead standing trees along with overgrown trees near roadways and drainage systems.
Estimated Cost:	$100,000
Benefits:	Mitigating problems by proactively removing debris will help keep roadways and drainage systems clear during emergencies. Emergency services can respond to emergencies faster, and there will be a reduced risk of flooding or disruption to critical facilities and services.
Plan for Implementation	
Responsible Organization/Department:	Road & Bridge Department
Action/Project Priority:	Medium
Timeline for Completion:	2031
Potential Fund Sources:	County and Township Tax Revenue, MoDOT, NFIP grants
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Debris is removed following severe weather, vegetation near critical facilities checked for potential issues needing to be flagged for removal.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Severe Winter Weather, Tornadoes, Flooding
Problem being Mitigated:	Critical facilities that are relied upon by the general public are susceptible to power-outages during a severe weather events.
Action or Project	
Applicable Goal Statement:	Defend the continuity of government and essential services and processes from the adverse effects of disasters.
Action/Project Number:	2.4-S (previously 2.1.1)
Name of Action or Project:	Critical Facilities Back-up
Mitigation Category:	Emergency Services
Action or Project Description:	Purchase backup emergency generators for use during severe weather events. Generators will ensure critical facilities and emergency communication remain operable during these events. Assist critical facilities in creating emergency communication plans with particular focus on non-profit organizations, nursing homes, community center(s), and schools.
Estimated Cost:	$150,000
Benefits:	Critical facilities can continue to operate in the event of a disaster.
Plan for Implementation	
Responsible Organization/Department:	City of Stanberry Building Code Official
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	State and Federal HMPG grants
Local Planning Mechanisms to be Used in Implementation, if any:	None
Progress Report	
Action Status:	Continued In Progress
Report of Progress:	Generator locations and sizes have been discussed, but progress has stalled due to a lack of funding to install generators.

Action Worksheet	
Name of Jurisdiction:	City of Stanberry
Risk / Vulnerability	
Hazard(s) Addressed:	Drought, Wildfire
Problem being Mitigated:	Drought is a moderate risk to farming in any year for all jurisdictions in Gentry County. It is not a predictable hazard, but it is a hazard that can have lasting impact. Drought also causes an increased risk for Wildfires.
Action or Project	
Applicable Goal Statement:	Protect public and private property from the adverse effects of disasters
Action/Project Number:	3.1-S (previously 1.2.3)
Name of Action or Project:	Water Conservation and Fire Awareness
Mitigation Category:	Prevention/ Public Education
Action or Project Description:	Develop a plan/ordinance to monitor drought conditions on a regular basis and identify areas at risk of wildfire. As part of this plan, design policies in conjunction with city officials to conserve water supplies during drought conditions, restrict burning, and make information available to the public. Enact burn bans via the Fire Chief if/when necessary.
Estimated Cost:	$1,000
Benefits:	Informed populace about resource conservation will cause a decreased impact to agricultural businesses and mitigate possible wildfire events.
Plan for Implementation	
Responsible Organization/Department:	Stanberry Water Department
Action/Project Priority:	Ongoing
Timeline for Completion:	2031
Potential Fund Sources:	Local Emergency Services and City Officials/Staff time
Local Planning Mechanisms to be Used in Implementation, if any:	LEOP
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Action has been modified to include local ordinances for water conservation and burn bans during periods of extreme drought.

Action Worksheet	
Name of Jurisdiction:	Albany R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Storm shelters are an important means of mitigating the effects of tornados and severe storms. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes, to minimize the potential loss of life.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.5-AS (previously 2.1.6)
Name of Action or Project:	Safe Rooms and Storm Shelters
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.
Estimated Cost:	Estimated $500,000 - $1,000,000
Benefits:	Storm shelters in public buildings will protect the lives of individuals in a hazard event who may not have any other option for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	Albany R-III School District Administration
Action/Project Priority:	High
Timeline for Completion:	2031, As funding becomes available
Potential Fund Sources:	State and Federal HMPG Grants, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	School Emergency Plan, Tornado Sheltering Exercises
Progress Report	
Action Status:	Continued, Not Started
Report of Progress:	All County Schools and Public Structures have this as a prime mission, and would like to install or retrofit storm shelters if funding becomes available

Action Worksheet	
Name of Jurisdiction:	Albany R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.6-AS (previously 1.2.8)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	School Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the school district through active education and outreach programs. Host educational events with students regarding emergency preparedness as part of the annual start of school procedures.
Estimated Cost:	$1,000
Benefits:	School Districts, students and parents will have a better understanding of how to prepare for natural hazards events occurring within their jurisdiction.
Plan for Implementation	
Responsible Organization/Department:	Albany R-III School District Administration
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Revenue, School and Emergency Services staff time
Local Planning Mechanisms to be Used in Implementation, if any:	School Emergency Plan
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Local jurisdictions have been working with their local school district to develop an education program covering all local hazards that could occur.

Action Worksheet	
Name of Jurisdiction:	King City R-I School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Storm shelters are an important means of mitigating the effects of tornados and severe storms. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes, to minimize the potential loss of life.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.5-KCS (previously 2.1.6)
Name of Action or Project:	Safe Rooms and Storm Shelters
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.
Estimated Cost:	Estimated $500,000 - $1,000,000
Benefits:	Storm shelters in public buildings will protect the lives of individuals in a hazard event who may not have any other option for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	King City R-I School District Administration
Action/Project Priority:	High
Timeline for Completion:	2031, As funding becomes available
Potential Fund Sources:	State and Federal HMPG Grants, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	School Emergency Plan
Progress Report	
Action Status:	Continued, Not Started
Report of Progress:	All County Schools and Public Structures have this as a prime mission, and would like to install or retrofit storm shelters if funding becomes available

Action Worksheet	
Name of Jurisdiction:	King City R-I School District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.6-KCS (previously 1.2.8)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	School Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the school district through active education and outreach programs. Host educational events with students regarding emergency preparedness as part of the annual start of school procedures.
Estimated Cost:	$1,000
Benefits:	School Districts, students and parents will have a better understanding of how to prepare for natural hazards events occurring within their jurisdiction.
Plan for Implementation	
Responsible Organization/Department:	King City R-I School District Administration
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Revenue, School and Emergency Services staff time
Local Planning Mechanisms to be Used in Implementation, if any:	School Emergency Plan
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Local jurisdictions have been working with their local school district to develop an education program covering all local hazards that could occur.

Action Worksheet	
Name of Jurisdiction:	Stanberry R-II School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms, Tornadoes
Problem being Mitigated:	Storm shelters are an important means of mitigating the effects of tornados and severe storms. A community-wide shelter program should be adopted for residents who may not have adequate shelter in their homes, to minimize the potential loss of life.
Action or Project	
Applicable Goal Statement:	Preserve human life, health, and safety from the adverse effects of disasters.
Action/Project Number:	1.5-SS (previously 2.1.6)
Name of Action or Project:	Safe Rooms and Storm Shelters
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Utilize grant funds and local resources to install or retrofit storm-safe shelters in locations with insufficient protection including (but not limited to) schools, local recreation areas, municipal buildings, and public facilities.
Estimated Cost:	Estimated $500,000 - $1,000,000
Benefits:	Storm shelters in public buildings will protect the lives of individuals in a hazard event who may not have any other option for sufficient shelter.
Plan for Implementation	
Responsible Organization/Department:	Stanberry R-II School District Administration
Action/Project Priority:	High
Timeline for Completion:	2031, As funding becomes available
Potential Fund Sources:	State and Federal HMPG Grants, Tax Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	School Emergency Plan, Master Plan
Progress Report	
Action Status:	Continued, Not Started
Report of Progress:	All County Schools and Public Structures have this as a prime mission, and would like to install or retrofit storm shelters if funding becomes available

Action Worksheet	
Name of Jurisdiction:	Stanberry R-II School District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Dam and Levee Failure, Earthquakes, Drought, Wildfire, Extreme Temperatures, Severe Thunderstorms, Severe Winter Weather, Tornados
Problem being Mitigated:	The general public has limited access to information and resources on how to prepare and mitigate against hazards in their region.
Action or Project	
Applicable Goal Statement:	Protect the lives, property, and livelihoods of all citizens.
Action/Project Number:	1.6-SS (previously 1.2.8)
Name of Action or Project:	Emergency Preparedness Education
Mitigation Category:	School Education and Outreach
Action or Project Description:	Provide emergency preparedness information and resources related to all natural disasters to the school district through active education and outreach programs. Host educational events with students regarding emergency preparedness as part of the annual start of school procedures.
Estimated Cost:	$1,000
Benefits:	School Districts, students and parents will have a better understanding of how to prepare for natural hazards events occurring within their jurisdiction.
Plan for Implementation	
Responsible Organization/Department:	Stanberry R-II School District Administration
Action/Project Priority:	Medium
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Revenue, School and Emergency Services staff time
Local Planning Mechanisms to be Used in Implementation, if any:	School Emergency Plan
Progress Report	
Action Status:	Continued, In Progress
Report of Progress:	Local jurisdictions have been working with their local school district to develop an education program covering all local hazards that could occur.

5 PLAN MAINTENANCE PROCESS

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 requires that Hazard Mitigation Plans be reviewed periodically to ensure that goals and objectives are being considered. Revisions to the objectives or strategies may be required, as well as completed strategies can be acknowledged. This section of the Gentry County Multi-Jurisdictional Hazard Mitigation Plan provides the process to review, revise and update the plan.

- Meet biennially, 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 Board of Supervisors and governing bodies of participating jurisdictions; and
- Inform and solicit input from the public.

The Mitigation Planning Committee (MPC) is an advisory body and can only make recommendations to county, city, town, or district elected officials. Its primary duty is 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 Gentry County Emergency Management Director will be responsible for initiating the plan reviews and will invite members of the MPC (or other designated responsible entity) 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

Progress on the proposed actions can be monitored by evaluating changes in vulnerabilities identified in the plan. The MPC (or other designated responsible entity) 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.

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 deems appropriate and necessary. Changes will be approved by the Gentry County Commissioners or 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. Those existing plans and programs were described in Section 2 of this plan. Based on the capability assessments of the participating jurisdictions, communities in Gentry 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:

- Regional Comprehensive Economic Development Strategy (CEDS)
- Rural Regional Transportation Plans
- General, Comprehensive, or Master Plans of participating jurisdictions.
- Ordinances of participating jurisdictions.
- Gentry County Emergency Operations Plan.
- Capital Improvement Plan and budget.
- 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 members involved in updating these existing planning mechanisms, under the direction of the Gentry County Emergency Management Director, will be responsible for integrating the findings and actions of the mitigation plan, as appropriate. The MPC 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 Gentry County Emergency Management Director will provide the updated Mitigation Strategy with current status of each mitigation action to the Gentry County Commissioners as well as all Mayors, City Clerks, and School District Superintendents. The Emergency Manager Director will request that the mitigation strategy be incorporated, where appropriate, in other planning mechanisms. Gentry County and all jurisdictions within may be integrated into the county-wide Emergency Operations Plan (EOP) and the regional plans written by the Northwest Missouri Regional Council of Governments including the Comprehensive Economic Development Strategy (CEDS) and the Regional Transportation Plan.

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
Unincorporated Gentry County	Comprehensive Plan, County Emergency Operations Plan, Regional Comprehensive Economic Development Strategy (CEDS), Regional Transportation Plan, Land-use Plan	Continue to update the County's EOP. Continue to find ways to educate the public. Work with all jurisdictions to update the Hazard Mitigation Plan. Gentry County will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.	To integrate the updated Hazard Mitigation Plan into these existing processes, the county will continue its annual updates of the EOP, maintain ongoing public education efforts, and coordinate closely with all jurisdictions during the next mitigation plan update. In addition, the county will review its mitigation strategy after disasters or biennially to ensure that hazard mitigation considerations are incorporated into other planning activities as they occur
City of Albany	Economic Development Strategy (CEDS), Regional Transportation Plan, Zoning Ordinance, Floodplain Ordinance,	Support goals and action worksheets listed in the current Gentry County Hazard Mitigation Plan. Continue to encourage relevant planning groups and local school districts to coordinate mitigation efforts through the LEPC and in consultation with the Gentry County Hazard Mitigation Plan. Annually review EOP. Issue zoning ordinance in hazard-prone areas. Update floodplain ordinance. The City of Albany will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.	Albany will continue to work with and encourage relevant planning groups and local school districts, to coordinate mitigation efforts through the LEPC and in consultation with the County EMD director and the Hazard Mitigation Plan. The Hazard Mitigation Plan will be reviewed after disasters or biennially to ensure that hazard mitigation considerations are incorporated into other planning activities.
City of King City	Capital Improvement Plan, Emergency Plan, Economic Development Strategy (CEDS), Regional Transportation Plan, Subdivision Ordinance, Nuisance Ordinance, Storm Water ordinance, Debris Management Plan,	Support goals and action worksheets listed in the current Gentry County Hazard Mitigation Plan. Continue to encourage relevant planning groups and local school districts to coordinate mitigation efforts through the LEPC and in consultation with the Gentry County Hazard Mitigation Plan. Annually review EOP and Debris Management Plan. The City of King City will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.	King City will continue to work with and encourage relevant planning groups and local school districts, to coordinate mitigation efforts through the LEPC and in consultation with the County EMD director and the Hazard Mitigation Plan. The Hazard Mitigation Plan will be reviewed after disasters or biennially to ensure that hazard mitigation considerations are incorporated into other planning activities.
City of Stanberry	Emergency Plan, Economic Development Strategy (CEDS), Regional Transportation Plan,	Support goals and action worksheets listed in the current Gentry County Hazard Mitigation Plan. Review on an ongoing basis to ensure integration of the HMP into existing building codes	Stanberry will continue to work with and encourage relevant planning groups and local school districts, to coordinate mitigation efforts through the LEPC and in consultation with the County EMD

	Zoning Ordinance, Building Codes, Subdivision Ordinance, Nuisance Ordinance, Storm Water ordinance, Drainage Ordinance	and codes that are enforced. Continue to encourage relevant planning groups and local school districts to coordinate mitigation efforts through the LEPC and in consultation with the Gentry County Hazard Mitigation Plan. The City of Stanberry will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.	director and the Hazard Mitigation Plan. The Hazard Mitigation Plan will be reviewed after disasters or biennially to ensure that hazard mitigation considerations are incorporated into other planning activities.
Albany R-III School District	School Emergency Plan, Weapons Policy	Continue to incorporate mitigation as part of their all-hazard plans and hold regular fire and tornado drills. Continue to educate students, parents or guardians, and staff about procedures in place for disaster events. Report progress on mitigation action items and add new actions as needed. Albany R-III School District will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.	Continue to incorporate mitigation as part of their all-hazard plans and hold regular fire and tornado drills. Continue to educate students, parents or guardians, and staff about procedures in place for disaster events. Report progress on mitigation action items and add new actions as needed. Albany R-III School District will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.
King City R-I School District	School Emergency Plan, Weapons Policy	Continue to incorporate mitigation as part of their all-hazard plans and hold regular fire and tornado drills. Continue to educate students, parents or guardians, and staff about procedures in place for disaster events. Report progress on mitigation action items and add new actions as needed. King City R-I School District will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.	Continue to incorporate mitigation as part of their all-hazard plans and hold regular fire and tornado drills. Continue to educate students, parents or guardians, and staff about procedures in place for disaster events. Report progress on mitigation action items and add new actions as needed. King City R-I School District will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.
Stanberry R-II School District	Master Plan, Capital Improvement Plan, School Emergency Plan, Weapons Policy	Continue to incorporate mitigation as part of their all-hazard plans and hold regular fire and tornado drills. Continue to educate students, parents or guardians, and staff about procedures in place for disaster events. Report progress on mitigation action items and add new actions as needed. Stanberry R-II School District will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.	Continue to incorporate mitigation as part of their all-hazard plans and hold regular fire and tornado drills. Continue to educate students, parents or guardians, and staff about procedures in place for disaster events. Report progress on mitigation action items and add new actions as needed. Stanberry R-II School District will review their mitigation strategy, created from the Gentry County Hazard Mitigation Plan update, when conducting other planning processes throughout the year.

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 biennual reviews will be posted in the local newspaper, as well as, on the Gentry County website following each annual review of the mitigation plan and will solicit comments from the public based on the annual review. 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.