

Callaway County
Natural Hazard Mitigation Plan
2022



The planning process for the update of the Callaway County Hazard Mitigation Plan was led by the Mid-Missouri Regional Plan Commission through a contractual agreement with the MO State Emergency Management Agency and Callaway County.

Mid-Missouri Regional Planning Commission
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FEMA Region 7
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FEMA

September 14, 2022

James Remillard, Director
State Emergency Management Agency
P. O. Box 116
Jefferson City, Missouri 65102

Subject: Approval of the Callaway County Local Mitigation Plan

Dear James Remillard:

In accordance with applicable¹ laws, regulations and policy, the Risk Analysis Branch of FEMA Region 7's Mitigation Division has approved the Callaway County local mitigation plan. The attached Local Mitigation Plan Review Tool lists participants receiving approval that have submitted required adoption documentation.

The approval period for this plan is from September 08, 2022, through September 07, 2027. The same official plan expiration date applies to all participating jurisdictions, regardless of adoption date.

An approved mitigation plan is one of the conditions for applying for and receiving FEMA mitigation grants from the following programs:

- Hazard Mitigation Grant Program
- Building Resilient Infrastructure and Communities
- Flood Mitigation Assistance

Having an approved mitigation plan does not mean that mitigation grant funding will be awarded. Specific application and eligibility requirements for the programs listed above can be found in each FEMA grant program's respective policies and annual Notice of Funding Opportunities, as applicable.

To avoid a lapse plan, the next plan update must be approved by FEMA before the end of the approval period. Remember to allow sufficient time to secure funding as well as for the update process, including the review and approval process. Please include time for any revisions, if needed, and for the jurisdictions to formally adopt the plan after the review, if not adopted prior to submission. This will enable them to remain eligible to apply for and receive funding from FEMA's mitigation grant programs with a mitigation plan requirement. Local governments, including special districts, with a plan status of "Approvable Pending Adoption" are not eligible for FEMA's mitigation grant programs with a mitigation plan requirement.

¹ Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and National Dam Safety Program Act, as amended; 44 CFR Part 201, Mitigation Planning; and Local Mitigation Plan Review Guide.

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James Remillard
Approval of Calloway County Local Mitigation Plan
Page 2

We look forward to discussing options for implementing this mitigation plan.

If you should have any questions or concerns, please contact Joe Chandler, Planning Team Lead, at (816) 808-9016 or joe.chandler@fema.dhs.gov.

Sincerely,

CATHERINE R
SANDERS

Catherine R. Sanders, Director
Mitigation Division

Digitally signed by CATHERINE R SANDERS
Date: 2022.09.15 20:09:56 -0500

Contributors

Callaway County Hazard Mitigation Planning Committee

Jurisdictional Representatives

Participating Jurisdictions			
Name	Title	Department	Jurisdiction
Michelle Kidwell	EMD	Emergency Management	Callaway County
Gary Jungermann	Presiding Commissioner	Commission	Callaway County
Michael Bertschinger	City Supervisor	Administration	Auxvasse
Ty Crain	Superintendent	Administration	Fulton Public Schools
John Joyce	City Clerk	Administration	New Bloomfield
Ron Fisher	Manager	Administration	PWSD #2
Darrell Dunlap	Utility manager	City Utilities	Fulton
Kyle Bruemmer	City Engineer	Engineering	Fulton
Doug Kee	Director	Transportation	North Callaway SD
Chad Booher	Alderman	Administration	Mokane
Debbie Taylor	Alderman	Administration	Mokane
Robert Boone	Assistant Director	Administration	Fulton
Mitchel Fletcher	Supervisor	Road and Bridge	Callaway County
Nicky Kemp	Superintendent	Administration	North Callaway SD
Kevin Coffelt	Chief	Fire	Fulton FPD
Lowe Cannell	Mayor	Administration	Fulton
Lisa Wehmeyer	Assistant Chief	Fire	Holt Summit FPD
Allen Wehmeyer	Assistant Chief	Fire	Holt Summit FPD
Greg Luebbert	Chief	Fire	Central Callaway FPD
Sarah Wisdom	Superintendent	Administration	New Bloomfield SD
Kevin Hillman	Superintendent	Administration	South Callaway SD
Jeff Garriott	Operations Manager	Administration	PWSD #2
Hanna Thomas	City Manager	Administration	Holts Summit
Larry Doyle	City Manager	Administration	Kingdom City
Kellie Chapin	Business Manager	Administration	North Callaway SD
Brad Serivner	Manager	Administration	PWSD #1
Frank Underwood	Superintendent	Administration	Jeff City Public Schools

Regina Roesner	Business Director	Administration	MO School of the Deaf
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Stakeholder Representatives

Stakeholders			
Name	Title	Department	Jurisdiction
Carl Donaldson	EMD	Emergency management	Audrain County
Michael Shine	Reporter	Media	Fulton Sun Newspaper
Jason Barnes	LT	Police	Fulton
Tim Howell	LT	Police	Fulton
Paul Winkelmann	Engineer	Road and Bridge	Callaway County
Brandon Reutiger	EMD/Chief	Police	Holts Summit

The Callaway County Hazard Mitigation Plan was developed by the communities and citizens of Callaway County, their elected officials, and public servants. The process was carried out by identifying the natural hazards that impact Callaway County and its residents, assessing the probability of occurrence and severity posed by each hazard, identifying the most vulnerable areas, and evaluating all possible mitigation actions which might be effective. Potential mitigation actions were assessed and prioritized based on the perceived need, probable outcome, potential for being executed, and benefit related to cost.

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Executive Summary

Hazard mitigation focuses on anticipating and lowering risks to lives and property. Natural hazards are taking an increasing toll on lives and property in the United States. The number of FEMA declared Presidential Disasters across the nation has increased drastically over the past two decades. The year 2011 (when an EF-5 tornado devastated the Missouri town of Joplin) set a record with 242 disaster declarations. The cost of these disasters has also increased in recent years, in part because of increased population and a larger built environment but also because of the magnitude of many recent disasters. Hazard mitigation, the cornerstone of emergency management, seeks to address these issues.

Hazard mitigation can save lives and property; it also makes good economic sense. A 2018 study conducted by the National Institute of Building Science found that every dollar spent on mitigation activities saves six dollars in post-disaster recovery costs. Hazard mitigation is a good business practice for both the public and private sectors.

The Plan: The Callaway County Natural Hazard Mitigation Plan is a multi-jurisdictional plan prepared and written that covers the following jurisdictions that participated in the planning process:

- Unincorporated Callaway
- Auxvasse
- Fulton
- Holts Summit
- Kingdom City
- Mokane
- New Bloomfield
- Fulton Public Schools
- JC Public Schools
- New Bloomfield R-III
- North Callaway R-I
- South Callaway R-II
- MO School for the Deaf
- PWSD #1
- PWSD #2
- Central Callaway FPD
- Holts Summit FPD

Jefferson City has a small portion of city limits that cross into Callaway County but it is largely unpopulated. Jefferson City chose to participate in the Cole County Hazard Mitigation Plan. Those who were invited but chose not to participate or did not meet the established requirements for official participation are as follows:

- Boone County

- Cole County
- Jefferson City
- William Woods University
- Westminster College
- Audrain County
- Callaway Rural Electric

The risk assessment (Chapter 3) profiles the natural hazards (dam failure, drought, earthquake, extreme temperatures, flood, levee failure, severe thunderstorm, severe winter weather, tornado, and wildfire) which threaten lives and/or property in some, or all, of the participating jurisdictions. All hazards were evaluated with regard to previous occurrence, probability and severity of future occurrence, existing mitigation strategies, and the potential impact on each jurisdiction.

2022 Mitigation Strategy: The current mitigation strategy, found in Chapter 4 of the plan, lays out a series of actions to be focused on during the coming five years. Each of the actions has been analyzed as to applicable jurisdiction(s), the agency or department which will lead the effort, and the means of implementing and financing the action. All of these decisions were made by jurisdictional representatives participating as members of the hazard mitigation planning committee.

The Callaway County Hazard Mitigation Plan will be formally adopted by each of the participating jurisdictions before a final draft is approved by FEMA. Participation in, and formal adoption of, the plan qualifies a jurisdiction to apply for Federal Emergency Management Agency (FEMA) pre-disaster mitigation grants and the mitigation portion of post-disaster mitigation grants.

While it is to be hoped that many of the mitigation actions in the strategy will have been completed before the next five-year update, as required by FEMA, nothing in the plan is legally binding on the participating jurisdictions. It will be evaluated and maintained on an annual basis prior to this update.

The 2022 county-wide mitigation strategy is shown in its entirety below, organized by the four major mitigation goals.

- Goal 1: Implement mitigation actions that improve the protection of human life, health, and safety from the adverse effects of disasters
- Goal 2: Implement mitigation actions that improve the continuity of government and essential services from the adverse effects of disasters
- Goal 3: Implement mitigation actions that improve the protection of public and private property from the adverse effects of disasters

- Goal 4: Implement mitigation actions that improve the protection of community tranquility from the adverse effects of disasters

Planning Process: A plan is only as good as the planning process which developed it. A thorough update of the plan was completed with the active participation of representatives from Callaway County jurisdictions and utility providers at regularly scheduled meetings over a six-month period. The draft plan was presented at 1 public meetings of the Callaway County Commission, and published on the website of the Mid-MO Regional Planning Commission, to allow for input from the general public.

The plan will be evaluated and maintained on a yearly basis with the help of the planning committee; the next complete update will be undertaken in five years.

The ultimate test of a plan is the action taken on the roadmap presented. It is to be hoped that many of the mitigation actions in this plan will have been completed before the next five-year update. Action on the strategy in this plan will help to ensure a greater, and more cost-effective, level of protection for the citizens and property of Callaway County and its jurisdictions.

The Callaway County Natural Hazard Mitigation Plan can be found online at:
<https://www.midmorpc.org/plans-publications-master/callaway-county-hazard-mitigation-plan>

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.

The participating jurisdictions adopted the plan following FEMA's "approval pending adoption". Adoption resolutions and adoption letters (school districts and institutes of higher learning) are included in appendix A.

Jurisdictions were also required to attend at least one meeting, either in person or individually with staff. Sign-in sheets for meeting attendance can be found in appendix B.

Questionnaires were given to all jurisdictions and were the first item required back from them before moving onto mitigation action item review. Questionnaires help staff fill out portions of the plan as well as assist in thoughtful mitigation action item creation. The questionnaires are located in appendix C.

Chapter 1: Introduction and Planning Process

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Chapter 1: Introduction and Planning Process

1.1 Purpose

The Callaway County Hazard Mitigation Plan is designed as a resource for county and municipal governments, residents, developers, organizations, and others interested in controlling the potentially disastrous effects of natural hazards in Callaway County. Each year natural hazards take a great toll in the United States. Callaway County is not immune; it is subject to numerous natural hazards which can threaten life and property. A well-conceived mitigation strategy, developed through an inclusive and thoughtful planning process, is an important step in protecting citizens and reducing loss.

The Federal Emergency Management Agency (FEMA) defines mitigation as “sustained action taken to reduce or eliminate long-term risk to people and their property from hazards and their effects.” A 2018 study by the Institute for Building Science found that \$6 was saved in post-disaster response and recovery for every \$1 spent on pre-disaster mitigation. The process for declaring Presidential Disasters was established with the passage of the Disaster Relief Act of 1974. In 1988, the Robert T. Stafford Disaster Relief and Emergency Assistance Act created the organizational framework through which funds and assistance would be provided after a Presidential Disaster Declaration; FEMA was designated to coordinate the relief efforts.

The Callaway County Hazard Mitigation Plan was developed by the communities and citizens of Callaway County, their elected officials and public servants in accordance with FEMA’s Mitigation Planning regulations under Code of Federal Regulations (CFR), Title 44, Part 201.6, *Local Mitigation Plans*. Relevant requirements from CFR §201.6 are highlighted throughout the plan.

Multiple jurisdictions within Callaway County participated in the development of this plan. Having a current and approved hazard mitigation plan makes each of the participating jurisdictions eligible to apply for FEMA pre-disaster mitigation grants and the mitigation portion of post-disaster mitigation grants.

1.2 Background and Scope

In November 2003, a “current and approved” hazard mitigation plan became a FEMA eligibility requirement for local jurisdictions applying for pre-disaster mitigation grants and the mitigation portion of post-disaster grant funds. Due to this change in FEMA grant requirements, the Missouri State Emergency Management Agency (SEMA) contracted with the Missouri Council of Governments for the Regional Planning Commissions to direct hazard mitigation planning for interested counties within their respective regions. Callaway County, a member of the Mid-Missouri Regional Planning Commission (Mid-MO RPC), contracted with the Mid-MO RPC to facilitate the development of a hazard mitigation plan for the county.

The Callaway County Hazard Mitigation Plan 2017 was written to be a working document to guide participating jurisdictions in the county in mitigating potential natural hazards. To this

effect, the plan has been publicly available on the website of the Mid-MO RPC (www.mmrpc.org) since it was approved and adopted in 2017.

The maintenance plan in the 2017 document calls for an annual monitoring and review of the plan to be facilitated by the Mid-MO RPC. This monitoring and review was carried out in 2021-2022. Representatives from each of the participating jurisdictions and other interested parties were contacted by email to attend a plan monitoring meeting. seventeen representatives attended the meeting; discussion centered around funding and the need for participation in the Hazard Mitigation Planning process.

Prior to the meeting, a survey was sent out to all participating jurisdictions requesting an update of any progress on the mitigation strategy outlined in the 2017 plan and any other changes in their jurisdiction; response was received from Seven communities.

The jurisdictions participating in the 2022 plan update include:

- Unincorporated Callaway
- Auxvasse
- Fulton
- Holts Summit
- Kingdom City
- Mokane
- New Bloomfield
- Fulton Public Schools
- JC Public Schools
- New Bloomfield R-III
- North Callaway R-I
- South Callaway R-II
- MO School for the Deaf
- PWSD #1
- PWSD #2
- Central Callaway FPD
- Holts Summit FPD

The jurisdiction/stakeholders who were invited but did not participate:

- Boone County
- Cole County
- Jefferson City
- William Woods University
- Westminster College
- Audrain County
- Callaway Rural Electric

All jurisdiction who participated in the 2017 update chose to participate in the 2022 update. The Fire Districts previously participated under the county but some chose to participate individually for this update.

Jurisdictions received email notifications of upcoming meetings and their corresponding agendas, along with any “homework” in the form of questionnaires or surveys. Meeting notices were also posted on the RPC website, meeting information was put on the RPC calendar that is emailed to the 6 county RPC region, as well as notices posted to the RPC Facebook page. Phone calls were also made by the planner and the County Office of Emergency Management to encourage participation.

1.3 Plan Organization

The plan is formatted into 5 Chapters with several sub-sections per section. The 2017 plan contained 6 sections. Planning Area Overview and Planning Area Assets and Capabilities were originally separate sections. For this plan the two sections were combined to match the updated outline for the local hazard mitigation plan released by the Missouri State Emergency Management Agency (SEMA) in 2017. The adjusted plan sections include:

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

Table 1.1: Changes Made in Plan Update

Plan Section	Summary of Updates
Chapter 1 – Introduction and Planning Process	Updated members of the Mitigation Planning Committee (MPC) Updated chapter format
Chapter 2 – Planning Area Profile and Capabilities	Updated chapter format
Chapter 3 – Risk Assessment	Combined Extreme Heat and cold into one hazard: extreme temperatures Updated chapter format
Chapter 4 – Mitigation Strategy	Updated chapter format Changed action worksheet layout/info
Chapter 5 – Plan Implementation and Maintenance	Updated chapter format Added planning mechanisms for hazard mitigation

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.

A Hazard Mitigation Plan must be updated and adopted by the participating jurisdictions every five years to be considered current. The update of the Callaway County Hazard Mitigation Plan was directed by the emergency management planner from Mid-MO RPC (Melissa Stafford) as specified in a Memorandum of Agreement (MOA) with the Missouri State Emergency Management Agency (SEMA). The roll of Mid-MO RPC in the planning process is to:

- Assist in establishing a Mitigation Planning Committee (MPC) as defined by the Disaster Mitigation Act (DMA),
- Organize Planning Committee Meetings locations and times
- 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,
- 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.

The update process consisted of 4 planning committee meetings over the update period. Meeting announcements and sign-in sheets are included in Appendix B.

All hazard mitigation planning meetings were open to the public and public notice was provided in accordance with Missouri’s “Sunshine Law” (Revised Statutes of Missouri 610.010, 610.020, 610.023, and 610.024.) Notice of each meeting was posted at the Mid-MO RPC in Ashland, and on the website of the Mid-MO RPC (www.mmrpc.org).

Table 1.2 Jurisdictional Representatives of Callaway County Mitigation Planning Committee

Participating Jurisdictions			
Name	Title	Department	Jurisdiction
Michelle Kidwell	EMD	Emergency Management	Callaway County
Gary Jungermann	Presiding Commissioner	Commission	Callaway County
Michael Bertschinger	City Supervisor	Administration	Auxvasse
Ty Crain	Superintendent	Administration	Fulton Public Schools
John Joyce	City Clerk	Administration	New Bloomfield
Ron Fisher	Manager	Administration	PWSD #2
Darrell Dunlap	Utility manager	City Utilities	Fulton
Kyle Bruemmer	City Engineer	Engineering	Fulton
Doug Kee	Director	Transportation	North Callaway SD
Chad Booher	Alderman	Administration	Mokane

Debbie Taylor	Alderman	Administration	Mokane
Robert Boone	Assistant Director	Administration	Fulton
Mitchel Fletcher	Supervisor	Road and Bridge	Callaway County
Nicky Kemp	Superintendent	Administration	North Callaway SD
Kevin Coffelt	Chief	Fire	Fulton FPD
Lowe Cannell	Mayor	Administration	Fulton
Lisa Wehmeyer	Assistant Chief	Fire	Holt Summit FPD
Allen Wehmeyer	Assistant Chief	Fire	Holt Summit FPD
Greg Luebbert	Chief	Fire	Central Callaway FPD
Sarah Wisdom	Superintendent	Administration	New Bloomfield SD
Kevin Hillman	Superintendent	Administration	South Callaway SD
Jeff Garriott	Operations Manager	Administration	PWSD #2
Hanna Thomas	City Manager	Administration	Holts Summit
Larry Doyle	City Manager	Administration	Kingdom City
Kellie Chapin	Business Manager	Administration	North Callaway SD
Brad Serivner	Manager	Administration	PWSD #1
Frank Underwood	Superintendent	Administration	Jeff City Public Schools
Regina Roesner	Business Director	Administration	MO School for the Deaf

Table 1.3 Stakeholder Representatives

Stakeholders			
Name	Title	Department	Jurisdiction
Carl Donaldson	EMD	Emergency management	Audrain County
Michael Shine	Reporter	Media	Fulton Sun Newspaper
Jason Barnes	LT	Police	Fulton
Tim Howell	LT	Police	Fulton
Paul Winkelmann	Engineer	Road and Bridge	Callaway County
Brandon Reutiger	EMD/Chief	Police	Holts Summit

Table 1.4 MPC Capability with Six Mitigation Categories

Community Department/Office	Prevention	Structure and Infrastructure Projects		Natural Systems Protection	Education and Awareness Programs	Emergency Services
		Property Protection	Structural Flood Control Projects			
Callaway County	X	X	X	X	X	X
Auxvasse	X	X	X		X	X
Fulton	X	X	X	X	X	X
Holts Summit	X	X	X		X	X
Kingdom City	X	X	X		X	X
Mokane	X	X	X		X	
New Bloomfield	X	X	X		X	
Fulton Public Schools	X				X	
JC Public Schools	X				X	
New Bloomfield R-III	X				X	
North Callaway R-I	X				X	
South Callaway R-II	X				X	
MO School for the Deaf	X				X	
PWSD #1	X					
PWSD #2	X					
Central Callaway FPD	X				X	X
Holts Summit FPD	X				X	X

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.

Multiple jurisdictions within Callaway County participated in the development of this plan. Having a current and approved hazard mitigation plan is a prerequisite for participating jurisdictions to be eligible to apply for FEMA pre-disaster mitigation grants and the mitigation portion of post disaster mitigation grants. Invitations to participate in the development of the plan were sent to commissioners, incorporated community leaders, public schools and colleges, special districts, and various other stakeholders multiple times throughout the update to encourage participation in some manner. Each jurisdiction who participated will have to adopt the updated plan.

- Participation in at least one meeting was required via in person or phone (group/individual meeting). Meeting participation could be in-person or by proxy.
- Each participating jurisdiction must provide sufficient information to support plan development by completion and return of surveys.

- For plan updates, 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
- Provide documentation to show time donated to the planning effort
- All participants should formally adopt the mitigation plan prior to submittal to SEMA and FEMA for final approval.

Table 1.5 Jurisdictional Participation in Planning Process

Jurisdiction	Kick-off Meeting	Meeting #2	Fire District meeting	City Meeting	School Meeting	Water District Meeting	individual Meeting	Questionnaire	Mitigation Actions	Resolution
Callaway co	X	x	x	x		x	x	x	x	x
Auxvasse	X	x		x				X	x	x
Fulton	X	x		x				x	x	
Holts Summit	X	x		x				X	x	x
Kingdom City		x		x			x	x	x	x
Mokane	X	x		x				x	x	x
New Bloomfield	X	x		x				x	x	x
Fulton Public Schools	X				x		x	X	x	x
New Bloomfield Public Schools	X	x			x			X	x	x
North Callaway School	X	x			x			X	x	x
South Callaway School	X	x			x			X	x	x
Callaway Co PWSD #1						x		x	x	x

Callaway Co PWSD #2	X	x					x		x	x	x
Fulton Police Department	X								X		
Holt Summit FPD	X	x							X	x	x
Central Callaway FPD	x			x					x	x	x
JC Public School District							x	x	x	x	x
Mo School of the Deaf							x	x	x	x	x

1.4.2 The Planning Steps

Surveys and questionnaires were important in getting first-hand information from jurisdictions. One-on-one time, public meetings, and many emails produced a wealth of information taken into the plan.

Development of the plan followed the 10-step planning process adapted from FEMA’s Community Rating System (CRS) and Flood Mitigation Assistance programs. The 10-step process allows the plan to meet funding eligibility requirements of the Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program as well as qualify for points under Activity 510 for Mitigation Plans, under the Community Rating System.

Table 1.6 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 44 CFR 201.6(c)(2)(i) 44 CFR 201.6(c)(2)(ii) & (iii)
Step 5. Assess the problem	
Step 6. Set goals	

Step 7. Review possible activities	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 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

Contact lists were made for past participating jurisdictions as well as neighboring communities to Callaway, and email notices were directly sent out to all jurisdictions and special districts in Callaway County making sure to update contacts for positions who may have changed personnel. The notice consisted of a meeting announcement and short summary of what the meeting would be covering and its importance.

A kick-off meeting was hosted March 1, 2022 at the Callaway Co Public Health Department in Fulton. The foundation topic of this meeting was to outline the process of the hazard mitigation plan update and its importance. Surveys were passed out to each jurisdiction in attendance to identify what data the participants could provide. This meeting also served as an introduction to the types of hazards that would be included in the plan. Those in attendance were asked to sign in. Documentation can be found in the following appendices. They were instructed to either email the finished surveys to the lead planner or they had the option to return them in person at the next scheduled meeting. The date for the next meeting was set before everyone left the current meeting.

Meeting 2 took place on March 17, 2022 at the Callaway Co Public Health Department in Fulton. Anyone who wasn't at the first meeting was given a survey to fill out for their jurisdiction. Anyone done with their survey had the opportunity to turn it in if they had not emailed it prior to the meeting. Goals of the plan were sent out and discussed. Any suggested updates were instructed to be brought forth by the next meeting. Mitigation actions were reviewed and attendees instructed to update their list by the next meeting.

Other Meetings were hosted for specific disciplines. Fire, Water Districts, and Schools were hosted individually to talk about hazard mitigation planning and to go over action mitigation items. Dividing out disciplines into their own meetings for action item discussion proved valuable to holding interest and having a more thorough and meaningful conversation. MPC members who had to sit through discussion that was not relevant to their situation were less likely to show up and participate in the next meeting. They felt this format worked better for the longer more complex portion of mitigation planning.

Table 1.7: Schedule of MPC Meetings

Meeting	Topic	Date
Kick-Off Meeting	<ul style="list-style-type: none"> • Importance of Hazard Mitigation Planning • Why the Plan needs updated and what is included • Planning process • How to Participate 	3/1/2022

	<ul style="list-style-type: none"> • Handed out questionnaires 	
Meeting #2	<ul style="list-style-type: none"> • Return questionnaires • Discussed questions about the questionnaire • Discussed Risk Assessments • Reviewed Previous Action Items 	3/17/2022
Fire District Meeting	<ul style="list-style-type: none"> • New Mitigation Actions 	3/9/2022
Water District Meeting	<ul style="list-style-type: none"> • New Mitigation Actions 	4/4/2022
School Meeting	<ul style="list-style-type: none"> • New Mitigation Actions 	4/5/2022
City Meeting	<ul style="list-style-type: none"> • New Mitigation Actions 	4/6/2022

Step 2. Public Involvement

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.

Each of the meetings of the MPC were open to the public. It was advertised through the Mid-MO RPC (www.mmrpc.org) website, posted at the office, published in the Fulton newspaper, and included on the RPC Facebook page. The draft is available at the Mid-MO RPC website for anyone to review. Comments can be taken through email, phone, or in-person at the office. Individual invites and meeting notices were emailed to each jurisdiction for participation. Jurisdictions that did not show up or return email contact after the second meeting were called directly and educated on the importance of their participation. Anyone who did not come in-person to a meeting was emailed a questionnaire to fill out for their jurisdiction. Surveys were offered to jurisdictions to offer to the public, but no public comment surveys were received during the planning process. The needs and concerns of the public were considered based on the feedback given by jurisdictional representatives and their knowledge and interaction with the public outside the planning process.

Step 3. Coordinate

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.

Participants from all incorporated cities, towns, and villages were invited to every meeting, along with all school districts and colleges. Other invitees were emergency response agencies, county

offices, etc. Once a draft of the plan was complete it was posted to the Mid-MO RPC website for review by all interested parties. Invitations were sent by email and notices were published to the RPC Facebook page and a calendar with meetings shared via email to jurisdictions and stakeholders throughout the 6 county RPC region.

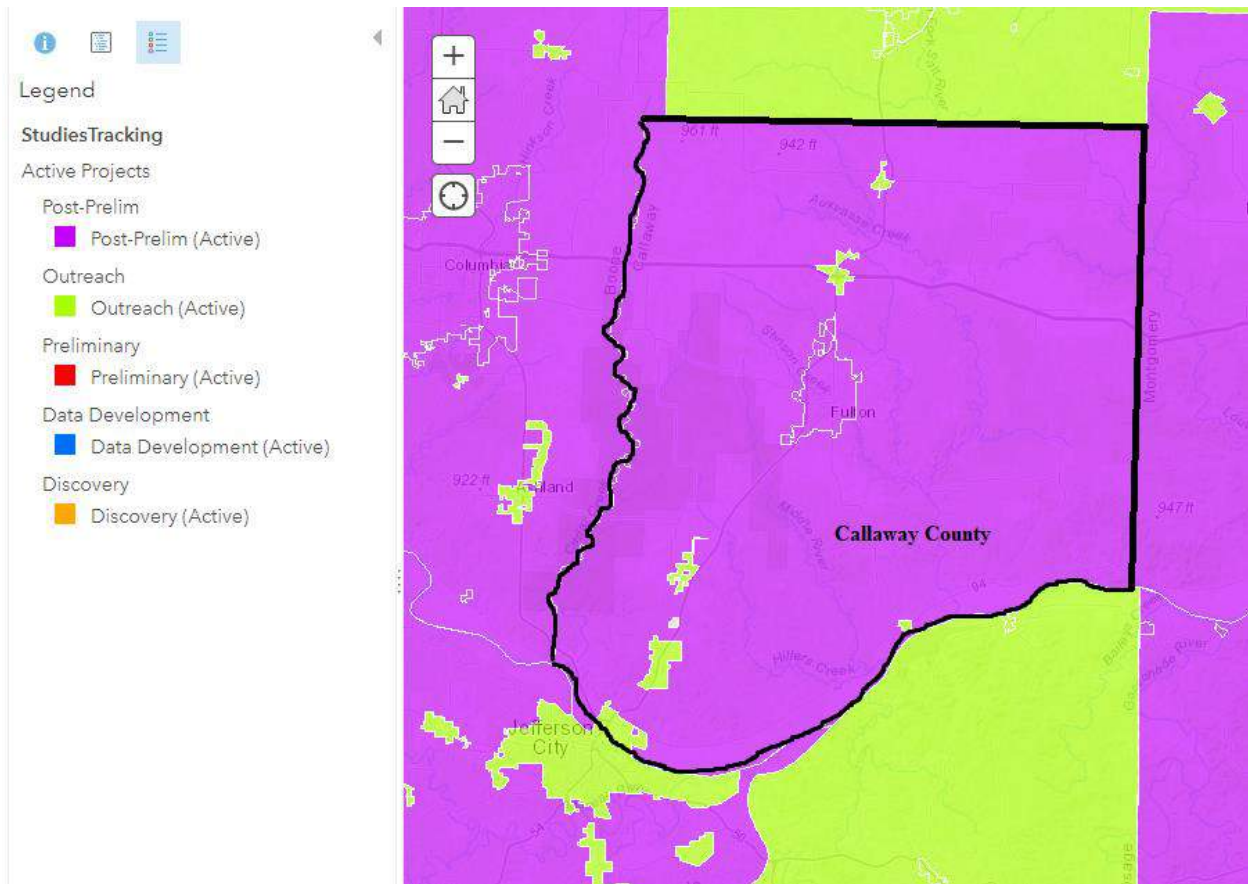
Table 1.8: Invited Stakeholders

Stakeholder/Jurisdiction	Position/Department
Cole County	Commission
Boone County	Commission
Jefferson City	Planner
William Woods University	Campus Emergency Services
Westminster College	Campus Emergency Services
Audrain County	EMD
Callaway Electric	CEO

Coordination with FEMA Risk MAP Project

Figure 1.1 shows the status of Risk Mapping in Callaway County. The southern boundary of Callaway County is edged by the Missouri River which is prone to flooding. The risks of this will be more clearly defined in Section 3: Risk Assessment.

Figure 1.1 FEMA Risk Studies Tracker



Integration of other data, reports, studies, and plans

Many existing plans, studies, and reports were consulted in the development of this plan. These include:

- *Atlas of Missouri Ecoregions*, Missouri Department of Conservation
- *Comprehensive Economic Development Strategy for the Mid-MO Region (2018)*, Mid-MO Regional Planning Commission
- *Missouri State Hazard Mitigation Plan (2018)*, Missouri State Emergency Management Agency (SEMA)
- *Missouri Weather Patterns and Their Impact on Agriculture*, Grant L. Darkow, University Extension, University of Missouri-Columbia
- *National Climate Assessment 2014*, U.S. Global Change Research Program (GlobalChange.gov)
- *Regional Transportation Plan (2016)*, Mid-MO Regional Planning Commission
- *Situation Reports (online)*, Missouri SEMA
- *Flood Insurance Rate Maps (FIRMs)*
- *State Department of Natural Resources (DNR) dam information*
- *The National Inventory of Dams*
- *United States Department of Agriculture – Census of Agriculture*
- *Corp of Engineers – National Levee Database*

- Callaway County Local Emergency Operations Plan (LEOP)
- Regional Transportation Plan-2020

Step 4: Assess the Hazard

Risk Assessment surveys were compiled and discussed. The risk of hazards were based on previous disasters, hazards that were identified in the State Hazard Mitigation Plan, and hazards from the previously approved hazard mitigation plan. Hazards were prioritized by their likelihood and severity of impacts by each jurisdiction, then totaled to rate each hazard on a whole. Additional details about the individual hazards can be found in the chapter on Risk Assessment.

Step 5: Assess the Problem

Assets for each jurisdiction were identified through the use of HAZUS, the data questionnaire, and Census. Losses were estimated by utilizing the HAZUS database and the 2018 State Hazard Mitigation Plan when needed.

Step 6: Set Goals

The goals set in the previous plan update were carried over for this plan. It was felt that the current set of goals were still relevant and necessary, when the Mitigation Actions List was discussed and updated. Those goals summarized are:

- Goal 1: Implement mitigation actions that improve the protection of human life, health, and safety from the adverse effects of disasters
- Goal 2: Implement mitigation actions that improve the continuity of government and essential services from the adverse effects of disasters
- Goal 3: Implement mitigation actions that improve the protection of public and private property from the adverse effects of disasters
- Goal 4: Implement mitigation actions that improve the protection of community tranquility from the adverse effects of disasters

Step 7: Review Possible Mitigation Actions and Activities

Mitigation Actions were discussed. Each action from the last update was reviewed and updated individually by the MPC. A link to the FEMA publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* was provided prior to first meeting with the questionnaire to give everyone projects to think about for their jurisdiction. A focus for the MPC was the addition of safe rooms in schools and public places and additional sirens that may be needed to the Mitigation Action Plan across the county.

Step 8: Draft an Action Plan

Based on the response from the final MPC meeting an Action Plan was formed from any on-going and remaining actions identified as well as actions added to the list. Possible grant opportunities to assist in achieving the set goals and actions were also discussed at throughout

the meetings. On-going efforts and mitigation achievements through projects and policy is a priority for stakeholders.

Step 9: Adopt the Plan

Throughout the whole update process it was reiterated in word and text that in order for participation in the plan to count a jurisdiction must participate by attending at least one meeting or returning the survey/questionnaire, and lastly by signing an adoption resolution of the plan that can be included in the draft to SEMA.

Step 10: Implement, Evaluate, and Revise the Plan

Plan implementation was discussed at the final meeting while discussing grant and partnership opportunities to move the actions on the mitigation list along. Future revisions will be discussed in more detail one-on-one with the participating jurisdictions. Further details regarding implementation, monitoring and maintenance can be found in chapter 5, Plan Maintenance Process.

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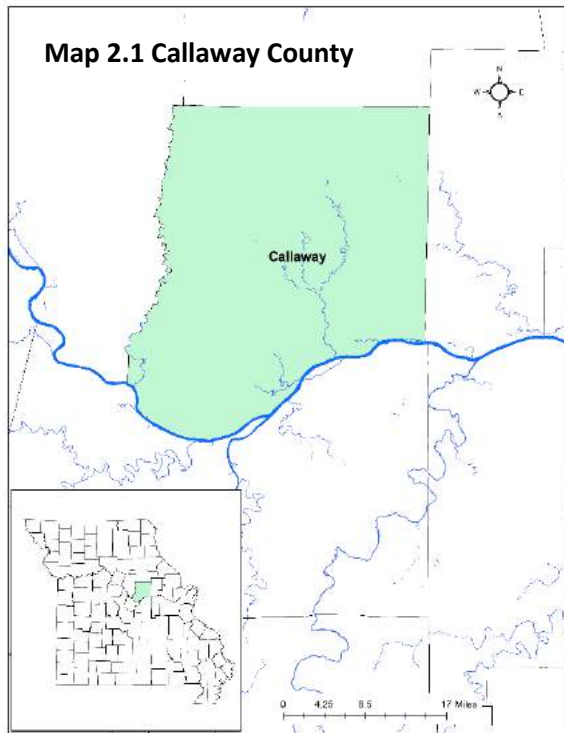
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Chapter 2: Planning Area Profile

Callaway County is located in central Missouri with an area covering 847 square miles. It is approximately midway between Kansas City to the west and St. Louis to the east.

The county is bordered on the south by the Missouri River, which separates it from Cole and Osage counties, on the west by Cedar Creek which separates it from Boone County, on the east by Montgomery County, and on the north by Audrain County.



The 2020 Census indicated an overall population decrease in Callaway County of 0.11% with a slight increase in housing units. The greatest increase in growth was in Holts Summit which saw a 37.3% increase in population along with over 23% growth in housing units, while Fulton saw an almost 1.5% decrease in population. Auxvasse saw the greatest loss in housing units with a drop of 2.5%.

2020 census found that the median household income for Callaway County to be \$59,835 which is slightly behind the state median household income of \$61,901, which is behind the National average of \$67,521.

Median home prices in Callaway County are estimated around \$160,700 still fall short of the state median of \$172,800 and the national price of \$251,700.

2.1.1 Geography, Geology, and Topography

Callaway County is located in central Missouri with an area covering 847 square miles. It is approximately midway between Kansas City to the west and St. Louis to the east.

The county is bordered on the south by the Missouri River, which separates it from Cole and Osage counties, on the west by Cedar Creek which separates it from Boone County, on the east by Montgomery County, and on the north by Audrain County.

The county is located on the border of two Ecoregions, the northern border of the Ozark Highlands and southern border of the Central Dissected Till Plains. The Atlas of Missouri Ecoregions, published by the Missouri Department of Conservation, describes these Ecoregions as:

Ozark Highlands

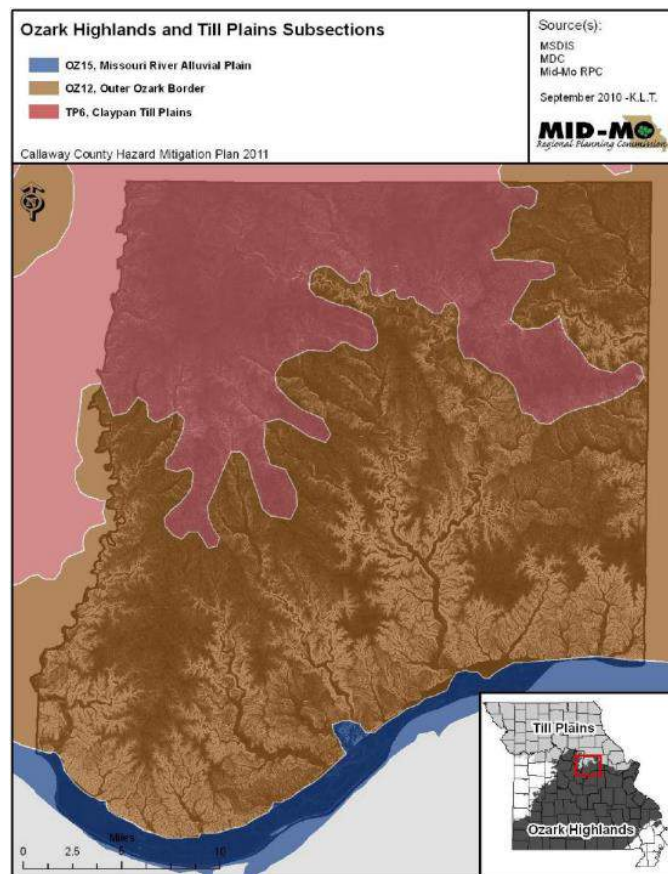
“...a distinctive biogeographic region that includes most of southern Missouri and much of northern Arkansas and small parts of Illinois, Oklahoma, and Kansas. Geologically, the Ozark Highlands is a low structural dome of essentially horizontally bedded strata that has been undergoing erosion and weathering for a quarter billion years into a thoroughly dissected plateau.”

Central Dissected Till Plains

“...characterized by moderately dissected glaciated plains that slope regionally toward the Missouri and Mississippi Rivers. The section covers almost all of Missouri north of the Missouri River and extends into southern Iowa and portions of Kansas, Nebraska, and Illinois. In Missouri, the ecoregion is blanketed with Pleistocene loess over glacial till that varies in thickness from complete absence in peripheral regions to over three hundred feet thick in northern Missouri.”

The land area of Callaway County falls into two different subsections of the Ozark Highlands and one subsection of the Central Dissected Till Plains. These subsections are distinguished by differing landforms, soils, and vegetation (see Map 2.2). In turn, these subsections give rise to differences in land use patterns, conservation needs, and vulnerability to certain natural hazards.

Map 2.2



The following information summarized from the Atlas of Missouri Ecoregions gives brief descriptions of the three subsections found within the two Ecoregions in Callaway County.

Missouri River Alluvial Plain

This subsection, consisting of the Missouri River channel and its adjoining alluvial plain, is found along the northern border of the county. Soils are deep and loamy and the area is subject to riverine flooding. Historically, the vegetation was typical bottomland species such as cottonwood, willow, sycamore, silver maple, elm, and hackberry.

Outer Ozark Border

This subsection includes most of the northern and western parts of the county. This area has steep loess-covered hills and bluffs along the Missouri River. The underlying strata are limestone and dolomite. This area is the most rugged bluffland on the southern side of the Missouri River west of the Osage River. Prior to European settlement, oak savanna and woodlands dominated the higher areas and dense oak and mixed-hardwoods were found in the steep-sided limestone ravines. Currently, the uplands are primarily fescue pasture and the ravines are second-growth forests and cedar thickets.

Claypan Till Plain

This subsection includes well-developed claypan soils on a flat glacial till plain. Postglacial stream erosion has made little progress in this subsection, and most of the surface is flat or gently rolling with local relief less than 100 feet. Bedrock exposures are rare. Most of the subsection was formerly prairie, with narrow belts of timber along stream courses. Most of the subsection is now farmland, of which a very large percentage is in cropland.

The Missouri River

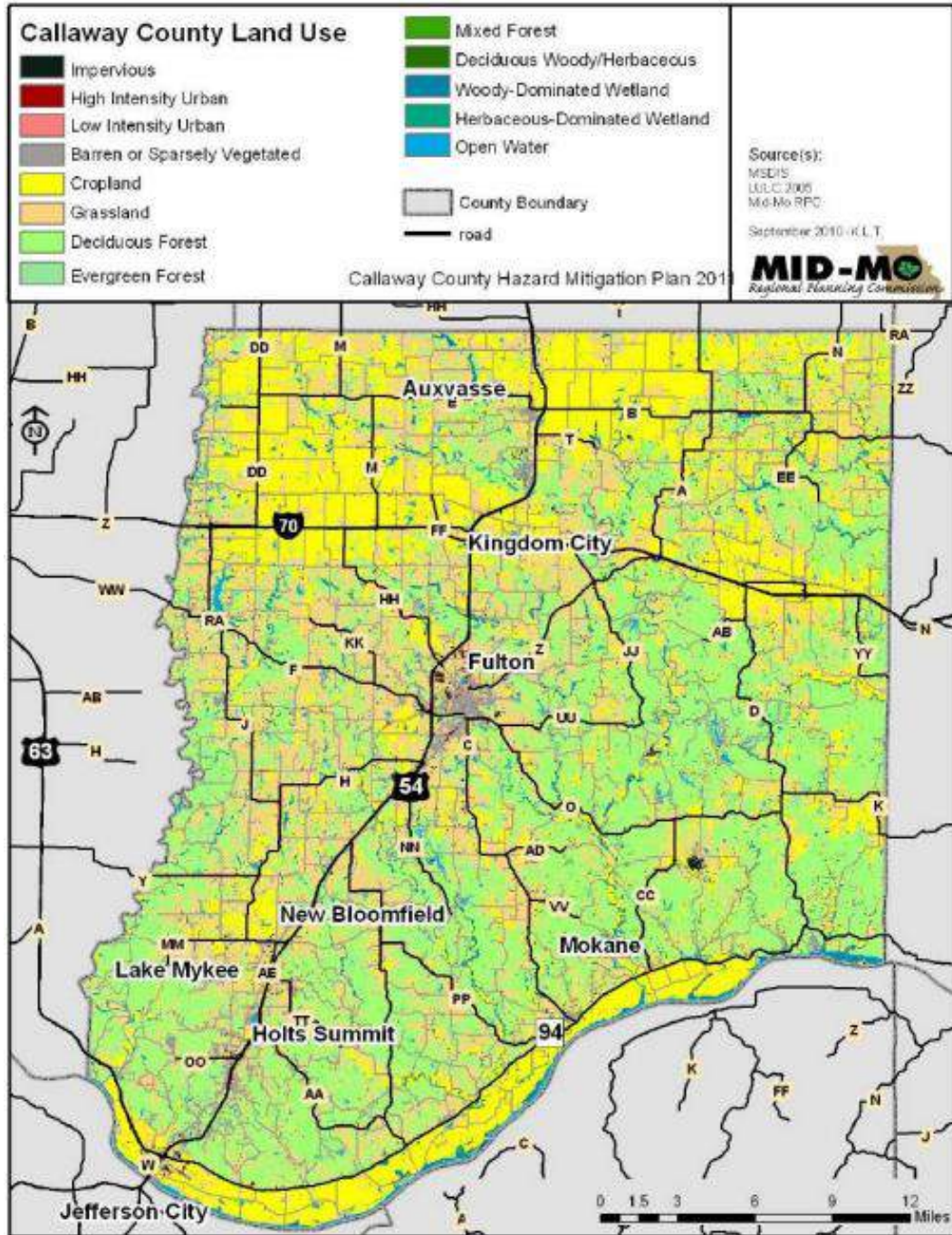
The Missouri River's relationship to Callaway County deserves special attention. It is the defining physical feature in Mid-Missouri and forms the southern border of the County.

The Missouri River is the longest river in the nation; it measures 2,341 miles long, according to the U.S. Geological Survey. The river drains approximately one sixth of the North American continent and is only a few hundred miles from its confluence with the Mississippi River at St. Louis when it flows through mid-Missouri.

2.1.2 Current Land Use

Current land use in Callaway County is shown in Map 2.3.

Map 2.3



2.1.3 Climate

Callaway County, like the rest of the state of Missouri, has variable weather patterns and extremes of temperature. With its central continental location, Missouri receives air masses bringing weather from all directions.

Warm humid air from the Gulf of Mexico can bring moisture year-round and is the principal source of precipitation in the spring, summer, and fall; in contrast, air from other directions may be hot and dry (southwest), warm and dry (west), cold (northwest and north), cool and moist (northeast). The flow from the different source regions typically changes in a matter of days, giving rise to the commonly heard expression in Missouri, “If you don’t like the weather, wait a day.”

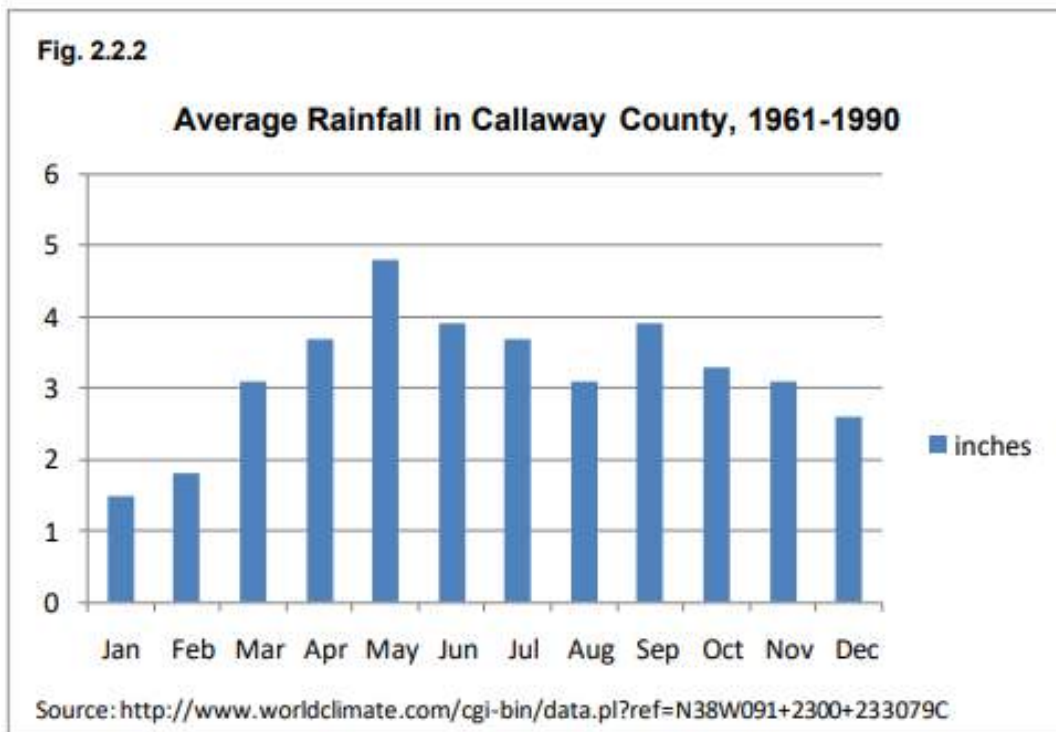
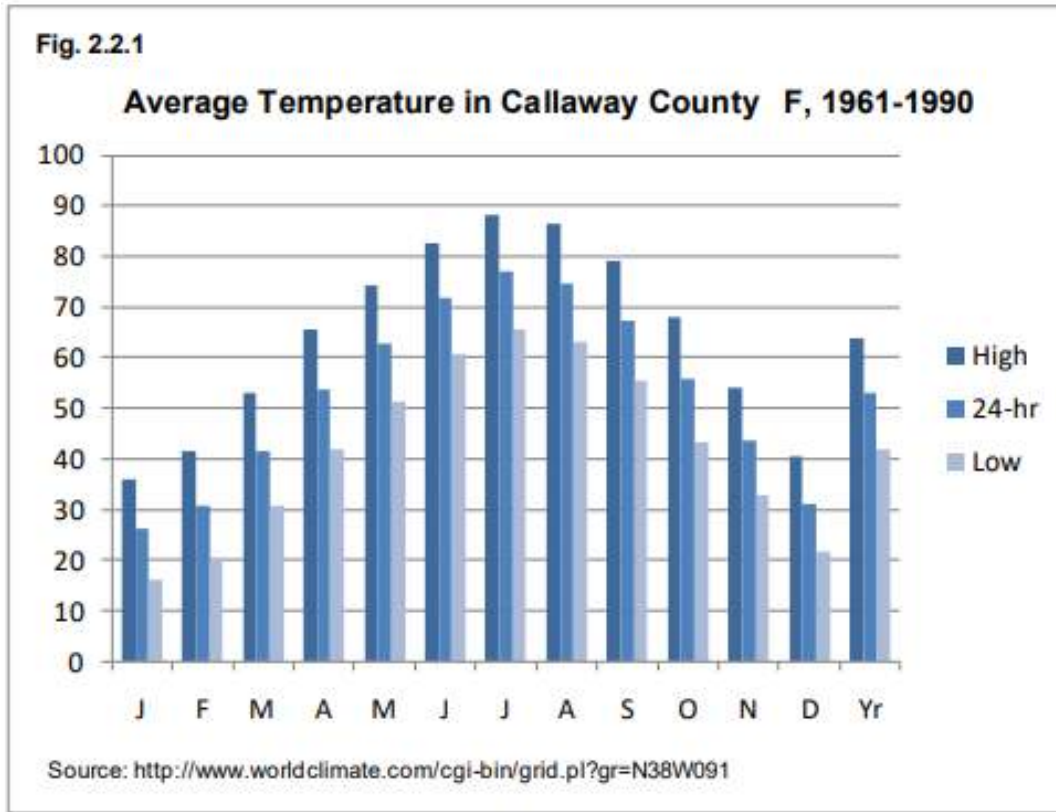
At times, the flow of air from one of the source regions will settle in and persist for weeks or months. These periods are associated with particular upper air flow patterns and associated surface conditions.

The Missouri State Hazard Mitigation Plan quotes Dr. Grant Darkow of the University of Missouri - Department of Atmospheric Science on the importance of understanding these weather patterns:

“The persistence of these weather patterns and the possible resulting condition is the subject of several of the natural disasters discussed in this study. Specifically, floods, droughts, fires, heat waves, severe cold, and winter storms can be the result of the persistence of one of these weather patterns, whereas tornadoes can represent the outgrowth of rapid shifts in weather patterns. Knowing these patterns may assist in alerting disaster planners and the general public to the possibility of a developing emergency situation.”

While Callaway County does have extreme variations in weather at times, there is a relative pattern of temperature and rainfall consistent with a humid continental climate. The data shown in the charts was collected at the Boonville weather station in the years 1981-2010 (Figure 2.1). The rainfall data showed an average of 43.5” of rainfall per year; average rainfall in this data set is defined as including precipitation of any form.

Figure 2.1 Average Temperature and Rainfall in Callaway County



2.1.4 Population/Demographics

There are 7 incorporated communities in Callaway County: Auxvasse, Fulton (the county seat), Holts Summit, Jefferson City (participated in Cole HMP), Kingdom City, Mokane, and New Bloomfield.

In Callaway County, the 2020 Census indicated a 0.11% decrease in population despite ACS estimating growth. There was a 0.09% increase in housing units across the county. Despite an overall decline in growth Holts Summit saw a significant increase in population and housing units. This is likely attributed to its location relative to major employment opportunities in Jefferson City and easy access to Columbia.

Table 2.1 Callaway County Population 2010-2020 by Jurisdiction

Jurisdiction	2020 Population	2010 Population	2020 Annual Population Estimate or ACS Population	# Change (2010-2020)	% Change (2010-2020)
Unincorporated	25,215	26,330	24,928	-1,115	-4.23
Auxvasse	1,001	983	1,229	18	1.83
Fulton	12,600	12,790	12,696	-190	-1.49
Holts Summit	4,458	3,247	4,790	1,211	37.3
Kingdom City	134	128	156	6	4.69
Mokane	188	185	390	3	4.62
New Bloomfield	687	669	755	18	2.69
Total	44,283	44,332	44,944	-49	-0.11

Source: U.S. Bureau of the Census, Decennial Census, annual population estimates/ 5-Year American Community Survey 2020; *population includes the portions of these cities in adjacent counties

Some sectors of the population are more vulnerable in general to the threat of hazardous events. Children need the help and guidance of adults, especially in the extraordinary circumstances, and this is also true for some older citizens. Approximately 21% of the county’s population is under the age of 18; approximately 16% is 65 years and older, according to 2020 estimates from the American Community Survey of the U.S. Census Bureau.

The University of South Carolina developed an index to evaluate and rank the ability to respond to, cope with, recover from, and adapt to disasters. The index synthesizes 29 socioeconomic variables which research literature suggests contribute to reduction in a community’s ability to prepare for, respond to, and recover from hazards. Callaway was given a Medium Low SOVI Index Ranking within the state of Missouri.

Table 2.2 Unemployment, Poverty, Education, and Language Percentage Demographics, Callaway 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
Callaway County	21,175	3.3%	8.4%	35.5%	15.6%	1.7%
Auxvasse	556	10%	35.2%	30.8%	15.5%	0.6%
Fulton	4,741	5.7%	14.1%	35.6%	13.5%	2%
Holts Summit	2,250	3.8%	11.2%	27.6%	16.2%	1.3%
Kingdom City	72	0%	4.7%	42.1%	7.9%	0%
Mokane	259	37.2%	4.1%	55.6%	8.2%	0.6%
New Bloomfield	485	2.4%	2.3%	25%	14%	1.3%
Missouri	3,062,657	5.8%	10.3%	89.2%	28.2%	6%
United States	162,184,235	6.6%	10.5%	87.3%	30.9%	21.3%

Source: U.S. Census, 2020 American Community Survey, 5-year Estimates.

2.1.5 History

Callaway County, along with much of the surrounding area, has a rich history that has been well documented and researched. Before the influx of settlers, the Callaway County region was home to a handful of Native American groups including the Sac and Fox, although early accounts of the region state that the land was nearly void of Native American settlements. In recent years this has been proven incorrect. Currently, there are two archaeological sites in Callaway County that have shed new light on the region's earliest inhabitants.

The City of Fulton maintains a history section on their website and the following was taken from that site: "The first European settlement in what would become Callaway County was in 1808 at Cote Sans Dessein, along the Missouri River. At this time the area was part of Louisiana Territory, which the United States had purchased from France in 1803. Cote Sans Dessein was originally chosen as the site of Missouri's permanent state capital, but after questions regarding title to the land were raised, the location was moved to Jefferson City.

Callaway County was created in 1820 out of a section of Montgomery County and named after Captain James Callaway. The town of Elizabeth, located on Ham's Prairie, became the county seat. In June 1825, George Nichols founded what would eventually become the City of Fulton. Originally named Volney, after French author Count Constantin Volney, many in the community were unhappy with the name as the man's beliefs were much different than those living in the town. So, two months later, the town's name was changed to Fulton, named after Robert Fulton, the inventor of the first commercial successful steamboat."

2.1.6 Occupations

Many of the major employers for Callaway County residents are not located in Callaway County. Callaway County citizens rely heavily on nearby populated regional centers such as Columbia (Boone County) and Jefferson City (Cole County)

for employment and other commercial activity.

Table 2.3 Occupation Statistics, Callaway 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
Callaway County	7,130	3,658	4,302	1,929	2,953
Auxvasse	127	82	159	12	91
Fulton	1,352	1,006	869	221	690
Holts Summit	808	463	329	225	296
Kingdom City	15	11	17	13	16
Mokane	33	19	56	24	17
New Bloomfield	156	60	163	18	72

Source: U.S. Census, 2020 American Community Survey, 5-year Estimates.

2.1.7 Agriculture

Agriculture is still widely seen throughout Callaway County but it has lost its place as the dominant economic source in the county. Manufacturing, education, and other types of employment have overtaken farming.

There are 296,559 acres in farmland in the county according to the 2017 Census of Agriculture from the U.S. Department of Agriculture (USDA); this is a decrease from 316,066 acres in 2012. Farmland comprises 54.7% of the land area of the county. Of the total farmland, 166,621 acres are cropland, and 144,756 acres were harvested in 2017.

Callaway County has had an important connection to agriculture for an extended period of time. The first European settlers moved to the area in the early 1800s in order to start farming in the rich soils of the Missouri River bottoms. While a small number of the working sector are in agriculture it is still an important part of the county’s makeup. Crops such as soybeans, hay, corn, and grains are staples. Hogs and cattle are the main livestock produced in the county.

The total market value for all agricultural products (crops and livestock) sold in 2017 was \$124,533,000.

	2012	2017	Change
Approximate land area (acres)	542,080	543,080	-
Land in farms (acres)	316,066	296,559	-6.17%
Percentage in farms	58.3	54.7	-3.6%

Number of farms	1417	1438	1.48%
Average size of farm (acres)	223	206	-7.62%
Estimated market value of land and buildings			
Average value per farm	728,630	816,689	12.09%
Average value per acre	3,267	3,960	21.21%
Total sales	47,778,000	55,944,000	17.09%
Average sales per farm	62,455	81,078	29.82%
Source: USDA Census of Agriculture 2017			

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

There have been two HMA grants in the planning area. The last recorded HMA grant was in 2004 and listed as an Acquisition of Private Real Property. 172 properties have been listed to acquire since the flood of 1993 for a total or more than \$1.7 million.

Table 2.5 HMA Grants

Disaster Declaration	Project Type	Sub-Grantee	Date Approved	Project Total
1412	Acquisition of Private Real Property	Jefferson City	2/19/2004	69650
995	Acquisition of Private Real Property	JEFFERSON CITY	2/17/1994	1706385
Total				1776035

2.1.9 FEMA Public Assistance (PA) Grants in Planning Area

There has been over \$1.8 million in Public Assistance (PA) grants awarded in Callaway County. Below is \$1,853,467.07 in projects that have varied in size and location through the county.

Table 2.6 PA Grants

Disaster Declaration	Applicant	Project Type	Project Size	Project Total
1673	Holts Summit	Protective Measures	Small	2366.03
1673	Callaway County	Protective Measures	Small	57800.8
1673	Auxvasse	Protective Measures	Small	2977.13
1673	Fulton	Protective Measures	Small	17243.1
1676	Kingdom City	Protective Measures	Small	2447.81
1676	Holts Summit	Protective Measures	Small	3671.96
1676	Auxvasse	Protective Measures	Small	2877.71
1676	Callaway County	Protective Measures	Small	51599.22
1676	Fulton	Protective Measures	Small	23253.09
1736	Lake Mykee	Debris Removal	Small	4000
1736	New Bloomfield	Protective Measures	Small	4940

1736	Lake Mykee	Protective Measures	Small	1000
1736	South Callaway R-II	Debris Removal	Small	3291.84
1736	New Bloomfield	Debris Removal	Small	12359.75
1736	South Callaway R-II	Public Buildings	Small	1083.96
1736	South Callaway R-II	Recreational or Other	Small	1000
1736	South Callaway FPD	Protective Measures	Small	1343.95
1736	South Callaway R-II	Protective Measures	Small	1031.43
1736	Auxvasse	Protective Measures	Small	3872.81
1736	Auxvasse	Debris Removal	Small	4900.44
1736	Holts Summit	Protective Measures	Small	3094.22
1736	Holts Summit	Protective Measures	Small	1323.01
1736	Holts Summit	Debris Removal	Small	20215.29
1736	Holts Summit	Protective Measures	Small	3150.13
1736	Holts Summit	Public Utilities	Small	1000
1736	Fulton	Public Buildings	Small	1967.18
1736	Fulton	Recreational or Other	Small	14386
1736	Fulton	Protective Measures	Small	18012.48
1736	Fulton	Recreational or Other	Small	3858
1736	Fulton	Protective Measures	Small	5044.97
1736	Fulton	Public Utilities	Small	1000
1736	Callaway County	Protective Measures	Small	37303.29
1736	Fulton	Debris Removal	Large	186121.98
1736	New Bloomfield	Protective Measures	Small	424.5
1736	Callaway County	Debris Removal	Small	52597.79
1736	Fulton	Public Utilities	Large	110507.18
1736	Fulton	Protective Measures	Small	1711.13
1736	Holts Summit	Recreational or Other	Small	2495.26
1736	Callaway County	Recreational or Other	Small	13624.75
1773	Callaway County	Public Buildings	Small	6665.12
1773	Callaway County	Debris Removal	Small	9166.17
1773	Callaway County	Roads and Bridges	Small	11298.16
1773	Callaway County	Roads and Bridges	Small	7575.89
1773	Auxvasse	Public Buildings	Small	1301
1773	Callaway County	Roads and Bridges	Small	13919.08
1773	Callaway County	Roads and Bridges	Small	23304.91
1773	Westminster College	Recreational or Other	Large	223617.31
1809	Fulton	Debris Removal	Small	10006.43
1809	Fulton	Recreational or Other	Small	27338.65
1809	Fulton	Public Buildings	Small	4491.86
1809	Fulton	Public Utilities	Small	0
1809	Fulton	Recreational or Other	Small	19287.56

1809	Fulton	Protective Measures	Small	9181.69
1809	Callaway County	Roads and Bridges	Small	18924.22
1809	Callaway County	Roads and Bridges	Small	19160.44
1809	Fulton	Roads and Bridges	Small	14769.31
1809	Callaway County	Roads and Bridges	Small	11827.52
1809	Callaway County	Roads and Bridges	Small	22943.78
1809	Callaway County	Roads and Bridges	Small	15758.88
1961	New Bloomfield	Protective Measures	Small	3137.5
1961	South Callaway R-II	Public Buildings	Small	978.93
1961	South Callaway R-II	Protective Measures	Small	119.28
1961	South Callaway R-II	Protective Measures	Small	3484.8
1961	Fulton	Roads and Bridges	Small	3248.88
1961	Fulton	Protective Measures	Small	33453.88
1961	Callaway County	Protective Measures	Large	89629.4
1961	Holts Summit	Protective Measures	Small	7600.64
1961	Holts Summit	Public Buildings	Small	1675
1961	Fulton School Dist.	Public Buildings	Small	1500
1961	Fulton School Dist.	Protective Measures	Small	6375.51
1961	Jeff City Mem. Airport	Protective Measures	Small	16936.56
4130	Callaway County	Roads and Bridges	Small	19701.8
4130	Callaway County	Roads and Bridges	Small	3325.32
4130	Callaway County	Roads and Bridges	Small	7392.93
4130	Callaway Electric CO-OP	Public Utilities	Small	24903.87
4130	Callaway County	Roads and Bridges	Small	12807.22
4130	Callaway County	Roads and Bridges	Small	2236.37
4130	Callaway County	Roads and Bridges	Small	36301.01
4451	Unknown	Roads and Bridges	Small	51578.94
4451	Unknown	Debris Removal	Small	69267.63
4451	Callaway County	Roads and Bridges	Small	76469.55
4451	Callaway County	Roads and Bridges	Small	26035.01
4451	Unknown	Protective Measures	Small	4447.18
4451	Callaway County	Roads and Bridges	Small	5565.65
4451	Callaway County	Roads and Bridges	Small	11005.15
4451	Unknown	Public Utilities	Small	65877.42
4451	Callaway County	State Management	Small	0
4451	Unknown	Protective Measures	Small	9423.45
4451	Unknown	Protective Measures	Small	1742.49
4451	Unknown	Public Buildings	Small	13835.46
4451	Unknown	State Management	Small	4456.82
4612	Fulton	Debris Removal	Small	3331.64
4612	Unknown	Roads and Bridges	Small	8302.29

4612	Unknown	Roads and Bridges	Small	5327.51
4612	Unknown	State Management	Small	681.49
4612	Callaway County	Roads and Bridges	Small	44250.61
4612	Callaway County	Roads and Bridges	Small	25623.71
Total				1853467.07

2.2 Jurisdictional Profiles and Mitigation Capabilities

The following is the individual profiles for each participating jurisdiction. Information regarding previous mitigation initiatives and ongoing efforts can be found in the summary tables below. These tables indicate specific capabilities of each jurisdiction that relate to their ability to implement mitigation opportunities. Unincorporated Callaway County is profiled first, followed by the incorporated communities, special districts, the public schools, and higher education.

2.2.1 Unincorporated Callaway County

Callaway County is governed by an elected three-member Board of Commissioners composed of an Eastern District Commissioner, a Western District Commissioner, and a Presiding Commissioner. The Commission carries out the following responsibilities:

- establishes Callaway County policy
- approves and adopts the annual budget for all County operations
- approves actual expenditures for each department
- supervises the operations of County departments
- ensures County-wide compliance with numerous statutory requirements
- acts as liaison with County boards, commissions, and other local and regional governmental entities

Callaway County has the following departments and offices:

Assessor	Auditor	Circuit Clerk
Collector	County Clerk	Emergency Operations
Emergency Management	911 Communications	Health
Human Resources	Prosecuting Attorney	Public Works
Road and Bridge	Recorder of Deeds	Sheriff
Treasurer		

Table 2.7 Callaway County Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	Provided in annual County Budget
City Emergency Operations Plan	N/A

County Emergency Operations Plan	update will be 2022
Local Recovery Plan	N/A
County Recovery Plan	No
City Mitigation Plan	N/A
County Mitigation Plan	2017
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	Regional-2016
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
School Mitigation Plan	No
Critical Facilities Plan (Mitigation/Response/Recovery)	Callaway Emergency Radiological Plan
Policies/Ordinance	
Zoning Ordinance	N/A
Building Code	N/A
Floodplain Ordinance	Updated pursuant to 44 CFR 60.3(d) Ordinance 102 effective 10/28/21
Subdivision Ordinance	N/A
Tree Trimming Ordinance	No
Nuisance Ordinance	No
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	N/A
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Only NFIP Floodplain Management Ordinance 102.
Codes Building Site/Design	N/A accept within floodplain then FP Ordinance.
Hazard Awareness Program	Public Education Programs for All Hazards through Office of Emergency Management, and Callaway LEPC for Chemical/Hazmat (If this isn't what you wanted let me know)
National Flood Insurance Program (NFIP)	NFIP Entry date 09/03/1983/ CID#290049
NFIP Community Rating System (CRS) program	
National Weather Service (NWS) Storm Ready	Implemented in 2018 updating in 2022
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	N/A
ISO Fire Rating	Each Fire Department would have their ISO rating.

Capabilities	Status Including Date of Document or Policy
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Economic Development Program	County works with Fulton Area Development foundation
Land Use Program	No
Public Education/Awareness	Through Office of Emergency Management, CERT, COAD, Public Health (Each having programs throughout the year) Again, not sure what you wanted here.
Property Acquisition	Not since 2012
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	Callaway County Road and Bridge
Engineering Studies for Streams (Local/County/Regional)	Engineering studies conducted are hydrology and hydraulic reports for culverts and bridges on a case by case basis. These are done for new or replacement culverts and bridges through Road and Bridge Engineer.
Mutual Aid Agreements	MOU's w/ Red Cross, Ameren, Humane Society, Westminster, several churches for facility use, etc..
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	THIRA
Hazard Analysis/Risk Assessment (County)	THIRA
Flood Insurance Maps	Date of Maps 09/05/12 FEMA in process of updating maps with new LIDAR
FEMA Flood Insurance Study (Detailed)	9/5/2012
Evacuation Route Map	EPZ Evacuation Maps
Critical Facilities Inventory	Critical facility database (schools, residential care facilities, hospital, group homes transient attractions senior centers) , Tier II data and facility location map, Fire/LE/EMS facility location maps
Vulnerable Population Inventory	Yes individuals can register with Smart 911 or by contacting EMA
Land Use Map	
Staff/Department	
Building Code Official	N/A
Building Inspector	N/A
Mapping Specialist (GIS)	Office of Emergency Management
Engineer	Road & Bridge County
Development Planner	N/A
Public Works Official	N/A
Emergency Management Director	Office of Emergency Management
NFIP Floodplain Administrator	Office of Emergency Management
Emergency Response Team	Office of Emergency Management
Hazardous Materials Expert	Various Fire Dept. Personnel trained to Tech level.
Local Emergency Planning Committee	Chair/Emergency Management Coordinates
County Emergency Management Commission	N/A
Sanitation Department	N/A

Transportation Department	Road & Bridge
Economic Development Department	Callaway Chamber of Commerce
Housing Department	N/A
Historic Preservation	Kingdom of Callaway Historical Society
Non-Governmental Organizations (NGOs)	
American Red Cross	Red Cross Missouri Central Missouri Chapter
Salvation Army	Office located in Jefferson City, MO
Veterans Groups	VFW Post 2657, Veterans Alliance for Compassionate Access, Amvets Post 153
Local Environmental Organization	Callaway County Soil and Water Conservation, Callaway County Extension Office
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	Callaway Chamber of Commerce
Community Organizations (Lions, Kiwanis, etc.)	Rotary Club, Lions Club, Kiwanis Club, Several VFW Posts, Amvets Mokane, I'm sure there are several.

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	Conducted through the Mid-Missouri Regional Planning Commission
Fund projects through Capital Improvements funding	Active, annual line placed on budget each year.
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	No
impact fees for new development	No
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	No

2.2.2 Auxvasse

Auxvasse is governed by a mayor and a 5-member city council. Since the last update 10 new single-family homes have been built along with 2 commercial buildings, a community center and store. There is no anticipated growth of any kind in floodplain.

Table 2.8 Auxvasse Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	N/A
Builder's Plan	N/A
Capital Improvement Plan	N/A
City Emergency Operations Plan	N/A
County Emergency Operations Plan	Callaway County EOP
Local Recovery Plan	N/A
County Recovery Plan	N/A
City Mitigation Plan	N/A
County Mitigation Plan	N/A
Debris Management Plan	N/A
Economic Development Plan	N/A
Transportation Plan	Regional-2016
Land-use Plan	N/A
Flood Mitigation Assistance (FMA) Plan	N/A
Watershed Plan	N/A
Firewise or other fire mitigation plan	N/A
School Mitigation Plan	N/A
Critical Facilities Plan (Mitigation/Response/Recovery)	N/A
Policies/Ordinance	
Zoning Ordinance	2007
Building Code	N/A
Floodplain Ordinance	N/A
Subdivision Ordinance	1986
Tree Trimming Ordinance	N/A
Nuisance Ordinance	2011
Stormwater Ordinance	N/A
Drainage Ordinance	N/A
Site Plan Review Requirements	N/A
Historic Preservation Ordinance	N/A
Landscape Ordinance	N/A
Seismic Construction Ordinance	N/A
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	N/A

Hazard Awareness Program	N/A
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System (CRS) program	No
National Weather Service (NWS) Storm Ready	N/A
Firewise Community Certification	N/A
Building Code Effectiveness Grading (BCEGs)	N/A
ISO Fire Rating	7

Capabilities	Status Including Date of Document or Policy
Economic Development Program	N/A
Land Use Program	N/A
Public Education/Awareness	N/A
Property Acquisition	N/A
Planning/Zoning Boards	Yes
Stream Maintenance Program	N/A
Tree Trimming Program	N/A
Engineering Studies for Streams (Local/County/Regional)	N/A
Mutual Aid Agreements	North Callaway Fire District
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	N/A
Hazard Analysis/Risk Assessment (County)	N/A
Flood Insurance Maps	N/A
FEMA Flood Insurance Study (Detailed)	N/A
Evacuation Route Map	N/A
Critical Facilities Inventory	N/A
Vulnerable Population Inventory	N/A
Land Use Map	N/A
Staff/Department	
Building Code Official	N/A
Building Inspector	N/A
Mapping Specialist (GIS)	N/A
Engineer	N/A
Development Planner	N/A
Public Works Official	City Supervisor
Emergency Management Director	N/A
NFIP Floodplain Administrator	No
Emergency Response Team	N/A
Hazardous Materials Expert	N/A
Local Emergency Planning Committee	N/A
County Emergency Management Commission	N/A
Sanitation Department	N/A
Transportation Department	N/A
Economic Development Department	N/A
Housing Department	N/A

Historic Preservation	N/A
Non-Governmental Organizations (NGOs)	
American Red Cross	N/A
Salvation Army	N/A
Veterans Groups	N/A
Local Environmental Organization	N/A
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	N/A
Community Organizations (Lions, Kiwanis, etc.	Lions

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	N/A
Fund projects through Capital Improvements funding	N/A
Authority to levy taxes for a specific purpose	N/A
Fees for water, sewer, gas, or electric services	N/A
impact fees for new development	N/A
Ability to incur debt through general obligation bonds	N/A
Ability to incur debt through special tax bonds	N/A
Ability to incur debt through private activities	N/A
Withhold spending in hazard prone areas	N/A

2.2.3 Fulton

Fulton is the county seat of Callaway County and largest populated city within the county. The major county offices, emergency management, and sheriff’s office are located within its boundary. It is governed by a mayor and 8 city council members. Fulton hosts a number of educational/informational programs including but not limited to Stream Teams, various waste education programs, and adopt a street/stream.

Fulton is a growing community with a large portion of the growth happening on the south side. While Fulton is the largest employment center located in Callaway county, many residents still have household members who commute to Jefferson City or Columbia for work or specialty goods not found at businesses in Fulton. Growth since the last update includes:

- Residential: Willow Creek Subdivision, Southwinds Subdivision
- Industrial: Danuser Machine Expansion, Henderson Products
- Commercial: Tanglewood Business Park
- Institutional: New Fulton State Hospital, Fulton School System Additions, New Justice Center, New Callaway County Jail Expansion
- Recreational: Fulton Community Recreation Center, YMCA Expansion

Growth is expected to continue. The following are areas of growth and development planned and expected to happen in the coming future:

- New Water Tower and Well on South Side of Fulton
- Wastewater Treatment Improvements for Stinson Creek Water Quality
- Storm/sewer improvements near Westminster College, Tractor Supply Water Shed, Nichols Street Water Shed, Sauls Addition and Bluff Street Water Shed
- Water main improvements along Westminster Avenue from Old Jefferson City Road to Business 54, Reed and Washington Subdivision, Herring Addition Subdivision, Bartley to St. Louis Road Subdivision, and Randal Subdivision.

Table 2.9 Fulton Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	yes
Builder's Plan	no
Capital Improvement Plan	yes
City Emergency Operations Plan	Yes (Electric, water, fire is with County)
County Emergency Operations Plan	yes
Local Recovery Plan	county
County Recovery Plan	
City Mitigation Plan	yes
County Mitigation Plan	
Debris Management Plan	yes

Economic Development Plan	Chamber of Commerce
Transportation Plan	Regional-2016
Land-use Plan	Yes
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	TMDL Developed for Stinson Creek
Firewise or other fire mitigation plan	No
School Mitigation Plan	Yes
Critical Facilities Plan(Mitigation/Response/Recovery)	Yes
Policies/Ordinance	
Zoning Ordinance	Yes, City Code Appendix A
Building Code	Yes, code chapter 18
Floodplain Ordinance	Yes, Ordinance 1549-20 10/27/2020
Subdivision Ordinance	Yes, Code chapter 102
Tree Trimming Ordinance	This is a policy
Nuisance Ordinance	Yes, Code chapter 46
Stormwater Ordinance	Yes, Code chapter 46
Drainage Ordinance	Yes, Code section 114-196
Site Plan Review Requirements	Yes
Historic Preservation Ordinance	Yes, Code ch. 62
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Yes, Code Appendix A
Codes Building Site/Design	Yes
Hazard Awareness Program	Tier II business listing
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
National Weather Service (NWS) StormReady	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	Yes, Rating = 4 on a scale of 1-10

Capabilities	Status Including Date of Document or Policy
Economic Development Program	Yes, Chamber of Commerce
Land Use Program	Yes
Public Education/Awareness	Yes
Property Acquisition	Yes
Planning/Zoning Boards	Yes
Stream Maintenance Program	Yes, Stream Team Program
Tree Trimming Program	Yes, Electric Department Policy
Engineering Studies for Streams(Local/County/Regional)	TMDL on Stinson Creek developed by EPA/DNR
Mutual Aid Agreements	Yes, MPUA, American Public Power, Fire
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Fire Dept.

Hazard Analysis/Risk Assessment (County)	
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	Yes, County EOC
Critical Facilities Inventory	Yes
Vulnerable Population Inventory	Yes
Land Use Map	Yes, zoning
Staff/Department	
Building Code Official	Yes
Building Inspector	Yes
Mapping Specialist (GIS)	Yes
Engineer	Yes
Development Planner	Yes
Public Works Official	Yes
Emergency Management Director	Yes, county
NFIP Floodplain Administrator	Yes
Emergency Response Team	Yes, regional teams with Jefferson City and Columbia
Hazardous Materials Expert	Yes, regional teams with Jefferson City and Columbia
Local Emergency Planning Committee	Yes
County Emergency Management Commission	
Sanitation Department	Yes
Transportation Department	Yes
Economic Development Department	Chamber of Commerce
Housing Department	Fulton Housing Authority
Historic Preservation	Yes, City Commission
Non-Governmental Organizations (NGOs)	
American Red Cross	
Salvation Army	Yes
Veterans Groups	Yes
Local Environmental Organization	Stream Team and College Organizations
Homeowner Associations	Yes, Southwinds, Tanglewood
Neighborhood Associations	
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	Yes
Fund projects through Capital Improvements funding	Yes
Authority to levy taxes for a specific purpose	Yes, with voter approval
Fees for water, sewer, gas, or electric services	Yes
impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes

Ability to incur debt through special tax bonds	Yes, with voter approval
Ability to incur debt through private activities	
Withhold spending in hazard prone areas	Yes

2.2.4 Holts Summit

Holts Summit is located in the southern portion of Callaway County just north of the Missouri River from Jefferson City. It is often referred to as a bedroom community for the state capital and is included in the Capital Area Metropolitan Planning Organization (CAMPO). It is governed by a mayor and 4 board of alderman. Since the last update there has been development in the residential areas of Lake Mykee, Cedars Subdivision, and Cochise Drive. A new Taco Bell is currently under construction.

Table 2.10 Holts Summit Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Unknown
Builder's Plan	n/a
Capital Improvement Plan	n/a
City Emergency Operations Plan	n/a
County Emergency Operations Plan	Callaway County EMA
Local Recovery Plan	n/a
County Recovery Plan	Callaway County EMA
City Mitigation Plan	n/a
County Mitigation Plan	Callaway County EMA
Debris Management Plan	n/a
Economic Development Plan	2009
Transportation Plan	Regional-2016
Land-use Plan	n/a
Flood Mitigation Assistance (FMA) Plan	n/a
Watershed Plan	n/a
Firewise or other fire mitigation plan	n/a
School Mitigation Plan	n/a
Critical Facilities Plan (Mitigation/Response/Recovery)	n/a
Policies/Ordinance	
Zoning Ordinance	YES – updated in 2017/2018
Building Code	International Building Codes 2012
Floodplain Ordinance	2021
Subdivision Ordinance	n/a
Tree Trimming Ordinance	n/a
Nuisance Ordinance	City Code 2006
Stormwater Ordinance	City code
Drainage Ordinance	City code
Site Plan Review Requirements	n/a
Historic Preservation Ordinance	n/a
Landscape Ordinance	n/a
Seismic Construction Ordinance	n/a

Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	Unknown
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	Unknown
National Weather Service (NWS) Storm Ready	Unknown
Firewise Community Certification	Unknown
Building Code Effectiveness Grading (BCEGs)	Class PL 99 and CL5
ISO Fire Rating	Unknown – Fire District

Capabilities	Status Including Date of Document or Policy
Economic Development Program	n/a
Land Use Program	n/a
Public Education/Awareness	n/a
Property Acquisition	n/a
Planning/Zoning Boards	Planning and Zoning Commission
Stream Maintenance Program	n/a
Tree Trimming Program	n/a
Engineering Studies for Streams (Local/County/Regional)	n/a
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	n/a
Hazard Analysis/Risk Assessment (County)	Callaway County EMA
Flood Insurance Maps	2021
FEMA Flood Insurance Study (Detailed)	2021
Evacuation Route Map	n/a
Critical Facilities Inventory	n/a
Vulnerable Population Inventory	n/a
Land Use Map	n/a
Staff/Department	
Building Code Official	Yes
Building Inspector	Yes
Mapping Specialist (GIS)	Yes
Engineer	contract
Development Planner	n/a
Public Works Official	Yes
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes
Emergency Response Team	n/a
Hazardous Materials Expert	n/a
Local Emergency Planning Committee	n/a
County Emergency Management Commission	Callaway County EMA
Sanitation Department	n/a

Transportation Department	Yes
Economic Development Department	n/a
Housing Department	n/a
Historic Preservation	n/a
Non-Governmental Organizations (NGOs)	
American Red Cross	N/A
Salvation Army	N/A
Veterans Groups	N/A
Local Environmental Organization	N/A
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	Callaway County Chamber
Community Organizations (Lions, Kiwanis, etc.)	HSCBA

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	N/A
Fund projects through Capital Improvements funding	N/A
Authority to levy taxes for a specific purpose	N/A
Fees for water, sewer, gas, or electric services	N/A
impact fees for new development	N/A
Ability to incur debt through general obligation bonds	N/A
Ability to incur debt through special tax bonds	N/A
Ability to incur debt through private activities	N/A
Withhold spending in hazard prone areas	N/A

2.2.5 Kingdom City

The Village of Kingdom City is governed by a chairman and board of trustees. Day-to-day operations are handled by a city manager and 3 employees. There are currently 47 businesses listed in Kingdom City with the Holiday Inn Express having the highest number of employees. Plans for a car dealership, distillery, and a Peter Built manufacturer are currently in the works.

Table 2.11 Kingdom City Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	N/A
Builder's Plan	N/A
Capital Improvement Plan	N/A
City Emergency Operations Plan	N/A
County Emergency Operations Plan	N/A
Local Recovery Plan	N/A
County Recovery Plan	N/A
City Mitigation Plan	N/A
County Mitigation Plan	N/A
Debris Management Plan	N/A
Economic Development Plan	N/A
Transportation Plan	N/A
Land-use Plan	N/A
Flood Mitigation Assistance (FMA) Plan	N/A
Watershed Plan	N/A
Firewise or other fire mitigation plan	N/A
School Mitigation Plan	N/A
Critical Facilities Plan (Mitigation/Response/Recovery)	N/A
Policies/Ordinance	
Zoning Ordinance	N/A
Building Code	IBC 2017
Floodplain Ordinance	Aug 2019
Subdivision Ordinance	N/A
Tree Trimming Ordinance	215 Aug 2019
Nuisance Ordinance	215 Aug 2019
Stormwater Ordinance	700.610 Feb 2020
Drainage Ordinance	700.610 Feb 2020
Site Plan Review Requirements	N/A
Historic Preservation Ordinance	N/A
Landscape Ordinance	N/A
Seismic Construction Ordinance	N/A
Program	
Zoning/Land Use Restrictions	N/A

Codes Building Site/Design	IBC 2017
Hazard Awareness Program	N/A
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	N/A
National Weather Service (NWS) Storm Ready	N/A
Firewise Community Certification	N/A
Building Code Effectiveness Grading (BCEGs)	IBC 2017
ISO Fire Rating	N/A

Capabilities	Status Including Date of Document or Policy
Economic Development Program	N/A
Land Use Program	N/A
Public Education/Awareness	N/A
Property Acquisition	N/A
Planning/Zoning Boards	N/A
Stream Maintenance Program	N/A
Tree Trimming Program	N/A
Engineering Studies for Streams (Local/County/Regional)	N/A
Mutual Aid Agreements	Callaway Co Emergency Response
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	N/A
Hazard Analysis/Risk Assessment (County)	County
Flood Insurance Maps	N/A
FEMA Flood Insurance Study (Detailed)	N/A
Evacuation Route Map	N/A
Critical Facilities Inventory	N/A
Vulnerable Population Inventory	N/A
Land Use Map	SAM GIS 2022
Staff/Department	
Building Code Official	N/A
Building Inspector	N/A
Mapping Specialist (GIS)	SAM GIS 2022
Engineer	N/A
Development Planner	N/A
Public Works Official	Yes
Emergency Management Director	Callaway Co
NFIP Floodplain Administrator	Yes
Emergency Response Team	Mutual Aid
Hazardous Materials Expert	N/A
Local Emergency Planning Committee	County LEPC not city
County Emergency Management Commission	Callaway Co
Sanitation Department	N/A
Transportation Department	N/A
Economic Development Department	N/A

Housing Department	N/A
Historic Preservation	N/A
Non-Governmental Organizations (NGOs)	
American Red Cross	N/A
Salvation Army	N/A
Veterans Groups	N/A
Local Environmental Organization	N/A
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	Callaway Co
Community Organizations (Lions, Kiwanis, etc.)	N/A

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	N/A
Fund projects through Capital Improvements funding	N/A
Authority to levy taxes for a specific purpose	N/A
Fees for water, sewer, gas, or electric services	All of 700 Feb 2020
impact fees for new development	N/A
Ability to incur debt through general obligation bonds	N/A
Ability to incur debt through special tax bonds	N/A
Ability to incur debt through private activities	N/A
Withhold spending in hazard prone areas	N/A

2.2.6 Mokane

Mokane is governed by a city council comprised of a mayor and 4 alderman seats. Due to its proximity to the Missouri River Mokane has been in an ongoing battle over the years with flood waters and damage caused by them. FEMA funds were utilized after 2019 floods to replace one lift station and install risers on all sewer lift stations to get them above flood levels. The same flood destroyed the city hall and funds were issued to construct a new one. 2021 flooding caused washing of gravel and the collapse of a culvert on Third St. FEMA funds were used to repair this damage. Currently CDBG and ARPA funds are being used to replace two bridges on Third St to further control stream water in the area.

There are plans to replace the water and sewer infrastructure in the coming years.

Table 2.12 Mokane Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	N/A
City Emergency Operations Plan	N/A
County Emergency Operations Plan	2022
Local Recovery Plan	N/A
County Recovery Plan	No
City Mitigation Plan	N/A
County Mitigation Plan	2022
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	Regional-2016
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
School Mitigation Plan	No
Critical Facilities Plan (Mitigation/Response/Recovery)	Callaway Emergency Radiological Plan
Policies/Ordinance	
Zoning Ordinance	N/A
Building Code	N/A
Floodplain Ordinance	Updated pursuant to 44 CFR 60.3(d) Ordinance 102 effective 10/28/21
Subdivision Ordinance	N/A
Tree Trimming Ordinance	No
Nuisance Ordinance	No
Stormwater Ordinance	No

Drainage Ordinance	No
Site Plan Review Requirements	N/A
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Only NFIP Floodplain Management Ordinance
Codes Building Site/Design	N/A accept within floodplain then FP Ordinance.
Hazard Awareness Program	Public Education Programs for All Hazards through Office of Emergency Management, and Callaway LEPC for Chemical/Hazmat (If this isn't what you wanted let me know)
National Flood Insurance Program (NFIP)	NFIP Entry date 09/03/1983/ CID#290049
NFIP Community Rating System (CRS) program	
National Weather Service (NWS) Storm Ready	2022
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	N/A
ISO Fire Rating	Each Fire Department would have their ISO rating.

Capabilities	Status Including Date of Document or Policy
Economic Development Program	N/A
Land Use Program	No
Public Education/Awareness	Through Office of Emergency Management, CERT, COAD, Public Health (Each having programs throughout the year) Again, not sure what you wanted here.
Property Acquisition	
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	Callaway County Road and Bridge
Engineering Studies for Streams (Local/County/Regional)	Engineering studies conducted are hydrology and hydraulic reports for culverts and bridges on a case by case basis. These are done for new or replacement culverts and bridges through Road and Bridge Engineer.
Mutual Aid Agreements	MOU's w/ Red Cross, Ameren, County
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	THIRA
Hazard Analysis/Risk Assessment (County)	THIRA
Flood Insurance Maps	Date of Maps 09/05/12 FEMA in process of updating maps with new LIDAR
FEMA Flood Insurance Study (Detailed)	9/5/2012
Evacuation Route Map	EPZ Evacuation Maps
Critical Facilities Inventory	
Vulnerable Population Inventory	Yes individuals can register with Smart 911 or by contacting EMA

Land Use Map	
Staff/Department	
Building Code Official	N/A
Building Inspector	N/A
Mapping Specialist (GIS)	
Engineer	
Development Planner	
Public Works Official	N/A
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes
Emergency Response Team	Yes
Hazardous Materials Expert	Various Fire Dept. Personnel trained to Tech level.
Local Emergency Planning Committee	Chair/Emergency Management Coordinates
County Emergency Management Commission	N/A
Sanitation Department	N/A
Transportation Department	
Economic Development Department	
Housing Department	N/A
Historic Preservation	
Non-Governmental Organizations (NGOs)	
American Red Cross	Red Cross Missouri Central Missouri Chapter
Salvation Army	Office located in Jefferson City, MO
Veterans Groups	VFW Post 2657, Veterans Alliance for Compassionate Access, Amvets Post 153
Local Environmental Organization	
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	
Community Organizations (Lions, Kiwanis, etc.)	Lions Club, Amvets/VFW Post Mokane

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	Conducted through the Mid-Missouri Regional Planning Commission
Fund projects through Capital Improvements funding	Active, annual line placed on budget each year.
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Water, sewer
impact fees for new development	No
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	No

2.2.7 New Bloomfield

New Bloomfield is located off 54 Hwy between Holts Summit and Fulton. It has not seen any recent growth. Future growth could include a nearby solar farm but that project has been met with opposition and current status is unknown for certain. It is governed by a mayor and city council comprising of 4 aldermen.

Table 2.13 New Bloomfield Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	N/A
Builder's Plan	N/A
Capital Improvement Plan	N/A
City Emergency Operations Plan	Yes 749-17
County Emergency Operations Plan	Yes 749-17
Local Recovery Plan	N/A
County Recovery Plan	Yes
City Mitigation Plan	N/A
County Mitigation Plan	Yes
Debris Management Plan	Yes 746-16
Economic Development Plan	N/A
Transportation Plan	Regional-2016
Land-use Plan	N/A
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	N/A
Firewise or other fire mitigation plan	N/A
School Mitigation Plan	N/A
Critical Facilities Plan (Mitigation/Response/Recovery)	N/A
Policies/Ordinance	
Zoning Ordinance	335
Building Code	830-21
Floodplain Ordinance	Yes
Subdivision Ordinance	YES 336-85
Tree Trimming Ordinance	No
Nuisance Ordinance	YES 746-16
Stormwater Ordinance	YES 811-20
Drainage Ordinance	YES 319-83
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	YES 385
Program	
Zoning/Land Use Restrictions	791-19

Codes Building Site/Design	830-21
Hazard Awareness Program	677-12
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System (CRS) program	NO
National Weather Service (NWS) Storm Ready	YES
Firewise Community Certification	N/A
Building Code Effectiveness Grading (BCEGs)	N/A
ISO Fire Rating	N/A

Capabilities	Status Including Date of Document or Policy
Economic Development Program	N/A
Land Use Program	N/A
Public Education/Awareness	N/A
Property Acquisition	N/A
Planning/Zoning Boards	323
Stream Maintenance Program	N/A
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	N/A
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	N/A
Hazard Analysis/Risk Assessment (County)	N/A
Flood Insurance Maps	N/A
FEMA Flood Insurance Study (Detailed)	N/A
Evacuation Route Map	N/A
Critical Facilities Inventory	N/A
Vulnerable Population Inventory	N/A
Land Use Map	N/A
Staff/Department	
Building Code Official	N/A
Building Inspector	N/A
Mapping Specialist (GIS)	N/A
Engineer	N/A
Development Planner	N/A
Public Works Official	N/A
Emergency Management Director	N/A
NFIP Floodplain Administrator	No
Emergency Response Team	N/A
Hazardous Materials Expert	N/A
Local Emergency Planning Committee	N/A
County Emergency Management Commission	N/A
Sanitation Department	N/A
Transportation Department	N/A
Economic Development Department	N/A

Housing Department	N/A
Historic Preservation	N/A
Non-Governmental Organizations (NGOs)	
American Red Cross	N/A
Salvation Army	N/A
Veterans Groups	N/A
Local Environmental Organization	N/A
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	N/A
Community Organizations (Lions, Kiwanis, etc.)	N/A

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	Yes
Fund projects through Capital Improvements funding	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
impact fees for new development	N/A
Ability to incur debt through general obligation bonds	N/A
Ability to incur debt through special tax bonds	N/A
Ability to incur debt through private activities	N/A
Withhold spending in hazard prone areas	N/A

Table 2.14 Mitigation Capabilities Summary Table

CAPABILITIES	Uninc. Callaway	Auxvasse	Fulton	Holts Summit	Kingdom City	Mokane	New Bloomfield
Planning Capabilities							
Comprehensive Plan	No	N/A	Yes	N/A	N/A	No	N/A
Builder's Plan	No	N/A	No	N/A	N/A	No	N/A
Capital Improvement Plan	yes	N/A	Yes	N/A	N/A	N/A	N/A
Local Emergency Plan	N/A	N/A	Yes	N/A	N/A	N/A	Yes
County Emergency Plan	Yes	Yes	Yes	Yes	N/A	2022	Yes
Local Recovery Plan	N/A	N/A	Yes	N/A	N/A	N/A	N/A
County Recovery Plan	No	N/A	N/A	Yes	N/A	No	Yes
Local Mitigation Plan	N/A	N/A	Yes	N/A	N/A	No	N/A
County Mitigation Plan	Yes	N/A	N/A	Yes	N/A	Yes	Yes
Local Mitigation Plan (PDM)	N/A	N/A	N/A	N/A	N/A	No	N/A
County Mitigation Plan (PDM)	N/A	N/A	N/A	N/A	N/A	No	N/A
Debris Management Plan	No	N/A	Yes	N/A	N/A	No	Yes
Economic Development Plan	No	N/A	Yes	2009	N/A	No	N/A
Transportation Plan	Yes	Yes	Yes	Yes	N/A	2016	Yes
Land-use Plan	Yes	N/A	Yes	N/A	N/A	No	N/A
Flood Mitigation Assistance (FMA) Plan	No	N/A	No	N/A	N/A	No	N/A
Watershed Plan	No	N/A	Yes	N/A	N/A	No	N/A
Firewise or other fire mitigation plan	No	N/A	No	N/A	N/A	No	N/A
School Mitigation Plan	No	N/A	Yes	N/A	N/A	No	N/A
Critical Facilities Plan (Mitigation/Response/Recovery)	Yes	N/A	Yes	N/A	N/A	Callaway ERP	N/A
Policies/Ordinance							
Zoning Ordinance	N/A	Yes	Yes	Yes	N/A	N/A	Yes
Building Code	N/A	N/A	Yes	Yes	Yes	N/A	Yes
Floodplain Ordinance	Yes	N/A	Yes	Yes	Yes	Yes	Yes
Subdivision Ordinance	N/A	Yes	Yes	N/A	N/A	N/A	Yes

CAPABILITIES	Uninc. Callaway	Auxvasse	Fulton	Holts Summit	Kingdom City	Mokane	New Bloomfield
Tree Trimming Ordinance	No	N/A	No	Yes	Yes	No	No
Nuisance Ordinance	No	Yes	Yes	Yes	Yes	No	Yes
Storm Water Ordinance	No	N/A	Yes	Yes	Yes	No	Yes
Drainage Ordinance	No	N/A	Yes	Yes	Yes	No	Yes
Site Plan Review Requirements	N/A	N/A	Yes	N/A	N/A	N/A	No
Historic Preservation Ordinance	No	N/A	Yes	N/A	N/A	No	No
Landscape Ordinance	No	N/A	No	N/A	N/A	No	No
Iowa Wetlands and Riparian Areas Conservation Plan	No	N/A	No	N/A	No	No	No
Program							
Zoning/Land Use Restrictions	NFIP Only	Yes	Yes	Yes	N/A	NFIP Only	Yes
Codes Building Site/Design	No	N/A	Yes	Yes	Yes	No	Yes
National Flood Insurance Program (NFIP) Participant	Yes	No	Yes	Yes	Yes	Yes	No
NFIP Community Rating System (CRS) Participating Community	N/A	N/A	No	N/A	N/A	N/A	No
Hazard Awareness Program	Yes	N/A	Yes	N/A	N/A	Yes	Yes
National Weather Service (NWS) Storm Ready	Yes	N/A	No	N/A	N/A	2022	Yes
Building Code Effectiveness Grading (BCEGs)	N/A	N/A	No	Yes	Yes	N/A	N/A
ISO Fire Rating	N/A	7	4	N/A	N/A	N/A	N/A
Economic Development Program	Yes	N/A	Yes	N/A	N/A	N/A	N/A
Land Use Program	No	N/A	Yes	N/A	N/A	No	N/A
Public Education/Awareness	Yes	N/A	Yes	N/A	N/A	Yes	N/A
Property Acquisition	No	N/A	Yes	N/A	N/A	N/A	N/A
Planning/Zoning Boards	No	Yes	Yes	Yes	N/A	No	Yes
Stream Maintenance Program	No	N/A	Yes	N/A	N/A	No	N/A
Tree Trimming Program	Yes	N/A	Yes	N/A	N/A	No	No
Engineering Studies for Streams (Local/County/Regional)	Yes	N/A	Yes	N/A	N/A	Yes	N/A

CAPABILITIES	Uninc. Callaway	Auxvasse	Fulton	Holts Summit	Kingdom City	Mokane	New Bloomfield
Mutual Aid Agreements	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Studies/Reports/Maps							
Hazard Analysis/Risk Assessment (Local)	Yes	N/A	Yes	N/A	N/A	THIRA	N/A
Hazard Analysis/Risk Assessment (County)	Yes	N/A	N/A	Yes	Yes	THIRA	N/A
Flood Insurance Maps	Yes	N/A	Yes	Yes	N/A	Yes	N/A
FEMA Flood Insurance Study (Detailed)	Yes	N/A	yes	Yes	N/A	2012	N/A
Evacuation Route Map	yes	N/A	Yes	N/A	N/A	Yes	N/A
Critical Facilities Inventory	Yes	N/A	Yes	N/A	N/A	N/A	N/A
Vulnerable Population Inventory	Yes	N/A	Yes	N/A	N/A	Yes	N/A
Land Use Map	N/A	N/A	Yes	N/A	Yes	N/A	N/A
Staff/Department							
Building Code Official	N/A	N/A	Yes	Yes	N/A	N/A	N/A
Building Inspector	N/A	N/A	Yes	Yes	N/A	N/A	N/A
Mapping Specialist (GIS)	Yes	N/A	Yes	Yes	Yes	N/A	N/A
Engineer	Yes	N/A	Yes	Yes	N/A	N/A	N/A
Development Planner	N/A	N/A	Yes	N/A	N/A	N/A	N/A
Public Works Official	N/A	Yes	Yes	Yes	Yes	N/A	N/A
Emergency Management Coordinator	Yes	N/A	Yes	Yes	Yes	Yes	N/A
NFIP Floodplain Administrator	Yes	No	Yes	Yes	Yes	Yes	No
Emergency Response Team	Yes	N/A	Yes	N/A	Yes	Yes	N/A
Hazardous Materials Expert	Yes	N/A	Yes	N/A	N/A	Yes	N/A
Local Emergency Planning Committee	Yes	N/A	Yes	N/A	Yes	Yes	N/A
County Emergency Management Commission	N/A	N/A	Yes	Yes	No	N/A	N/A
Sanitation Department	N/A	N/A	Yes	N/A	N/A	N/A	N/A
Transportation Department	Yes	N/A	Yes	Yes	N/A	N/A	N/A

CAPABILITIES	Uninc. Callaway	Auxvasse	Fulton	Holts Summit	Kingdom City	Mokane	New Bloomfield
Economic Development Department	Yes	N/A	Yes	N/A	N/A	N/A	N/A
Housing Department	No	N/A	Yes	N/A	N/A	N/A	N/A
Historic Preservation	Yes	N/A	Yes	N/A	N/A	N/A	N/A
Non-Governmental Organizations (NGOs)							
American Red Cross	Yes	N/A	N/A	N/A	N/A	Yes	N/A
Salvation Army	No	N/A	Yes	N/A	N/A	No	N/A
Veterans Groups	Yes	N/A	Yes	N/A	N/A	Yes	N/A
Environmental Organization	Yes	N/A	Yes	N/A	N/A	No	N/A
Homeowner Associations	N/A	N/A	Yes	N/A	N/A	N/A	N/A
Neighborhood Associations	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chamber of Commerce	Yes	N/A	Yes	Yes	yes	N/A	N/A
Community Organizations (Lions, Kiwanis, etc.	Yes	Yes	Yes	Yes	N/A	Yes	N/A
Capabilities				Status Including Date of Document/Policy			
Local Funding Availability							
Apply for Community Development Block Grants	Yes	N/A	Yes	N/A	N/A	Yes	Yes
Fund projects through Capital Improvements funding	Yes	N/A	Yes	N/A	N/A	Yes	Yes
Authority to levy taxes for specific purposes	Yes	N/A	Yes	N/A	N/A	Yes	Yes
Fees for water, sewer, gas, or electric services	No	N/A	Yes	N/A	Yes	Yes	Yes
Impact fees for new development	No	N/A	Yes	N/A	N/A	No	N/A
Incur debt through general obligation bonds	Yes	N/A	Yes	N/A	N/A	Yes	N/A
Incur debt through special tax bonds	Yes	N/A	Yes	N/A	N/A	Yes	N/A
Incur debt through private activities	No	N/A	No	N/A	N/A	No	N/A
Withhold spending in hazard prone areas	No	N/A	Yes	N/A	N/A	No	N/A

2.3 Special District

There are numerous special districts in the planning area which are vital to the health and safety of the population. In addition to providing basic services, personnel of the special districts possess a wealth of knowledge and experience valuable for hazard mitigation planning.

2.3.1 Water Districts

There are 14 drinking water providers located in the Planning Area. In addition, the Callaway County Water Supply District #1 supplies water to the Callaway portion of Jefferson City. Of these water providers, three are Public Water Supply Districts. Each water district is composed of an elected board. The districts are responsible for maintaining existing water supply infrastructure and developing new infrastructure. Water Districts and providers are primarily related to mitigation activities focused on drought, wildfire, and flood. Connecting water supplies so that areas have multiple water supplies is an important mitigation strategy.

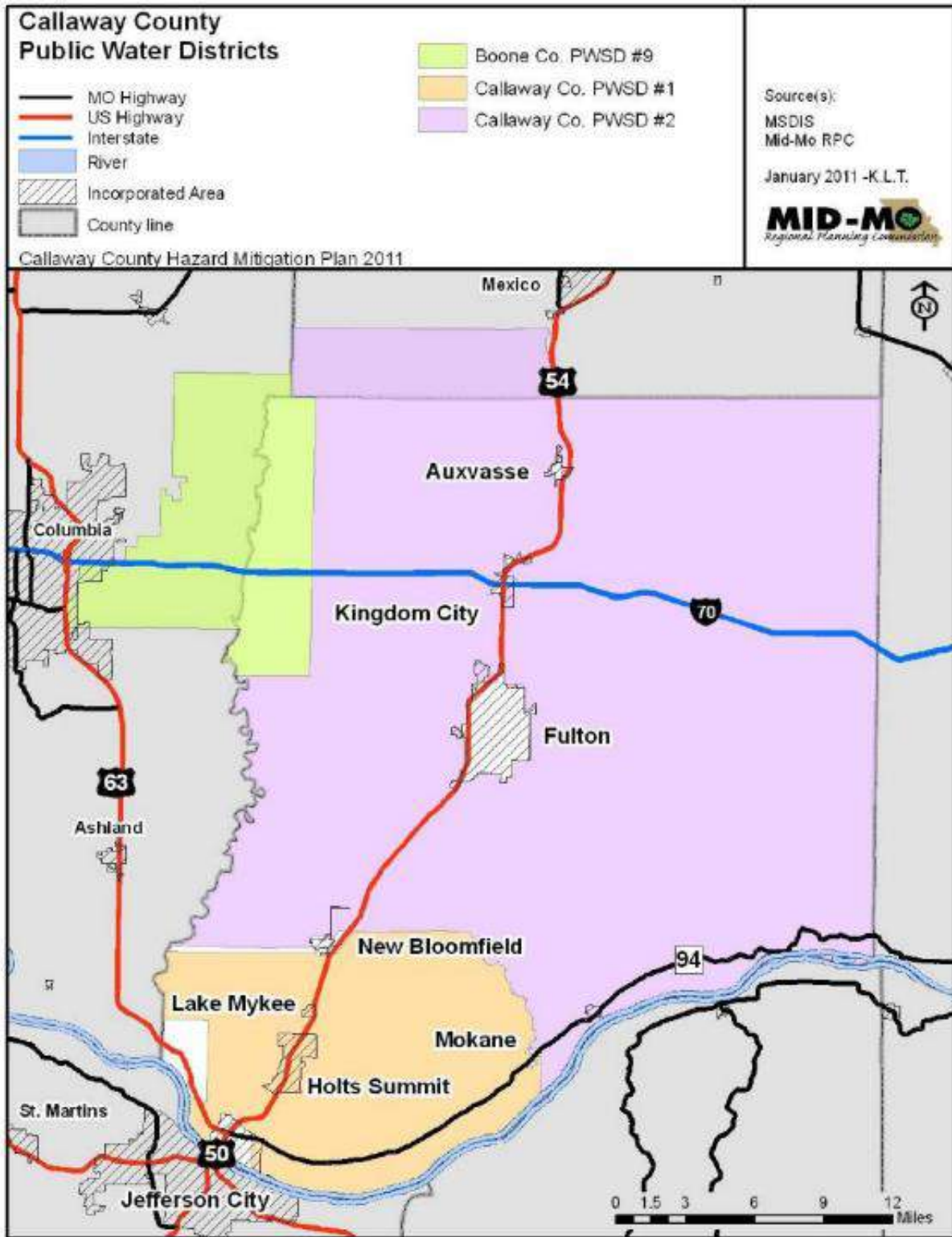
Water Provider Information

Figure 2.9.8

Water Providers Serving Planning Area		
Provider	Area Served	Interconnections
Auxvasse	Auxvasse	Callaway #2 Water District
Boone Co. PWSD #9	NE Callaway County (unincorp.), Boone County (unincorp.), eastern portions of the City of Columbia in Boone County.	City of Columbia-3 locations PWSD#4 of Boone Co-1 location PWSD#2 of Callaway Co-2 locations
Callaway Co PWSD #1	Southern Unincorporated Callaway County, Holts Summit, Jefferson City	Missouri American Water
Callaway #2 Water District	Northern Unincorporated Callaway County, Fulton	Communities of Auxvasse, Fulton, Kingdom City, New Bloomfield (future plans to interconnect with PWSD #9)
Fulton	Fulton	Callaway #2 Water District
Fulton State Hospital	Fulton State Hospital	N/A
Hatton Hills Mobile Home Park	Hatton Hills Mobile Home Park	N/A
Kingdom City	Kingdom City	Callaway #2 Water District
Mokane Water Co Op	Mokane	N/A
New Bloomfield	New Bloomfield	Callaway #2 Water District
New Christian Life Fellowship	Fulton	N/A
Riverview Nursing Center	Riverview Nursing Center	N/A
Scotchman Place Mobile Home Park	Scotchman Place Mobile Home Park	N/A
Seges Mobile Home Park	Seges Mobile Home Park	Callaway #2 Water District

Sources: PWSDs, Missouri American Water, community surveys

Map 2.5 Public Water Supply Districts



2.3.2 Non-Governmental and Volunteer Organizations

After the floods in 1993 the non-profit agencies in Missouri organized the **Missouri Volunteers Against Disaster (MOVOAD)**. The main goal of MOVOAD is to increase cooperation, coordination, communication, education, and to pass local, county and state disaster legislation. Their mission is to bring together National Voluntary Organizations Active in Disaster to foster more effective service through mitigation and response for the benefit of people affected (imperiled and impacted) by disaster through:

1. Cooperation: To create a climate of cooperation at all levels (including grass roots) to provide information.
2. Coordination: To coordinate policy among member organizations and to serve as a liaison, advocate and national voice.
3. Communication: To disseminate information through the newsletter, the director, research and demonstration, case study and critique.
4. Education: To increase mutual awareness and understanding of each organization.
5. Convention Mechanisms: To arrange for such meetings and conferences as necessary to accomplish the purpose of MOVOAD.
6. Legislation: To encourage effective disaster relief legislation and policy.

Organizations in Callaway County such as the American Red Cross, church agencies, and other non-profits are active in supporting the work of MOVOAD. This collaborative effort ensures that Callaway County non-profits are well prepared to respond to a natural disaster. Through their legislative efforts, they also work to help make Missouri and Callaway County as disaster resistant as possible.

2.3.3 Levee Districts

There are 7 major levees in the Planning Area. All are located in Unincorporated Callaway County with the exception of the Capitol View Drainage District which touches and encompasses a portion of Jefferson City. The other six levees protect agricultural land in the southern portion of the county between Highway 94 and the Missouri River.

All seven major levee systems in the Planning Area are part of the U.S. Army Corps of Engineers Rehabilitation Program and are currently eligible for levee rehabilitation assistance should they receive damage during a flood event.

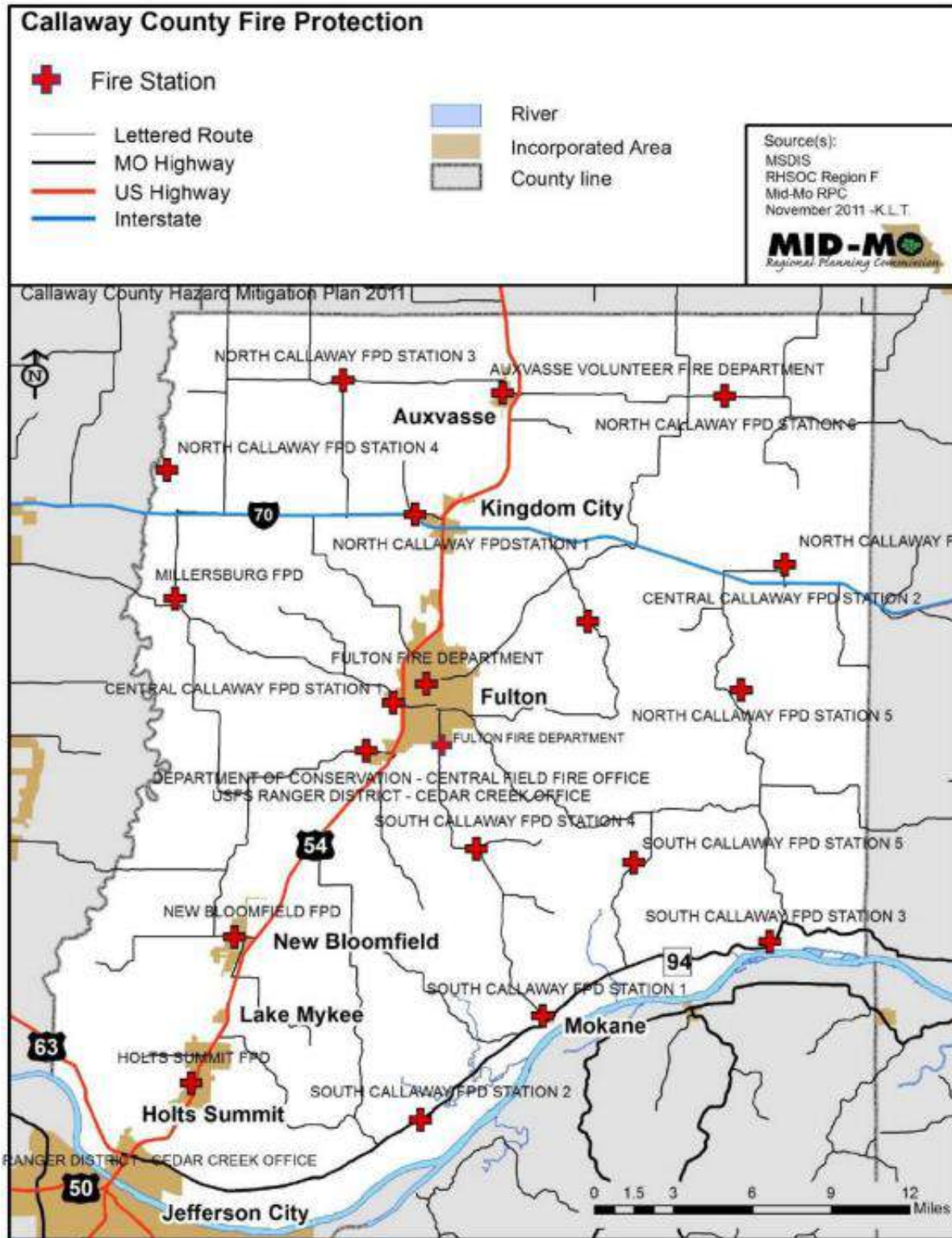
2.3.4 Fire Districts

There are nine fire protection districts which respond to fires, accidents, and other emergencies within the Planning Area. The fire districts are:

- Auxvasse Fire District
- Callaway Plant
- Central Callaway FPD
- Fulton FPD
- Holts Summit Fire Department
- Millersburg FPD
- New Bloomfield Fire Department
- North Callaway FPD
- South Callaway FPD

Mutual aid agreements exist between all the departments and also with surrounding county departments. The fire districts have been proactive in public education campaigns, updating training, and general outreach efforts to ensure the community at large is safe. The fire districts are key players in hazard mitigation and preparedness activities.

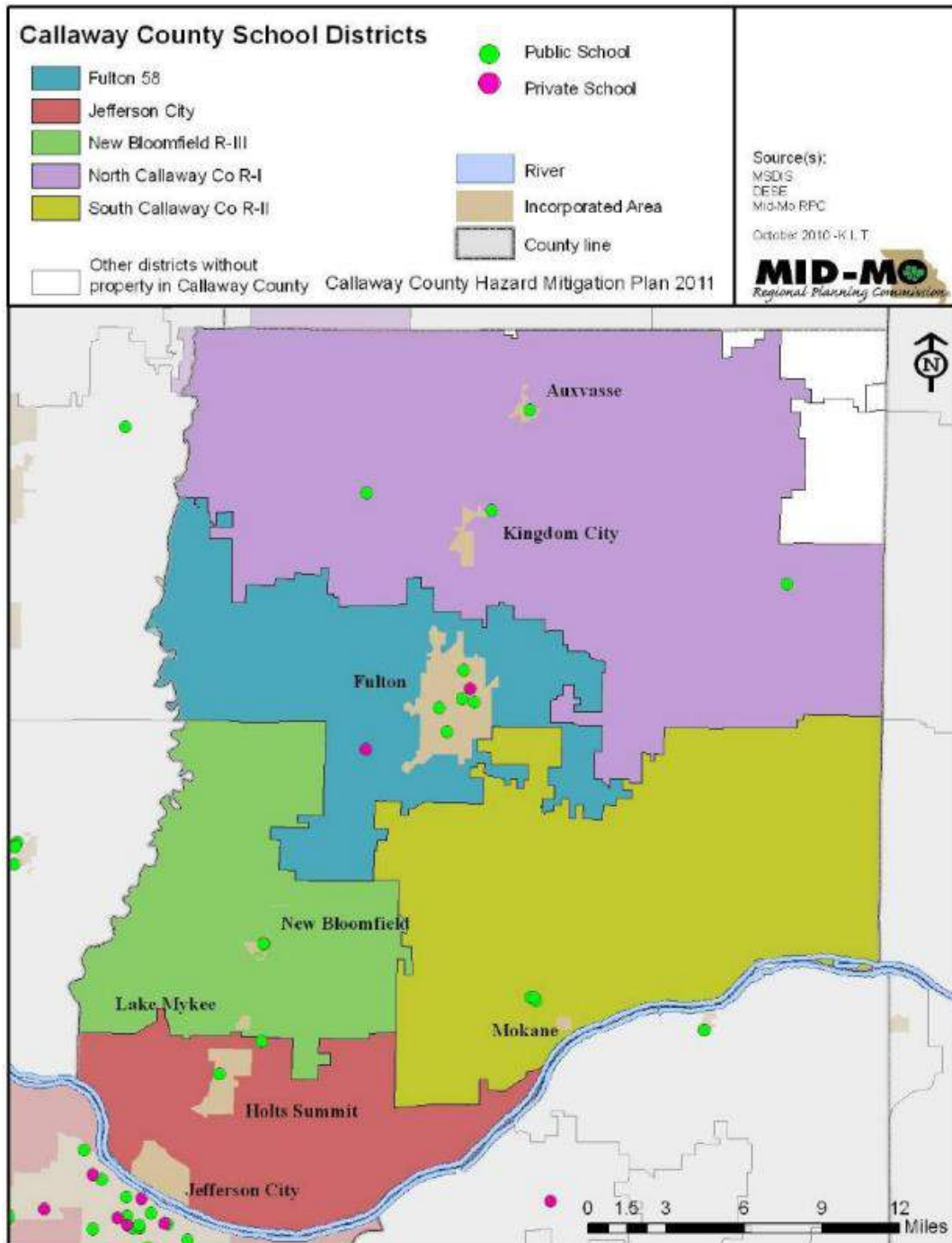
Map 2.6 Fire Protection Districts



2.4 Public School district Profile and Mitigation Capabilities

There are 5 school districts that intersect the Callaway County boundary. All 5 took part in the plan, though Jefferson City Public Schools also participated in and adopted the Cole County Hazard Mitigation Plan.

Map 2.7 School Districts



There are 5 public school districts and four private schools. Each district has an elected Superintendent and School Board along with several administrative staff.

Students are a vulnerable population as they are dependent on others for natural hazard information during the school days. A mitigation plan must take this into account. Often, this has been done by building schools out of floodplains and having safe areas within the school where the students can assemble in the event of a disaster. School buildings can also act as safe rooms and shelters during a natural disaster.

2.4.1 Fulton Public School

Fulton Public Schools consist of a High School, Middle School, and Elementary. Since the last update they have been working on additions to both Fulton Middle School and Fulton High School that will include updated fire alarm systems. They have designated storm shelters throughout the district buildings but none are FEMA rated.

Table 2.15 Fulton Public School Building and Enrollment Data

District Name	Building Name	Building Enrolment
Fulton Public Schools	Fulton Sr. High	697
	Fulton Middle School	516
	Bartley Elementary	1020
	Bush Elementary	
	Mcintire Elementary	
	Fulton Early Childhood Center	

Name	Property Value	Content Value	Total
High School	20415707.32	6873910.85	27295710.22
Green House	139036.82	31432.64	170606.96
Middle School	13812120.12	2643614.85	16459716.82
Sports Annex Bldg.	1063813.69	248947.42	1313161.11
Bus Garage	88191.28	94299.08	182542.56
Maintenance Shop	295872.75	196455.47	492578.22
Bartley Elem. School	5891290.76	1854293.80	7747254.11
Bush School Bldg	7120726.14	2088624.90	9211377.99
McIntire Elem.	6926917.86	2223596.67	9152520.28
Central Office	478258.09	235745.42	714190.71
Vo Tech	1548694.59	471491.99	2020695.58
Concession Bldg.	108204.89	9427.42	117656.31
Concession Building	816151.66	58666.28	875144.14
Fulton Early Childhood Center	1755022.53	319203.87	2074954.40

2.4.2 Jefferson City School District

Jefferson City Public School District stretches into Callaway County but the bulk of the school district is located in Cole County. The school district has already participated in and adopted the Cole County Hazard Mitigation plan but the two school buildings located in Callaway County have also participated in the Callaway plan.

Below are the buildings located in Callaway County that are included in the school district.

Table 2.16 Jefferson City School District Building and Enrollment Data

District Name	Building Name	Building Enrolment
Jefferson City Public School District	Callaway Hills Elementary	
	North Elementary	

Name of Asset	Address	Replacement Value (Insured) (\$)	Contents Value (\$)	Total (\$)
Callaway Hills Elementary	2715 State RD. AA Holts Summit MO 65043	6027703.00	512500.00	6540203
North Elementary	285 S Summit Dr Holts Summit Mo 65043	6223992.00	512500.00	6736492

2.4.3 New Bloomfield R-III

The New Bloomfield school district is expecting a slight increase in enrollment in the coming years. While they have not done any additions or remodels since the last update they have plans for a multipurpose room addition in the future.

Table 2.17 New Bloomfield R-III Building and Enrollment Data

District Name	Building Name	Building Enrolment
New Bloomfield R-III	New Bloomfield High	347
	New Bloomfield Elementary	399

Name of Asset	Address	Replacement Value (Insured) (\$)	Contents Value (\$)	Total (\$)
Maintenance Shed	307 Redwood Dr.	215133	102500	317633
Bus Trailer	307 Redwood Dr.	138217	6323	144540
Elementary School	307 Redwood Dr.	11462839	1939325	13402164

MS/HS School	307 Redwood Dr.	11196767	1887025	13083792
Storage House	317 Oak Street	190293	6323	196616
Red Shed/ Track	307 Redwood Dr.	17304	8280	25584

2.4.4 North Callaway R-I

The North Callaway R-1 School District recently replaced a culvert on the private drive. The new culvert was much larger to assist with the rain runoff from 54 to help keep the private drive from flooding, including water going over the road. This may also help to reduce the flooding on Highway 54 due to the culvert being able to handle a larger water flow.

Improvements were made to the Ag-Science building in 2015. There are no plans for further upgrades or additions at this time, but there is a committee currently forming to discuss options for a new facility of some sort. Past events have forced the school district to upgrade some various school systems. In 2009 a gas leak forced them to rerun all the gas lines at the high school. Luckily school was not in session at the time but in 2019 a faulty furnace forced the school to close for several days due to bad air quality that did require some people to seek medical attention.

Table 2.18 North Callaway Building and Enrollment Data

District Name	Building Name	Building Enrolment
North Callaway R-I	North Callaway High	357
	North Callaway Middle School	266
	Hatton-McCredie Elementary	428
	Williamsburg Elementary	

Name	Address 1	Property Value	Content Value	Total Insured Value
High School Building	2700 Thunderbird Drive	12497400.57	1648652.45	14146053.02
Press Box	2690 Thunderbird Drive	12308.34	6772.57	19080.91
Scoreboard	2690 Thunderbird Drive	142700.54	0.00	142700.54
Stadium	2700 Thunderbird Drive	137004.22	0.00	137004.22
Hatton-McCredie Elementary School	4171 County Road 240	6981971.98	1018423.70	8000395.68
Auxvasse Elementary School	650 East Harrison	8008537.44	1090720.95	9099258.39

Freezer #2	650 E. Harrison	10149.28	9076.37	19225.65
Williamsburg Elementary School	Old Hwy 40 Rte. 1	6550152.38	876978.47	7427130.85
Storage #1	Old Hwy 40 Rte. 1	1705.57	1813.90	3519.47
Freezer #1	2690 Thunderbird Drive	10149.28	9076.37	19225.65
Central Office	2690 Thunderbird Drive	160003.98	78583.31	238587.29
Modular - Alternative	2690 Thunderbird Drive	26612.48	28124.24	54736.72
Modular - Auxvasse	650 E. Harrison	50793.06	9845.05	60638.11
Modular - Auxvasse -	650 E. Harrison	50793.06	9845.05	60638.11
Modular High School	2700 Thunderbird Drive	53282.25	9845.05	63127.30
Modular - Auxvasse - Preschool	650 E. Harrison	53282.25	14062.12	67344.37
Modular - Hatton - Preschool	4171 CR 240	50793.06	9845.05	60638.11
Maintenance & Bus Barn	5605 County Road 110	440467.45	191408.36	631875.81
Ag-Science Building	2700 Thunderbird Drive	3468681.21	1128762.51	4597443.72
Track Storage Building	2700 Thunderbird Drive	66557.15	45150.49	111707.64
Freezer #3	4171 County Road 240	10149.28	9076.37	19225.65
Freezer #5	2690 Thunderbird Drive	10149.28	9076.37	19225.65
Freezer #4	10500 Old Hwy 40	10149.28	9076.37	19225.65
Modular High School 2	2700 Thunderbird Drive	53282.25	9845.05	63127.30
Modular High School 3	2700 Thunderbird Drive	53282.25	9845.05	63127.30
Modular High School 4	2700 Thunderbird Drive	53282.25	9845.05	63127.30

Modular - Hatton McCredie	4171 County Road 240	53282.25	9845.05	63127.30
Modular - Hatton McCredie 2	4171 County Road 240	53282.25	9845.05	63127.30
Modular - Auxvasse - 3	650 E. Harrison	50793.06	9845.05	60638.11
Bus Maintenance Office	5605 County Road 110	186137.75	79565.62	265703.37

2.4.5 South Callaway R-II

South Callaway services residents on the southeast portion of the county. In the last few years they have worked to shift the location of servers and other critical equipment to more interior and better protected portions of their buildings. Locker rooms and concession stands are their most recent builds but future plans are to add a gym at their EC building.

Table 2.19 South Callaway R-II Building and Enrollment Data

District Name	Building Name	Building Enrolment
South Callaway R-II	South Callaway High	256
	South Callaway Middle School	180
	South Callaway Early Childhood	355
	South Callaway Elementary	

Building	Address	Property Value (\$)	Contents Value (\$)	Total Insured Value (\$)
Elem. & Middle School	10105 State Rd C	15978372.49	2704084.90	18682457.39
High School	10135 State Rd C	19386295.29	2778245.75	22164541.04
Pump House	Hwy. C North	46636.87	785.62	47422.49
Softball Restrooms/Storage	Hwy. C North	35874.78	5284.94	42159.72
Baseball Restrooms/Storage	Hwy. C North	8967.24	1885.04	10852.28
Bus Storage meeting room	Hwy. C North	235222.53	89379.91	324602.44
Bus maintenance	10135 State Rd C	245850.16	249891.08	495741.24
Concession/Track	Hwy. C North	26905.23	7857.32	34762.55
Bus Storage	10135 State Rd C	353978.06	194884.22	548862.28
Early Childhood Learning Center	10103 State Rd C	9595779.37	1597898.78	11193678.15
Distr. Networking	10135 State Rd C	0	510781.96	510781.96

Equip.				
Centralized Locker Room/Building	10135 State Rd C	1125785.88	109553.18	1235039.06

2.4.6 Missouri School for the Deaf

Fulton is home to the Missouri School for the Deaf. It serves students aging from 5-21 years of age who are deaf or hard-of-hearing. This is a public school that is free of charge for students who qualify, but it behaves similar to a boarding school or college where many students live on campus in dormitories and go home on weekends. Due to the special needs nature of the students at the school this adds an extra layer of vulnerability to their population that must be accounted for when considering warning sirens and notification systems that oftentimes heavily rely on people’s ability to hear the notifications. The school internally has taken this into account for their students, but it is encouraged that the community around the school also make considerations for this portion of their residents when considering hazard planning.

Table 2.20 Missouri School for the Deaf Building and Enrollment Data

District Name	Building Name	Building Enrollment
Mo School for the Deaf	Wheeler High	19
	Wheeler Middle	16
	Stark Elementary	19

Table 2.9 Summary of Mitigation Capabilities- Callaway County School Districts

Capability	Fulton SD	Jeff City SD	New Bloomfield SD	North Callaway	South Callaway	MO School For the Deaf
Planning Elements						
Master Plan/ Date	Yes, 2021	Yes, 2020	Yes, 2022	Yes	Yes, 2017	Yes
Capital Improvement Plan/Date	Yes, 2020	Yes, 2020	Yes, 2022	Yes	Pending	Yes
School Emergency Plan / Date	Yes, 2021	Yes, 2020	Yes, 2022	Yes	Yes, 2021	Yes
Weapons Policy/Date	Yes, 2011	Yes, 2002	Yes, 2022	Yes	Yes, 2021	Yes
Personnel Resources						
Full-Time Building Official (Principal)	Yes	Yes	Yes	Yes	Yes	Yes
Emergency Manager	Yes	Yes	Yes	Yes	Yes	Yes
Grant Writer	No	No	Yes	No	Yes	No
Public Information Officer	Yes	Yes	Yes	No	Yes	Yes
Financial Resources						
Capital Improvements Project Funding	Yes	Yes	Yes	Yes	Yes	Yes
Local Funds	Yes	No	Yes	Yes	Yes	Yes
General Obligation Bonds	Yes	No	No	Yes	Yes	No
Special Tax Bonds	No	No	N/A	No	Yes	No
Private Activities/Donations	Yes	Yes	Yes	Yes	Yes	Yes
State and Federal Funds/Grants	Yes	Yes	Yes	Yes	Yes	Yes
Other						
Public Education Programs	Yes	Yes	Yes	Yes	Yes	Yes
Privately or Self- Insured?	Self	Self	Self	Self	Self	Self
Fire Evacuation Training	Yes	Yes	Yes	Yes	Yes	Yes
Tornado Sheltering Exercises	Yes	Yes	Yes	Yes	Yes	Yes
Public Address/Emergency Alert System	Yes	Yes	Yes	Yes	Yes	Yes
NOAA Weather Radios	Yes	Yes	Yes	Yes	Yes	Yes
Lock-Down Security Training	Yes	Yes	Yes	Yes	Yes	Yes
Mitigation Programs	Yes	Yes	Yes	Yes	Yes	Yes
Tornado Shelter/Saferoom	No	Yes	No	No	Yes	Yes
Campus Police	No	No	Yes	No	Yes	No

2.5 Higher Education

Callaway County is home to two institutions of higher education, Westminster College and William Woods University, both in Fulton. Both campuses offer four-year undergraduate programs (William Woods University also offers graduate programs) and have on-campus housing. William Woods University usually has more than 2000 students attending its main campus, while Westminster College holds a little less than 1,000 students. The Callaway County Emergency Management Agency works closely with both institutions on matters of public safety, and hazard awareness. Neither institution chose to participate in this hazard mitigation plan update.

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Chapter 3: Hazard 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

Risk assessment is a process of estimating the potential for injury, death, property damage, or economic loss which may result from a hazard. A risk assessment is only as valuable as the thoroughness and accuracy of the information on which it is based. As will be seen, there is a great variation between hazards in the amount and reliability of the data available for analysis.

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.

As part of the planning process each jurisdiction was asked to evaluate the probability and potential severity of each hazard addressed in this plan. The following natural hazards have been identified as posing potential risk to all, or portions, of the planning area:

- Flood (includes riverine flooding, flash flooding, and storm water flooding)
- Levee Failure
- Dam Failure
- Earthquake
- Severe Thunderstorms (includes Damaging Winds, Hail, and Lightning)
- Tornado
- Severe Winter Weather (Snow, Ice, and Extreme Cold)
- Drought
- Extreme Temperatures
- Wildfire

Land Subsidence/Sinkholes will not be profiled due to very minimal existence in Callaway County. The Technical Steering Committee concluded that there was no threat from this hazard and has had it removed.

Nuclear Hazard

Callaway County is home to the Callaway Nuclear Plant, which is owned and operated by Ameren UE. This is one of two fixed nuclear facilities that lie in the Mid-Missouri region and is located ten miles southwest of the City of Fulton. While an incident at this facility has the potential to pose a threat to citizens of Callaway County and neighboring areas, a general overview can be found in Appendix D of this plan as a reference. Ameren UE also has its own set of redundancy plans in place and works closely with local agencies. Mitigation activities regarding nuclear hazard are taken very seriously by Ameren UE and they are maintained internally by the company

3.1.1 Review of Existing Mitigation Plans

There are certain other natural hazards which FEMA requires to be addressed in Hazard Mitigation Plans if they are applicable to the planning area. Avalanches and volcanoes have not been included in this plan as they do not pose a threat due to Callaway County's topography and geology. Coastal erosion, coastal storms, hurricanes, and tsunamis do not pose a threat to the county due to its inland location.

The Missouri State Hazard Mitigation Plan (2018) indicates that expansive soils, landslides, and rockfalls are recognized as hazards in Missouri but occur infrequently and with minimal impact.

For this reason, those hazards were not profiled in the state plan nor will they be profiled in the Callaway County Plan. It is for similar reasoning that sinkholes were not addressed.

3.1.2 Review Disaster Declaration History

Severe storms and flooding are the most common events to warrant a disaster declaration in Callaway County. In the event of flooding the declaration is brought on by mounting costs due to widespread water damage and the closure or destruction of several homes and businesses that impact the local economy of the affected area.

Table 3.1 FEMA Disaster Declarations that included Callaway County, Missouri 1973-Present

Year of declaration date	Declaration Title	Disaster number
1973	Heavy Rains, tornadoes & Flooding	372
	severe storms & flooding	407
1976	drought	3017
1986	severe storms & flooding	779
1990	severe storms & flooding	867
1993	severe storms & flooding	995
1994	severe storms, tornadoes, flooding	1023
1995	severe storms, tornadoes, hail, flooding	1054
2003	severe storms, tornadoes, flooding	1463
2005	Hurricane Katrina Evacuation	3232
2006	severe winter storms	1673
2007	severe winter storms	1736
		3281
	severe winter storms and flooding	1676
2008	severe storms and flooding	1749
		1773
	severe storms, flooding and a tornado	1809
2009	severe winter storm	3303
2011	flooding	3325
	severe winter storm	3317
	severe winter storm and snowstorm	1961
2013	severe storms, straight-line winds, tornadoes, and flooding	4130
2016	severe storms, tornadoes, straight-line winds,	3374

2019	severe storms, tornadoes, and flooding	4451
2020	Covid-19	3482
	Covid-19 pandemic	4490
2021	severe storms, straight-line winds, tornadoes, and flooding	4612

3.1.3 Research Additional Sources

Sources utilized for information regarding past disaster incidents and research in the planning area include:

- Missouri Hazard Mitigation Plans (2013 and 2018)
- Previously approved Callaway County Hazard Mitigation Plan (2017)
- Federal Emergency Management Agency (FEMA)
- Missouri Department of Natural Resources
- National Drought Mitigation Center Drought Reporter
- US Department of Agriculture’s Ag Census
- Data Collection Questionnaires completed by each jurisdiction
- State of Missouri GIS data
- Hazards US (Hazes)
- Missouri Department of Transportation
- County Emergency Management
- County Flood Insurance Rate Map, FEMA
- U.S. Army Corps of Engineers
- United States Geological Survey (USGS)
- National Oceanic and Atmospheric Administration’s (NOAA) Nation Centers for Environmental Information (NCEI)

Note that 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). 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. 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 NCEI damage amounts are estimates received from a variety of sources, including those listed above in the Data Sources section. Damages reported are in dollar values as they existed at the time of the storm event. They do not represent current dollar values.

The database currently contains data from January 1950 to March 2018. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type.

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.

Table 3.2 Hazards Identified for Each Jurisdiction

Jurisdiction	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flooding (River and Flash)	Levee Failure	Severe Winter Weather	Thunderstorm/Lightning/Hail/High Wind	Tornado	Wildfire
Callaway County	x	x	x	x	x	x	x	x	x	x
Auxvasse		x	x	x	x		x	x	x	x
Fulton	x	x	x	x	x		x	x	x	x
Holts Summit	x	x	x	x	x		x	x	x	x
Kingdom City		x	x	x	x		x	x	x	x
Mokane		x	x	x	x	x	x	x	x	
New Bloomfield		x	x	x	x		x	x	x	
Schools and Special Districts										
Fulton Public Schools		x	x	x	x		x	x	x	x
Jefferson City School District		x	x	x	x		x	x	x	x
New Bloomfield R-III		x	x	x	x		x	x	x	x
North Callaway R-I		x	x	x	x		x	x	x	x
South Callaway R-II		X	X	X	X		X	X	X	X
MO School For the Deaf		x	x	x	x		x	x	x	x
Central Callaway FPD	X	X	X	X	X		X	X	X	X
Holts Summit FPD	X	X	X	X	X		X	X	X	X
PWSD #1		X	X	X	X	X				X
PWSD #2		X	X	X	X	X				X

3.1.5 Multi-Jurisdictional Risk Assessment

The 2022 Callaway County Hazard Mitigation plan is an update of an earlier plan. The hazard profiles that follow are assessed on a county-wide basis but each jurisdiction will have unique levels of impact based on population and geographical location. Fulton is the urban center of the planning area, with a variety of development and infrastructure. It also serves as the county seat. Other areas of the county are rural with little population or infrastructure to be damaged in the event of a natural hazard.

The planning area is subject to various natural hazards such as dam failure, drought, earthquake, extreme temperature, flooding, levee failure, wildland fire, severe winter weather, and thunderstorms and lightning. Each natural hazard poses different levels of risk depending on the jurisdiction and each will be discussed further in detail later in this section.

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. Since the last update the area has experienced some growth in population creating a need for more housing units and infrastructure such as roads, sewers, water, and electricity to provide those homes with necessary amenities. This has expanded the number of connections and structures at risk of failure during a hazard event along with an expanded population at risk. The inventory of assets for each jurisdiction was derived from census block exposure data out of HAZUS, Missouri GIS Database, and local jurisdiction data questionnaires.

3.2.1 Total Exposure of Population and Structures

Unincorporated County and Incorporated Cities

The following tables provide population data based on the 2020 Census. Building counts and building exposure values are based on data developed by the State of Missouri Geographic Information Systems (GIS) database. Content exposure values were calculated by factoring a multiplier to the building exposure values based on usage type. The multipliers were derived from the Hazus and are defined below. Land values have been excluded from consideration due to the fact that land remains following disasters and any market devaluations are often short term and difficult to quantify. State and Federal assistance programs do not generally address loss of land outside that of crop insurance. The total valuation of buildings is based on county assessor's data which may not be current and government-owned properties are usually taxed differently or not at all. This may cause some inaccuracies in the representation of true value. Public school district assets and special districts are included in the total exposure tables assets by community or county.

The following tables provide a look at population, building and content exposure by jurisdiction, as well as a look at exposure by usage type and building counts per each jurisdiction. The exposure and building information for each school district is also included.

Table 3.3 Maximum Population and Building Exposure by Jurisdiction

Jurisdiction	2020 Census	Building Count	Building Exposure (\$)	Contents Exposure (\$)	Total Exposure (\$)
Unin. Callaway	25,215	11825	2508712	1459512	3968224
Auxvasse	1,001	483	81429	48691	130120
Fulton	12,600	4197	1484903	992326	2477229
Holts Summit	4,458	1531	353117	198814	551931
Kingdom City	134	80	34714	26823	61537
Mokane	188	99	21356	12729	34085
New Bloomfield	687	276	57054	34482	91536
Total	44,283	18491	4541285	2773377	7314662

Source: U.S. Bureau of the Census, Annual population estimates/ 5-Year American Community Survey 2020; 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 3.4 Building Values/Exposure by Usage Type

Jurisdiction	Residential	Commercial	Industrial	Agricultural	Total
Callaway County	2155341	182690	77218	30391	2445640
Auxvasse	66491	12217	1024	112	79844
Fulton	1111538	254683	50309	2807	1419337
Holts Summit	311968	27949	3324	450	343691
Kingdom City	18216	13413	2546	299	34474
Mokane	17255	2371	276	0	19902
New Bloomfield	45269	5959	268	17	51513
Total	3726078	499282	134965	34076	4394401

Source: Missouri GIS Database, SEMA Mitigation Management Section

Table 3.5 Building Counts by Usage Type

Jurisdiction	Residential Counts	Commercial Counts	Industrial Counts	Agricultural Counts	Total
Callaway County	11112	374	137	139	11762
Auxvasse	451	25	3	1	480
Fulton	3798	271	54	13	4136
Holts Summit	1446	62	10	2	1520
Kingdom City	59	17	2	1	79
Mokane	90	6	1	0	97
New Bloomfield	250	20	1	0	271

Total	17206	775	208	156	18345
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Source: Missouri GIS Database, SEMA Mitigation Management Section; Public School Districts and Special Districts

While school's total assets are included in the tables above, additional information gathered through the data questionnaires and school websites allow for further discussion. The table below shows enrollment and building information, including counts and replacement cost (exposure).

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

Public School District	Enrollment	Building Count	Building Exposure (\$)	Contents Exposure (\$)	Total Exposure (\$)
Fulton Public Schools	2,233	5	60460008.50	17349710.66	77828109.41
Jeff City School District	N/A	2	12311695	1025000	13336695
New Bloomfield R-III	746	2	23220553	3949776	27170329
North Callaway R-I	1,051	4	39307135.45	6352851.04	45659986.49
South Callaway R-II	791	4	47039667.90	8250532.70	55290900.60
MO School for the Deaf	54	3	N/A	N/A	N/A

Source: Total Exposure amounts come from the completed Data Collection Questionnaires from Public School Districts. In general, the school districts obtain this information from their insurance coverage amounts.

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

Jurisdiction	Airport Facility	Bus Facility	Childcare Facility	Communications Tower	Electric Power Facility	Emergency Operations	Fire Service (station)	Government	Housing	Shelters	Hospital/Health Care	Military	Natural Gas Facility	Nursing Homes	Police Station	Potable Water Facility	Rail	Sanitary Pump Stations	School Facilities	Stormwater Pump Stations	Wastewater Facility	TOTAL
Callaway County	1	1	24	8	4	2	21	7	11112	15	11	1	1	12	4	0	0	150	10	0	55	11439
Auxvasse	0	0	0	1	0	0	1	3	451	0	1	0	0	0	1	2	0	6	1	0	1	468
Fulton	1	0	3	1	1	1	1	13	798	1	2	0	1	2	1	1	0	1	3	2	1	3821
Holts Summit	0	0	4	0	0	1	1	11	446	1	2	0	0	3	1	1	0	4	1	0	1	1467
Kingdom City	0	0	0	1	0	0	0	1	59	0	0	0	0	0	0	1	1	7	1	0	1	72
Mokane	0	0	0	0	0	0	1	1	90	0	0	0	0	0	0	1	0	7	0	0	1	101
New Bloomfield	0	1	2	1	0	1	2	1	250	0	0	0	0	1	0	1	0	1	1	0	1	263

Source: Missouri 2018 State Hazard Mitigation Plan and Hazard Mitigation Viewer; Data Collection Questionnaires; Hazus, etc.

3.2.2 Critical and Essential Facilities and Infrastructure

There are four main types of facilities of concern in a hazard event. Critical Facility, essential facility, high potential loss facility, and transportation and lifeline facilities. These facilities are defined by FEMA as "... all manmade structures or other improvements that, because of their function, size, service area, or uniqueness, have the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if they are destroyed, damaged, or if their functionality is impaired."

Critical facilities commonly include all public and private facilities that a community considers essential for the delivery of vital services and for the protection of the community. The adverse effects of damaged critical facilities can extend far beyond direct physical damage. For example, a natural gas pipelines that failed in an extreme cold event could lead to loss of life. Internet is a deeply integrated asset into the functions of many essential facilities. As such, a major fiberoptic line in the County could impact far and wide if it were to be damaged. Disruption of health care, fire, and police services can impair search and rescue, emergency medical care, and even access to damaged areas.

GOVERNMENT

Callaway County has buildings that are critical to the functioning of the county. The Callaway County Court House in Fulton is home to many government offices, including Assessor, Clerk, Circuit Court, Juvenile, Public Administrator, Treasurer, Recorder, and Commissioner.

FIRE PROTECTION

There are nine fire protection districts which respond to fires, accidents, and other emergencies within the Planning Area.

Mutual aid agreements exist between all the districts/departments and also with those in surrounding counties through the statewide mutual aid agreement; Callaway County is located in Region F.

The fire districts have been proactive in public education campaigns, updating training, and general outreach efforts to ensure the community at large is safe.

The fire districts/departments are key players in hazard mitigation and preparedness activities.

WATER SUPPLY

There are three Public Water Supply Districts serving the Planning Area. The Water Districts are responsible for distributing water throughout the County except in places served by a municipality, private company, or private well. They are responsible for developing new water supply infrastructure and maintaining existing infrastructure.

Each water district is composed of an elected board. Water Districts are primarily

related to mitigation activities focused on drought, wildfire, and flood. Connecting water supplies so that rural areas of Callaway County have multiple water supplies is an important mitigation technique. Protecting water supply infrastructure from floodwaters is an important task also under the purview of the districts.

Transportation

Roadways

Callaway County, like most of the United States, is heavily dependent upon personal vehicles and roads. Roads are the dominant transportation arteries in Callaway County, moving most goods and services that flow in and out of the county. The Missouri Department of Transportation (MoDOT) takes care of all state and federal roads in the county; Callaway County Public Works maintains roads in unincorporated areas and the various jurisdictions maintain their own roads.

There is one interstate (I-70), two US highways (US 63 and US 54), and one state highway (MO 94) in Callaway County. Interstate 70 runs east to west across to northern portion of the county through Kingdom City and is the direct route between Kansas City and St. Louis. US 63 cuts across the southwestern tip of the county connecting the City of Columbia in Boone County and Jefferson City in Cole County. US 54 cuts through the middle of the county from the north to the southwest. It is important to note that all incorporated communities in Callaway County, with the exception of Mokane, lie along the US 54 corridor. MO 94 runs along the southern border of the county connecting several unincorporated communities and the town of Mokane with US 63/54 and MO 19 in neighboring Montgomery County to the east.

While about half of Callaway County residents work within the county, the other half commute to neighboring counties.

Public Transportation OATS, Inc., a private not-for-profit corporation, was founded by a group of seniors in 1971 as transportation for older citizens. Its current mission is to “provide reliable transportation for transportation disadvantaged Missourians so they can live independently in their own communities.” OATS, Inc. serves a wide diversity of citizens in 87 Missouri counties. In Callaway County, the organization provides transportation between Jefferson City and the communities of Fulton, Holts Summit, and New Bloomfield as well as to the City of Columbia in neighboring Boone County (for medical reasons only). OATS predominantly serves the elderly and disabled, but will serve anyone needing transportation.

Public transportation is now available in Callaway County. SERVE Tran provides this door-to-door service to anywhere in Callaway County and the surrounding counties with a fleet of nine wheelchair-equipped buses and two vans. On average, SERVE Tran provides 3,000 one-way trips at over 22,000 miles per month. Rides are scheduled through phone calls.

Besides the two local public transportation services mentioned above, there are another 18 transportation providers that can be referred to by a transportation referral service called MO RIDES – Central Missouri. MO RIDES is a mobility management project of Central Missouri

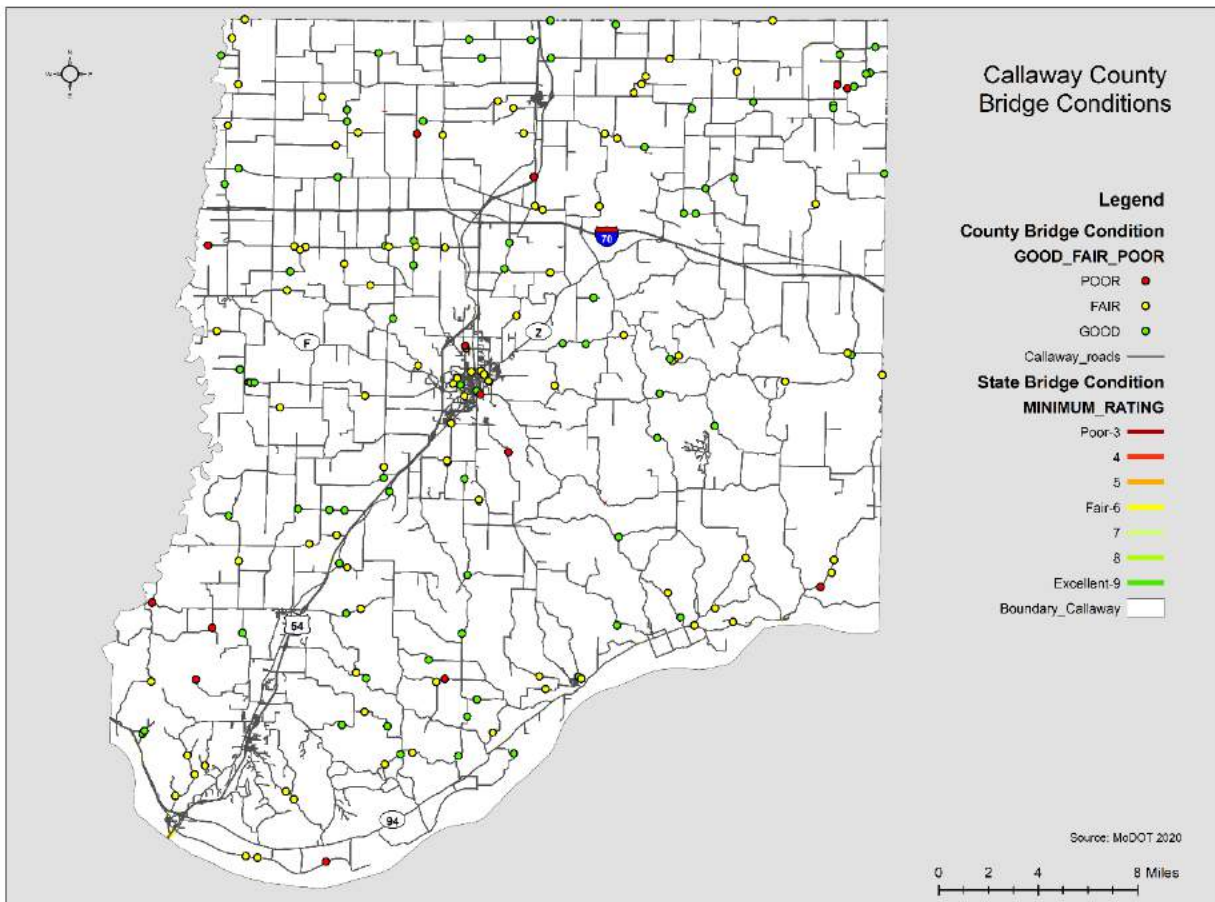
Community Action in partnership with Mid-MO Regional Planning Commission. It assists people in Mid-MO communities in finding the most affordable public transportation options to meet their specific needs as to health appointments, work sites, childcare locations, etc.

Bridges

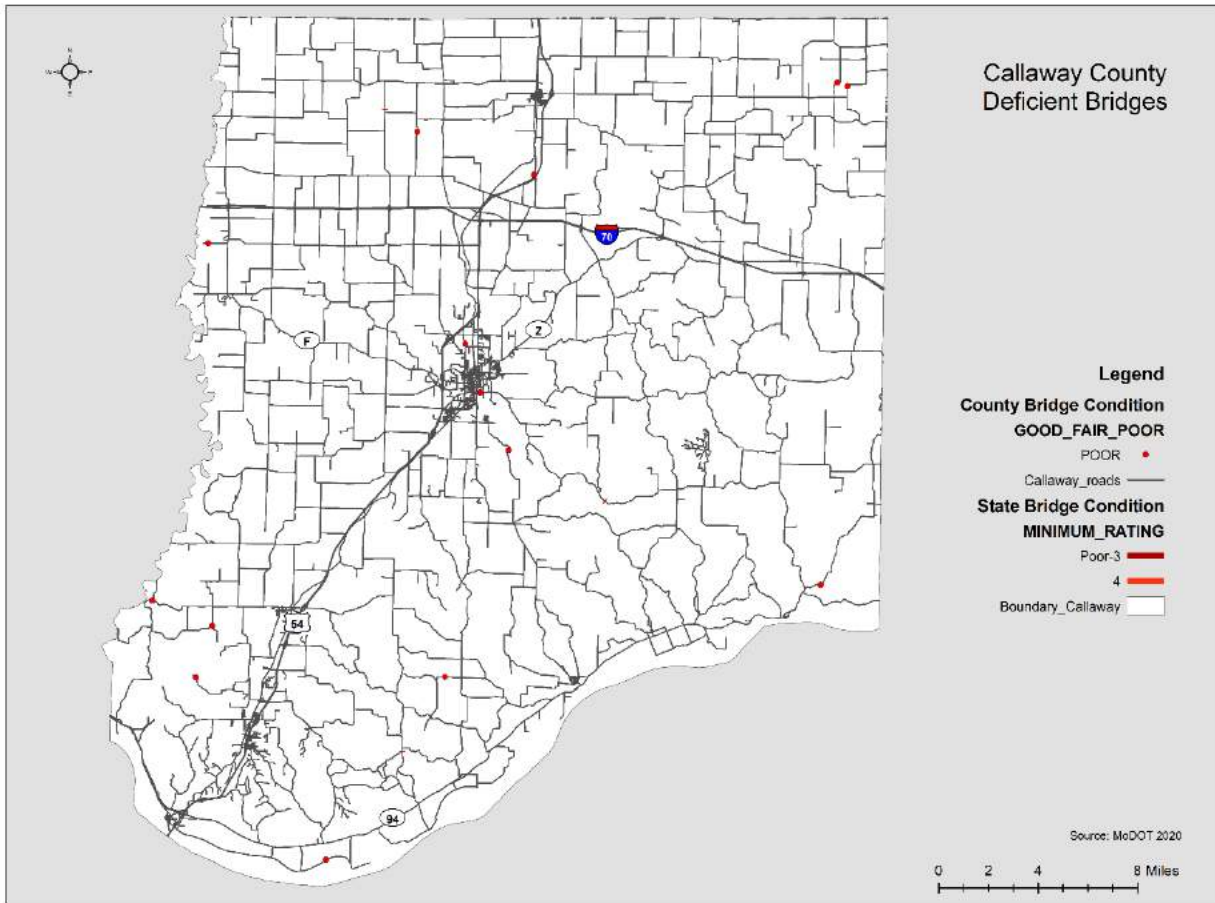
Bridge conditions are described using a “scour index”. This index rates bridges on their vulnerability to scour during a flood and is based on a scale of 0 to 9. Zero are failed bridges. Bridge with a scour index of 9 are new bridges. An index rating of 1 to 3 are in critical condition. A rating of 4 is poor. Anything 5 and higher are fair to excellent.

In 2019 legislation passed the Governor’s Focus on Bridges program. There will be two critical bridges replaced in Callaway County through this program.

Map 3.1: Bridge Conditions



Map 3.2: Deficient Bridges



Railroads

Passenger Rail

While Callaway County does not have a rail station, there is an Amtrak station directly across the Missouri River in Jefferson City that provides passenger service to both Kansas City (and points westward) and St. Louis (and points eastward) via the Missouri River Runner. There is another station located 13 miles east of the county line in Hermann. Two trains traveling in each direction stop daily at these stations. The completion of a 9,000-foot rail siding extension just west of California, Missouri in November 2009 increased the on-time arrival percentage of the Missouri River Runner trains from 55-79% in recent years to over 90%, according to the Missouri Department of Transportation (MoDOT). With a better record of on-time arrivals, ridership has subsequently increased about 20%.

Rail Freight

While Callaway County does not currently have any rail traffic, a large amount of freight travels by rail through the counties of Cole and Osage across the river to the south. Union Pacific operates tracks through these counties. According to the Missouri Department of

Transportation's Long-Range Transportation Plan (LRTP), 33 percent of all product movement in Missouri is conducted by rail. Kansas City and St. Louis are ranked as the 2nd and 3rd busiest rail hubs in the nation, according to the Missouri Economic Research and Information Center (MERIC).

Air

The Elton Hensley Memorial Airport, located just outside the city limits, is owned and operated by the City of Fulton and is available for corporate and private planes but does not support commercial services. The Jefferson City Memorial Airport, operated by Jefferson City, is located in the southwest corner of the county near the Missouri River Bridge. The Columbia Regional Airport is located less than 25 minutes away in Boone County south of Columbia. Additionally, Kansas City International Airport and St. Louis Lambert International Airport are approximately 120 miles east and west of Boonville, along I-70.

Water

The Missouri River and Auxvasse Creek both have Missouri Department of Conservation public access boat ramps and several private access boat ramps. Most of these ramps and access points are designed for recreational use and allow access to the Missouri River and all points upstream and downstream.

There have been talks and preliminary reports put together for adding a port facility on the Callaway side of the Missouri River for the Heartland Port Authority. At this time a location has not been fully agreed upon nor any construction started.

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. 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

There are 8 plant and animal species listed as threatened or endangered that are known or are believed to occur in Callaway County.

Table 3.8 Threatened and Endangered Species in Callaway County

Common Name	Scientific Name	Status
Topeka Shiner	Notropis Topeka	Endangered
Indiana Bat (mammal)	Myotis sodalist	Endangered
Gray Bat (mammal)	Myotis grisescens	Endangered
Northern Long Eared Bat (mammal)	Myotis septentrionalis	Threatened
Running Buffalo Clover (plant)	Trifolium stoloniferum	Endangered
Pallid Sturgeon (fish)	Scaphirhynchus albus	Endangered
Red Knot (bird)	Calidris Canutus Rufa	Threatened
Scaleshell Mussel	Leptodea Leptodon	Endangered

Source: U.S. Fish and Wildlife Service, <https://ecos.fws.gov/ecp/>

Public Land

There is more than 83,912 acres of public land in the planning area. These areas are owned and managed by state and federal agencies. Mark Twain National Forest constitutes 15% of public land, while the Reform Conservation Area and Whetstone Conservation Area constitute 8.4% and 6% respectively.

Table 3.9 State or Federal Public Land		
Name	Address	City
Capitol View Access	US 63 at Cedar Creek	Holts Summit
Carl Noren Access	Cottonwood Dr	Cedar City
Earthquake Hollow Conservation Area	CR 452 east	New Bloomfield
Hams Prairie Access	CR 428 west	Fulton
Little Dixie Lake Conservation Area	CR 228	Millersburg
McCredie Farm Lake (MU)	Old Route 40	Kingdom City
Mokane Access	CR 479 south	Mokane
Moore's Mill Access	CR 139 north	Kingdom City
Morningside Lake (Fulton)	Morningside Dr	Fulton
Reform Conservation Area	Route O	Portland
Tate Island Conservation Area	Missouri River island	Portland
Truman Lake (Fulton)	Westminster Ave	Fulton
Veterans Park Lake (Fulton)	Richard Ault Dr	Fulton
Whetstone Creek Conservation Area	CR 1003	Williamsburg

Source: Missouri Department of Conservation (MDC), Missouri Spatial Data Server(MSDIS)

Callaway County Properties on the National Register of Historic Places

There are 20 sites located in Callaway County that are registered on the National Register of Historic Places. This registry is an official list of registered cultural resources that are worth preserving. The National Historic Preservation Act of 1966 authorized such a list as part of a national program. The program is administered by the National Parks Service and acts as a resource to coordinate public and private efforts to find, evaluate, and preserve historically and archeologically significant sites. Properties on the list include districts, buildings, structures, and sites that have significance through history, culture, architecture, archeology, and engineering.

Table 3.10 is a list of historic sites located in Callaway County.

Table 3.10 Callaway County Properties on the National Register of Historic Places

Property	Address	City	Date Listed
Fred Bell Rental Cottage	302 E. Fifth St	Fulton	7/10/97
Fred Bell Speculative Cottage	304 E. Fifth St	Fulton	6/30/95
Brandon-Bell-Collier House	207 W. Ninth St	Fulton	12/24/98
George Washington Carver School	909 Westminster	Fulton	12/02/96
Cote Sans Dessein Archaeological Site	Restricted	N/A	5/27/71
Court St Historical Residential District	Court, St. Louis to 10 th	Fulton	8/15/07
Downtown Fulton Historical District	4 th St., Market, 7 th , Jefferson Ave	Fulton	7/07/04
John Hockaday House	105 Hockaday Ave	Fulton	9/17/80
Mealy Mounds Archaeological Site	Restricted	N/A	1/25/71
Moore's Mill Battlefield	Restricted	N/A	5/04/15
Oakley Chapel African Methodist Episcopal Church	CR 485	Tebbets	12/17/08
Pitcher Store	8513 Pitcher Rd	Fulton	3/12/01
Research Cave	Restricted	N/A	10/15/66
Richland Christian Church	5301 CR 220	Fulton	2/16/01
Robnett-Payne House	601 W. Sixth St.	Fulton	9/17/98
Westminster College Gymnasium	Westminster Campus	Fulton	5/23/68
Westminster College Historic District	Westminster Ave	Fulton	4/12/82
White Cloud Presbyterian Church and Cemetery	Route F, CR 232	Fulton	10/12/10
George Willing House	211 Jefferson St.	Fulton	10/03/80
Winston Churchill Memorial	7 th st. to Westminster Ave	Fulton	3/16/72

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

Many of the major employers for Callaway County residents are not located in Callaway County. Callaway County citizens rely heavily on nearby populated regional centers such as Columbia (Boone County) and Jefferson City (Cole) for employment and other commercial activity.

Table 3.11

Major Employers in Callaway County			
Employer	Employees	Employer	Employees
Fulton State Hospital	1250	Ameren UE Nuclear Plant	923
ABB Power	725	Dollar General Distribution	650
Fulton Public Schools	450	Fulton Reception & Diagnostic Ctr	400
Wal-Mart Supercenter	250	North Callaway School	221
Callaway Community Hospital	210	Westminster College	205
William Woods University	196	City of Fulton	193
MO School of the Deaf	190	Callaway County	177
South Callaway School	150	AZZ Central Electric	136
ANH Refractories	133	Walsworth	125
Callaway Bank	108	New Bloomfield School	103

Source: Data Provided by County

Agriculture is still widely seen throughout Callaway County but it has lost its place as the dominant economic source in the county. Manufacturing, education, and other types of employment have overtaken farming.

There are 1438 farms listed in the 2017 Ag Census. Those farms do not usually employ several people though. The average size of a farm in Callaway County is 206 acres and employs less than 10 people.

Table 3.12 Agriculture Employment

Employment Information	Farms	Workers	\$1,000 Payroll
Hired Farm Labor	231	664	6,916
Farms with One Worker	78	78	-
Farms with two Workers	49	98	-
Farms with Three or Four Workers	72	248	-
Farms with Five to Nine Workers	22	130	-
Farms with 10 Workers or More	10	110	-
Reported only workers working 150 days or more	98	241	-
Reported only workers working less than 150 days	180	423	-
Reported Both	47	197	2,208
Unpaid Workers	633	1,492	-

Source: 2017 Ag Census

3.3 Land Use and Development

3.3.1 Development Since Previous Plan Update

Callaway County has shown a decline in growth. The community with the largest decline was Fulton. While the county as a whole had a slight decline Holts Summit saw a large amount of growth within their city limits.

Table 3.13 Callaway County Population 2010-2020 by Jurisdiction

Jurisdiction	2020 Population	2020 Annual Population Estimate or ACS Population	# Change (2010-2020)	% Change (2010-2020)
Unincorporated Boone	25,215	24,928	-1,115	-4.23
Auxvasse	1,001	1,229	18	1.83
Fulton	12,600	12,696	-190	-1.49
Holts Summit	4,458	4,790	1,211	37.3
Kingdom City	134	156	6	4.69
Mokane	188	390	3	4.62
New Bloomfield	687	755	18	2.69
Total	44,283	44,944	-49	-0.11

Source: U.S. Bureau of the Census, Decennial Census, annual population estimates/ 5-Year American Community Survey 2019; *population includes the portions of these cities in adjacent counties

There was a decline in population across the board which also shows as a decline in housing units. Less people in general need fewer structures which can allow some structures that were once occupied to become vacant. Vacant homes are more likely to be hit by vandals or used for illicit activities giving them a heightened liability and more quickly falling into disrepair. Large amounts of vacant housing can strain emergency personnel through repeated calls to deal with various offenses so often surrounding empty structures. Holts Summit that showed the greatest amount of population growth has had a housing growth boom to support the incoming people.

Table 3.14 Change in Housing Units, 2010-2020

Jurisdiction	Housing Units 2020	Housing Units 2010	2010-2020 # Change	2010-2020 % Change
Unincorporated	11,044	11,451	-407	-3.55%
Auxvasse	460	472	-12	-2.54%
Fulton	4,659	4,602	57	1.24%
Holts Summit	1,936	1,572	364	23.16%
Kingdom City	65	55	10	18.18%
Mokane	87	87	0	0
New Bloomfield	287	283	4	1.41%
Total	18,538	18,522	16	0.09%

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

3.3.2 Future Land Use and Development

The Callaway County Chamber of Commerce assists in economic development throughout the county by providing resources and events for local businesses and potential businesses to take part in, connect with patrons, and create or expand on their business goals.

3.4 Hazard Profiles, Vulnerability, and Problem Statements

A Risk Assessment has been conducted for each hazard identified as affecting the planning area. The remainder of this section includes these risk assessments which are discussed in alphabetical order and organized according to the following outline:

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.

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. For some hazards, the entire planning area is a risk.

Strength/Magnitude/Extent - The extent of the hazard refers to the strength or magnitude of that hazard which can be expected in the planning area; extent is an attribute of the hazard alone and does not include its effect on humans or the built environment.

Previous Occurrences – This includes available information on historic incidents and their impacts. Historic event records form a solid basis for probability calculations.

Probability of Future Events (Natural Hazards) - The probability of future events is, for the most part, based on historical data while also taking into account the expected impact of climate change. It is assigned based on the following scale which was slightly modified from that found in the *Missouri State Hazard Mitigation Plan (2018)*:

- Low – The hazard has little or no chance of happening (less than 1 percent chance of occurrence in any given year)
- Moderate – The hazard has a reasonable probability of occurring (between 1 and 10 percent chance of occurrence in any given year).
- High – The probability is considered sufficiently high to assume that the event will occur (between 10 and 100 percent chance of occurrence in any given year).

In the case of earthquakes, projections made by the USGS have also been taken into account in assessing the probability.

Analysis of Risk - Presented by the hazard, including a **measure of severity** for each participating jurisdiction. The **measure of severity** is an estimate of the deaths, injuries, or damage (property or environmental) that could result from the hazard. It is also broadly based on the scale found in the Missouri State Hazard Mitigation Plan (2018):

Low – Few or minor damage or injuries are likely.

Moderate – Personal injuries and/or damage to property or the environment are expected.

High – Major injuries and/or death and/or major damage will likely occur.

Changing Future Conditions Considerations – This discusses the potential future impacts climate change could have on natural hazard events and their effects on the planning area.

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.

A jurisdiction’s vulnerability to a hazard is connected to the extent of that hazard, the probability of future events, the estimated measure of severity, and mitigation measures already in place for that hazard.

In many cases, the potential severity of the hazard event contributes the greatest weight to the vulnerability rating. In some cases, however, a low severity event with high frequency can cause economic strain which translates into a higher vulnerability.

Existing Mitigation/Operating Assumptions: Both the measure of severity and overall vulnerability are greatly impacted by the mitigation already in place in the planning area; this existing mitigation is taken as an operating assumption when evaluating the vulnerability to a particular hazard. The following mitigation activities are applicable to many or all hazards:

- The majority of jurisdictions have adopted some building codes even though the county has not.
- Resources for the public on retrofitting and protecting buildings are available through the Office of Emergency Management.
- Cooperative agreements are in place between utility providers in the county.
- Agreements are in place with local shelters in the county.
- General evacuation procedures are included in the Office of Emergency Management's (OEM) Emergency Operation Plan.
- Evacuation routes are in place in all school districts in the county.
- Buses in all school districts have two-way radios on board.

Other current mitigation activities are aimed at mitigating the effects of a specific hazard and are described under the specific hazard profile.

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

- **Vulnerability Overview** – This is an overall summary of each jurisdiction's vulnerability to the identified hazards. It identifies structures, systems, populations or other community assets that are susceptible to damage and loss for hazard events.
- **Potential Losses to Existing Development/life** – Covers how impacts and potential impacts of the hazard has consequences on existing jurisdictional assets such as buildings, critical facilities, life, etc.
- **Previous and Future Development** - This section goes over how changes in development have impacted the jurisdiction's vulnerability to the hazard.
- **Hazard Summary by Jurisdiction** – Hazards vary by jurisdiction and this section will provide an overview of such variations.

Problem Statements

The problem statement consists of a brief summary of the problems created by the hazard in the planning area, and possible ways to resolve those problems.

3.4.1 Flooding (Riverine and Flash)

DESCRIPTION OF HAZARD

Flooding is defined as partial or complete inundation of usually dry areas. **Riverine flooding** refers to when a river or creek overflows its normal boundaries. The relatively flat areas adjacent to rivers and stream banks which are inundated at times of high water are called floodplains. The term base flood, or 100-year flood, is the area in the floodplain that is subject to a one percent or greater chance of flooding in any given year, based upon historical records.

The planning area is at great risk for riverine flooding. Major waterways include the Missouri River to the north, the Osage River to the east and southeast, the Moreau River in the west and southwest, and various other creeks and branches. Flooding could potentially occur anywhere along these waterways.

The Missouri River, which forms the southern border of Callaway County, is the longest river in the United States. The Missouri River drains approximately one-sixth of the area of the continental United States, according to the USGS. It drains over half the state of Missouri as it flows eastward to join the Mississippi River at St. Louis. Since Callaway County is located less than 200 miles upstream from the mouth of this 2,540 mile river, it is obvious that flooding of the Missouri River is a major concern for the county.

In addition to the threat of riverine flooding, when a river or creek overflows its normal boundaries, the planning area is also susceptible to **flash flooding**. NOAA defines a flash flood as “an event that occurs within 6 hours following the end of the causative event (such as rains, ice jams, or dam breaks)....” Flash floods develop quickly and are responsible for more flood related deaths than any other type of flooding. The textual descriptions for flash flooding events in the NOAA database indicate that flash flooding in the planning area is usually triggered by 2-5 inches of rainfall within a “short period”.

In some cases, however, flooding may not be directly attributable to a river, stream or lake overflowing its banks. It may simply be the combination of excessive rainfall and/or snowmelt, saturated ground, and inadequate drainage. With no place else to go, 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.

FEMA defines sheet flooding as “a type of flood hazard with flooding depths of 1 to 3 feet that occurs in areas of sloping land.”

Local **storm water flooding** can result when tremendous flow of water occurs due to large rain events. Local flooding can create public safety issues due to flooded roadways and drainage structures.

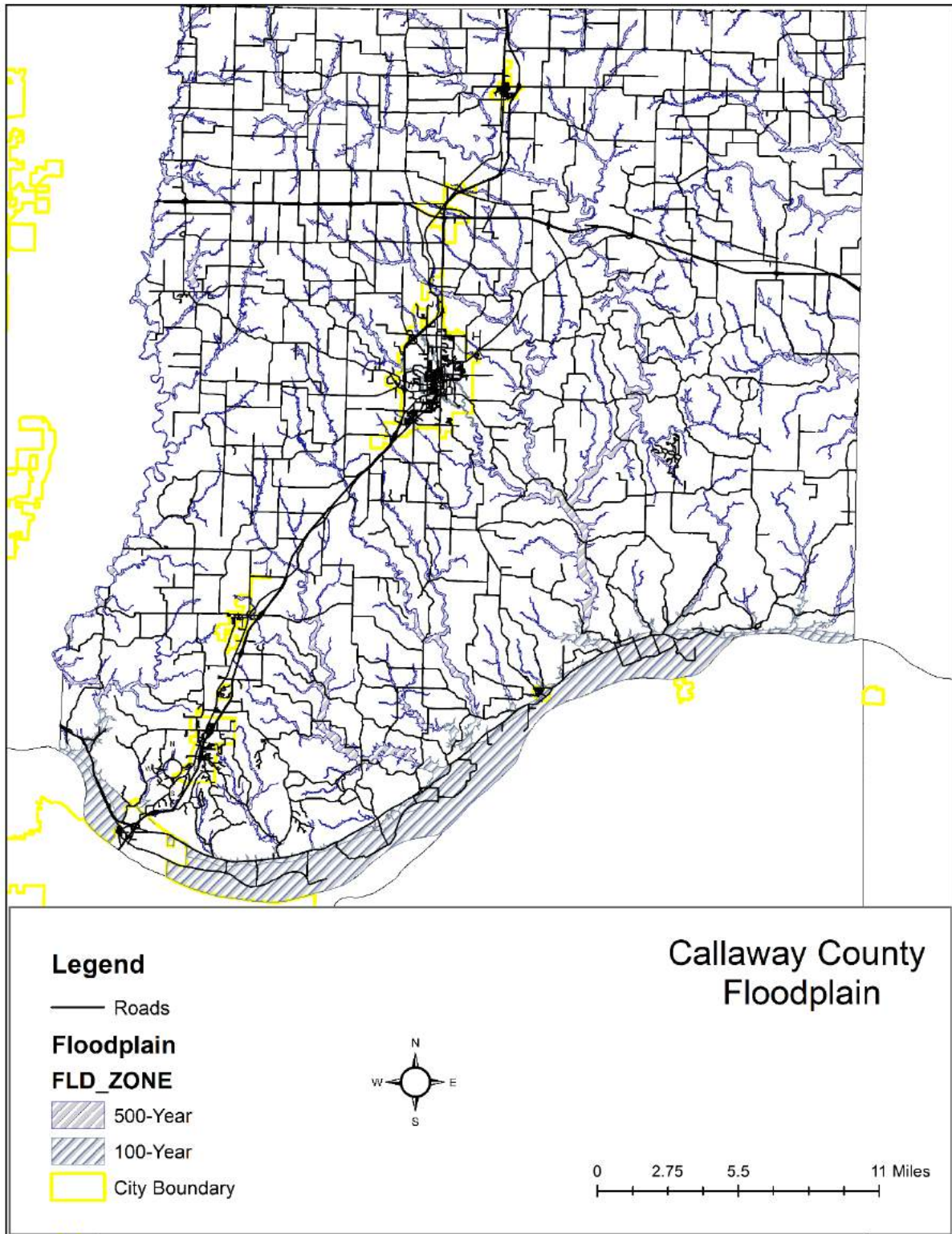
Most flooding in Callaway County occurs in spring and summer but floods can occur in any season.

Location

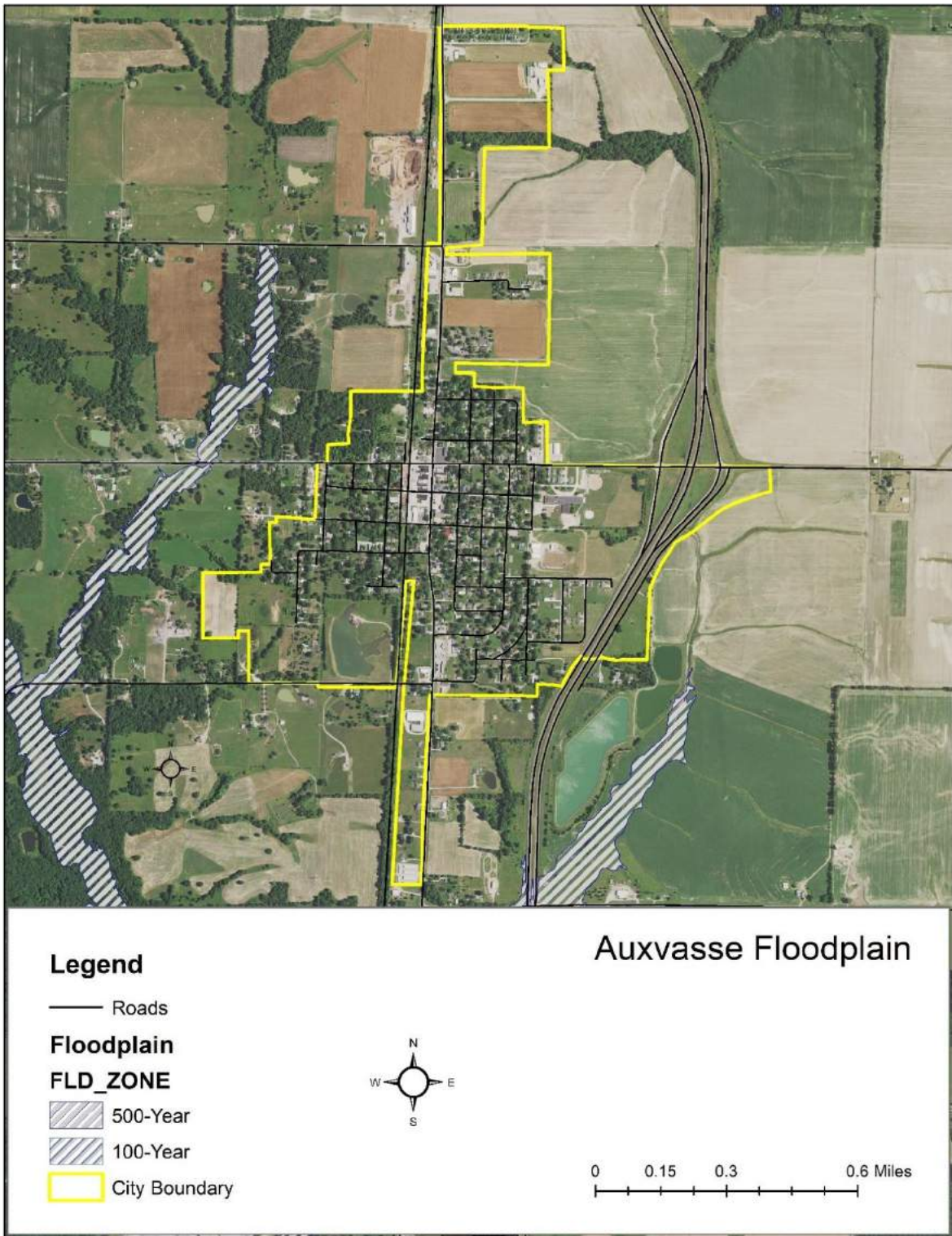
The entire Planning Area is subject to potential flooding.

Callaway County (unincorporated area), Fulton, Holts Summit, Mokane and New Bloomfield are all at risk from riverine flooding because they have areas in the 100-year flood plain. However, New Bloomfield is listed as a sanctioned community that does not participate in NFIP due to no structures in or near the floodplain. Kingdom City has some 500-year floodplain within city limits but no vital facilities are at risk. None of the school districts, Fire Districts, or Auxvasse have buildings lying within the 100-year flood plain. Auxvasse is the only community that does not participate in NFIP. There are numerous lagoons or sewage treatment facilities near or in the flood plains. Jefferson City has portions of its boundary in Callaway County (Old Cedar City) that is in floodplain, but they chose to participate in the Cole County Hazard Mitigation Plan since the majority of their boundary and population resides in that county. Floodplain maps for Callaway County and its incorporated communities can be found in Maps 3.3a-3.3g.

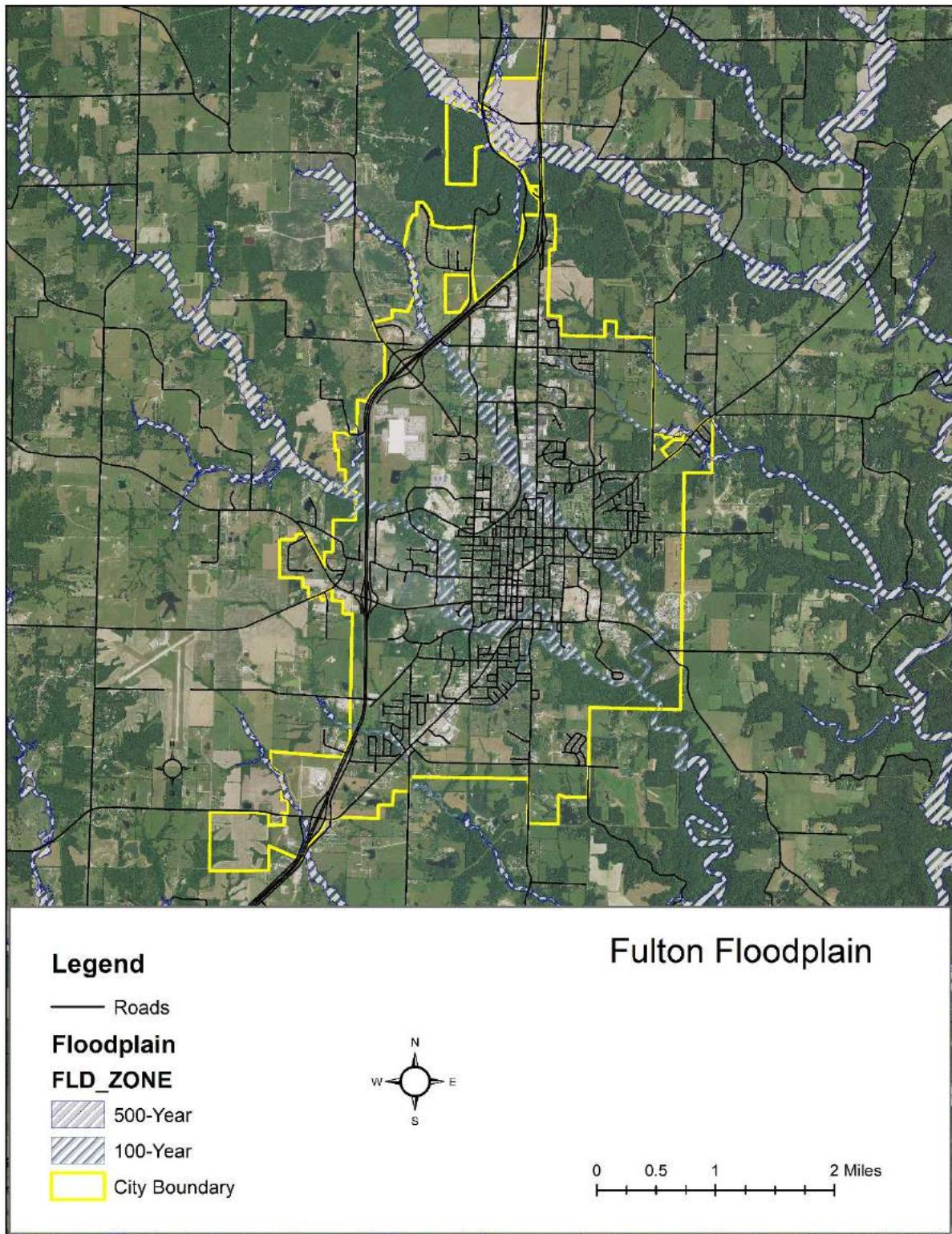
Map 3.3a



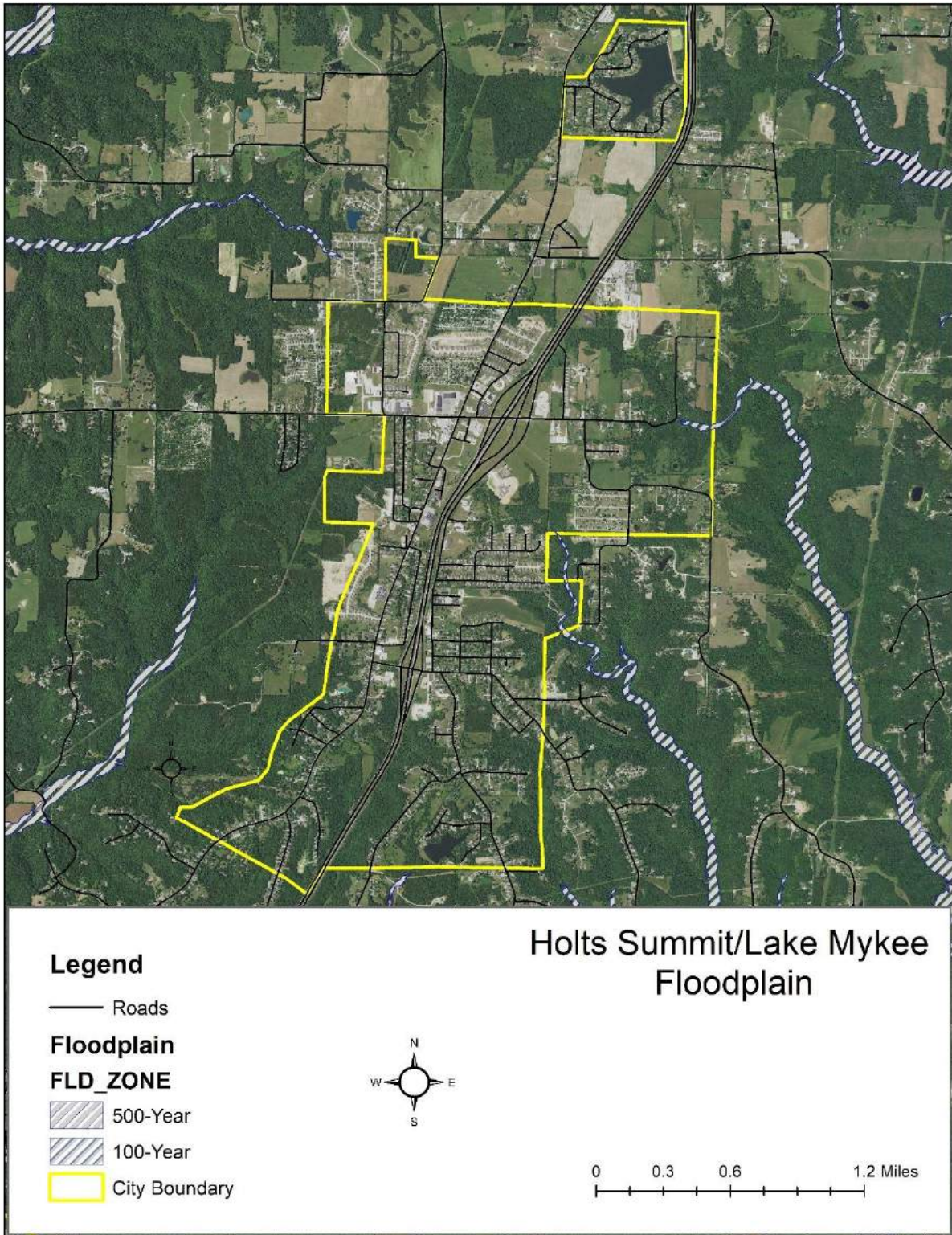
Map 3.3b



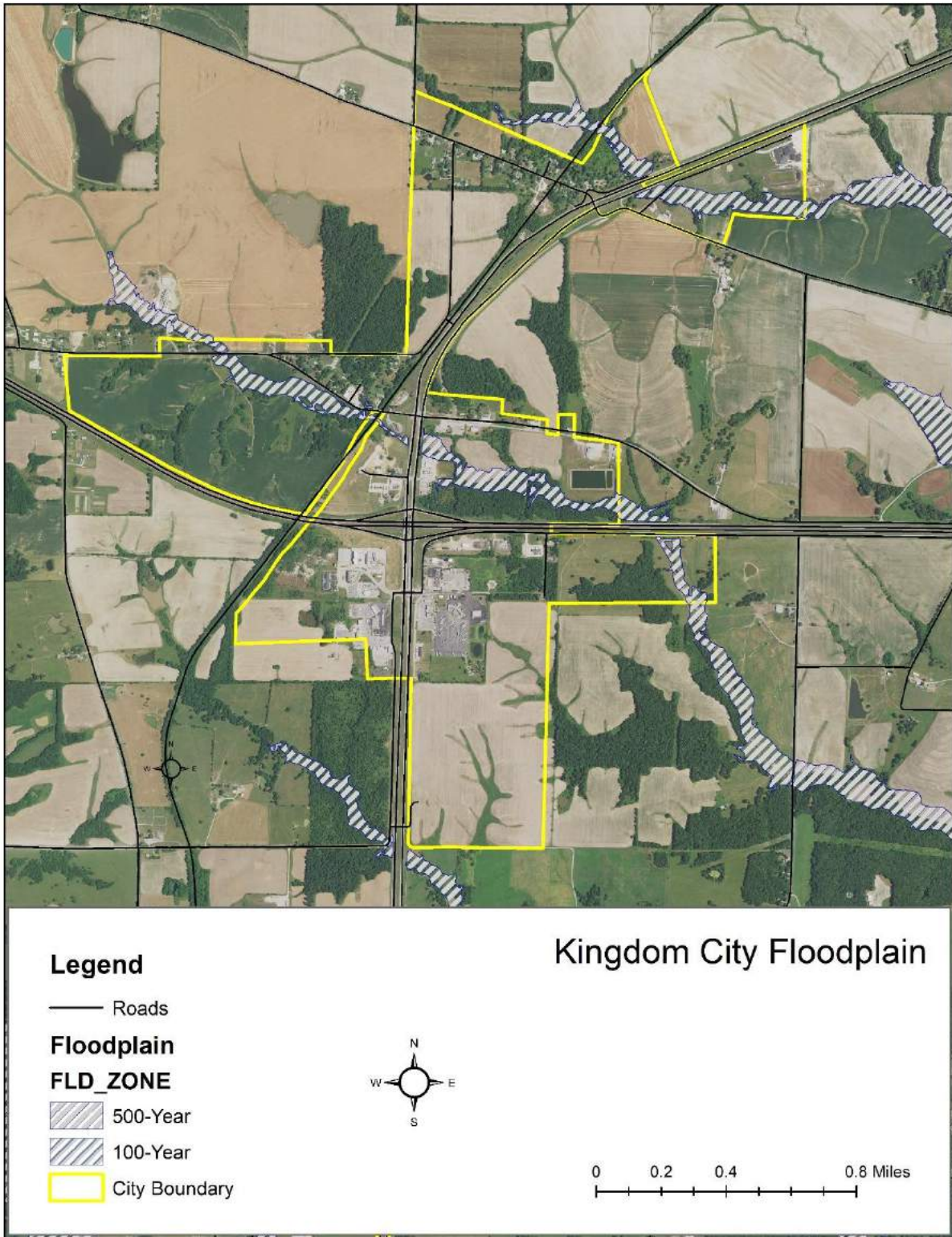
Map 3.3c



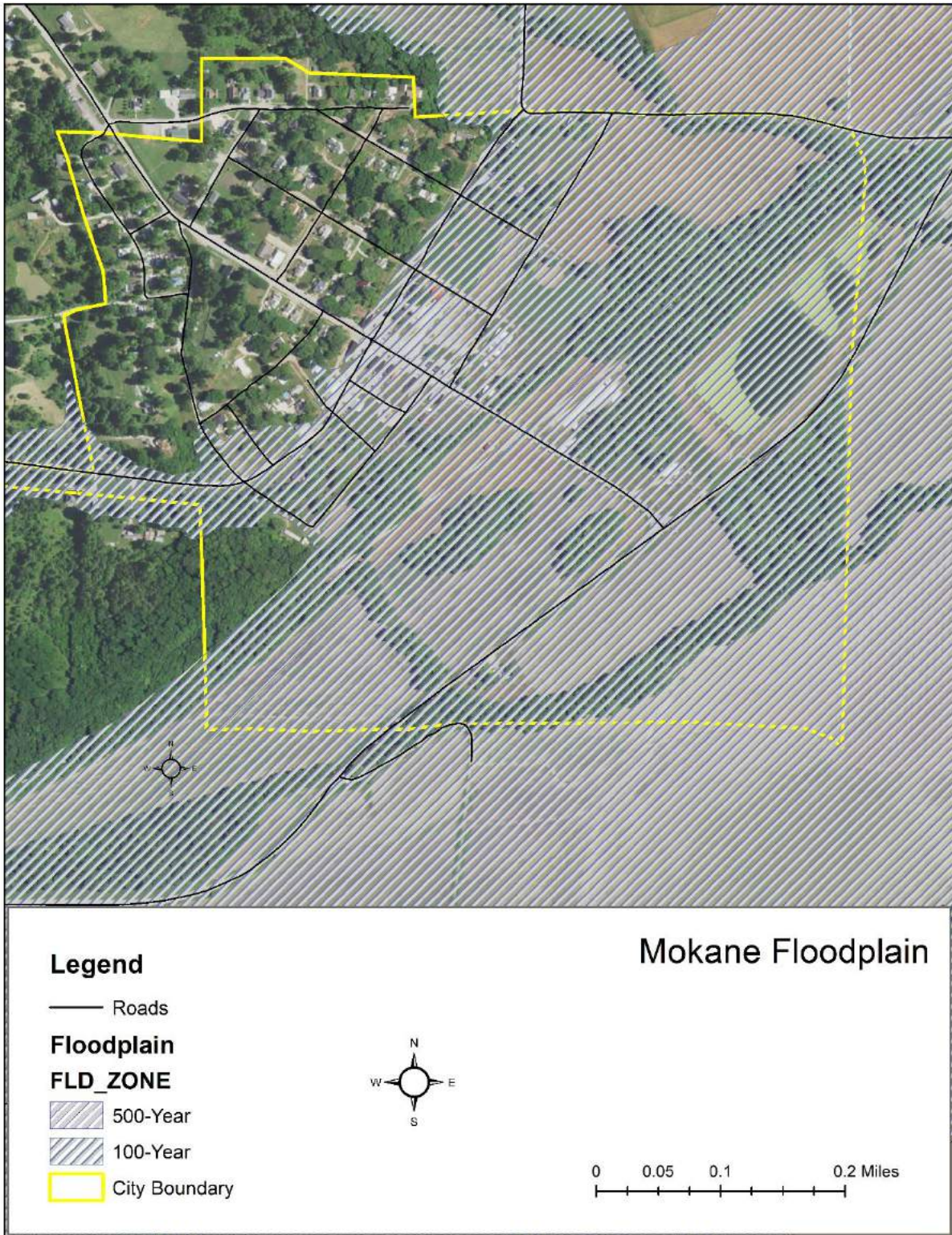
Map 3.3d



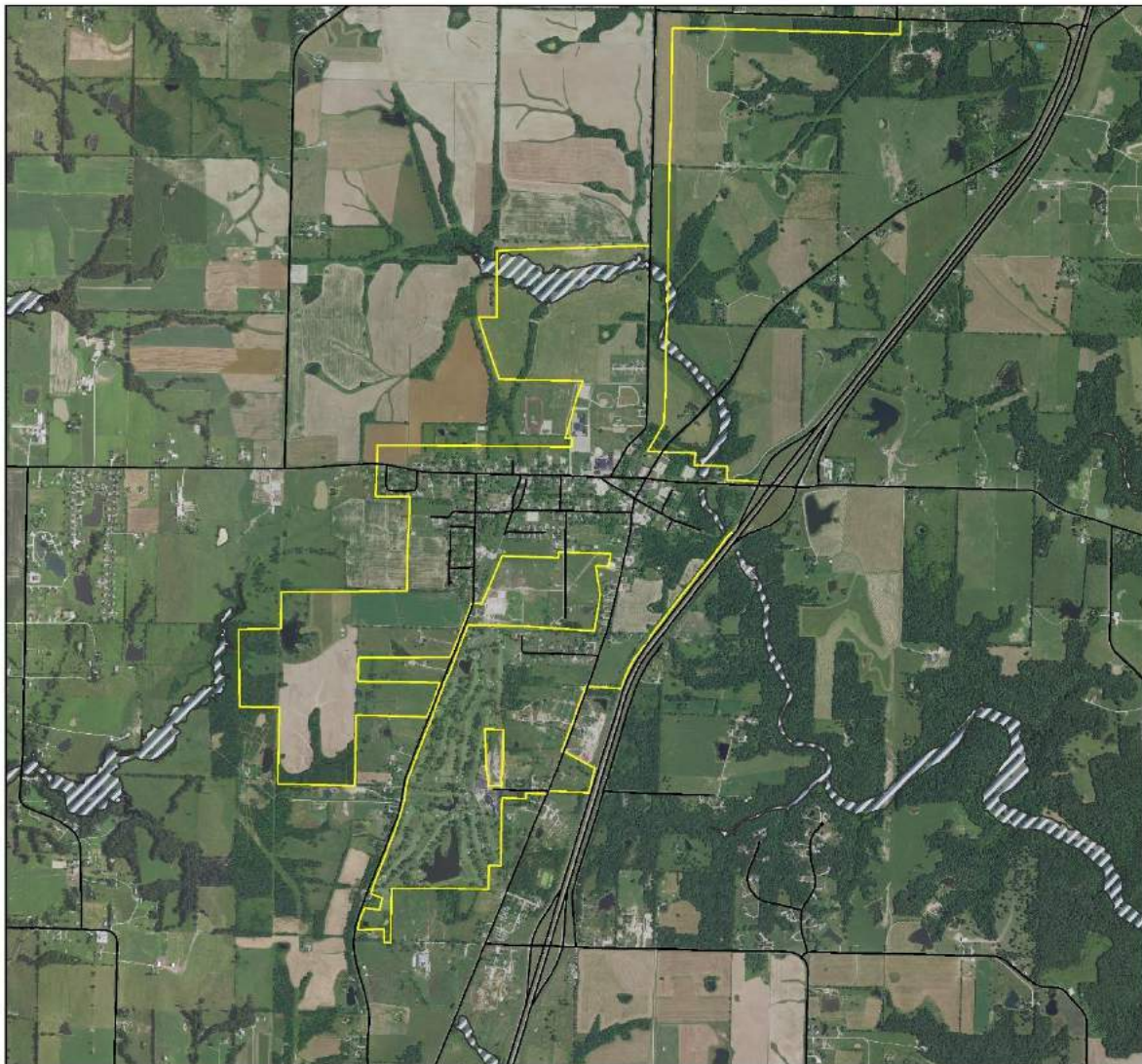
Map 3.3e



Map 3.3f



Map 3.3g



New Bloomfield Floodplain

Legend

— Callaway_roads

City Boundary

S_FLD_HAZ_AR

FLD_ZONE

100 - Year

500 - Year

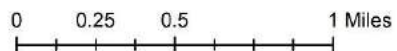


Table 3.15 Callaway County NCEI Flood Events by Location, 2000-2020

Location	# of Events
Callaway County	3
-Unincorporated County (zone)	
-Unincorporated County (zone)	
-Unincorporated County (Hatton)	
Jefferson City	3
-Jeff City Mem (airport)	
-Cedar City	
-Cedar City	

Table 3.16 Callaway County NCEI Flash Flood Events by Location, 2000-2020

Location	# of Events
Callaway County	25
-Unincorporated County (South Portion – 2 events)	
-Unincorporated County (Central Portion)	
-Unincorporated County (County wide – 7 events)	
-Unincorporated County (Concord)	
-Unincorporated County (Youngers – 6 events)	
-Unincorporated County (Shamrock)	
-Unincorporated County (Steedman)	
-Unincorporated County (Wainwright)	
-Unincorporated County (Boydsville – 2 events)	
-Unincorporated County (Guthrie)	
-Unincorporated County (Portland)	
-Unincorporated County (Readsville)	
Auxvasse	1
Fulton	1
Jefferson City	2
-Cedar City – 2 events	
New Bloomfield	1

Extent

There are characteristic differences between riverine flooding and small stream/flash flooding in the planning area; these differences involve both the speed of onset and duration of flooding events.

Riverine flooding –

- Speed of onset - Riverine flooding is a hazard that allows for mitigation, preparation, and potential evacuation because of the relatively long speed of onset.
- Duration - An examination of the NOAA data for riverine flooding from January 2000, through December 2020, indicates an average duration of approximately 3.9 days per event.

Small Stream and Flash Flooding –

- Speed on Onset - In contrast to riverine flooding, small stream flooding and flash flooding occur very quickly with heavy rains.

- Duration - Small stream flooding in the planning area usually takes place within the span of one day. The data of reported events in the NOAA database indicates an average duration of 4.7 hours.

Strength/Magnitude/Extent

According to the 2018 State Hazard Mitigation Plan, Missouri has a long history of flooding. Flooding along Missouri’s major rivers generally results in slow-moving disasters. Since river crest levels are forecast several days in advance communities in these active areas are given time to take protective measures against heightened water levels through means of evacuation and/or sandbagging efforts. Flash-flooding by contrast is a rapid rise of flood waters and has a history of causing a higher number of deaths and property damage.

Table 3.17 NFIP Participation in Callaway County

Community ID #	Community Name	NFIP Participant (Y/N/Sanctioned)	Current Effective Map Date	Regular-Emergency Program Entry Date
290049	Callaway County	Yes	9/5/12	9/1/83
N/A	Auxvasse	No	N/A	N/A
290007	Kingdom City	Yes	3/8/06	2/18/05
290052	Mokane	Yes	9/5/12	10/18/74
290051	Fulton	Yes	9/5/12	5/17/74
290015	Holts Summit	Yes	1/16/07	2/18/05
290548	New Bloomfield	Sanctioned	9/5/12	(s)5/2/76

Source: NFIP Community Status Book, 6/16/22; BureauNet, <http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book>; M= No elevation determined

Table 3.18 NFIP Policy and Claim Statistics as of 2018

Community Name	Policies in Force	Insurance in Force	Closed Losses	Total Payments
Callaway County	29	4,524,200	31	446,651.
Fulton	30	3,095,000	35	222,373.
Holts Summit	1	280,000	0	0
Mokane	3	265,400	37	245,630.86

Source: 2018 State Hazard Mitigation Plan

Repetitive Loss/Severe Repetitive Loss Properties

Properties with at least two flood insurance payments of \$1,000 or more in a 10-year period are categorized as Repetitive Loss Properties. Due to discrepancies on the Federal data sharing reports, the State was unable to provide accurate updated Repetitive Loss and Severe Repetitive Loss data. This also impacts information on Property Type and whether the properties are mitigated or non-mitigated. Because of these issues the data below was taken from the 2018 State Hazard Mitigation Plan.

Table 3.19 Callaway County Repetitive Loss Properties

Jurisdiction	# of Properties	Type of Property	# Mitigated	Building Payments	Content Payments	Total Payments	Average Payment	# of Losses
Callaway County	4	N/A	3	N/A	N/A	158,831.95	19,853.99	8
Fulton	5	N/A	0	N/A	N/A	152,992.83	9,562.05	16
Jefferson City	48	N/A	26	N/A	N/A	3,358,000.17	23,815.60	141
Mokane	6	N/A	3	N/A	N/A	166,041.04	6,641.64	25

Source: 2018 State Hazard Mitigation Plan

Severe Repetitive Loss (SRL): A SRL property is defined as a single family property 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 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. A single-family property can consist of one-to-four residences. Callaway County has one severe repetitive loss property that was mitigated.

Previous Occurrences

The floods of 1993 and 1995 were the worst repetitive flood events in Missouri history, according to the *Missouri State Hazard Mitigation Plan (2013)*. All levees in Callaway County were overtopped during the Flood of 1993. There was one death in the County during the 1993 Flood.

The City of Mokane and the unincorporated areas near the Missouri River experienced elevated loss statistics during the Missouri River floods of 1993 and 1995 as compared with damages in the remainder of the county.

In the summer of 2011, the Missouri River flooded again, this time stemming not from significant precipitation in Mid-Missouri Region, but from high precipitation and snow melt in Montana and North Dakota. Higher than normal rain and snow in the winter and spring of 2011 caused wide scale flooding several states including; North Dakota, South Dakota, Nebraska, Iowa, Kansas, and Missouri. According to the National Weather Service, the Upper Missouri River Valley received more rainfall in May 2011 than it does in an entire year. While Callaway County was spared from incurring damage to residences or businesses, unlike upriver neighbors, it was not spared from seepage through levee walls. All levee districts in Callaway County had to pump water from inside levee walls during June 2011 and July 2011.

In the spring of 2019 the Missouri River again saw levels nearing that of 1993.

Table 3.20 Flash Flood Events 2000-2020

ID	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
5146525	SOUTH PORTION	5/27/2000	0	0	0	0
5164688	CENTRAL PORTION	7/3/2000	0	0	0	0
5172632	COUNTYWIDE	8/7/2000	0	0	0	0
5291414	COUNTYWIDE	5/7/2002	0	0	0	0

5291588	COUNTYWIDE	5/9/2002	0	0	0	0
5291519	COUNTYWIDE	5/12/2002	0	0	0	0
5309555	SOUTH PORTION	8/18/2002	0	0	0	0
5386774	COUNTYWIDE	3/26/2004	0	0	0	0
5433382	COUNTYWIDE	1/12/2005	0	0	0	0
5516043	COUNTYWIDE	6/11/2006	0	0	0	0
128647	CONCORD	7/27/2008	0	0	0	0
138199	YOUNGERS	9/12/2008	0	0	0	0
168244	AUXVASSE	4/29/2009	0	0	0	0
183548	SHAMROCK	6/15/2009	0	0	0	0
183845	YOUNGERS	6/17/2009	0	0	0	0
188203	STEEDMAN	7/4/2009	0	0	0	0
200270	NEW BLOOMFIELD	10/8/2009	0	0	0	0
200412	YOUNGERS	10/22/2009	0	0	0	0
203393	WAINWRIGHT	11/15/2009	0	0	0	0
225215	BOYDSVILLE	4/24/2010	0	0	0	0
377631	BOYDSVILLE	4/30/2012	0	0	0	0
463139	GUTHRIE	5/31/2013	0	0	0	0
542345	YOUNGERS	9/1/2014	0	0	0	0
614794	PORTLAND	12/26/2015	0	0	0	0
660167	CEDAR CITY	8/1/2016	0	0	0	0
661553	YOUNGERS	8/2/2016	0	0	0	0
662719	CEDAR CITY	8/3/2016	0	0	0	0
662720	FULTON	8/3/2016	0	0	0	0
842386	YOUNGERS	6/22/2019	0	0	0	0
854921	READSVILLE	8/26/2019	0	0	0	0
922210	REFORM	6/3/2020	0	0	0	0

Probability of Future Events

Table 3.21			
Probability of Future Flooding Events			
EF-Scale	# of years with flood event (2000-2020)	Probability	Probability Rating
River flood	6	29%	High
Flash flood	13	62%	High

Table 3.22 Callaway County Riverine Flooding Events 2000-2020

ID	Location	Date	Deaths	Injuries	Property Damage	Crop Damage
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5251946	CALLAWAY (ZONE)	6/4/2001	0	0	0	0
5291277	CALLAWAY (ZONE)	5/8/2002	0	0	0	0
35717	(JEF)JFFRSN CITY MEM	5/8/2007	0	0	5000	20000
138200	HATTON	9/14/2008	0	0	0	0
457165	CEDAR CITY	6/1/2013	0	0	2000	5000
861548	CEDAR CITY	6/3/2019	0	0	2000000	0
Total			0	0	2007000	25000

Probability: High

Severity: Varies widely in planning area. High for Mokane, Medium for Fulton, Low for Holts Summit, New Bloomfield, Auxvasse, Kingdom City.

CHANGING FUTURE CONDITIONS CONSIDERATIONS

As precipitation is projected to increase, and in more extreme events, the risk of flooding could increase. This risk can be exacerbated by more and more construction that adds more impermeable surfaces that give large quantities of water nowhere to go.

VULNERABILITY

VULNERABILITY OVERVIEW

Flooding is a frequent occurrence in the planning area but the type and severity of flooding varies widely. Some jurisdictions must contend with the high flood waters of the Missouri River or its branches throughout the County. Others deal mostly with flash flooding of streets during periods of heavy rains. Some school districts are primarily concerned with the rerouting of buses due to road closures from flooding.

Potential Impact – Life

All types of flooding present a threat to human life. Small stream/urban stream flooding and flash flooding are particularly hazardous due to their quick onset. It is an ongoing struggle to educate the public concerning the very real hazard presented by flooded low water crossings and other flash flooding situations.

In addition to the risk of drowning, exposure to flood waters can result in infection or injury from sewage, agricultural runoff, and industrial chemicals. Flooded buildings present health risks from mold, chemicals, and electrical hazards.

Flooding also poses a threat to the livelihood of those farming in low lands; this is especially a problem near the Missouri River. When the river level is high for an extended period, water will seep up through the soil and cause additional flooding to that already caused by heavy rains. Standing water in fields may prevent planting at the optimal time for a successful harvest or damage/destroy crops during the growing season.

Potential Impact on Existing Development

Callaway County residents, structures, and infrastructure lying in or near the Missouri River Floodplain are all vulnerable to the effects of a major flood. Other structures not within designated floodplains are also vulnerable to the effects of flash flooding brought on by storm water or sheet flooding. It was found that only Fulton and the Callaway County (unincorporated area) have structures in the floodplain. It can be said with certainty that there are not fire stations, schools, nursing homes, hospitals, prisons, government centers, or police stations in the 100-year floodplain. The City of Fulton’s wastewater lagoon is directly next to the floodplain (technically not “in” the floodplain), but a berm protects the facility from flooding. Other communities have had recent lagoon and sewage treatment flooding issues. They have berms, but as reported in update meetings, the berms are not of use when the rainfall exceeds roughly four inches.

Potential Losses to Previous and Future Development

There is a high level of awareness in the planning area regarding the dangers and potential of flooding. Participation in the NFIP by Callaway County and the vulnerable communities means that floodplain ordinances are in place regulating development in the floodplain. It is also important that development projects are closely monitored to ensure compliance with all storm water requirements and regulations in order to minimize increases to flash flooding from development. This is increasingly crucial as it is now known that climate change is causing an increase in the type of heavy downpours which trigger flash flooding.

Hazard Summary by Jurisdiction

The Missouri River floods of 1993 and 1995 were devastating events for many parts of the Midwest United States. Changes in river management, including major wetland restoration projects along the river’s long course and the buyout of properties in the river floodplain have all helped to mitigate risk associated with riverine flooding in the planning area.

Callaway County (unincorporated area), Fulton, Holts Summit, Kingdom City, Mokane, New Bloomfield, and the Public Water Supply Districts are all at risk from riverine flooding because they have area in the 100-year flood plain. Auxvasse and all school districts have no vulnerability to flooding because they are not in the 100-year flood plain and do not report any serious flash flooding issues in their jurisdictions. None of the school districts have buildings lying within the 100-year flood plain. Structures not within designated floodplains are potentially vulnerable to the effects of flash flooding brought on by storm water or sheet flooding. Small-scale floods or flash flooding can impact a neighborhood or a city but are limited in their spatial extent.

SUMMARY OF VULNERABILITY

Large-scale floods, such as the 1993 flood, are devastating events for entire regions of the country. Not only was Mid-Missouri impacted, but the entire Midwest suffered large losses in life, property, and crop damage, which carried over to the rest of the United States. Transit routes were disrupted, people lost jobs, and crops never made it to market. Small-scale floods or flash flooding can impact a neighborhood or a city but are limited in their spatial extent.

The entire planning area is at risk from some type of flooding. The most common types of flooding in the area are flash and sheet flooding associated with heavy downpours. This type of flooding can impact a neighborhood or a city but are limited in their spatial extent. Flash flooding is of particular concern in the unincorporated parts of Callaway County, where roads can become impassable. Climate change is causing an increase in heavy downpours, and this will, in turn, most likely increase the frequency and/or severity of flash flooding.

Flooding of the Missouri River is a potential problem for the areas near the river and branches.

NFIP membership, floodplain regulations, and a high awareness of the threat of potential flooding all act to help mitigate the vulnerability to this hazard.

Problem Statement

Flooding and flash flooding are frequent occurrences in the planning area that pose a threat to life, livelihood, property, and infrastructure. Risk to these things vary across the planning area with highest risk being to lands and jurisdictions along the Missouri River and creeks and streams that feed it. All jurisdictions can be impacted by flash flooding in one way or another. As a result of past events ordinances and guidance has been put in place to help control development in hazard areas. Proper stormwater handling, warning systems, elevated low-water crossings, and river bank restoration are all actions to aid in reduction of flood damage in the planning area.

3.4.2 Levee Failure

DESCRIPTION OF HAZARD

A levee is defined by the National Flood Insurance Program as “a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.”

Federally authorized levees are typically designed and built by the US Army Corps of Engineers in cooperation with a local sponsor then turned over to a local sponsor to operate and maintain.

Non-federal levees are designed, built, and managed by a non-federal entity.

There is no single agency with responsibility for levee oversight. The Corps of Engineers has specific and limited responsibilities for approximately 2,000 levees nationwide through their Levee Program.

The responsibilities of local levee owners or sponsors are broad and may include levee safety; land use planning and development; building codes; and operations, maintenance, repair, rehabilitation, and replacement of the levee. The certification of levees for FEMA’s National Flood Insurance Program is also the responsibility of the local levee owners or sponsors.

Federally authorized and some non-federal levees may be eligible for Corps of Engineers rehabilitation assistance funding.

This assessment discusses the major levees in the planning area; these levees are owned and operated by levee districts. There are also several privately owned levees which are maintained by their owners; official data on the locations of these private levees is not available.

The USACE notes that there is a “large universe of private and other non Corps levees that have not been inventoried or inspected/assessed. We don’t know the size of this universe, where the levees are located, their condition, or the consequences of failure, loss of life being of paramount concern.”

Levee failure, according to FEMA, can occur by the following means:

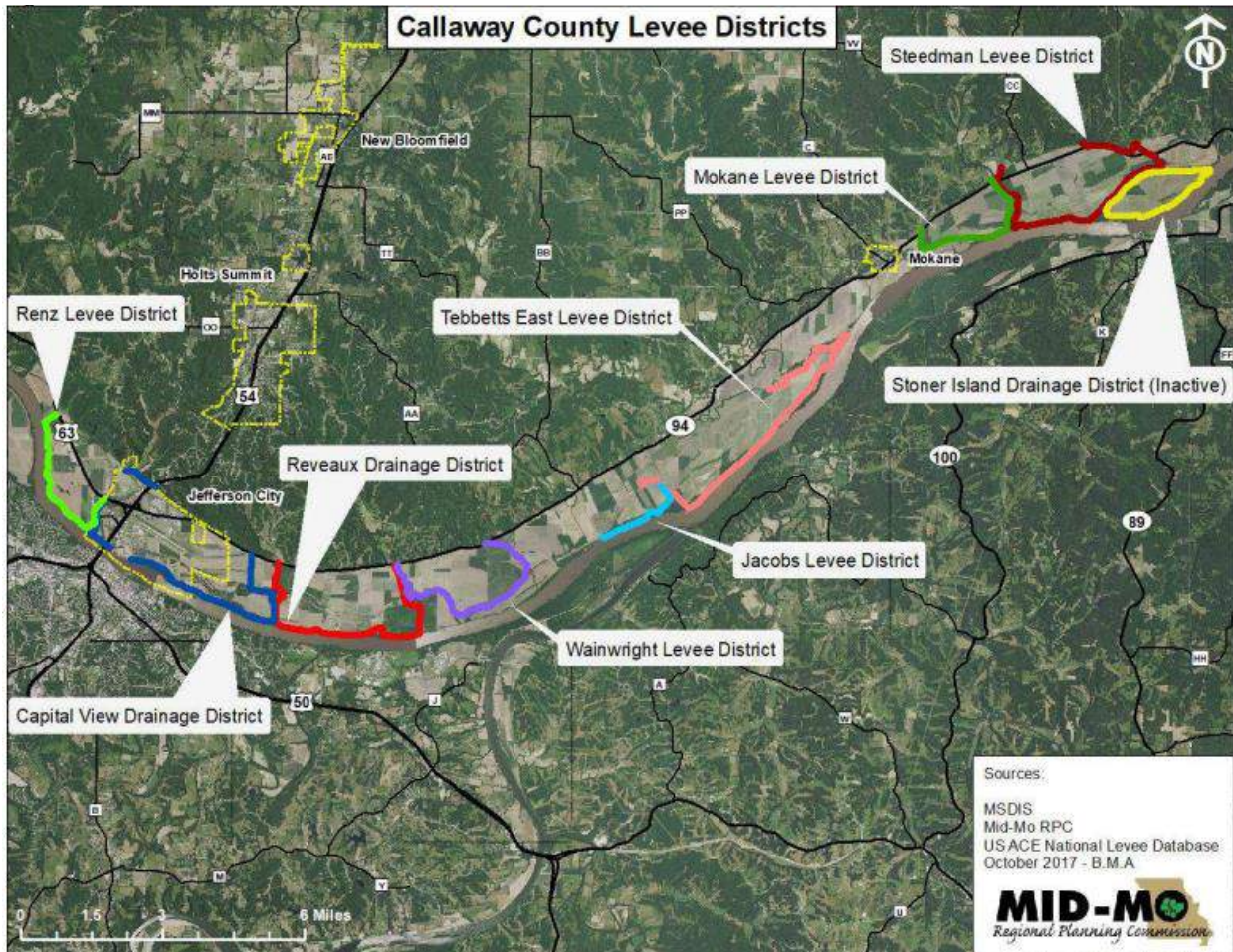
- **Overtopping** - When a large flood occurs, water can flow over a levee. The stress exerted by the flowing water can cause rapid erosion.
- **Piping** - Levees are often built over old stream beds. Flood waters will follow these sub grade channels causing a levee to erode internally thereby allowing flood waters to rupture the levee structure.
- **Seepage and Saturation** - If flood waters sit up against a levee for a long period, the levee may become saturated and eventually collapse.
- **Erosion** - Most levees are constructed of sand or soil which erodes easily under high-velocity flood waters.

- **Structural Failures** - Lack of regular maintenance is a key reason levees fail at gates, walls, or closure sites.

Location

There are 7 major levees in the Planning Area. All are located in Unincorporated Callaway County with the exception of the Capitol View Drainage District which touches and encompasses a portion of Jefferson City. The other six levees protect agricultural land in the southern portion of the county between Highway 94 and the Missouri River. All seven major levee systems in the Planning Area are part of the U.S. Army Corps of Engineers Rehabilitation Program and are currently eligible for levee rehabilitation assistance should they receive damage during a flood event.

Map 3.4 Callaway County Levees



As part of this program, a levee district is eligible for USACE levee rehabilitation assistance if its levee receives damage during a flood event. The levee must maintain a *minimally acceptable* standard to remain eligible for the assistance. According to the USACE, “The rating is based on the levee inspection checklist, which includes 125 specific items dealing with

operation and maintenance of levee embankments, floodwalls, interior drainage, pump stations, and channels.”

Levee System Inspection Ratings	
Acceptable	All inspection items are rated as Acceptable.
Minimally Acceptable	One or more 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 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.

The levee ratings from the most recent inspections, along with other information, are shown in Table 3.21.

Table 3.23 Major Levees in Planning Area

Levee Name	Segment Length	Levee Acreage	Inspection Date	Rating
Renz Levee District	5.8	980	8/14/2020	4
Capital View Drainage District	8.27	3300	11/14/2018	4
Cedar Creek Drainage	2.7	N/A	10/10/2017	N/A
Jacobs Levee	2.5	405	7/31/2018	4
Mokane Levee	3.62	960	7/31/2018	4
Reveaux Drainage	6.6	2400	7/31/2018	4
Steedman Levee District	7.39	2200	7/31/2018	4
Stoner Island Drainage	5.26	N/A	10/7/2017	N/A
Tebbetts East Levee	8.7	2400	7/31/2018	4
Wainwright Levee	7.48	1640	8/14/2020	4

Sources: USACE National Levee Database; USACE Levee Inspection Reports

Extent/Magnitude/Severity

Levee failure is typically an additional or secondary impact of another disaster such as flooding or earthquake. Levee failure often occurs during a flood event, causing destruction in addition to what would have been caused by flooding alone. A breach on an agricultural levee can not only cause immediate crop loss but sand and silt brought in from a levee break can impact the growing medium for years to come.

Regular maintenance and inspection of the levees is critical. For the major levees in the planning

area, the potential of major failure is connected to flooding of the Missouri River, a hazard with a longer speed of onset than many other hazards. This longer speed of onset allows time to mitigate and prepare for potential failure as flooding threatens.

Previous Occurrences

According to the US Army Corps of Engineers, all levees in Callaway County and most of the surrounding counties failed during the 1993 Flood, resulting in the inundation of land and structures being protected. Structures that were affected by the levee breach include the Jefferson City Airport, Cedar City (now annexed by Jefferson City), the Jefferson City Wastewater Treatment Plant, and several residences and businesses. All of these inundated areas are within the boundary of the Capitol View Drainage District.

During the summer of 2011, Missouri River flooding caused seepage of water into all levee districts in Callaway County. This seepage was dealt with by mechanical pumps throughout the area. While there was a loss in crop production, there were no structures impacted by this flooding.

In 2019, the Capital View levee was overtopped. This allowed water to inundate the JC airport and areas of North Jefferson City similar to in 1993. Overtopping occurred throughout all the levees in the county during the flooding event which left structures, farm land, and 94 hwy underwater for an extended period of time.

Probability of Future Events

Probability: Moderate

With regular maintenance the probability of a levee break is low but with the high rate of flooding along the Missouri river the potential for a break is never zero. Overtopping has happened more recently but is not overly common.

Changing Future Conditions Considerations

As precipitation is projected to increase, and in more extreme events, the risk of flooding could increase. Prolonged elevated water levels can make maintenance and repairs difficult to accomplish only increasing the risk for a break through scouring and seepage.

Vulnerability Overview

The seven main levees in the Planning Area will be addressed in this assessment. Vulnerability assessments are not being completed for the private levees in the Planning Area due to the lack of official data on their locations. All seven levees in the Planning Area are agricultural levees. Agricultural levees are usually built to withstand a 50-year flood but these three levees fall well below that protection level at 10 to 25 year flood event levels.

Potential Losses – Life

Levee failure presents a flooding threat to life. The longer period of onset associated with failure of levees along the Missouri River would minimize the threat of actual drowning; however, drowning could still occur. The greater threat from levee failure would be exposure to flood waters with possible resulting infection or injury from sewage, agricultural runoff, and industrial chemicals. Flooded buildings present health risks from mold, chemicals and electrical hazards.

Potential Impact on Existing Development

Structures in Callaway County that would be vulnerable to the effects of levee failure would include those that lie in areas in or near the Missouri River floodplain and its tributaries. Since the 1993 Flood many structures have been relocated, bought out, abandoned, elevated, or remodeled; this has reduced the amount of vulnerable structures and people in areas where levees could potentially fail. The Capitol View Drainage District protects two important facilities for Jefferson City along with several businesses, a few homes, and farmland. The Jefferson City Waste Water Treatment Facility and the Jefferson City Memorial Airport are both protected by this levee.

Potential Impact on Future Development

Impact on future development is directly related to floodplain management and regulations set forth by the county and individual communities through levee management and regulations which are not clearly defined. Because most private levees in Callaway County are not regulated or inspected by any one agency it is difficult to predict what path future development will follow. It is important to note that levees in Callaway County are located in designated floodplains. This means that all new construction in these areas fall under Callaway County's floodplain ordinances and must adhere to those guidelines.

SUMMARY OF VULNERABILITY

Jurisdictions: Callaway County (unincorporated areas near the Missouri River), North Jefferson City, and the levee districts themselves are at risk for levee failure.

The levee districts have raised the levees since the Flood of 1993 and added pipes for drainage from behind the levees. The elevating of the levees offers greater protection for lower flood levels but puts the areas protected by the levees at greater risk should they be overtopped.

Each levee district protects various assets and the warning time afforded by a hazard such as levee failure, which has a long period of onset, will allow for preparations and evacuations to take place, should the need arise.

Problem Statement

Levee failure is not a common occurrence in the planning area. The last instance of levee failure in the planning area was in 1993 when records were set across the state for flooding levels. Levee failure is usually a slow process that gives people time to evacuate areas at risk.

Keeping up with maintenance and frequent inspections are actions of mitigation to help prevent such breakages that could lead to property damage and crop loss.

3.4.3 Dam Failure

DESCRIPTION OF HAZARD

A dam is defined by the National Dam Safety Act as an artificial barrier which impounds or diverts water and is:

1. more than 6 feet high and stores 50-acre feet or more or
2. 25 feet or more high and stores more than 15-acre feet.

Based on this definition, there are over 80,000 dams in the United States. Over 95% are non-federal, with most being owned by state governments, municipalities, watershed districts, industries, lake associations, land developers, and private citizens.

Dam owners have primary responsibility for the safe design, operation and maintenance of their dams. They also have responsibility for providing early warning of problems at the dam, for developing an effective emergency action plan, and for coordinating that plan with local officials. The State has ultimate responsibility for public safety, and many states regulate construction, modification, maintenance, and operation of dams, and also ensure a dam safety program.

Dams are typically constructed of earth, rock, concrete, or mine tailings. A majority of dams are of earthen construction. Missouri's mining industry has produced numerous tailing dams for the surface disposal of mine waste. These dams are made from mining material deposited in slurry form in an impoundment. Other types of earthen dams are reinforced with a core of concrete and/or asphalt. The largest dams in the state are built of reinforced concrete, and are used for hydroelectric power.

Dam failure is the uncontrolled release of impounded water resulting in downstream flooding, affecting both life and property. Dam failure can be caused by any of the following:

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

These three types of failures are often interrelated. For example, erosion, either on the surface or internal, may weaken the dam or lead to structural failure. Similarly, a structural failure may shorten the seepage path and lead to a piping failure.

Dam Hazard Classification - Dams in Missouri have been classified according to both a federal and state system with regards to potential hazard posed.

The **federal classification system** is based upon the probable loss of human life and the impact on economic, environmental and lifeline interests from dam failure. It should be noted that there is always the possibility of loss of human life when a dam fails; this classification system does not account for the possibility of people occasionally passing through an inundation area which is usually unoccupied (e.g. occasional recreational users, daytime user of downstream lands, etc.)

The **state classification system** is based upon the type and number of structures downstream from a dam. An inventory of all the dams of the state was done in the late 1970s and early 1980s, according to Glenn Lloyd, Civil Engineer and Dam Safety Inspector with the Dam Safety Program of the MO Department of Natural Resources (DNR). All of the known dams were classified by the state at that time.

A summary of the federal and state classification systems, how the two systems relate to each other, and inspection requirements for regulated dams is shown in Table 3.22 and 3.23.

Table 3.24 MoDNR Dam Hazard Classification Definitions

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

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

Table 3.25 NID Dam Hazard Classification Definitions

Hazard Class	Definition
Low Hazard	No probable loss of human life; low economic and/or environmental loss; loss principally limited to owner's property
Significant Hazard	No probable loss of human life but potential economic loss, environmental damage, disruption of lifeline facilities or other impact of concern
High Hazard	Probable loss of human life

Source: National Inventory of Dams

Dam Regulation in Missouri

Pursuant to Chapter 236 of the Revised Statutes of Missouri, a dam must be 35 feet or higher to be state regulated; regulation makes a dam subject to permit and inspection requirements. For regulated dams, the state classification system dictates the required inspection cycle. According to the Association of State Dam Safety Officials, 5,113 dams in Missouri have been classified and only 685 are regulated by the state.

The inspection cycle for regulated dams allows for a regulated dam’s classification to be updated when appropriate. Classification is a dynamic system; development can easily change the situation downstream. A regulated dam in Missouri would have its classification appraised at least once every 5 years.

In addition, the DNR database of dams in Missouri reflects only the known dams; a dam less than 35 feet in height which was built since the inventory was taken over 30 years ago may not appear in the database.

There are currently 107 dams in Callaway County according to the Department of Natural Resources and NID database. Of these, only 20 are regulated.

Hazard Category	Regulated Dams	Unregulated Dams	All County Dams	Percentage of Total Dams
High	9	21	30	28%
Significant	3	4	7	6%
Low	8	62	70	65%
Total	20	87	107	100

One must use caution in assuming the classifications of non-regulated dams are currently accurate. It is very probable that, for most of the non-regulated dams, the classification does not take into account over 30 years of development and change in Callaway County.

Again, it is important to note that, according to information from Missouri DNR, much of this data, perhaps most of it, for the unregulated dams has not been updated since the dam survey was first conducted in the late 1970s and early 1980s. The heights of the unregulated dams may be, in some cases, the only currently reliable information.

Location

The dams in the Planning Area are located in unincorporated Callaway County, Fulton, and Holts Summit. The regulated Lake Mykee Dam is now located in Holts Summit. It is critical to note that Callaway County has several dams that are not accounted for in the state database. The future addition of these undocumented dams into the state database would be a prudent step forward in mitigating for the effects of dam failure.

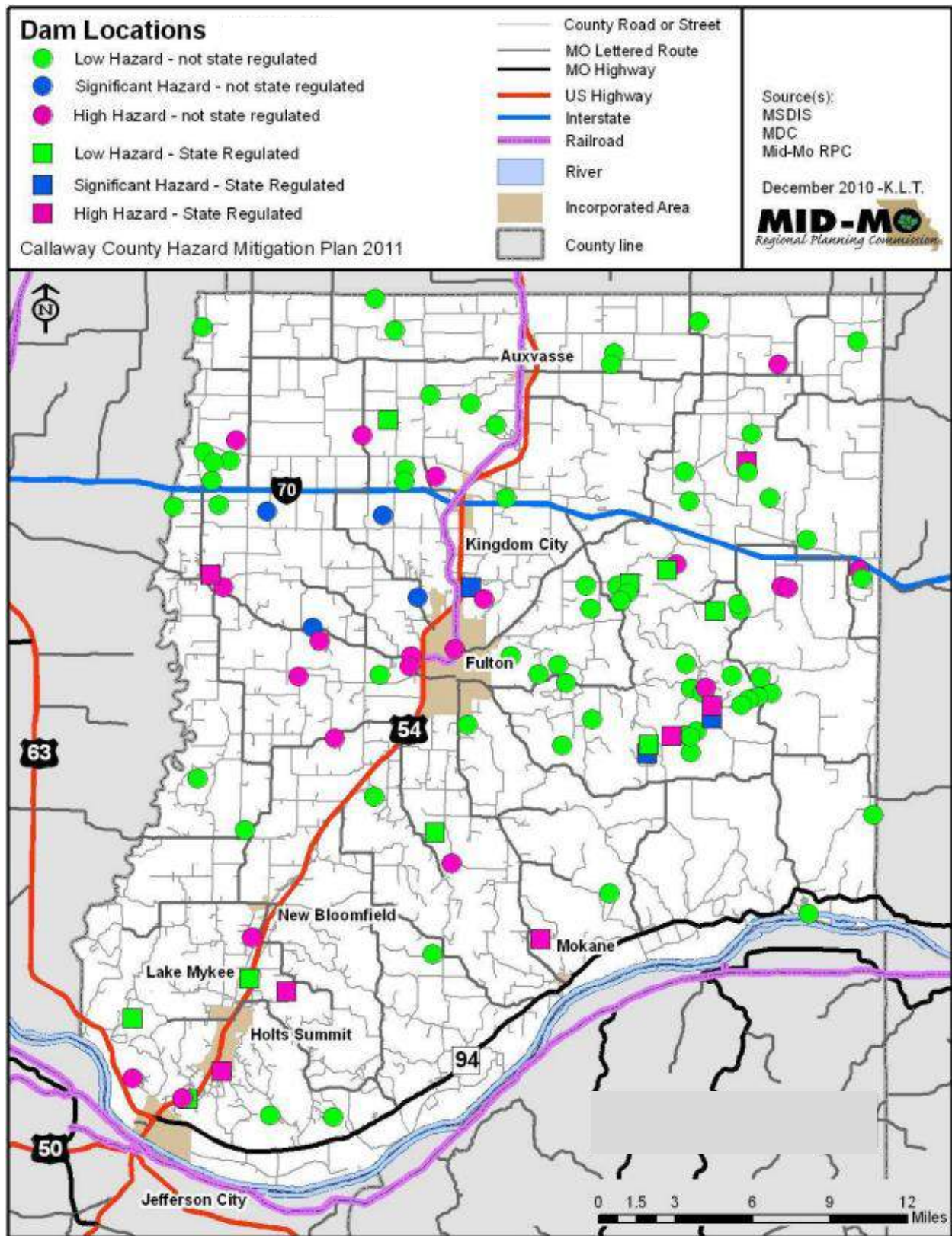
Table 3.27 High Hazard Dams in Callaway County

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
Baumgartner Lake Dam	Yes	61.5	742	11/8/2016	Cason Branch	None	N/A	James Baumgartne

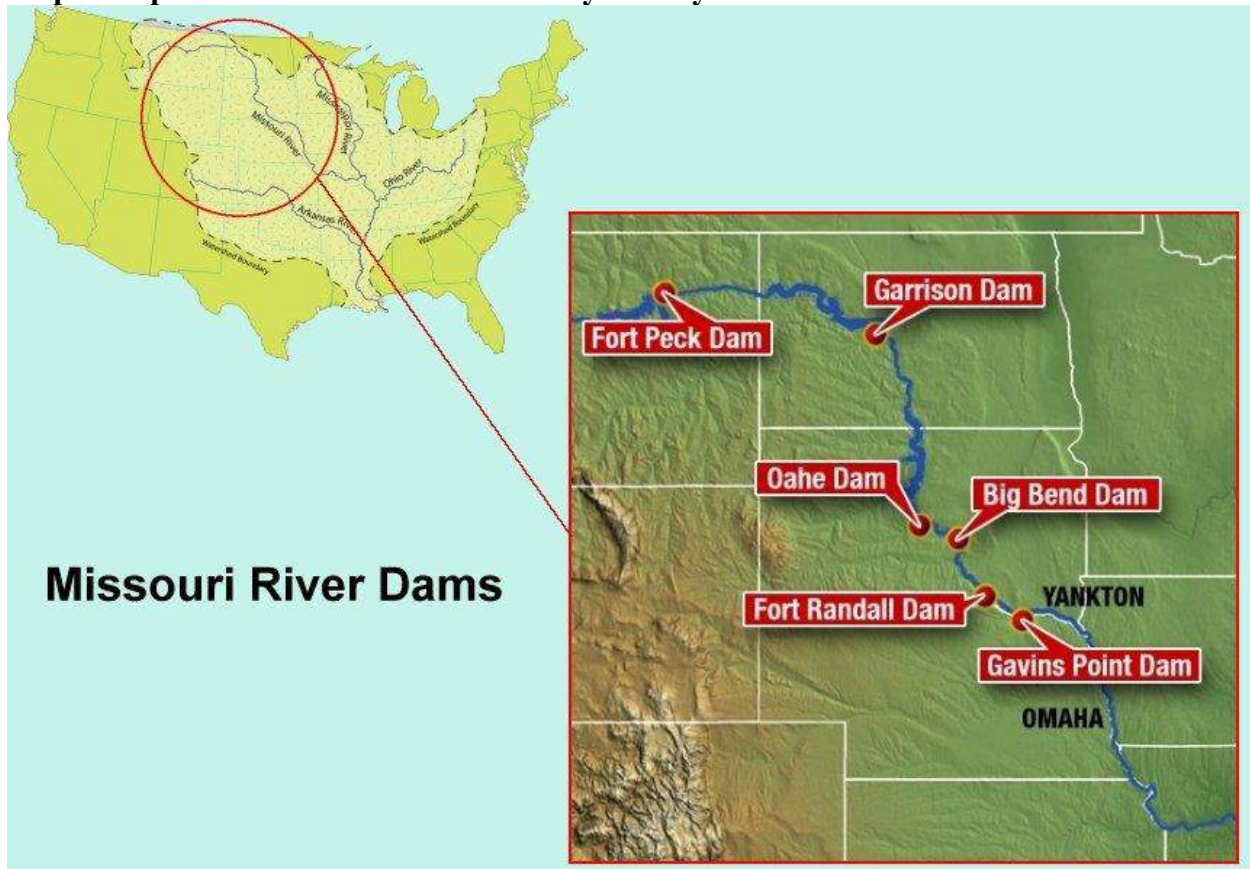
Wildwood Lot	Yes	58	1237	11/8/2016	Cow Creek	None	N/A	Wildwood HOA
Trimble Lake Dam-East	No	48	53	7/17/1986	Watershed	Jeff City	<2	JL Trimble
Whetstone Creek Big Lake Dam	Yes	47	568	1/27/2015	Whetstone Creek	None	N/A	MDC
Lake Lahweeno Dam	Yes	46	848	10/27/2015	Cow Creek	Mokane	<5	Kingdom of Callaway Es
Katy Lake Dam	Yes	45	273	7/28/2016	Ewing Creek	Mokane	<2	Patricia Eicks
Lake Mykee Dam	Yes	44	748	2/16/2017	Cason Branch	Holts Summit	<1	N/A
Little Dixie Lake Dam	Yes	42	4849	3/10/2016	Owl Creek	Millersburg	<1	MDC
Forest Lake Dam	Yes	38	129	9/27/2016	Niemans Creek	Jeff City	<5	N/A
Henke Lake Dam	No	33	412	2/13/1990	Prairie Fork	Tebbetts	<10	Elmer Henke
Bass Lake Dam	No	33	530	N/A	Cow Creek	None	N/A	Kingdom of Callaway Es
American Cent Corp. Upper	No	30	48	N/A	Watershed	None	N/A	American Central
Covington Lake Dam	No	30	128	N/A	Harrison Creek	None	N/A	JF Covington
Gurwit/Lewis Lake Dam	No	30	96	N/A	Turkey Creek	Jeff City	<2	Monte Gurwit
G7 Cattle Dam West	No	30	401	N/A	Prairie Fork	None	N/A	G&G Cattle Co
Trimble Lake Dam-West	No	30	80	N/A	Watershed	Jeff City	<1	JL Trimble
Baumgartner Dam	No	29	109	6/1/1979	Owl Creek	Millersburg	<1	JC Baumgartne
Renner Dam	No	28	180	N/A	Richland Creek	Fulton	<5	Kerry Renner
Guthrie Lake Dam	No	26	436	N/A	McKinney Creek	Kingdom city	<2	Robert Guthrie
G&G Cattle Dam East	No	25	160	N/A	Prairie Fork	None	N/A	G&G Cattle Co
Hrin Lake Dam	No	25	227	N/A	Auxvasse Creek	None	N/A	John Hrin
Althiser Lake Dam	No	25	94	N/A	Davis Creek	New Bloomfield	<10	Lloyd Althiser
Hauck Lake Dam	No	23	104	N/A	Stinson Creek	Fulton	<1	Gordon Hauck
Meadow Brook Dam	No	22	82	N/A	Cason Branch	New Bloomfield	<1	Meadow Lake Est
Lac Piete Dam	No	22	35	N/A	Stinson Creek	Fulton	<1	Chris Subdivision
Eve Lake Dam	No	21	112	N/A	Davis Creek	None	N/A	Edward Kirchof
Lehenbauer Lake Dam 35	No	20	482	N/A	Rocky Branch	None	N/A	Harry Lehenbauer
Reeds Lake Dam	No	20	268	N/A	Middle River	None	N/A	Maurice Bonard
Vaughn Dam	No	18	183	N/A	Manacle Creek	Millersburg	<10	Jack Vaughn
Junior Lake Dam	No	13	125	N/A	Stinson Creek	Fulton	<1	William Woods Col

Sources: Missouri Department of Natural Resources, <https://dnr.mo.gov/geology/wrc/dam-safety/damsinmissouri.htm> and National Inventory of Dams, http://nid.usace.army.mil/cm_apex/f?p=838:12.

Map 3.5 Callaway County Dams



Map 3.6 Upstream Dams Outside Callaway County



MO Coalition for the Environment <https://moenvironment.org/blog/missouri-river-dams/>

There are in general no upstream dams that would impact Callaway County if they were to fail. Gavins Point is the closest upstream dam on the Missouri River and the destruction of it would be noticed by rising river levels in the planning area but unless the planning area was already under major flooding the majority of the inflow of extra water would be unlikely to impact any communities. Agricultural land right along the Missouri River could have some inundation.

Strength/Magnitude/Extent

The speed of onset of a dam failure can vary considerably. In most cases, regular inspections, either formal or informal, will promote a longer period of onset and allow for possible mitigation. Unfortunately, the current lack of required dam inspections increases the likelihood of dam conditions being ignored by owners – a situation which promotes a quicker speed of onset and an increased threat from the hazard.

The extent of hazard which a dam failure poses is also influenced by the reservoir size.

Previous Occurrences

There was a dam failure in Callaway County in 2016, in neighboring Boone County in 2008, and a near failure in Cole County in 2009. The Glover's Spring Lake Dam failed in August 2016

after two days of heavy rainfall causing flash flooding that swept away parts of the road and bridge on County Road 1011. According to a Columbia Tribune article, prior to the dam's failure, homes near the dam experienced flooding due to the rising waters within the lake. Following the failure, there was no reported injuries or property damage, but there was damage to the land around the dam. This was a non-regulated dam.

All of these dam failures indicated that this is a serious problem which needs attention. Many of Missouri's smaller dams are becoming a greater hazard as they continue to age and deteriorate. Hundreds of dams need to be rehabilitated, but lack of available funding and often questions of ownership loom as obstacles difficult to overcome.

Probability of Future Events

Probability: Low
Severity: High

30 dams in Callaway County are considered to pose high hazard should there be a dam break. Of these dams, 21 of them are not regulated by the state and thus not subject to inspection requirements. Although there has been an incidence of dam failure, it is still an unlikely occurrence.

Changing Future Conditions

The future of climate change on dam failure is largely tied to future precipitation events. Since precipitation is predicted to increase in the future with potential for more vigorous rainfall events, this creates an elevated risk of flooding and pressure on dams and spillways to handle the extra water amounts. This elevated pressure brings about the importance for regular inspections and maintenance, as well as the need for engineering with higher flood levels in mind.

VULNERABILITY

Vulnerability Overview

There are 30 dams in the planning area classified by the state as High Hazard; only 9 are regulated by the State of Missouri and inspected on a regular basis. There are 77 dams in the planning area classified as significant or low hazard.

The Planning Committee disputed the accuracy of the classification of many of these High Hazard dams due to the current lack of any buildings within the downstream distance which could reasonably be considered to be impacted by a dam failure.

The total damage sustained by a dam failure would depend on many varying factors such as the size and location of the dam, advance warning of the possibility of a break, the amount of water released, time and season of the break, presence/absence of debris carried by the water, structures downstream, and the presence/absence of people in the downstream area.

It was the assessment of the Planning Committee, after inspection and discussion of the dam location maps, that the vulnerability rating for dam failure in the planning area should be low. Despite this, the vulnerability rating of dam failure is considered high due to the sheer number of high hazard dams within the county.

Potential Impact – Life

There is the very real danger of injury or loss of life with a dam failure event. This threat is recognized and built into the dam classification system.

Potential Impact on Existing Development

Most of the dams in the planning area are located in unincorporated Callaway County. The cities of Fulton and Holts Summit have dams inside their city limits.

The City of Holts Summit has one dam located on the southern boundary of the community. Upon evaluation of the downstream side of the dam, the City has deemed this dam to be of no risk to life or property. Lake Mykee Dam is also a part of Holts Summit after the annexation of Lake Mykee into Holts Summit. Although there are not a significant number of properties below this dam, Highway 54 and Baumgartner Dam are in the path of a potential dam failure. As stated in the Lake Mykee Dam Emergency Action Plan, Baumgartner Dam would likely fail if Lake Mykee Dam failed; Baumgartner Dam is a state regulated high hazard dam.

Without specific inundation studies, it is difficult to know the exact areas which would be impacted by the failure of these dams.

Potential Impact on Future Development

Dam Failure has the potential to impact future development in the county and its jurisdictions. Because many dams in Callaway County are privately owned and not regulated by the state the potential for development below aging or unsafe dams is an issue that needs to be addressed. If development occurs without knowledge of problem dam that may lie upstream, that development is put in jeopardy. Future impacts may be addressed by inundation studies being done by the Natural Resources Conservation Service's Water Resources Center.

Hazard Summary by Jurisdiction

Most of the dams in the planning area are located in unincorporated Callaway County, however, Fulton and Holts Summit have dams within their city limits that could pose a threat. Dam failure is not an issue for Auxvasse, New Bloomfield, Fulton Public Schools, New Bloomfield R-III Schools, North Callaway R-I Schools, and South Callaway R-II Schools. Even though the Fulton School District encompasses the City of Fulton where there are dams, the structures of these educational institutions are not within the projected inundation areas of the dams. The unregulated dam located within Holts Summit does not pose a threat to any structures within the city.

Problem Statement

Much like flash flooding, the risk in a dam failure to life and property comes from the sudden rush of water downstream. Development in the inundation zone of a high hazard dam poses a risk to life and structure.

3.4.4 Earthquakes

DESCRIPTION OF HAZARD

The United States Geological Society (USGS) describes an earthquake as “a sudden movement of the earth’s crust caused by the release of stress accumulated along geologic faults or by volcanic activity.” Earthquakes can be one of the most destructive forces of nature causing death, destruction of property, and billions of dollars of damage.

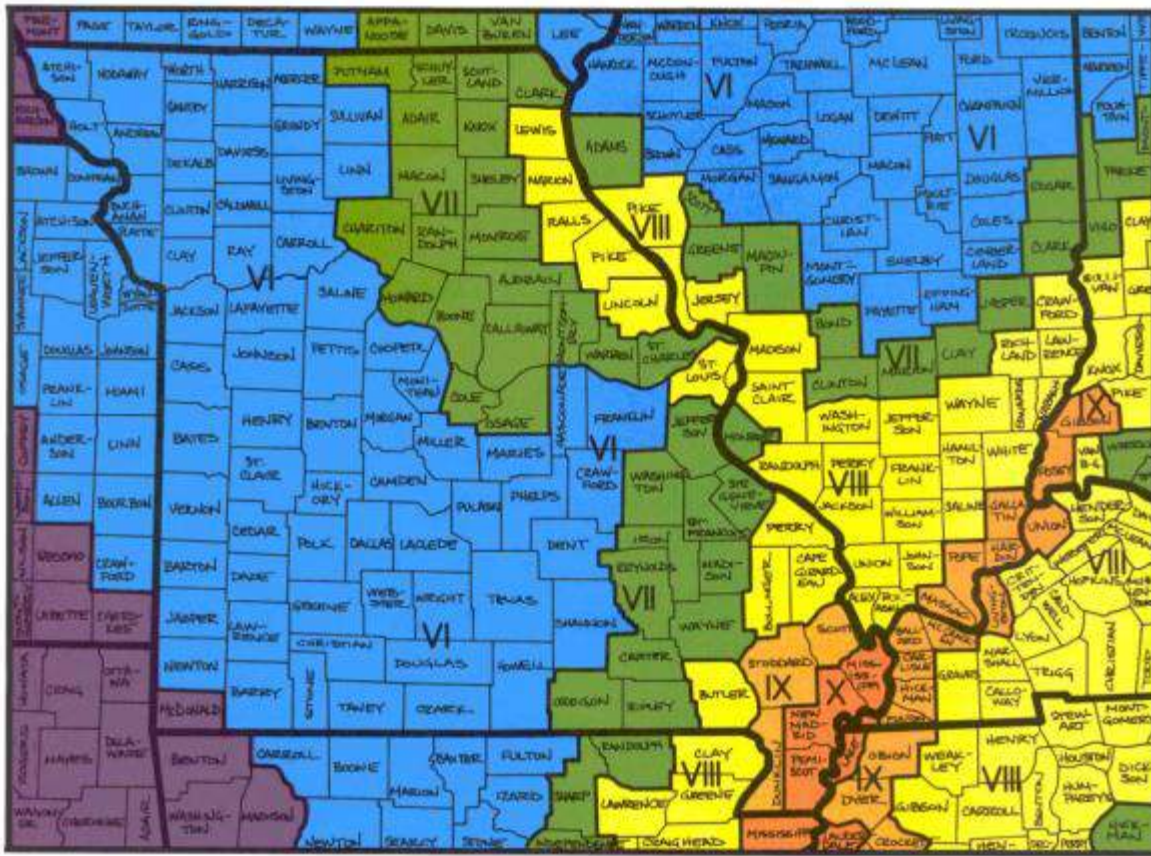
The New Madrid Seismic Zone (NMSZ), which runs through southeastern Missouri, is the most active seismic zone east of the Rocky Mountains. Any hazard mitigation planning in Missouri must, of necessity, take possible earthquakes into account.

Missouri and much of the Midwest can feel earthquakes from very far away because the geology of the area is more amenable to ground shaking than the California geology. New Madrid earthquakes can cover up to twenty times the area of typical California earthquakes because of this differing geology.

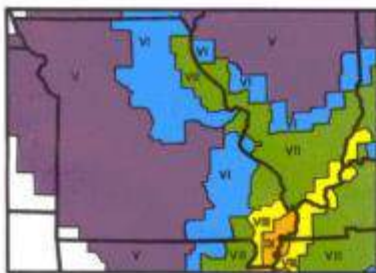
Location

The entire planning area is at risk for the effects of an earthquake along the New Madrid Seismic Zone. Areas close to the Missouri River may be particularly vulnerable.

Map 3.7 Earthquake Intensity Zones



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



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

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

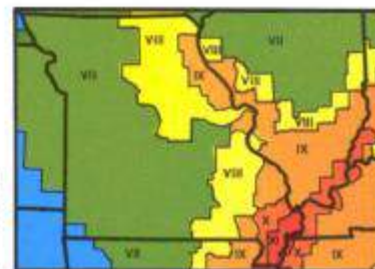
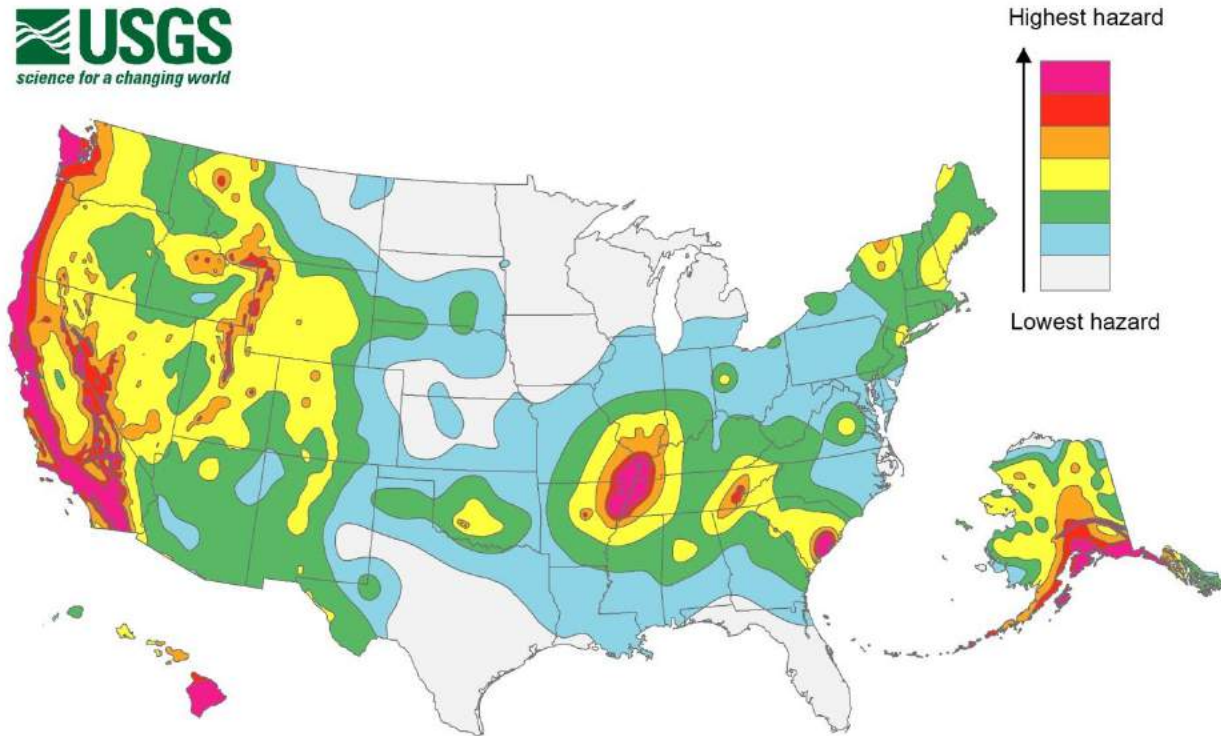


Table 3.28 Modified Mercalli Intensity Scale

Figure 4.38	
Modified Mercalli Intensity Scale	
I. Instrumental	Not felt by many people unless in favorable conditions.
II. Feeble	Felt only by a few people at best, especially on the upper floors of buildings. Delicately suspended objects may swing.
III. Slight	Felt quite noticeably by people indoors, especially on the upper floors of buildings. Many do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.
IV. Moderate	Felt indoors by many people, outdoors by few people during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rock noticeably. Dishes and windows rattle alarmingly.
V. Rather Strong	Felt outside by most, may not be felt by some outside in non-favourable conditions. Dishes and windows may break and large bells will ring. Vibrations like large train passing close to house.
VI. Strong	Felt by all; many frightened and run outdoors, walk unsteadily. Windows, dishes, glassware broken; books fall off shelves; some heavy furniture moved or overturned; a few instances of fallen plaster. Damage slight.
VII. Very Strong	Difficult to stand; furniture broken; damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken. Noticed by people driving motor cars.
VIII. Destructive	Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture moved.
IX. Ruinous	General panic; damage considerable in specially designed structures, well designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X. Disastrous	Some well built wooden structures destroyed; most masonry and frame structures destroyed with foundation. Rails bent.
XI. Very Disastrous	Few, if any masonry structures remain standing. Bridges destroyed. Rails bent greatly.
XII. Catastrophic	Total damage - Almost everything is destroyed. Lines of sight and level distorted. Objects thrown into the air. The ground moves in waves or ripples. Large amounts of rock may move position.
Source: http://en.wikipedia.org/wiki/Mercalli_intensity_scale	

The below map shows the seismic hazards across the United States. The planning area located in the center of the United States is included in zone VII, which is displayed in green.

Map 3.8 Earthquake Risk Zones



Source: United States Geological Survey at https://earthquake.usgs.gov/hazards/hazmaps/conterminous/2014/images/HazardMap2014_1g.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 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

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.

Earthquakes along the New Madrid Seismic Zone with magnitudes around 6.0 or greater would be of concern for the planning area.

Previous Occurrences

Historical quakes along the New Madrid Seismic Zone in southeastern Missouri have been some of the largest in U.S. history since European settlement. The Great New Madrid Earthquake of 1811-1812 was a series of over 2000 quakes, which caused destruction over a very large area. According to information from Missouri SEMA's Earthquake Program, some of the quakes measured at least 7.6 in magnitude, and five of them measured 8.0 or more.

The 1811-1812 quakes changed the course of the Mississippi River. Some of the shocks were felt as far away as Washington D.C. and Boston.

The first federal disaster relief act was a result of the Great New Madrid Earthquake of 1811-1812. President James Madison signed an act into law that issued "New Madrid Certificates" for government lands in other territories to residents of New Madrid County who wanted to leave the area.

Probability of Future Events - Moderate

It is difficult to predict the probability of an earthquake occurring along the New Madrid Seismic Zone which would be significant enough to affect the planning area. The following information from MO DNR helps to illustrate why this is difficult:

The active faults in the NMSZ are poorly understood because they are not expressed at the ground surface where they can be easily studied. The faults are hidden beneath 100- to 200-foot thick layers of soft river deposited soils called alluvium.

Microseismic earthquakes (magnitude less than 1.0 to about 2.0), measured by seismographs but not felt by humans, occur on average every other day in the NMSZ (more than 200 per year).

Active faults that have generated dangerous earthquakes in historic times or the recent geologic past (the last 10,000 years) are not always microseismically active. In fact, in some settings these quiet faults are considered the most dangerous ones because high built up stress has locked the two sides of the fault together thereby preventing the microseismic earthquakes. This is thought to happen as a prelude to a major rupture of the fault. It is not known if faults of this type exist in the NMSZ. If they do exist there is no easy way to locate them.

If one looks strictly at the historical record for earthquakes of 6.5 magnitude or greater, there have been 2 years (1811 and 1812) out of the last 204 years in which such earthquakes have occurred. This equals less than 1% probability in any given year ($\text{Probability} = 2/204 * 100 =$

0.98%). However, there were many serious quakes in just the two years of 1811 and 1812, according to MO DNR.

VULNERABILITY

Vulnerability Overview

Severity: High

Potential Impact - Existing Structures

The intensity of an earthquake refers to the potentially damaging effects of a quake at any particular site. An earthquake of a specific magnitude will have different intensities depending on a location’s distance from the epicenter of the quake, intervening soil type, and other factors.

The pertinent information for Callaway County is summarized in Table 3.27.

Table 3.29 Projected Earthquake Hazard for Planning Area			
Probability of Occurrence (2002-2052)	Intensity in Planning Area (MMI**)	MMI** Descriptor	Expected Damage
25-40%	VI	"Strong"	Felt by all; many frightened and run outdoors, walk unsteadily. Windows, dishes, glassware broken; books fall off shelves; some heavy furniture moved or overturned; a few instances of fallen plaster. Damage slight.
7-10%	VII	"Very Strong"	Difficult to stand; furniture broken; damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken. Noticed by people driving motor cars.

* New Madrid Seismic Zone; ** Modified Mercalli Intensity Scale

Source:<http://dnr.mo.gov/geology/geosrv/geores/techbulletin1.htm>.

In 2008, the Mid-America Earthquake Center mapped the expected probability of at least moderate damage to electric power facilities from a 7.7 magnitude earthquake in the NMSZ; such damage was considered “highly unlikely” in the planning area. This correlates well with the projected damage to *poorly* built structures from a 7.6 magnitude quake.

Map 3.13 Electric Facility Damage Rate

In 2002, U.S. Geological Survey (USGS) and the Center for Earthquake Research and Information (CERI) at the University of Memphis released the following expectations for earthquakes in the NMSZ in following 50 years:

- 25-40% percent chance of a magnitude 6.0 and greater earthquake.

1. Annualized Loss Scenario based on eight earthquake return periods (100, 200, 500, 750, 1000, 1500, 2000, and 2500 years)
2. 2% Probability of Exceedance in 50 Years Scenario – a “worst case scenario”

The analyses used demographic data based on the 2010 Census; site-specific essential facility data was based on the 2011 HSIP inventory data.

The analyses for Callaway County are discussed in the following pages.

Annualized Loss Scenario

The *MO State Hazard Mitigation Plan (2018)* explains the annualized loss scenario as follows:

HAZUS defines annualized loss as the expected value of loss in any one year. The software develops annualized loss estimates by aggregating the losses and their exceedance probabilities from the eight return periods. Annualized loss is the maximum potential annual dollar loss resulting from various return periods averaged on a ‘per year’ basis. It is the summation of all HAZUS-supplied return periods multiplied by the return period probability (as a weighted calculation).

The results of the modeling for Callaway County are shown in Table 3.28.

Table 3.30 Hazus-MH Earthquake Loss Estimate: Annualized Loss Scenario

County	Total Losses, in \$ Thousands	Loss Per Capita, in \$ Thousands	Loss Ratio, in \$ Per Million
Callaway	\$158	\$0.0036	\$36

While Callaway County has a medium loss ratio for the state, it’s estimated building damage in actual dollars ranks 42nd. (For a comparison, the modeling estimates the loss ratio in \$ per million for St. Louis County (ranked #1) at \$150 and in the City of St. Louis (ranked #2) at \$235.

In Callaway County, there is the potential for building damage even at a considerable distance from the New Madrid Fault. However, the percentage of buildings sustaining damage and/or the level of damage sustained would be much lower than in a county adjacent to the fault. The loss ratio reflects this and gives an indication of both the potential economic impact of an earthquake and the difficulty of recovery in the county.

2% Probability of Exceedance in 50 Years Scenario

This analysis models a worst-case scenario using a level of ground shaking recognized in earthquake design. The *MO State Hazard Mitigation Plan (2018)* gives the following explanation of the modeling:

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-MH. The USGS maps provide estimates of peak ground acceleration and spectral acceleration at periods of 0.3 second and 1.0 second, respectively that 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 3.31 HAZUS-MH Earthquake Loss Estimation 2% Probability of Exceedance in 50 Years Scenario Direct Economic Losses

County	Cost Structural Damage	Cost Non-Structural Damage	Cost Content Damage	Inventory Loss	Loss Ratio	Relocation Loss	Capital Related Loss	Wage Losses	Rental Income Loss	Total Loss
Callaway	\$15,892	\$41,449	\$13,755	\$296	1.30	\$9,598	\$2,252	\$3,189	\$3,876	\$90,307

The modeling suggests that damages from a worst-case scenario earthquake in the NMSZ (7.7 magnitude) would be in line with what is expected in Callaway County according to the Modified Mercalli map of Missouri suggests. Caution indicates that mitigation and preparedness be focused on the most conservative estimates (in this case, those that predict greater injury and damage) unless these have been shown to be incorrect.

Even a significant earthquake event in the NMSZ that does not cause great damage in Callaway County could still possibly cause cascading economic losses in the county. There is the potential for disruption of road and rail traffic to the eastern part of the state, including the metropolitan area of St. Louis. Regions of the state outside of the severely damaged areas would probably be called upon for emergency and recovery assistance.

Potential Impact - Life

The potential for loss of life goes up as the magnitude of the earthquake goes up. Areas with a high rate of older or historical structures with construction methods not designed to withstand such an event pose a higher risk for loss of lives that work or live within such buildings.

The potential for “emotional aftershocks” also exists with any earthquake event. Major earthquake events require mental health services for people dealing with loss, stress, anxiety, fear, and other difficult emotions. Even a smaller quake, however, has the potential for emotional repercussions; the sudden movement of something experienced as stable for one’s entire life (the earth itself) can be very traumatic.

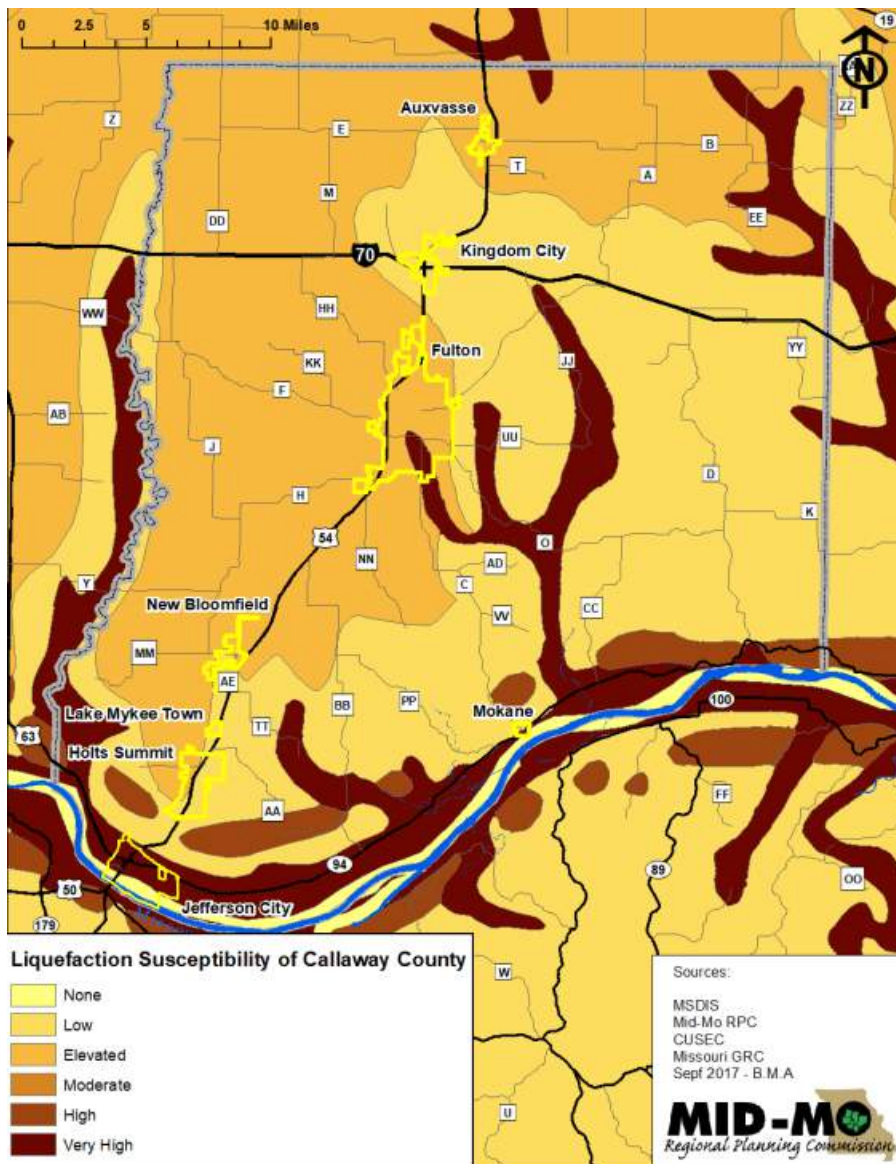
Potential Impact - Future Development

The standards followed in new construction will impact vulnerability to earthquake damage; the building codes in place in Callaway County and the incorporated communities contain a basic level of seismic safety. Building new structures according to even more stringent earthquake-resistant codes would lessen the potential damage should an earthquake occur; however, this type of mitigation activity may not be cost effective for many communities.

Hazard Summary by Jurisdiction

The soil, or alluvium, along river channels is especially vulnerable to liquefaction from earthquake waves; river alluvium also tends to amplify the waves. Southern Callaway County and parts of Fulton are susceptible to liquefaction based on liquefaction potential data from Missouri Department of Natural Resources Division of Geology and Land Survey.

Map 3.10 Callaway County Liquefaction Zones



Problem Statement

The entire planning area is vulnerable to the risk of damage from an earthquake in the New Madrid Seismic Zone (NMSZ) located in southeastern Missouri.

Studies and predictions indicate that there would be significant damage to poorly built structures in the planning area from a 7.6 magnitude (Richter) quake in the NMSZ. In addition to structural damage, and possible injury/loss of life, the planning area could be affected by an influx of people needing sheltering, disruption of the flow of goods, calls for assistance from other areas, and the psychological traumatization of the population.

There is extensive ongoing education and preparation in the planning area for the possibility of an earthquake event. Encouraging new construction buildings and infrastructure to be rated for earthquakes and taking on hardening efforts on existing structures can help minimize damage.

3.4.5 Drought

DESCRIPTION OF HAZARD

The National Weather Service defines a drought as “a period of abnormally dry weather which persists long enough to produce a serious hydrologic imbalance (for example crop damage, water supply shortage, etc.) The severity of the drought depends upon the degree of moisture deficiency, and the duration and the size of the affected area.”

Droughts occur either through a lack of precipitation (supply droughts) or through overuse of water which outpaces what the surrounding environment can naturally support (water use droughts). Water use droughts can theoretically happen anywhere but are generally seen in arid climates, not humid places such as Missouri. At the present time, Missouri is most vulnerable to supply droughts brought on by a lack of precipitation.

The period of lack of precipitation needed to produce a supply drought will vary between regions and the particular manifestations of a drought are influenced by many factors. The most common type of drought in Mid-Missouri is the agricultural drought. There are four types of drought conditions relevant to Missouri, according to the State Plan, which are as follows.

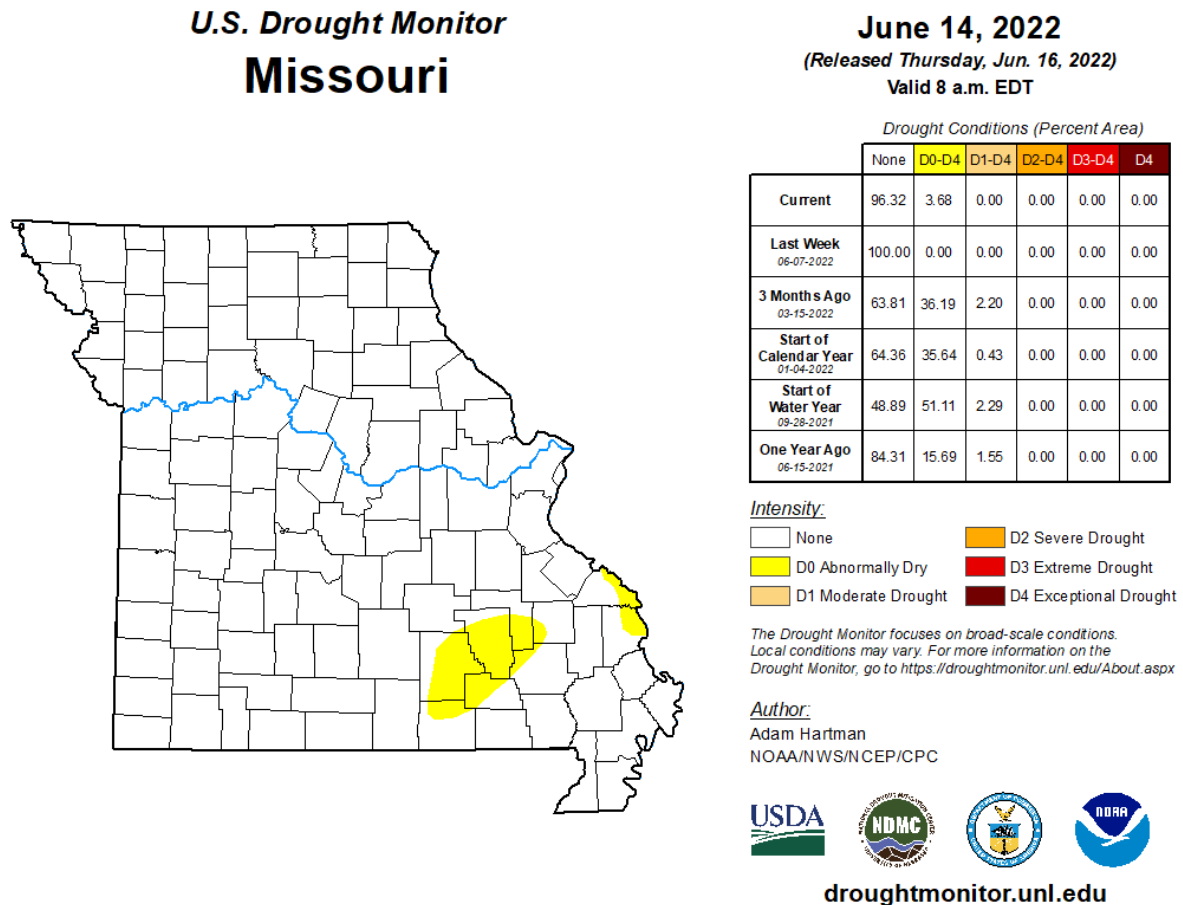
- Meteorological drought is defined in terms of the basis of the degree of dryness (in comparison to some “normal” or average amount) and the duration of the dry period. A meteorological drought must be considered as region-specific since the atmospheric conditions that result in deficiencies of precipitation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

Location

The entire planning area is potentially at risk for drought. However, since agricultural drought is most common in Missouri, the unincorporated agricultural areas of Callaway County are most at risk. Drought can mean crop failure in these areas and the resulting immediate, and potentially severe, economic loss.

Map 3.11 Missouri Drought Monitor



Strength/Magnitude/Extent

Numerous indices have been developed to measure drought severity; each tool has its strengths and weaknesses.

Palmer Drought Severity Index: One of the oldest and most widely used indices is the Palmer Drought Severity Index (PDSI, Table 3.30), which is published jointly by NOAA and the U.S. Department of Agriculture (USDA).

Table 3.32

Palmer Drought Severity Index (PDSI)			
Score	Description	Score	Description
Greater than 4	Extreme moist spell	0 to -0.4	Near normal conditions
3.0 to 3.9	Very moist spell	-0.5 to -0.9	Incipient drought
2.0 to 2.9	Unusual moist spell	-1.0 to -1.9	Mild drought
1.0 to 1.9	Moist spell	-2.0 to -2.9	Moderate drought
0.5 to 0.9	Incipient moist spell	-3.0 to -3.9	Severe drought
0.4 to 0	Near normal conditions	Below -4.0	Extreme drought

According to the National Integrated Drought Information System (NIDIS), the PDSI “...uses temperature and precipitation data to calculate water supply and demand, incorporates soil moisture, and is considered most effective for unirrigated cropland. It primarily reflects long-term drought and has been used extensively to initiate drought relief.”

Missouri is divided into six regions of similar climactic conditions for PDSI reporting; Callaway County is located in the West Central Region.

Standardized Precipitation Index: A newer index currently being used by The National Drought Mitigation Center (NDMC) is the Standardized Precipitation Index (SPI). This index is based on the probability of precipitation; the time scale used in the probability estimates can be varied and makes the tool very flexible. The SPI is able to identify emerging droughts months sooner than is possible with the PDSI.

The NDMC uses the PDSI, SPI, and three other indicators to classify the severity of droughts throughout the country on a 5-point scale ranging from DO Abnormally Dry to D4 Exceptional Drought for reports on the U.S. Drought Monitor (Table 3.31).

Based on the Drought Severity Classification from the NDMC, Callaway County is subject to droughts ranging from D1 (Moderate Drought) to D4 (Exceptional Drought). The most common droughts are in the D1-D2 range.

Table 3.33

U.S. Drought Monitor - Drought Severity Classification

Category	Description	Ranges					
		Possible Impacts	Palmer Drought Index	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Short and Long-term Drought Indicator Blends (Percentiles)
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	21-30	21-30	-0.5 to -0.7	21-30
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	11-20	11-20	-0.8 to -1.2	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9	6-10	6-10	-1.3 to -1.5	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9	3-5	3-5	-1.6 to -1.9	3-5
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0-2	0-2	-2.0 or less	0-2

Source: <http://droughtmonitor.unl.edu>

Previous Occurrences

Between 1999 and 2008 Callaway County had significant crop insurance payments for drought damage. Historical information concerning droughts prior to the 20th Century is difficult to find. However, tree-ring research at the University of Missouri, chronicling the years 912 to 2004, indicates a regular 18.6-year cycle of drought in the Midwest. More information is available for droughts in the 20th and current centuries.

Missouri suffered drought in the 1930s and the early 1940s, along with most of the central United States. These were the Dust Bowl years in the southern plains. The years 1953-1957 were actually drier years in Missouri than the Dust Bowl years. Missouri was specifically hit in 1954 and 1956 by an extreme decrease in precipitation. Crop yields were down by as much as 50%, leading to negative impacts on the agricultural and regional economies.

The last major nationwide drought was in the late 1980's. Missouri suffered economic losses due to decreased barge traffic and low water in the Missouri and Mississippi Rivers. Furthermore, some municipalities suffered from very low water resources and in some instances exhausted all of their normal water sources.

Most of Missouri was in a drought condition during the last half of 1999. In September 1999, the governor declared an agricultural emergency for the entire state. In October, all counties were declared agricultural disaster areas by the U.S. Secretary of Agriculture. By May of 2000, the entire state was under a Phase 2 Drought Alert. The drought continued through the summer of 2000 in various parts of the state. Another drought hit western and northwestern Missouri in the years 2002 to 2004 but Callaway County was not in the drought area. The county did not fare as well in the drought years of 2005-2006, however. Callaway County was one of 30 Missouri counties in Phase 3 Conservation in July 2005. In August, all 114 Missouri counties and the City of St. Louis were designated as natural disasters for physical and/or production loss loan assistance from the Farm Service Agency (FSA); conditions began to improve in late August/September 2005. By September of 2006, however, the county was again in Phase 3 Conservation which persisted through most of November. In October, Callaway County was one of 85 Missouri counties designated by the USDA as primary natural disaster areas due to losses from the drought conditions of 2006. Conditions began to improve with a large snowstorm in late November/early December.

Probability of Future Events

In the 21-year period 2000-2020, there were 6 years without any level of drought in the planning area, according to the U.S. Drought Monitor. Based on this data, the calculated probability of having at least a Moderate (D1) drought in a year is 28.5%. (Probability calculation: $(6/21 * 100) = 28.5$)

The probability of occurrence of the maximum drought severity in any given year, based on the 2000-2020 data, has also been calculated (Table 3.32).

Table 3.34

Probability of Maximum Future Drought Events				
Severity Scale	Drought Description	# of years with drought event (2000-2020)	Probability	Probability Rating
D1	Moderate	15	71%	High
D2	Severe	9	42%	High
D3	Extreme	3	14%	Low
D4	Exceptional	0	0%	Low

Changing Future Conditions Considerations

Droughts are naturally occurring events in the planning area. While overall precipitation is predicted to rise with climate change the intensity of rainfall events at a given time could mean less rainfall at other times throughout the season leading to more frequent droughts and crop failures. Raising global temperatures could lead to more severe droughts.

VULNERABILITY

Vulnerability Overview

Severity

Moderate – Callaway County (unincorporated)

Low - all other participating jurisdictions

The primary effect of drought in the planning area is on the economic livelihood of those in the agricultural sector. According to the *2017 US Census of Agriculture*, 54.7% of Callaway County land use is tied to farming activities. In 2017 the market value of Callaway County farm products was estimated at nearly \$125 Million.

Potential Impact – Life

Both crops and livestock are at risk from drought.

The psychological and economic stresses involved for those working directly in the agricultural sector can be great in times of drought. Uncertainty, high stress and fear are not compatible with optimal health.

Potential Impact - Existing Structures

Excessive drought can cause damage to roads, streets, water mains, and building foundations. However, drought damage to infrastructure is not a major concern in the planning area, due to the soil types.

The arid conditions created by drought also pose an increased risk of fire and wildfire and thus to structures.

Potential Impact on Future Development

Future development in the county can be at risk from the effects of drought. Good land management techniques are crucial in mitigating future impacts.

Drought is primarily an issue of water supply for the rural and agricultural parts of the planning area. Good land management techniques and the interconnection of water supplies are crucial in mitigating future impacts.

Hazard Summary by Jurisdiction

All jurisdictions in the planning area can be impacted by drought. Incorporated cities may see wear on roads under cracking and shrinking dry ground can become damaged. The largest impact to drought though comes to unincorporated Callaway County due to the agriculture-based nature of its economy and land usage. Crop losses deal large economic blows and the potential for wildfire pose a risk to those living nearby.

Problem Statement

Drought of some degree is a common occurrence in the planning area. The unincorporated agricultural areas of Callaway County are the most vulnerable but all jurisdictions are potentially vulnerable to cascading economic effects during extended and serious drought conditions. In addition to damage to crops, produce, livestock, soil and the resulting economic consequences, the arid conditions created by drought pose an increased risk of fire. There is also the risk of damage to infrastructure from drought; while this has possibly contributed to some pipe breakage in the planning area, it is not seen as a major problem due to the soil types.

Drought conditions are carefully monitored at the state and national levels; state law requires the Missouri Department of Natural Resources to implement a drought response system to ensure the quantity and quality of available water resources.

Based on 2000-2020 data from the NDMC, the planning area is subject to droughts ranging from Moderate Drought (D1) to Exceptional Drought (D4); the most common droughts are D1 (Moderate Drought).

The planning area has decent interconnections, and backup for, water systems although there is still some room for improvement in this area. The Missouri Rural Water Association can assist with backup generators when needed and available.

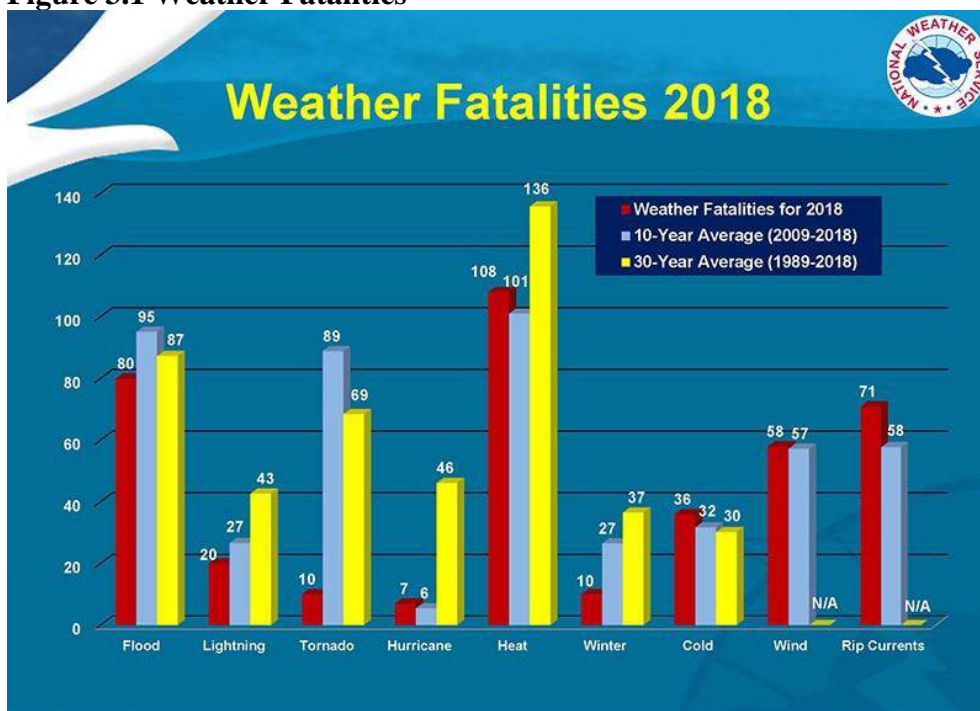
3.4.6 Extreme Temperatures

HAZARD PROFILE

DESCRIPTION OF HAZARD

Extreme temperature events, both hot and cold, can impact human health and mortality, natural ecosystems, agriculture, and other economic sector. Extreme heat is the number one weather-related killer in the United States, according to the National Weather Service (Figure 3.1). In contrast to the visible, destructive, and violent nature of floods, hurricanes, and tornadoes, extreme heat is a silent killer.

Figure 3.1 Weather Fatalities



As can be seen in the NWS graph, there are no 30-year averages for heat fatalities or a number of other weather-related fatalities. Fatality data on these hazards began to be recorded more recently than fatalities from the more dramatic causes of death such as flood, lightning, tornado, and hurricane.

As the data shows, extreme heat resulted in an average of 101 deaths per year when looked at over a 10-year period; this is 6 more deaths per year than the number cause by flood, the next most frequent cause of death.

Extreme cold often accompanies severe winter storms and can lead to hypothermia and frostbite in people without adequate clothing protection. Cold can also cause issues with power sources by freezing fuel lines and overwhelming heating systems. It can also freeze and bust pipes in homes and businesses.

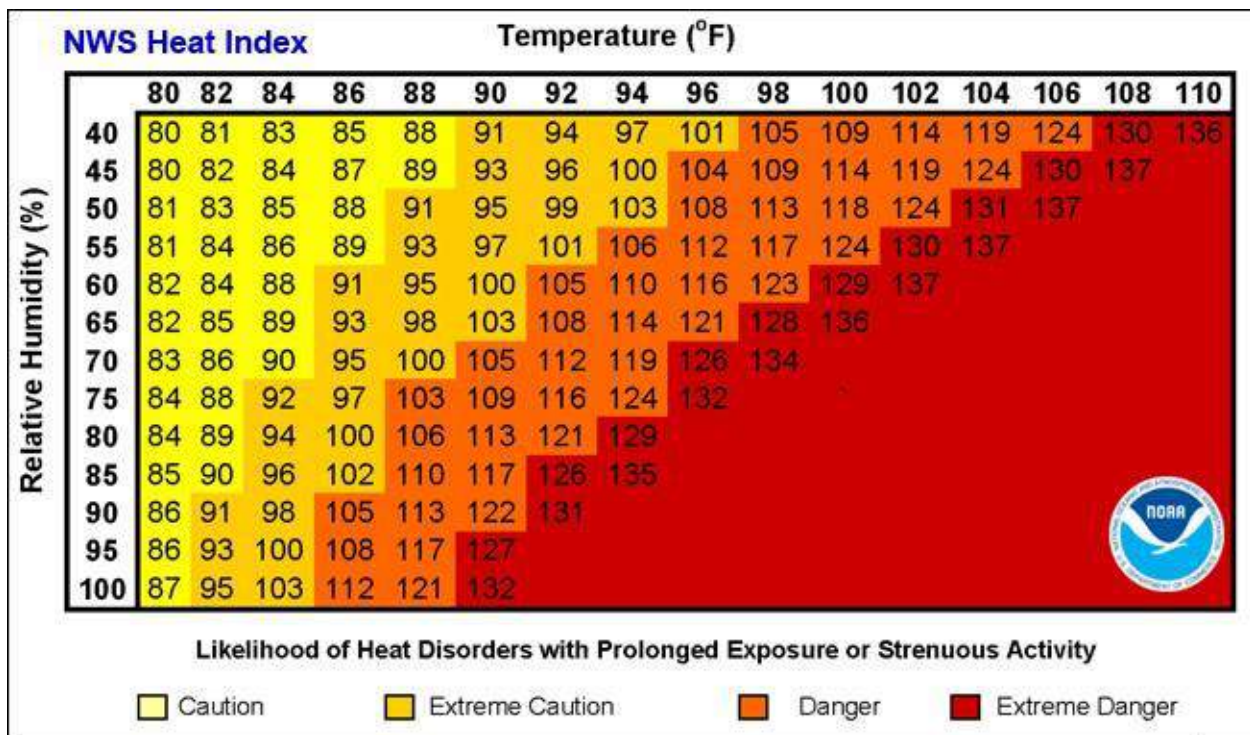
Geographic Location

The entire planning area is at risk from extreme temperature events.

Strength/Magnitude/Extent

The planning area routinely experiences prolonged periods with temperatures in the 90s and 100s (Figure 3.2). The duration of these periods of extreme heat can range from just one day to weeks. The National Weather Service (NWS) has an alert system in place to alert people when the Heat Index is expected to have a significant impact on public safety. The severity decides whether an advisory or a warning is issued.

Figure 3.2 Heat Index Guide



Source: National Weather Service (NWS) <https://www.weather.gov/safety/heat-index>

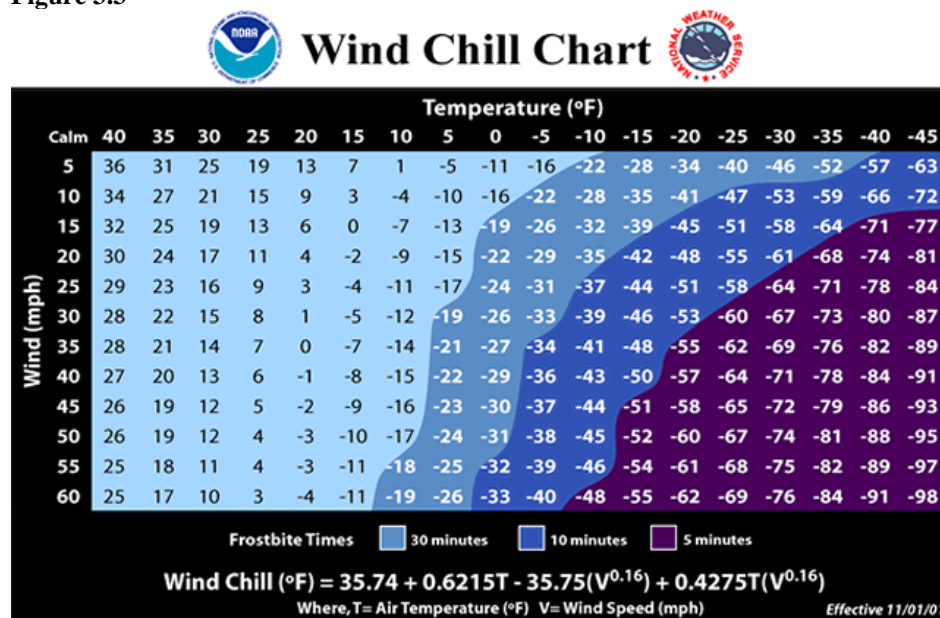
Note: Exposure to direct sun can increase Heat Index values by as much as 15°F. The shaded zone above 105°F corresponds to a HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

Similar to heat index the NWS also has an index for wind chill. It 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. Based on estimated temperatures advisories or warnings may be issued.

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.

The figure below shows wind chill temperatures which are based on the rate of heat loss from exposed skin caused by wind and cold. When wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature.

Figure 3.3



Previous Occurrences

Callaway County has had many periods of extreme temperature in the last two decades, though no deaths have been reported. The majority of deaths from extreme temperature in the state of Missouri occur in the two major metropolitan areas of St. Louis and Kansas City but these also hold a majority of the population.

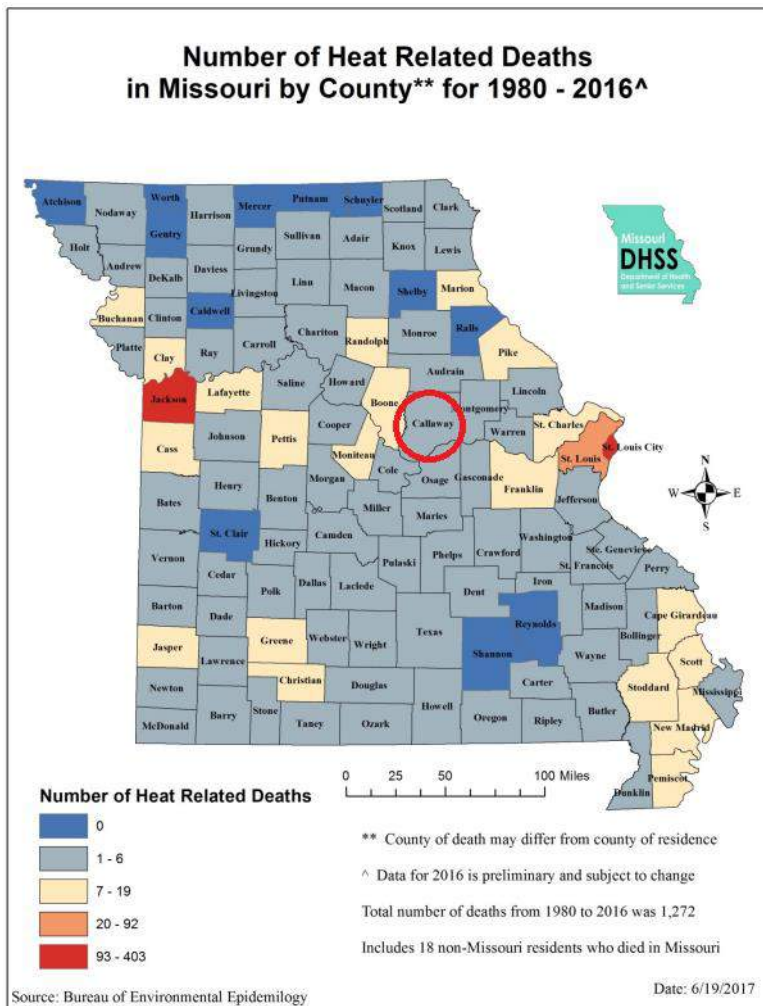
Table 3.35: Extreme Temperature Events 2000-2020

ID	Location	Date	Event Type	Death	Injuries	Property Damage	Crop Damage
5156586	Callaway	8/28/2000	Heat	0	16	0	0
5167127	Callaway	12/16/2000	Extreme Cold/Wind Chill	0	0	0	0
5167128	Callaway	12/16/2000	Extreme Cold/Wind Chill	0	0	0	0
5258560	Callaway	7/7/2001	Heat	0	0	0	0

5258775	Callaway	7/17/2001	Heat	0	0	0	0
5258803	Callaway	7/21/2001	Heat	0	0	0	0
5258907	Callaway	7/29/2001	Heat	0	0	0	0
5262918	Callaway	8/1/2001	Heat	0	0	0	0
5263007	Callaway	8/7/2001	Heat	0	0	0	0
5263037	Callaway	8/21/2001	Heat	0	0	0	0
5304537	Callaway	6/1/2002	Heat	0	1	0	0
5304659	Callaway	7/8/2002	Heat	0	0	0	0
5303327	Callaway	7/20/2002	Heat	0	0	0	0
5303227	Callaway	7/26/2002	Heat	0	0	0	0
5314031	Callaway	8/1/2002	Heat	0	0	0	0
5376528	Callaway	7/3/2003	Heat	0	1	0	0
5377744	Callaway	8/15/2003	Heat	0	0	0	0
5378103	Callaway	8/24/2003	Heat	0	0	0	0
5411009	Callaway	7/20/2004	Heat	0	0	0	0
5464456	Callaway	7/20/2005	Heat	0	0	0	0
5524384	Callaway	7/17/2006	Heat	0	0	0	0
5524486	Callaway	7/29/2006	Heat	0	0	0	0
5525860	Callaway	8/1/2006	Heat	0	0	0	0
56738	Callaway	8/5/2007	Excessive Heat	0	0	0	0
185220	Callaway	6/21/2009	Excessive Heat	0	0	0	0
247380	Callaway	6/18/2010	Excessive Heat	0	0	0	0
255849	Callaway	7/14/2010	Excessive Heat	0	0	0	0
255895	Callaway	7/17/2010	Excessive Heat	0	0	0	0
255942	Callaway	7/22/2010	Excessive Heat	0	0	0	0
263373	Callaway	8/2/2010	Excessive Heat	0	0	0	0
263311	Callaway	8/8/2010	Excessive Heat	0	0	0	0
344198	Callaway	7/1/2011	Heat	0	0	0	0
344237	Callaway	7/10/2011	Heat	0	0	0	0
372731	Callaway	7/17/2011	Excessive Heat	0	0	0	0
372792	Callaway	8/1/2011	Excessive Heat	0	0	0	0
344396	Callaway	8/6/2011	Heat	0	0	0	0
344470	Callaway	8/31/2011	Heat	0	0	0	0
344542	Callaway	9/1/2011	Heat	0	0	0	0
399417	Callaway	6/27/2012	Excessive Heat	0	0	0	0
399738	Callaway	7/1/2012	Excessive Heat	0	0	0	0
399911	Callaway	7/16/2012	Excessive Heat	0	0	0	0
405431	Callaway	7/22/2012	Excessive Heat	0	0	0	0
400322	Callaway	8/1/2012	Excessive Heat	0	0	0	0
474749	Callaway	8/31/2013	Heat	0	0	0	0
474765	Callaway	9/1/2013	Heat	0	0	0	0

548069	Callaway	8/20/2014	Excessive Heat	0	0	0	0
604123	Callaway	7/12/2015	Excessive Heat	0	0	0	0
604173	Callaway	7/17/2015	Excessive Heat	0	0	0	0
604616	Callaway	7/25/2015	Excessive Heat	0	0	0	0
657898	Callaway	6/15/2016	Heat	0	0	0	0
657860	Callaway	6/22/2016	Heat	0	0	0	0
657814	Callaway	7/18/2016	Excessive Heat	0	0	0	0
716192	Callaway	7/18/2017	Excessive Heat	0	0	0	0

Map 3.12 Missouri Heat Related Deaths



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

Probability of Future Occurrence

– High for all participating jurisdictions

- NOAA data dating back to 2000 indicates 4 years without extreme temperature events. In most years during that period, there were multiple extreme heat events. Based on this historical data, the calculated probability of an extreme temperature event in any year is 18%. (Probability calculation: $1 - (4/21) = 0.18$)

The chances of an extreme heat event are much higher and happen much more frequently than extreme cold but cool snaps that may not bother humans can bother crops.

**VULNERABILITY
VULNERABILITY OVERVIEW**

Measure of Severity - Moderate for all participating jurisdictions

Potential Impact – Life

Extreme temperatures kill by overloading a body’s capacity to regulate its internal temperature. The human body cools itself by perspiring; the evaporation of perspiration carries excess heat from the body. High humidity often accompanies heat in Missouri and increases the danger to warm-blooded humans and animals. High humidity makes it difficult for perspiration to evaporate and thus interferes with this natural cooling mechanism. The body attempts to heat itself through shivering when faced with cold.

The Heat Index devised by the NWS (Table 3.36) is a measure of how hot it really feels. The Heat Index takes into account both air temperature and relative humidity. It also gives an indication of the added risk presented by high humidity to bodies attempting to cool.

Table 3.36 Typical Health Impacts of Extreme Heat

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

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

Many factors, such as age, general level of health, outdoor activity level, and availability of adequate shelter and clothing, affect the actual risk level. The elderly in general are vulnerable to the effects of extreme temperatures. Hypothermia sets in when internal body temperatures fall below 95 F. While this is most likely to occur when temperatures outside are extremely cold it is possible to happen slowly at temperatures as high as 40 F if the exposure is prolonged and exacerbated by chill caused by sweat, rain, or submersion into cold water.

Extreme temperature events can also result in livestock deaths and fish kills; drought in conjunction with extreme heat exacerbates the situation. Strenuous outdoor activity in extreme cold can also be life threatening. Frostbite can lead to the loss of limbs and hypothermia can result in death.

Potential Impact - Existing Structures

While illness and loss of life are of the most concern with extreme heat, structural impacts may also occur. Structural impacts depend on the length of the period of extreme heat and exacerbating factors such as concurrent drought. Road damage and electrical infrastructure damage may occur with intense and prolonged heat.

Potential Impact - Future Development

Thoughtful future development has the potential to include mitigation for extreme heat in its design. This is true on all levels ranging from actions by individual homeowners to larger redevelopment projects planned by cities. Properly placed shade trees can contribute greatly to lowering inside temperatures and the load placed on cooling systems. Planning for adequate green space as cities infill allows for air movement and shaded locations.

Hazard Summary by Jurisdiction

Those at greatest risk for temperature-related illness and deaths include children under 5 years of age and people over the age of 65. To determine jurisdictions within the planning area with populations more vulnerable to extreme temperatures, demographic data was obtained from the 2020 American Community Survey estimates for populations 5-years-old and younger, as well as ages 65 and older. Since students and faculty of school districts are not typically part of the vulnerable age groups they have been left out of the following table.

Table 3.37: Callaway County Population by Age

Jurisdiction	Population Under 5 yrs	Population 65 yrs and over
Unincorporated Callaway County	2369	7318
Auxvasse	53	155
Fulton	559	1406
Holts Summit	593	694
Kingdom City	15	26
Mokane	53	39
New Bloomfield	37	177

Source: American Community Survey 5-year Estimates 2020

All jurisdictions are vulnerable to the effects of extreme heat. Extreme heat is already responsible for more weather-related deaths than any other hazard in the country; it is also one of the hazards shown to be increasing with changes in the climate.

Heat stroke and loss of life are the most significant consequences of extreme heat. While heat-related illness and death can occur due to exposure to intense heat in just one afternoon, heat stress on the body has a cumulative effect. The persistence of a heat wave increases the danger.

Fulton, the county seat for the planning area, is equipped with cooling centers to help protect those most vulnerable. Warnings regarding the dangers of extreme heat are widely broadcast during times of threat.

The Missouri State High School Activities Association (MSHSAA) provides coaches with educational pamphlets on the dangers of excessive heat. Schools in the planning area have air conditioning in their main buildings and many of their detached buildings, but warnings should be taken into consideration for outdoor sports and practices. Many schools in the planning area are closed for summer session during the hotter portions of the summer season.

The Missouri Department of Health and Senior Services announces statewide hot weather health alerts.

The National Weather Service (NWS) has devised a method to warn of advancing heat waves up to seven days in advance. The new Mean Heat Index is a measure of how hot the temperatures actually feel to a person over the course of a full 24 hours. It differs from the traditional Heat Index in that it is an average of the Heat Index from the hottest and coldest times of each day. The National Weather Service initiates alert procedures when the Heat Index is expected to exceed 105°- 110°F for at least two consecutive days. (The exact Heat Index temperature used depends on specifics of the local climate.)

PROBLEM STATEMENT

All jurisdictions are vulnerable to the effects of extreme temperatures. Extreme heat is already responsible for more weather-related deaths than any other hazard in the country; it is also one of the hazards shown to be increasing with changes in the climate.

Heat stroke and loss of life are the most significant consequences of extreme heat. While heat-related illness and death can occur due to exposure to intense heat in just one afternoon, heat stress on the body has a cumulative effect. The persistence of a heat wave increases the danger.

The elderly in general are vulnerable to the effects of extreme temperatures; the 2020 estimates show 7,318 citizens in Callaway County (16.2% of the population) as 65 years and older. However, any residents without access to air conditioning, or shade and water if outside, are very vulnerable to this hazard. Likewise, frostbite and hypothermia can set in for those who cannot afford to heat their homes or who must be out in extremely cold temperatures. Older structures with less insulation may be at risk for frozen pipes. Outreach to raise awareness amongst the most vulnerable populations and educating those about where warming and cooling centers are located can help mitigate the potential loss of life that can come with extreme temperatures.

In addition to the human toll, prolonged extreme temperatures can result in livestock deaths, fish kills, and infrastructure damage; drought in conjunction with extreme heat exacerbates the situation. Winter weather can also take a toll on crops in the area. Unseasonable cold snaps and late frosts can kill and damage crops costing thousands of dollars in insurance claims.

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

DESCRIPTION OF HAZARD

A thunderstorm is a rainstorm with thunder and lightning present. Warm, humid climates, such as that in mid-Missouri, are favorable for the formation of thunderstorms. Thunderstorms can occur during any season in Missouri but they are more frequent in the spring and summer.

The average Missourian is well aware of the hazards of the thunderstorm season; these include heavy rains and, potentially, strong winds, tornadoes, hail, and lightning strikes. The effects of heavy rains will be considered in the section on flood (Section 3.4.1) and tornadoes are covered in Section 3.4.10.

Thunderstorms can range in complexity from single cell storms through multicell cluster storms, multicell line storms (squall lines), and on to supercell storms. A single cell thunderstorm typically lasts 20-30 minutes but when numerous cells are generated, as in a multicell storm, the thunderstorm can last for hours. Supercell storms include rotation and are responsible for the generation of severe tornadoes.

Severe and damaging winds in the planning area are usually, but not always, associated with thunderstorms. Thunderstorm winds can reach speeds up to 100 mph and produce damage paths for hundreds of miles. According to the National Oceanic and Atmospheric Administration (NOAA), property and crop damage from thunderstorm winds is more common, and can be more severe, than damage from tornadoes. Thunderstorm wind damage accounts for half of all the NOAA reports of severe weather events in the lower 48 states.

Thunderstorm winds are often called "straight-line" winds to distinguish them from tornadoes, which have a rotational element. The following are the distinctions made between different thunderstorm winds:

- Gust front - Gusty winds out ahead of a thunderstorm; characterized by a wind shift and temperature drop.
- Downbursts – A strong downdraft with a width of greater than 2.5 miles which results in an outward burst of damaging winds near the ground; may possibly produce damage similar to that of a strong tornado.
- Microbursts – A small concentrated downburst with a width less than 2.5 miles; generally short-lived, lasting only 5-10 minutes, with maximum wind speeds up to 168 mph.

A derecho is a widespread, massive, and violent thunderstorm wind event producing straight-line winds in excess of 70 mph and moving quickly over large areas. These are not common events, however, in the spring of 2009, a massive derecho almost as large as the state of Missouri caused extensive damage in southern Missouri and Illinois.

Much of the damage caused by high winds occurs because of falling trees; people, buildings, and vehicles may be damaged by falling trunks and branches. Power lines may be blown or knocked down and people left without electricity. In some cases, roofs are directly blown off buildings and windows are shattered.

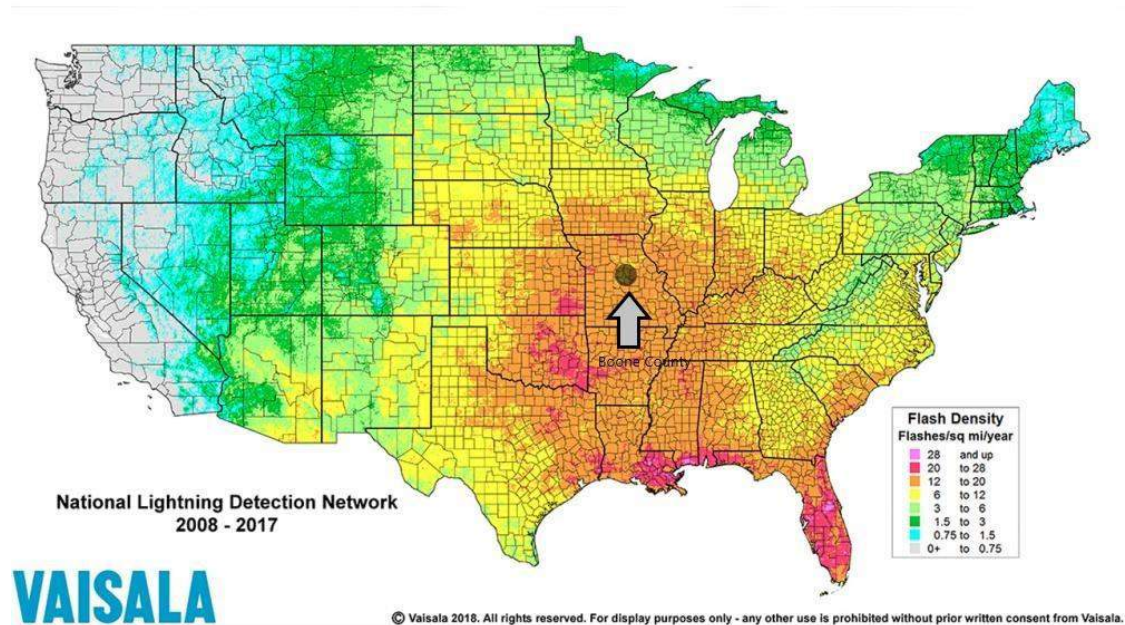
Hail is formed when updrafts in thunderstorms carry raindrops up to very high and cold areas where they freeze into ice. Hail, especially large sized hail, can cause severe damage and presents a threat to automobiles, airplanes, roofs, crops, livestock, and even humans.

Lightning, a massive electrical discharge, is produced by all thunderstorms. The electrical discharge can be within a cloud, between clouds, or between a cloud and the ground.

Location

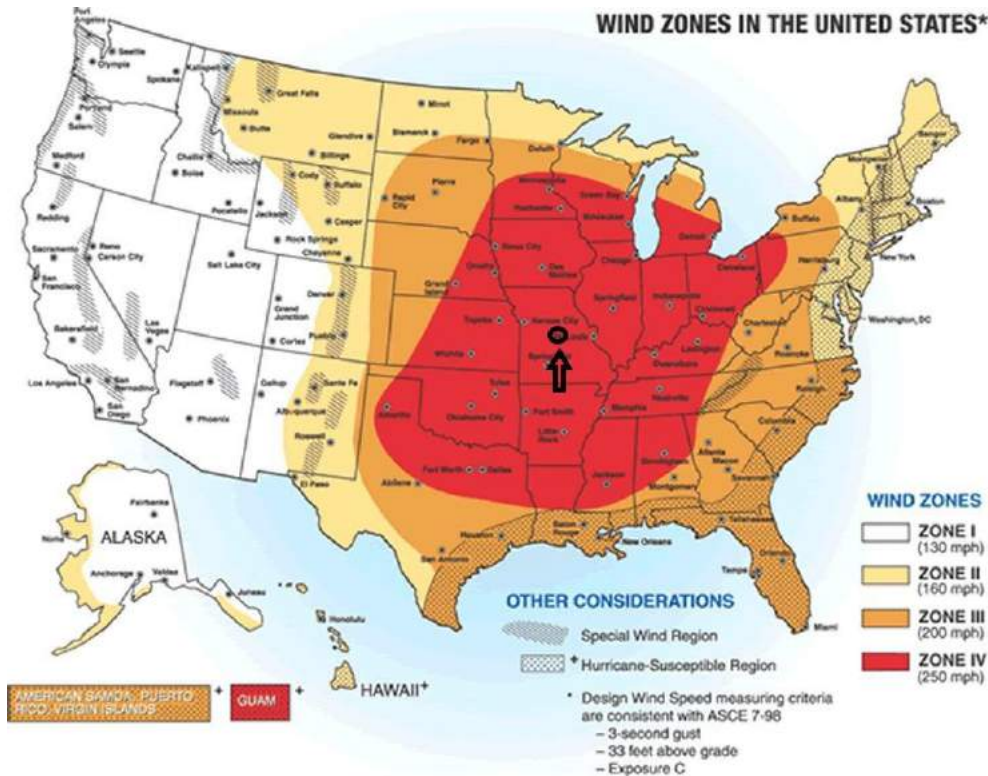
The entire planning area is at risk from severe thunderstorms and all the related threats accompanying them. Although these events occur similarly throughout the planning area damages are more likely to occur in more densely developed areas and areas with older homes. Callaway County is located in central Missouri and has a medium flash density of 6-12 Flashes/square mile/year.

Map 3.13: Location and Frequency of Lightning in Missouri



The Planning area is in a high wind zone according to FEMA. All of the planning area is located in Zone IV and can see winds of 250 mph.

Map 3.14 Wind Zones in the United States



Strength/Magnitude/Extent

The National Weather Service considers a thunderstorm “severe” when it includes one or more of the following: winds gusting in excess of 57.5 mph, hail at least 0.75 inch in diameter, or a tornado. The NOAA database records thunderstorm events which fall into this severe classification.

Based on information provided by the Tornado and Storm Research Organization (TORRO), Table 3.36 below describes typical damage impacts of the various sizes of hail.

Table 3.38: Hail Damage by Size

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>

According to information from NOAA, a lightning bolt can contain 100 million to 1 billion volts of electricity and billions of watts of energy. This energy can heat the air around the lightning 18,000 to 60,000 °F.

Previous Occurrences

The NCEI is limited in its reporting of lightning due to the fact that only lightning events that result in fatality, injury and/or property and crop damage are in the NCEI. There were no direct reports of lightning for the review period in the planning area. There were also no reports of crop damage due to thunderstorms, although hail and high wind are often associated with thunderstorms. The tables below summarize past crop damages as indicated by crop insurance claims and give insight into the magnitude of the impact on the planning area's agricultural economy.

Table 3.39 Crop Insurance Claims Paid in Callaway County from High Winds, 2010-2020

Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2014	Corn	Excess Wind	2642
2018	Soybeans	Excess Wind	1559
2019	Corn	Excess Wind	6174
Total			10375

Table 3.40 Crop Insurance Claims Paid in Callaway County from Hail, 2010-2020

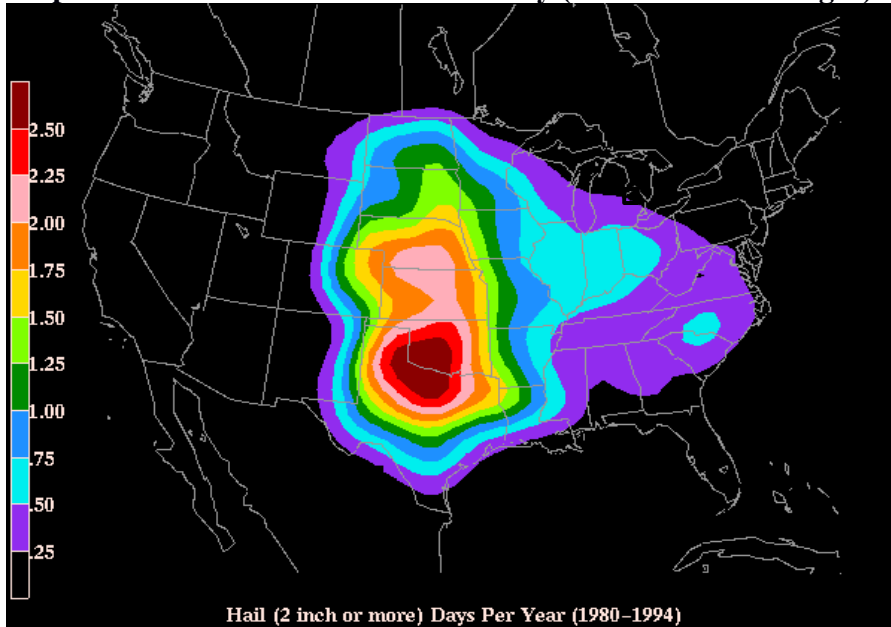
Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2015	Wheat	Hail	59
2016	Grain Sorghum	Hail	300
2017	Soybeans	Hail	1189
2018	Wheat	Hail	13198
Total			14746

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

Probability of Future Occurrences

High for damaging winds and hail– All participating jurisdictions

Map 3.15 Annual Hailstorm Probability (2” diameter or larger) 1980-1994

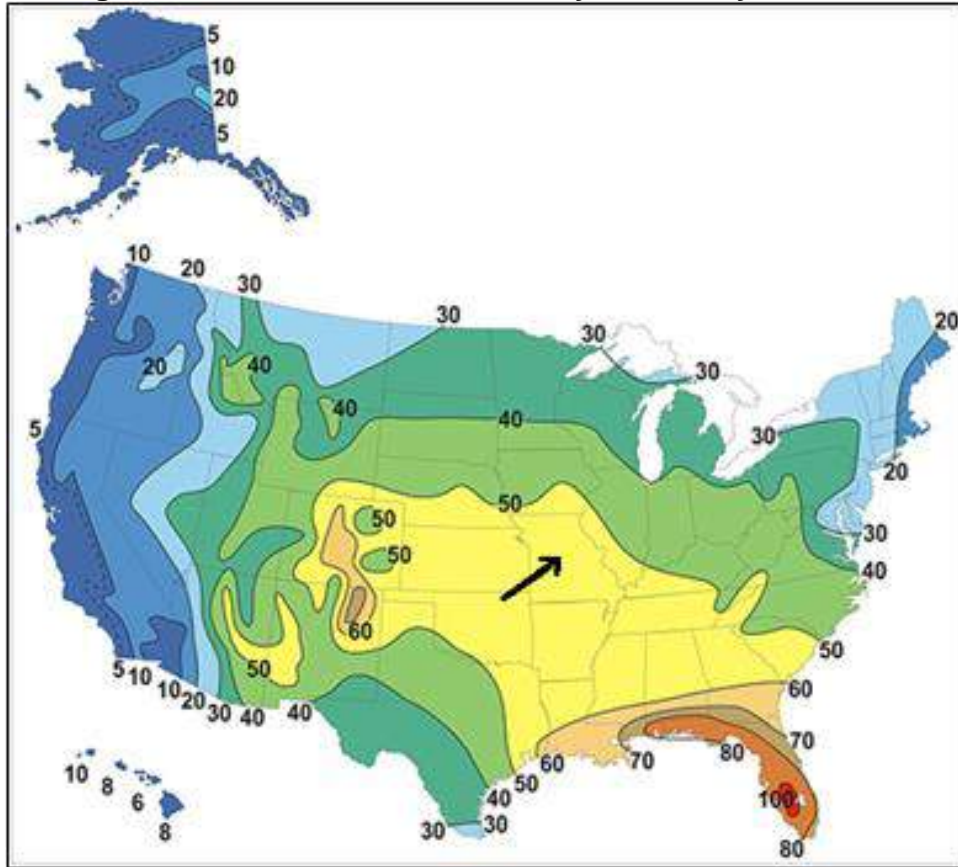


Source: NSSL, http://www.nssl.noaa.gov/users/brooks/public_html/big_hail.gif

National Weather Service data indicates an average 50-60 thunderstorm days per year in Missouri (Map 3.16).

Map 3.16

Average Number of Thunderstorm Days Annually in U.S.



Source: NOAA

Data from NOAA for the recent 21-year period (2000-2020) indicates 104 thunderstorm wind events in Callaway County. There were 0 years in this period when an event was not reported. Based on this data, the calculated probability of a future severe thunderstorm wind event in any given year is almost guaranteed.

Data from NOAA for the same 21-year period indicates 136 reported severe hail events in the planning area. There was 1 year without a severe hail event in the planning area during this period. Based on this data, the calculated probability of a future severe hail event in any given year is 95.2 percent.

CHANGING FUTURE CONDITIONS CONSIDERATIONS

According to the State Hazard Mitigation Plan 2018, “Predicted increases in temperature could help create atmospheric conditions that are fertile breeding grounds for severe thunderstorms and tornadoes in Missouri.” These changing conditions will affect the entire planning area and should be considered when building new structures.

VULNERABILITY

Vulnerability Overview

Measure of Severity –

Moderate to high for damaging winds, hail, and lightning – all participating jurisdictions.

Potential Impact - Life

Severe thunderstorms and their related hazards pose a threat to people and animals. Windblown debris, falling trees, falling branches, and lightning are very dangerous to those who are exposed. Excessive damage to utilities can leave people without electricity for long periods – an especially dangerous situation for vulnerable populations.

Hail also presents a potential bodily threat. In 2000, a man in Texas died from softball-size hail. According to NOAA’s National Severe Storms Laboratory, a 3.25-inch hailstone weighing 1.5 pounds has an estimated falling velocity of about 106 miles per hour.

The only injury from thunderstorm-related events reported for the planning area was a man struck by lightning in June of 2008.

Potential Impact - Existing Structures

There is a wide range of possible impact from severe thunderstorms. Non-permanent and wood-framed structures are very vulnerable to destruction. While high winds are the force behind damage, it is the windblown debris and falling trees and branches that cause the most damage. Lightning can cause costly disruptions to electrical systems.

NOAA data, from which the annualized losses are calculated, vastly underestimates the cost of these hazards in the planning area. Local information indicates that many instances of property damage are not reflected in the NOAA data.

A huge storm in the spring of 2006 caused massive hail damage across the mid-Missouri region. Information from neighboring Boone County indicates that there was over \$1 million in hail damage incurred by that county’s buildings for the year 2006. Many private homes throughout the region received new roofs because of hailstorm damage that year.

In March of 2020 the southern portion of Callaway County south of Holts Summit experienced a large hail event with reports of hail the size of softballs. Roofs, cars, and a number of other items were damaged or totaled. It was estimated that there would be at least two years’ worth of roofing work created by that one storm that impacted Cole and Callaway County. Shortages created by the pandemic may have stretched this out even further.

Potential Impact - Future Development

A larger population and more extensive built environment increase the risk of injury, loss of life, and damage from severe thunderstorms.

It would be wise to consider mitigation strategies for severe thunderstorms during the planning phase of any new development. The type of construction affects vulnerability to damaging winds, hail, lightning, and tornadoes. Design and construction choices and the inclusion of hardened areas for safe rooms can save lives.

Hazard Summary by Jurisdiction

All jurisdictions in Callaway County are vulnerable to the effects of severe thunderstorms and the lightning, hail, and high winds they can bring with them. All above ground structures, infrastructure, and vegetation are vulnerable to the effects of a strong storm.

Problem Statement

Severe thunderstorms with damaging winds, hail, and lightning are common, dangerous, and often costly occurrences in the planning area. These weather events can be expected almost every year and every jurisdiction is highly vulnerable to these hazards.

Both human life and the built environment are at risk; the impact on the built environment has been quite costly in the past and this can be expected to continue into the future.

Public awareness education, excellent weather coverage by the local media, an excellent outdoor warning system, and regular emergency exercises in the schools help mitigate the risk to human life. However, there is a great need throughout the planning area for more safe rooms to protect from high wind events; this is especially true in the schools. Additional generators and power transfer hookups are needed in case of widespread and/or lengthy power outages. These identified needs have been targeted for action in the mitigation strategy but funding remains an issue for the costly safe rooms and generators/power transfer hookups.

3.4.8 Severe Winter Weather

Hazard Profile

Hazard Description

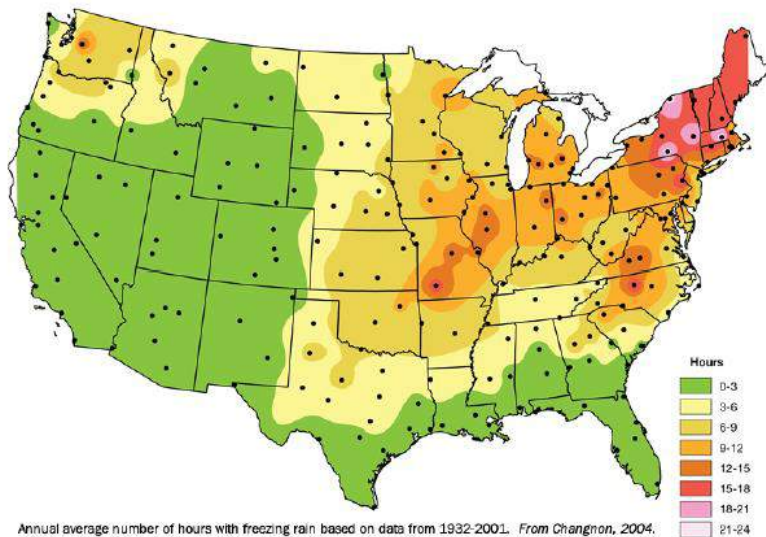
Winter storms in central Missouri contain ice, snow, severe cold, sleet, and wind; each of these associated factors has the potential to disrupt life in the region by making normal activity difficult and/or dangerous. The National Weather Service describes different types of winter storm events as follows:

- **Blizzard** – Winds of 35 miles per hour or more with snow and blowing snow reducing visibility to less than ¼ mile for at least three hours.
- **Blowing Snow** – Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.
- **Snow Squalls** – Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.
- **Snow Showers** – Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **Freezing Rain** – Measurable rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Most freezing-rain events are short lived and occur near sunrise between the months of December and March.
- **Sleet** – Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects.

Location

The entire planning area is at risk from severe winter weather. This includes heavy snow, ice, and freezing rain. The planning area falls in the 9-12 hours a year average for freezing rain.

Map 3.17. NWS Statewide Average Number of Hours per Year with Freezing Rain



Source: https://mrcc.illinois.edu/living_wx/icestorms/

Strength/Magnitude/Extent

The entire planning area is at risk for a variety of winter weather. There are various levels of alerts for various conditions of winter weather. The National Weather Service may issue any of the following as conditions warrant.

Table 3.41	
National Weather Service Winter Warnings	
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. The greatest hazard is often 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 in your area.
Blizzard Warning	Snow and strong winds will combine to produce a blinding snow (near zero visibility), deep drifts, and life-threatening wind chill. Seek refuge immediately.
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.

As the duration of a winter weather event goes longer, the potential for increased severity also rises. Prolonged events tax resources for residents and businesses.

Previous Occurrences

Severe winter weather presents a risk to both life and property in the planning area. Some of the damage is direct but some comes in the form of economic losses due to closed businesses and schools and slowed or halted transportation (Table 3.40).

Table 3.42: NCEI Callaway County Winter Weather Events Summary, 2000-2020

ID	Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
5127413	Callaway	1/27/2000	Winter Storm	0	0	0	0
5282903	Callaway	2/25/2002	Winter Storm	0	0	0	0
5280189	Callaway	3/2/2002	Winter Storm	0	0	0	0
5324854	Callaway	12/4/2002	Winter Storm	0	0	0	0
5324411	Callaway	12/24/2002	Winter Storm	0	0	0	0
5339329	Callaway	1/1/2003	Winter Storm	0	0	0	0
5340577	Callaway	2/23/2003	Winter Storm	0	0	0	0
5331267	Callaway	12/9/2003	Winter Storm	0	0	0	0
5331271	Callaway	12/13/2003	Winter Storm	0	0	0	0

5381816	Callaway	1/25/2004	Winter Storm	0	0	0	0
5426240	Callaway	11/24/2004	Winter Storm	0	0	0	0
5482423	Callaway	12/8/2005	Winter Storm	0	0	0	0
5895	Callaway	11/29/2006	Winter Storm	0	0	1000000	0
8409	Callaway	12/1/2006	Winter Storm	0	0	169000	0
83295	Callaway	2/23/2008	Winter Weather	0	0	0	0
214007	Callaway	1/6/2010	Winter Weather	0	0	0	0
290385	Callaway	1/31/2011	Winter Storm	0	0	0	0
290404	Callaway	2/1/2011	Winter Storm	0	0	0	0
482558	Callaway	12/21/2013	Winter Storm	0	0	0	0
487333	Callaway	1/5/2014	Winter Storm	0	0	0	0
505137	Callaway	2/4/2014	Winter Storm	0	0	0	0
870943	Callaway	12/15/2019	Winter Storm	0	0	0	0
Total				0	0	1169000	0

Table 3.43 Crop Insurance Claims Paid in Callaway County as a Result of Cold Conditions and Snow 2010-2020

Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2010	Wheat	Cold Winter	2733
	Wheat	Cold Winter	1975
	Wheat	Cold Winter	3246
	Wheat	Cold Winter	12366
	Wheat	Cold Winter	812
	Wheat	Cold Winter	18566
	Wheat	Cold Winter	2763
	Wheat	Cold Winter	3710
	Wheat	Cold Wet Weather	593
	Wheat	Cold Wet Weather	114
	Wheat	Cold Wet Weather	875
	Wheat	Cold Wet Weather	2039
	Wheat	Cold Wet Weather	733
	Wheat	Cold Wet Weather	18859
	Wheat	Cold Wet Weather	24917
	Wheat	Cold Wet Weather	230
	Wheat	Cold Wet Weather	397
	Wheat	Cold Wet Weather	8440
	Corn	Cold Wet Weather	1404
	Other Crops	Cold Wet Weather	1310
2011	Wheat	Cold Winter	17471
	Wheat	Cold Winter	3977
	Wheat	Cold Wet Weather	317
	Wheat	Cold Wet Weather	5860
	Corn	Cold Wet Weather	2307
	Soybeans	Cold Wet Weather	687
2012	Corn	Cold Wet Weather	7797
	Corn	Cold Wet Weather	20731

2013	Wheat	Cold Wet Weather	1759
	Wheat	Cold Wet Weather	334
	Wheat	Cold Wet Weather	20176
	Corn	Cold Wet Weather	3300
2014	Wheat	Freeze	957
	Wheat	Freeze	2480
	Wheat	Freeze	847
	Wheat	Cold Winter	1415
	Wheat	Cold Winter	17959
	Wheat	Cold Winter	5515
	Wheat	Cold Winter	1348
	Wheat	Cold Wet Weather	5378
	Wheat	Cold Wet Weather	1497
	Wheat	Cold Wet Weather	18629
	Wheat	Cold Wet Weather	7109
	Other Crops	Freeze	16458
	2015	Wheat	Freeze
Wheat		Cold Winter	10575
Wheat		Cold Winter	649
Corn		Cold Wet Weather	7746
Other Crops		Cold Wet Weather	9950
2016	Wheat	Cold Wet Weather	6010
	Wheat	Cold Wet Weather	4337
	Soybeans	Cold wet Weather	1797
2017	Corn	Cold Wet Weather	3104
2018	Wheat	Cold Winter	5013
	Wheat	Cold Wet Weather	745
	Wheat	Cold Wet Weather	557
	Other Crops	Cold Winter	3892
2019	Wheat	Cold Wet Weather	75269
	Wheat	Cold Wet Weather	2077
	Wheat	Cold Wet Weather	8176
	Wheat	Cold Wet Weather	258772
	Wheat	Cold Wet Weather	8385
	Corn	Cold Wet Weather	3179
	Other Crops	Cold Wet Weather	11916
Total			

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

Probability of Future Occurrence

The historical data indicates there were 9 years without a severe winter weather event in the period 2000-2020, a 21-year period; most years witnessed multiple events. Based on this historical data, the calculated probability of a severe winter weather event in any year is 42.8%. (Probability calculation: $(9/21)*100 = 42.8$)

Changing Future Conditions Considerations

As temperatures rise and shorten the winter season there could be ecological impacts to plant and animal species that could cause them to shift their native territory. An increase in precipitation

events throughout the winter months and a general saturation of the ground could increase the likelihood of flooding events and freezing rain or ice storm events in the planning area.

Vulnerability

Vulnerability Overview

Measure of Severity - Moderate for all participating jurisdictions.

Severe winter weather presents a risk to both life and property in the planning area. Some of the damage is direct, but some comes in the form of economic losses due to closed businesses and schools and slowed or halted transportation.

Potential Impact – Life

Many deaths and injuries from winter storms are a result of traffic accidents caused by a combination of poor driving surfaces and speeds too fast for the conditions. Accidents during winter storms can be particularly devastating because of multiple car involvement. Response times for emergency vehicles may also be slowed by poor road conditions.

Strenuous outdoor activity in extreme cold can also be life threatening. The elderly are especially vulnerable to excessive and/or prolonged cold (or heat). The 2020 ACS estimates over 16.2% of the population as 65 years and older in Callaway County.

Severe winter weather may require that people without power be sheltered and fed.

Potential Impact - Existing Structures

Much of the property damage that occurs from severe winter weather is due to some type of utility failure:

Power Lines - Ice storms often adversely impact consistent power supplies. Ice buildup on wires can cause them to fall; downed tree limbs can knock out power lines. Prolonged power outages can be a threat for those relying on electricity for heat. This is a particular concern for more vulnerable populations such as the elderly.

Water Lines - Winter storms and the associated cold weather can be problematic for water lines, especially if a rapid freeze/thaw cycle is involved. As the ground freezes and thaws, pipes can shift and sometimes break, causing a lack of potable water. Broken pipes can cause extensive and expensive damage to property. Frozen and burst water pipes are a real concern for the homeowner.

Potential Impact - Future Development

There is no known future development that will have a particular impact on the vulnerability to severe weather. However, as with many non-locale specific hazards, growth and development

increase the size of the population and the assets at risk. However, there is still a need for more backup generators and transfer switches in the planning area. This is a difficult issue as the expense is great and the funding possibilities are limited. In addition, there is a need to find reliable transportation for vulnerable populations in need of transfer to shelters.

Hazard Summary by Jurisdiction

There are various shelters designated throughout Callaway County and its jurisdictions to help those in need or without power due to severe winter weather. Utility companies have tree and brush trimming removal around power lines to protect from vegetation taking down powerlines in high winds or ice storms. The loss of power during a winter weather event can be dangerous for people and structures.

PROBLEM STATEMENT

Severe winter weather is one of the most common and costly natural hazards to affect the planning area. In addition, climate data indicates that winter storms are increasing due to changes in the climate. All participating jurisdictions are vulnerable to this hazard.

Some of the worst problems from severe winter weather occur when ice storms affect the area; widespread and lengthy power outages can occur. In addition, traffic accidents are a major source of injuries during severe winter weather.

The further encouragement and effort toward moving utility lines underground will help limit damage to essential utilities during severe winter weather.

3.4.9 Tornado

Hazard Profile

Description of Hazard

A tornado is a violently rotating column of air which is usually generated by a supercell thunderstorm. The movement speed of a tornado is typically around 10-20 mph but can range from almost stationary to more than 60 mph, according to NOAA's National Severe Storms Laboratory. They often travel from southwest to northeast but can move in any direction.

Tornadoes occur most frequently in late afternoon and early evening but can occur at any time; they tend to dissipate as fast as they form. Unlike a hurricane, which can last for multiple hours, tornadoes are often in one place for no more than a few minutes. The seasonal, temporal, and spatial uncertainties surrounding thunderstorms and tornadoes make widespread and year-round preparedness essential.

Location

The entire planning area is at risk from tornadoes. All of Missouri is located in the zone known as Tornado Alley where the occurrence of tornadoes of varying intensities are common.

Strength/Magnitude/Extent

The Enhanced Fujita or EF-Scale (Table 3.44) is currently used in the United States to classify tornadoes. It is based on engineering studies of the wind effects on 28 different types of structures (buildings, towers, poles, trees). This indirect measurement of speed is used because it is currently not possible to measure ground-level speeds in strong tornadoes; the winds destroy the instruments needed for measurement.

In addition to estimated wind speeds, averaged data from tornadoes can give an idea of the length and width of tornadoes in the different classifications.

Table 3.44 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 EF-Scale has been in use since February 1, 2007. It uses the same ratings as the original Fujita Scale (F-Scale) which it replaced, but the wind speeds have been adjusted to reflect current knowledge and give a more realistic estimate of wind speeds for all tornadoes, including historical ones in the NOAA database. The ratings of tornadoes prior to 2007 were not changed in the NOAA database with the adoption of the EF-Scale.

There continue to be limitations even with the EF-Scale since the scale is based on sustained damage. The table below list damage summaries for their respective EF rating.

Table 3.45 Enhanced Fujita Scale with Potential Damage

Enhanced Fujita Scale			
Scale	Wind Speed (mph)	Relative Frequency	Potential Damage
EF0	65-85	53.5%	Light. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e. those that remain in open fields) are always rated EF0).
EF1	86-110	31.6%	Moderate. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	10.7%	Considerable. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes complete destroyed; large trees snapped or uprooted; light object missiles generated; cars lifted off ground.
EF3	136-165	3.4%	Severe. Entire stores of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some 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>

Another issue with tornadoes is speed of onset. Technological advances, such as Doppler radar, computer modeling, and Emergency Warning Systems, have increased the amount of time the general public has to respond to a tornado. Despite these advances, tornadoes can still strike an area with little warning. Often people have no more than a few minutes to get to safety. Being able to quickly get to a safe place is absolutely imperative in order to prevent loss of life.

The planning area has experienced 18 tornado events since October 1966, as officially recorded by NOAA.

The historical record in the planning area over this 50-year period indicates tornadoes in the EF0 to EF2 range. While history is informative, it is not necessarily predictive of the future; there is the possibility that the planning area could experience a tornado above the EF2 level in the future.

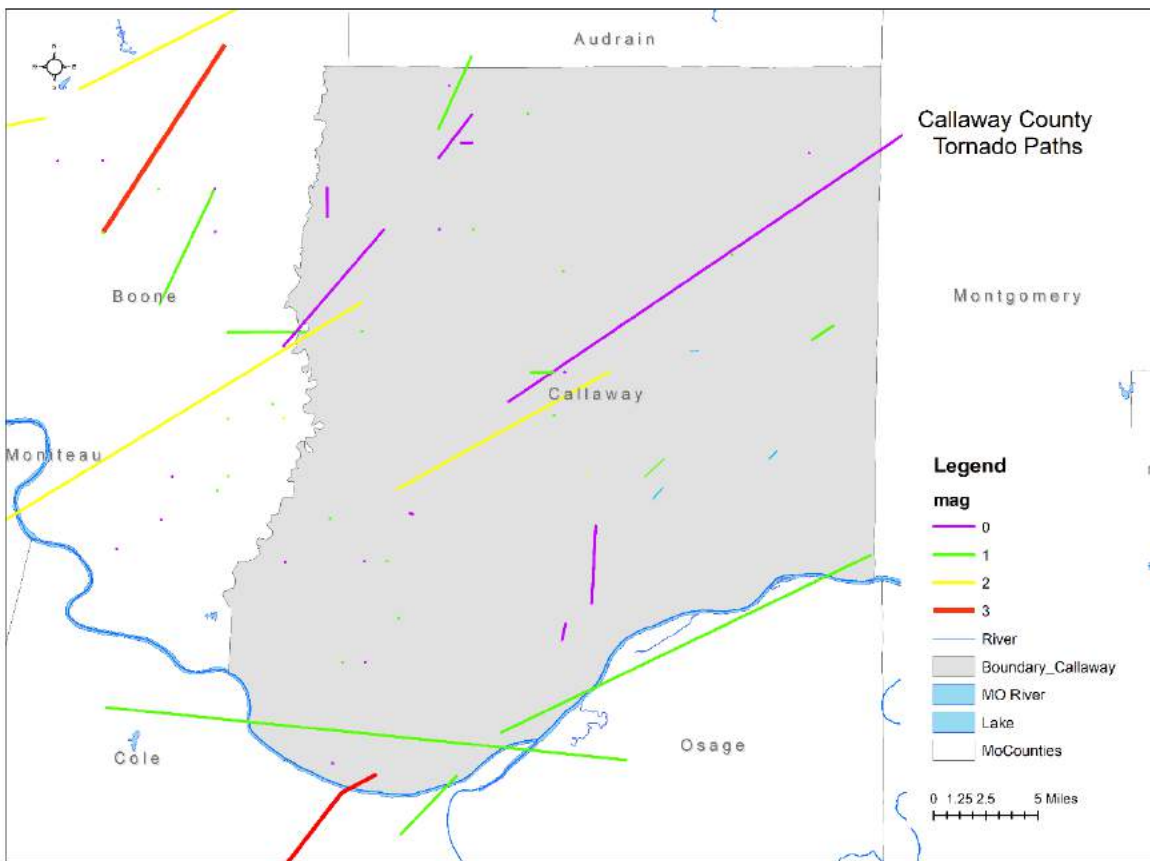
In addition, many historical tornadoes may have been stronger than the data indicates. According to the NOAA website, “Because the only way we can compare all tornadoes is by whatever damage they caused, and EF5/F5 damage is only possible when tornadoes hit well-built structures, the true ‘violence’ of most historical tornadoes is unknown—especially before the middle to late 20th century.”

Table 3.46 Callaway County Tornado Events 1955-2020

ID	Location	Date	Event Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
10063807	CALLAWAY CO.	9/27/1959	Tornado	F0	0	0	250	0
10061569	CALLAWAY CO.	6/30/1960	Tornado	F1	0	0	25000	0
10062743	CALLAWAY CO.	6/7/1961	Tornado	F1	0	0	2500	0
10062792	CALLAWAY CO.	7/20/1964	Tornado	F1	0	1	2500	0
10059010	CALLAWAY CO.	5/23/1966	Tornado	F1	0	0	25000	0
10059011	CALLAWAY CO.	5/23/1966	Tornado	F2	0	0	25000	0
10056345	CALLAWAY CO.	7/17/1968	Tornado	F0	0	0	2500	0
10058116	CALLAWAY CO.	9/7/1970	Tornado	F1	0	0	2500	0
10055923	CALLAWAY CO.	11/1/1971	Tornado	F1	0	0	2500	0
10057977	CALLAWAY CO.	7/20/1973	Tornado	F1	0	0	2500	0
10058550	CALLAWAY CO.	5/12/1980	Tornado	F2	0	0	25000	0
10058552	CALLAWAY CO.	5/12/1980	Tornado	F1	0	0	250000	0
10057516	CALLAWAY CO.	3/15/1982	Tornado	F0	0	0	250000	0
10070914	CALLAWAY CO.	5/15/1990	Tornado	F0	0	0	0	0
10070454	CALLAWAY CO.	7/2/1992	Tornado	F0	0	0	0	0
10072213	CALLAWAY CO.	9/7/1992	Tornado	F0	0	0	2500	0
10072214	CALLAWAY CO.	9/7/1992	Tornado	F1	0	0	25000	0
10332972	Holts Summit	4/26/1994	Tornado	F0	0	0	0	0
10333044	Fulton	7/8/1995	Tornado	F0	0	0	0	0
5636437	KINGDOM CITY	4/13/1998	Tornado	F1	0	0	50000	0
5134919	KINGDOM CITY	2/25/2000	Tornado	F0	0	0	0	0
5134920	HATTON	2/25/2000	Tornado	F1	0	0	0	0
5134806	HATTON	2/29/2000	Tornado	F0	0	0	0	0
5177931	KINGDOM CITY	2/29/2000	Tornado	F0	0	0	0	0
5139149	WILLIAMSBURG	4/20/2000	Tornado	F1	0	0	50000	0

5243127	FULTON	4/10/2001	Tornado	F1	1	2	75000	0
5488432	KINGDOM CITY	9/19/2005	Tornado	F0	0	0	0	0
5495818	TEBBETTS	3/12/2006	Tornado	F1	0	0	0	0
5495917	PORTLAND	3/12/2006	Tornado	F0	0	0	0	0
5495919	PORTLAND	3/12/2006	Tornado	F0	0	0	0	0
5494716	GUTHRIE	3/13/2006	Tornado	F2	0	2	0	0
5515134	SHAMROCK	6/10/2006	Tornado	F0	0	0	0	0
63965	HATTON	10/17/2007	Tornado	EF0	0	0	50000	0
128860	STEPHENS	7/27/2008	Tornado	EF0	0	0	0	0
216031	MOKANE	3/10/2010	Tornado	EF0	0	0	0	0
216032	MOKANE	3/10/2010	Tornado	EF0	0	0	0	0
597913	GUTHRIE	6/28/2015	Tornado	EF0	0	0	0	0
714503	WILLIAMSBURG	5/19/2017	Tornado	EF1	0	0	0	0
827847	READSVILLE	5/21/2019	Tornado	EF1	0	0	0	0
829419	(JEF)JFFRSN CITY MEM	5/22/2019	Tornado	EF1	0	0	10000	0
Total					1	5	877750	0

Map 3.18 Callaway County Tornado Paths 1955-2020



Probability of Future Occurrence

High - all participating jurisdictions

For the period from October 1955 through December 2020, a period of approximately 65 years, the NOAA database reports 26 years with at least one tornado event in the planning area. Based on this historical data, the calculated probability of a future tornado event of any magnitude in a year is about 40 percent.

The probabilities of occurrence of the different magnitudes of tornadoes in any given year, based on historical data, have also been calculated (Table 3.47). While the calculated probabilities for an EF3, EF4, or EF5 tornado are 0 percent, this does not mean tornadoes of these magnitudes could not occur in the planning area; it just means they have not occurred in the historical record.

EF-Scale	# of years with tornado event (1955-2020)	Probability	Probability Rating
All	26	40%	High
EF0	15	23%	Moderate
EF1	16	24.6%	Moderate
EF2	3	4.5%	Low
EF3	0	0%	Low
EF4	0	0%	Low
EF5	0	0%	Low

Changing Future Conditions Considerations

It is not confidently known how the change in climate could impact the frequency or severity of future tornadic activity. While the activity zone has not expanded according to the State Hazard Mitigation Plan 2018 the number of tornadoes has gone up since the 1950s. More studies will be needed to know the true impact over time.

Vulnerability

Vulnerability Overview

The entire planning area is highly vulnerable to the potentially devastating impact of tornadoes. Their random nature and potentially quick speed of onset pose particular risks for human life. Tornadoes of the magnitude known to historically occur in the area can wreak extensive and costly structural damage. The destructive effects of a tornado depend on the strength of the winds, proximity to people and structures, the strength of structures, and how well a person is sheltered. They are obviously a hazard with the potential to cause both great loss of life and

catastrophic destruction. The whole planning area is located in “Tornado Alley” where historically dangerous and destructive tornados occur frequently.

Map 3.19 Tornado Alley in the U.S.



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

Potential Losses to Existing Development

The destructive effects of a tornado depend on the strength of the winds, proximity to people and structures, the strength of structures, and how well a person is sheltered. They are obviously a hazard with the potential to cause both great loss of life and catastrophic destruction.

Potential Impact - Life

While tornadoes can strike anywhere, there is a greater chance of injury and loss of life (and destruction of property) in population centers. This is especially true of a tornado with a large path.

There have been no reported injuries associated with recorded tornadoes in the planning area.

Potential Impact - Existing Structures

Tornadoes cause the most-costly physical destruction when they touch ground in urban areas. High winds affect all structure types differently; non-permanent and wood-framed structures are especially vulnerable to destruction.

In addition to a direct hit on a building by a tornado, damage to trees poses a serious threat. People, buildings, power lines, and vehicles are all at risk from falling branches, uprooted trees, and windblown debris.

Potential Impact - Future Development

A larger population and more extensive built environment increase the risk of injury, loss of life, and damage from tornadoes.

It would be wise to consider mitigation strategies for tornadoes and other high-wind situations during the planning phase of any new development. The type of construction greatly affects vulnerability to tornadoes and high winds. Design and construction choices and the inclusion of hardened areas for safe rooms can save lives. With a number of older buildings in the area it would also be wise to consider hardening methods when doing renovations of existing structures.

Hazard Summary by Jurisdiction

There are a variety of strategies in place in the planning area by which the public can be informed of severe weather conditions resulting from thunderstorms. Throughout Callaway County are shelters where county residents can go during a tornado warning to seek shelter if they are unable to safely shelter in place. All of the towns within the county have installed warning sirens that are tested regularly. Areas without access to a siren are encouraged to use text alerts provided by local news outlets.

Problem Statement

The entire planning area is highly vulnerable to the potentially devastating impact of tornadoes. Their random nature and potentially quick speed of onset pose particular risks for human life. Tornadoes of the magnitude known to historically occur in the area can wreak extensive and costly structural damage. Public awareness education, excellent weather coverage by the local media, an excellent outdoor warning system, and regular emergency exercises in the schools help mitigate the risk to human life. However, there is a great need throughout the planning area for more safe rooms to protect from high wind events; this is especially true in the schools. Additionally, more vigorous promotion of NOAA radio use would help protect the general public. Additional generators and power transfer hookups are needed in case of widespread and/or lengthy power outages. All of these identified needs have been targeted for action in the mitigation strategy; funding remains an issue for the more costly safe rooms and generators/power transfer hookups.

3.4.10 WILDFIRE

HAZARD PROFILE

DESCRIPTION OF HAZARD

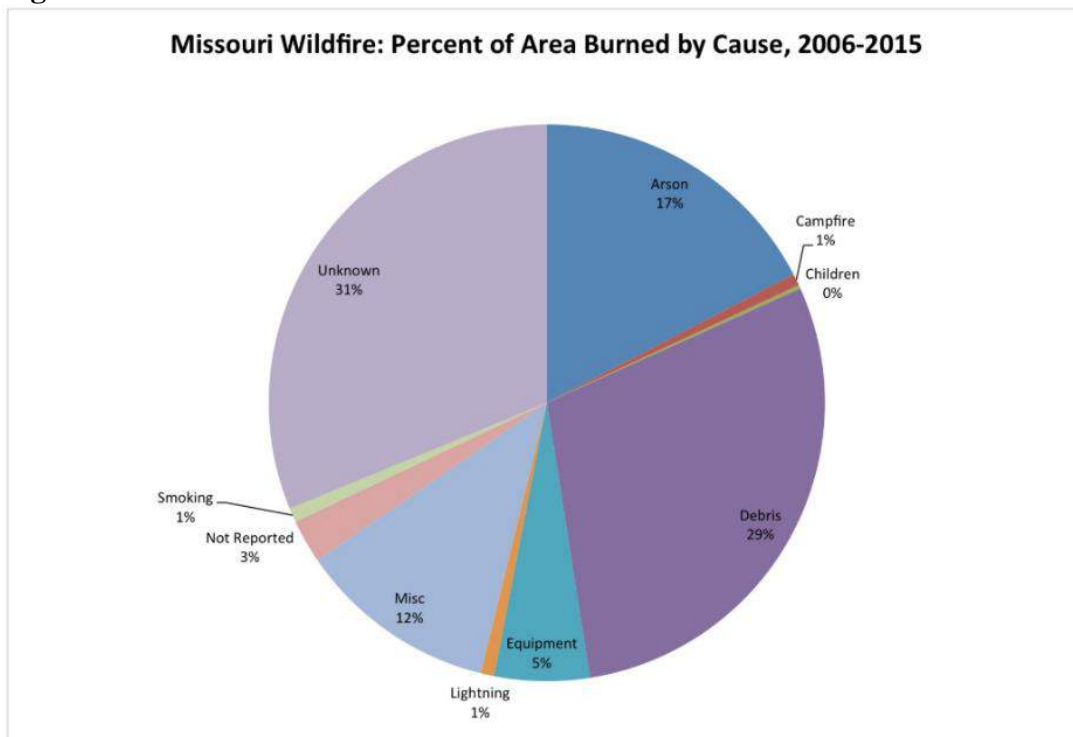
Large and widespread wildfires, such as occur in the western United States, have not been a problem in Callaway County in recent history. However, smaller wildfires/natural cover fires occur every year.

These fires may take place at any time of the year but the majority occur during the spring fire season (February 15 - May 10). Spring is the time of the year when rural residents burn garden spots and brush piles. Many landowners also believe it is necessary to burn the woods in the spring to grow more grass, kill ticks, and get rid of brush. These factors, combined with low humidity and high winds, result in higher fire danger at this time of year. The spring fire season abates with the growth of the new season's grasses and other green vegetation.

Numerous fires also occur in October and November due to the dryness associated with fall in Missouri. Many rural residents use this time of year to burn leaves and debris thus raising the possibility of a fire which burns out of control.

The major causes of wildfires in Missouri are various human activities, according to statistics from the Missouri Department of Conservation (Figure 3.4).

Figure 3.4: Missouri Wildfire Source



Source: Missouri Department of Conservation

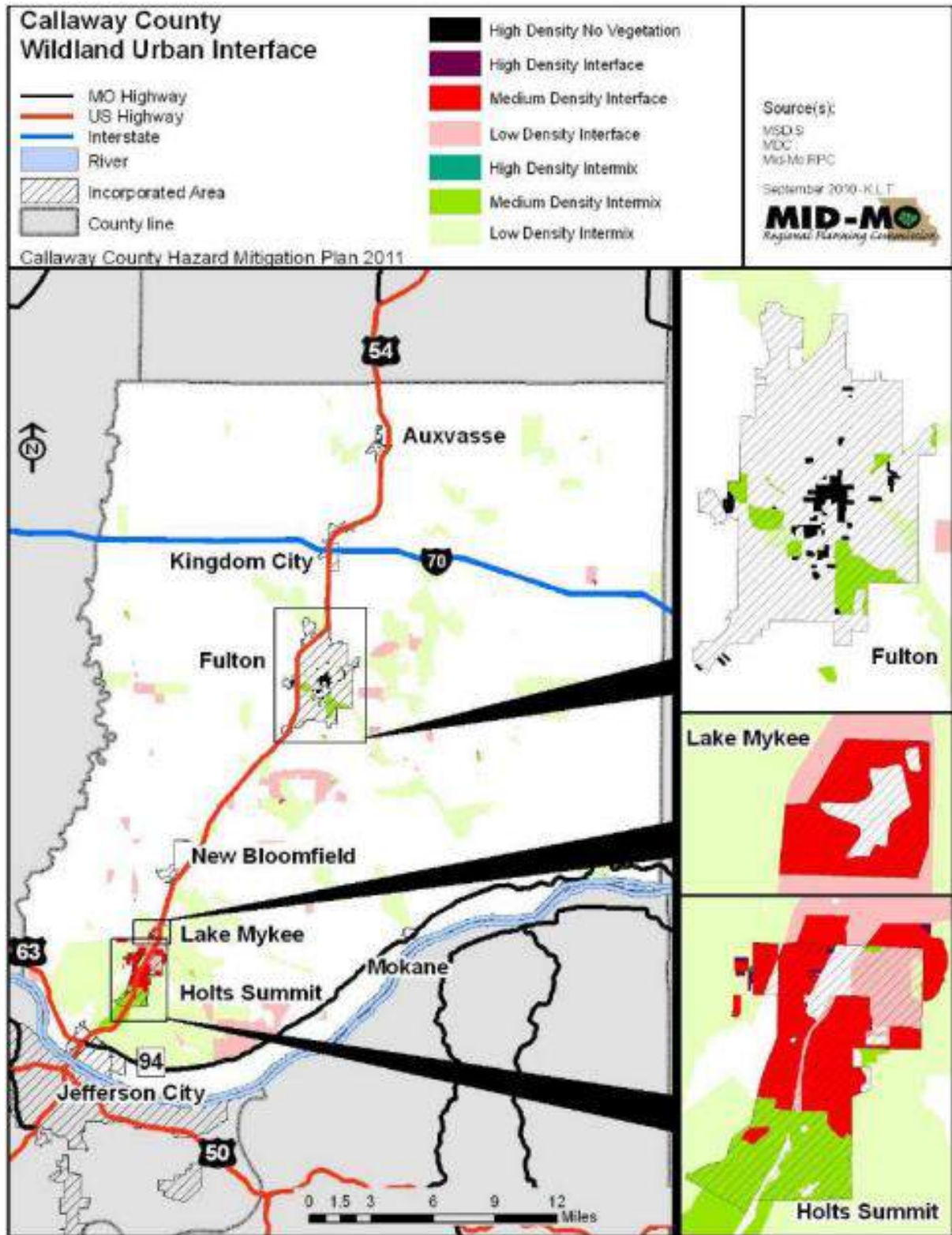
Location

Due to the unpredictability of wildfire, the entire planning area is considered to be at some risk. However, the unincorporated area of Callaway County and the Cities of Fulton and Holts Summit are most at risk from wildfire due to Wildland Urban Interfaces (WUIs).

The Wildland Urban Interface (WUI) is defined as “the area where structures and other human development meet or intermingle with undeveloped wildland” in a 2001 Federal Register report. There is a higher risk scenario for wildfire in these areas where high fuel loads and structures meet or overlap.

A Wildland Urban Interface (WUI) map (Map 3.20) does not depict any high-risk areas due to the lack of heavy forested areas and intense farming practices.

Map 3.20 Callaway County WUI



Strength/Magnitude/Extent

Most fires in the planning area are brush fires which are usually dealt with in less than a few hours.

Previous Occurrences

The Missouri Department of Conservation (MDC) maintains a database of wildfires reported within the state, which can be found on the MDC website. The database indicates 324 wildfire events in Callaway County between January 2012 and December 2020.

An inspection of the data for Callaway County indicates that the largest reported burnt acreage was 235 acres where a powerline possibly sparked a fire. In 2018, 103 acres in Callaway County burned as a result of brush pile that was blown out of control by wind near thick brush. The majority of wildfires are debris fires such as leaf burning and brush pile burning that gets away from a landowner.

Probability and Severity of Future Occurrences

Probability: Moderate

Severity: low

The probability of wildfires increases during conditions of excessive heat, dryness, and drought. The probability is also higher in spring and late fall. The Missouri State Hazard Mitigation Plan points out that the probability of wildfires may increase to high during conditions of excessive heat, dryness, and drought. The probability is also higher in spring and late fall.

Changing Future Conditions Considerations

Raising temperatures and more sporadic rains with longer periods of dry between rain events could affect vegetation and the number of days prescribed burns can safely be performed. With increased rainfall can be expected to come an abundance of plant growth that won't be able to be renewed with less prescribed burns making more fuel for fires that potentially get out of control. An increase in droughts and dry vegetation not only in the forest but around homes in the form of depleted landscaping material creates heightened risk for structures to be overtaken by wildfires.

VULNERABILITY

Vulnerability Overview

Wildfires in the planning area are often natural cover and brush fires which do not have the heavy fuel load of forested areas; they tend to be limited in their spatial extent thus minimizing their impact in comparison with other potential wildfires in Missouri.

Potential Impact - Existing Structures

While wildfires in the central Missouri area have the potential to destroy buildings, data from the entire Mid-Missouri RPC region indicates that this is more the exception than the rule. Wildfires are usually quickly suppressed, and the damage to the built environment is minimal.

Potential Impact - Future Development

Potential impacts of this hazard on future development are not quantifiable with the resources available.

Hazard Summary by Jurisdiction

Wildfires in Callaway County tend to be limited in their spatial extent, thus minimizing their impact. According to the Missouri Department of Conservation, 49 percent of all wildfires in Missouri result from debris burning that gets out of hand and starts a wildfire. People and structures in the path of a wildfire are all at risk of minimum to extensive damage.

While wildfires occur on a regular basis, they are usually easily suppressed by a quick response from the fire districts and thus limited in their spread and destruction.

Problem Statement

Wildfire is not a major threat in the planning area; however, all participating jurisdictions are potentially vulnerable. The threat is greatest in unincorporated Callaway County but jurisdictions with or near significant Wildland Urban Interface also have a heightened risk.

While wildfires occur on a regular basis, they are usually easily suppressed by a quick response from the fire districts and thus limited in their spread and destruction.

Chapter 4: Mitigation Strategy

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Chapter 4: Mitigation Strategy

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 based on the updated risk assessment. The following definitions are taken from FEMA's *Local Hazard Mitigation Review Guide* (October 1, 2012)

- **Mitigation Goals** are general guidelines that explain what you want to achieve. Goals are long-term policy statements and global visions that support the mitigation strategy. The goals address the risk of hazards identified in the plan.
- **Mitigation Actions** are specific actions, projects, activities, or processes taken to reduce or eliminate long-term risk to people and property from hazards and their impacts. Implementing mitigation actions helps achieve the plan's mission and goals.

The original Project Steering Committee (2003-2004) was charged with developing a comprehensive range of mitigation actions to promote the agreed upon mitigation goals. Objectives were defined under each goal and the mitigation actions were then developed to promote each objective. The following six categories of mitigation were considered in developing the mitigation actions:

- **Prevention tools** - regulatory methods such as planning and zoning, building regulations, open space planning, land development regulations, and storm water management.
- **Property protection measures** - acquisition of land, relocation of buildings, modifying at-risk structures, and flood proofing at-risk structures.
- **Natural resource protection** - erosion and sediment control or wetlands protection.
- **Emergency services measures** – warning systems, response capacity, critical facilities protection, and health and safety maintenance.
- **Structural mitigation** - reservoirs, levees, diversions, channel modifications and storm sewers.
- **Public information** - providing hazard maps and information, outreach programs, real estate disclosure, technical assistance and education.

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.

The hazard mitigation goals first developed during the 2005 were updated in 2022 to reflect the State Goals.

The four county hazard mitigation goals for the Callaway County Hazard Mitigation Plan (2022) are:

- Goal 1: Implement mitigation actions that improve the protection of human life, health, and safety from the adverse effects of disasters
- Goal 2: Implement mitigation actions that improve the continuity of government and essential services from the adverse effects of disasters
- Goal 3: Implement mitigation actions that improve the protection of public and private property from the adverse effects of disasters
- Goal 4: Implement mitigation actions that improve the protection of 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.

Update of Mitigation Actions

The Planning Committee were given lists of their previous action items at meeting #2 to be reviewed and evaluated. 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. In order to ensure that there was a comprehensive mitigation approach to each hazard the MPC reviewed the following information:

- 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, and
- Public input during meetings, responses to data collection questionnaires, and other efforts to involve the public in the plan development process.

Meetings were hosted for specific disciplines, Fire, Municipalities, Water Districts, and Schools were hosted individually to talk about hazard mitigation planning and to go over action mitigation items. Dividing out disciplines into their own meetings for action item discussion proved valuable to holding interest and having a more thorough and meaningful conversation. MPC members who had to sit through discussion that was not relevant to their situation were less likely to show up and participate in the next meeting. They felt this format worked better for the longer more complex portion of mitigation planning.

Many of the 2017 actions were kept in the 2022 strategy action plan either because they have not yet been completed or because they are ongoing actions which the committee wanted to highlight in the overall plan. Others were deleted from the plan due to them not being measurable. Entities with N/A are entities that were not part of the last update as an individual participant so they do not have past actions to look back at for the below table.

Table 4.1 Action Status Summary

Jurisdiction	Completed Actions	Continuing Actions (ongoing or modify)	Deleted Actions
Callaway County	18	10	6
Auxvasse	7	2	6
Fulton	8	4	6
Holts Summit	7	3	8
Kingdom City	4	3	6
Mokane	5	3	2
New Bloomfield	5	2	6
Fulton Public Schools	7	2	3
JC School District	N/A	N/A	N/A

New Bloomfield R-III	7	2	3
North Callaway R-I	7	2	3
South Callaway R-II	7	2	3
MO School of the Deaf	N/A	N/A	N/A
PWSD #1	3	1	5
PWSD #2	3	1	5
Central Callaway FPD	N/A	N/A	N/A
Holts Summit FPD	N/A	N/A	N/A

Entities showing N/A did not participate or provide action items in the last update, thus not having any to look back on.

Table 4.2 Summary of Completed and Deleted Actions from the Previous Plan

Completed Actions	Completion Details (date, amount, funding source)
Identify alternate fuel sites with back-up generator for emergency vehicles	Sites are identified with fuel agreements in place.
Identify location and maintain a record of all dams in the county, and have Emergency Action Plans on file for each high hazard state regulated dam.	EAPs are on file.
Promote whole community planning in disaster and response planning.	Meetings are facilitated as needed.
Increase awareness of available county generators	Communities have been issued generator request documentation and procedure packets.
Identify viable evacuation routes to include access to critical facilities and the plans for emergency evacuation.	List completed. Two land locked locations during floods has been identified and planned for.
Work towards all inclusive emergency planning with local response organizations, government, non-government organizations, businesses, faith based.	Meetings and MOUs have been facilitated.

Review plans to ensure schools continue to meet Revised Statutes of Missouri's earthquake emergency response and safety system.	Annual review
The Office of Emergency Management will conduct coordination efforts and planning meetings to mitigate response issues due to road conditions and inclement weather and ensure information on weather conditions is communicated to public schools, critical facilities, and emergency response personnel.	Annual winter operations meeting
Work with local communities and Red Cross to identify shelter locations and obtain formal agreements for use of facilities.	List updated annually
Work with Red Cross and identified shelter facilities to update shelter agreements.	List updated annually
Identify additional heating/cooling centers within Callaway County.	List updated annually
Establish annual winter operation coordination meetings to coordinate communication between schools and state and local transportation (public works/road and bridge) regarding road conditions before and during inclement weather.	Standard winter operations
Ensure jurisdictions/communities have identified individuals responsible for clearance of vegetation and combustible material from critical infrastructure.	All communities have identified vegetation with clearing policies.
Equip all school buses with mobile battery chargers for cellular devices.	Buses are equipped with chargers.
Electric transfer switches to be installed on all identified shelter facilities.	One shelter installed switch. Item consolidated into another action item.
Callaway Office of Emergency Management to accompany DNR for visits to unregulated and regulated dams.	Done annually
Encourage electric service providers to include trimming trees and branches away from power lines as part of their maintenance program.	Power companies have clearing schedules.
Install outdoor warning sirens in communities where there are none.	New Bloomfield was final community to get siren.
Review and Update school plans on an annual basis to address all potential hazards	Required of all schools and is being done
Replace overhead utilities	This is done at any new facilities being built or renovated.

Continue to promote annual hazard drill participation	Drills are required and performed at all school districts.
Deleted Action	Deletion Reason
Cooperative agreements between water providers and fire department districts	Not the responsible agency for this
Inspect, make repairs and upgrades as needed to critical infrastructure.	Already a required activity
Promote annual hazard drill participation throughout the County	Already being done
Encourage construction or designation of hardened facilities at mobile home parks, apartment complexes and campgrounds.	These are private facilities. No jurisdiction.
Place safe driving signage along major roads and highways	Not a mitigation action
Provide public education materials on natural hazards that impact Callaway County.	Already being done.
Review, Identify, prioritize, institute and monitor needed retrofits and upgrades critical buildings and infrastructure.	Fulton has plans in place already for their critical facilities.
Encourage shelters to have electric transfer switches	Not an action the city has control over.
Ensure the ability to respond to severe weather	Not measurable

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 members of their community to finalize actions to be submitted for the updated mitigation strategy. The Disaster Mitigation Act requires benefit-cost review as the primary method by which mitigation projects should be prioritized. The committee was asked to take this into account when discussing actions for their jurisdiction. It was decided that projects will be prioritized by when and where damage occurs, available funding, and political will. Details of projects at the planning stage are not in-depth benefit/cost reviews and further details will be refined as there is project development.

STAPLEE AND BENEFIT/COST REVIEWS

STAPLEE Review – The process for selecting and prioritizing action items did not change for the update. The Planning Committee conducted a STAPLEE review of the ongoing and possible new mitigation actions using key questions for each of the STAPLEE categories:

After the actions were evaluated, the following formula was used to calculate the percentage of points scored out of points available for each individual action: % score = (total points/total of applicable criteria) * 100

Table 4.3 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)
--

<input type="checkbox"/> High Priority (30+ points)	<input type="checkbox"/> <input type="checkbox"/> Medium Priority (25 - 29 points)	<input type="checkbox"/> Low Priority (<25 points)
---	--	--

Completed by
(Name, Title, Phone Number) _____

Benefit/Cost Review

The benefit of each action was evaluated by awarding two (2) points for each of the following *avoided* damages (8 points maximum = highest benefit):

- Injuries and/or casualties (IC)
- Property damages (PD)
- Loss-of-function (LF) – includes loss of utility services, impact of road/bridge closures, loss of income, cost of displacement
- Emergency management costs/community costs (EMCC)

The cost of each action was according to the following scale (-4 points maximum = highest cost):

- Already in place or easily put into work program (-1)
- Low/moderate cost – could be worked into operating budget (-2)
- Moderate/high cost –help with funding possibly needed depending on specifics of project (-3)
- High cost – outside help with funding definitely needed (-4)

Prioritization

The Planning Committee reviewed the % STAPLEE score and benefit/cost review for all of the actions and prioritized them according to the following scale:

- High – Work should begin as soon as possible; action should be accomplished in the next 5 years
- Medium – Work could begin within the next 5 years, if time and resources allow
- Low – Long-range goal, if time and resources allow; work within the next 5 years is possible but not probable

It was understood that some of these priorities might be changed by the individual jurisdictions due to funding or staffing constraints as they developed their plans for action implementation.

It should be noted that a number of high priority actions scored somewhat low on both the STAPLEE review and the benefit/cost review due to their high cost which figures into both reviews. These actions remain a high priority with the hope that funding will become available. The mitigation actions suggested for the specific participating jurisdictions were handed over to the representatives or governing bodies of those jurisdictions for implementation and administration decisions.

It was recognized that participating jurisdictions might choose to either change the prioritization of or exclude some suggested mitigation actions based on current specifics of time, resources, and capabilities. In addition, new mitigation actions might be added based on specific issues.

The mitigation actions for which each participating jurisdiction is the lead are shown in the following pages. The Callaway County Office of Emergency Management is the lead on many actions which mitigate hazards for the entire planning area.

Callaway County

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain development ordinance in accordance with NFIP participation, regulate new construction in the SFHAs and floodplain identification for mapping.
Estimated Cost	Less than \$10,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Floodplain Administrator
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	County, State, Federal
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	ongoing
Report on Progress	During the past 5 years the Floodplain Administrator has identified and worked to correct potential violations within the SFHA. The County Floodplain Management Ordinance was updated in 2021, and administrative procedures for floodplain management has been implemented. This action item will remain open, the language has been modified in order to be consistent.

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Drought
Problem Being Mitigated	Insufficient water pressure and/or limited availability.
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.2
Name of Action or Project	Improve water supply and delivery systems
Action or Project Description	Work with the water districts to identify areas with the most dire need of expanding their water supply, improve delivery systems to accommodate drought events and have insufficient water pressure. Develop new or upgrading existing water delivery systems to eliminate breaks and leaks and address water supply and delivery systems.
Estimated Cost	\$500,000 to \$1,000,000
Benefits	EMCC, LF
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	County, State and Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Ongoing
Report on Progress	Water district consistently look for additional water sources and upgrade or retrofit water delivery systems as funding becomes available.

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Loss of mission essential functions and severity of disruption of critical services
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan
Action or Project Description	Develop and maintain continuity of operations plan for County and Municipal government. Encourage businesses and public facilities to create or maintain COOP plans in order to reduce the severity of disruptions and restore mission essential functions for staff and citizens.
Estimated Cost	Less than \$10,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Callaway County, Emergency Management and Local Jurisdictions.
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	Keep - Modify
Report on Progress	Callaway EMA has worked with businesses, NGOs, and other public facilities to create emergency operation plans. Emergency management will now focus towards the Continuity of Operations Plan development portion of this action item

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Loss of Life
Action or Project	
Applicable Goal Statement	4
Action/Prj. #	1.4
Name of Action or Project	Early Warning System - Smart 911, Weather Alert Radios, IPAWS
Action or Project Description	Provide and prioritize public information programs in Callaway County to ensure individuals opt-in to receive alerts and warnings through the County mass notification system and provide information on other early warning systems that are available and utilized in Callaway County.
Estimated Cost	\$10,000 to \$50,000
Benefits	LF, EMCC, PD, IC
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	High
Timeline for Completion	2-3 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	Keep - Modify
Report on Progress	Modifying to include all early warning systems instead of limiting it to smart 911

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Severe repetitive loss properties
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	1.5
Name of Action or Project	Reduce the number of severe repetitive loss properties.
Action or Project Description	Work to reduce the number of repetitive loss properties within the County and within the municipalities utilizing all available local, state and federal mitigation resources.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, EMCC
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	More than 5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Ongoing
Report on Progress	Funds not available to complete buyout and restoration of property to natural state.

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Lack of safe hardened structure for public during tornado event
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	Building a shelter that offers safety for public during a tornado. Encourage development and implementation of tornado safe rooms in populated and public event areas throughout Callaway County as resources become available.
Estimated Cost	Over \$1,000,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available for County to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	Loss of essential function to critical infrastructure during power outage for long periods of time
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.7
Name of Action or Project	Generator & Transfer switches
Action or Project Description	Purchase generator(s) to ensure power to restore essential functions to critical infrastructure during local power outages and add transfer switches to critical infrastructures to insure connectivity at each location.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	This is an ongoing action item to ensure power is available to all critical infrastructures. In the last 5 years, the County installed a transfer switch to County Road and Bridge mechanic facility to ensure road equipment repairs during winter weather operations. Updated portable generators with cam locks, and one identified shelter site has installed a transfer switch to accommodate one of the portable generators.

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Lack of outdoor warning siren coverage
Action or Project	
Applicable Goal Statement	4
Action/Prj. #	1.8
Name of Action or Project	Outdoor Warning Sirens
Action or Project Description	Continue outdoor warning siren coverage for vulnerable areas within Callaway County as funding becomes available.
Estimated Cost	\$10,000 to \$50,000
Benefits	LF, EMCC, IC
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Ongoing
Report on Progress	This is an ongoing action item as county-wide coverage has not been achieved in all populated areas. During the past 5 years an outdoor warning siren was installed in New Bloomfield.

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Reduce and avoid flood damage to insurable property and infrastructure
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	1.9
Name of Action or Project	Participation in the National Flood Insurance Program (NFIP) Community Rating System (CRS).
Action or Project Description	Examine the costs, potential benefits and requirements of the mitigation activities required of Callaway County for enrollment into the Community Rating System (CRS), which is part of the National Flood Insurance Program (NFIP).
Estimated Cost	Over \$1,000,000
Benefits	PD, EMCC, IC
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	Other
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	HMP, EOP, Floodplain Management Ordinance
Action Status	
Status	KEEP - Modify
Report on Progress	This is an ongoing action item as it may be cost prohibitive to partner utility providers and lack of funding availability for County

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Vulnerability to vital utilities not buried underground
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	1.10
Name of Action or Project	Identify and replace overhead utilities with underground utilities where possible.
Action or Project Description	Burying power lines to provide uninterrupted power caused by severe winds considering both maintenance and repair issues. Incorporate GIS to map and identify at-risk structures.
Estimated Cost	Over \$1,000,000
Benefits	PD, EMCC, IC, LF
Plan for Implementation	
Responsible Organization / Department	Callaway County and Utility Partners
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Ongoing
Report on Progress	This is an ongoing action item and will be completed as funds become available.

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Earthquakes
Problem Being Mitigated	Lack of ability to assess local vulnerability to earthquakes.
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	1.11
Name of Action or Project	Identify at-risk structures and associated hazards (liquefaction) and maintain a database to track community and critical infrastructure vulnerability to earthquake risk.
Action or Project Description	Use GIS to map hazard areas, at-risk structures, and associated hazards to assess high-risk areas and vulnerable populations and Review construction plans for all bridges to determine their susceptibility to collapse and retrofitting problem bridges.
Estimated Cost	\$50,000 to \$100,000
Benefits	PD, EMCC, LF, IC
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Damage to roadways and infrastructure
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	1.12
Name of Action or Project	Improvement to roads/infrastructure to reduce flood damage
Action or Project Description	Elevate roads and bridges above the base flood elevation to maintain dry access, stabilize or armoring of vulnerable shoulders or embankments, conduct minor structural projects such as floodwalls or small berms in areas that cannot be mitigated through non-structural activities, prevent erosion through bank stabilization, sloping or grading techniques or installing riprap or geotextile fabric. Improve roadways and infrastructure susceptible to damage due to heavy rain and flooding reducing future costs to repair damage as well as keep public access open for emergency response vehicles, evacuation routes, and commerce.
Estimated Cost	\$500,000 to \$1,000,000
Benefits	PD, EMCC, IC, LF
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	CALLAWAY COUNTY
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Low Water Crossing and Culvert Mitigation
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	1.13
Name of Action or Project	Reduce number of low water crossings and replace undersized culverts.
Action or Project Description	Reduce number of low water crossings on Callaway County roadways and replace culverts by increasing dimensions in flood prone areas to accommodate for flow of water under the roadway to reduce or eliminate damage to roadways. Implement this action as funding becomes available.
Estimated Cost	\$500,000 to \$1,000,000
Benefits	PD, EMCC, LF
Plan for Implementation	
Responsible Organization / Department	Callaway County
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Auxvasse

Action Worksheet	
Name of Jurisdiction	Auxvasse
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of structure for safety for public
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	building a shelter to offer safety for public during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Auxvasse
Action / Project Staplee Score / Priority	HIGH
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	Auxvasse
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	loss of essential function during power outage for periods of time
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Purchase generator(s) to ensure proper function during local power outages
Estimated Cost	\$100,000 to \$500,000
Benefits	IC,PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Auxvasse
Action / Project Staplee Score / Priority	HIGH
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	Auxvasse
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of outdoor warning during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.8
Name of Action or Project	Outdoor weather siren
Action or Project Description	Continue to maintain and upgrade early weather warning system
Estimated Cost	\$100,000 to \$500,000
Benefits	IC
Plan for Implementation	
Responsible Organization / Department	Auxvasse
Action / Project Staplee Score / Priority	HIGH
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Auxvasse
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	unaware of essential functions
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan
Action or Project Description	build a COOP to prepare for loss of essential function
Estimated Cost	Less than \$10,000
Benefits	LF
Plan for Implementation	
Responsible Organization / Department	Auxvasse
Action / Project Staplee Score / Priority	MEDIUM
Timeline for Completion	3-5 years
Potential Funding Source	
Local Planning Mechanism to be Used	
Action Status	
Status	New
Report on Progress	

Fulton

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Lack of structure for safety to the public during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	building a shelter that offers safety for public during a tornado
Estimated Cost	over \$1,000,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Loss of essential functions during power outage for periods of time
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator(s)
Action or Project Description	Purchase generator(s) to insure proper function during local power outages.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	The City does not have enough generators for key facilities.

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Loss of essential functions during power outage for periods of time
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	1.10
Name of Action or Project	Underground Utilities
Action or Project Description	Replace overhead utilities with underground utilities where possible
Estimated Cost	Over \$1,000,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Ongoing
Report on Progress	Typically budget about \$200,000 a year for ongoing work.

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain management requirements, regulate new construction in SFHAs, floodplain identification for mapping.
Estimated Cost	Less than \$10,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	City General Revenue
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	KEEP - Ongoing
Report on Progress	Consistent floodplain ordinance enforcement via plan and construction site review by our Planning and Protection Services and Engineering Department.

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of outdoor warning during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.8
Name of Action or Project	Outdoor weather Siren
Action or Project Description	Install more early weather warning sirens
Estimated Cost	\$100,000 to \$500,000
Benefits	IC
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Unaware of essential functions
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan (COOP)
Action or Project Description	Build a COOP to prepare for loss of essential functions
Estimated Cost	Less than \$10,000
Benefits	LF
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Drought
Problem Being Mitigated	Drought dry up of recreational / low dissolved O2 / EPA impaired stream
Action or Project	
Applicable Goal Statement	4
Action/Prj. #	3.2
Name of Action or Project	water storage
Action or Project Description	Drought - to build a type of water storage to fill creek during drought to insure life preservation of wildlife and recreational uses to the community
Estimated Cost	Over \$1,000,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	homes and lands being flooded during flash flooding events
Action or Project	
Applicable Goal Statement	4
Action/Prj. #	3.3
Name of Action or Project	detention lake
Action or Project Description	dig a lake with enough volume to catch and control flash flooding water. The water can also be used for slow release during drought conditions
Estimated Cost	Over \$1,000,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	High
Timeline for Completion	
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	City of Fulton
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	homes and lands being flooded during flash flooding events
Action or Project	
Applicable Goal Statement	4
Action/Prj. #	3.4
Name of Action or Project	culverts update
Action or Project Description	culverts are either undersized or beyond useful life creating a lot of road and land flooding that can be mitigated with new culverts
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fulton
Action / Project Staplee Score / Priority	
Timeline for Completion	
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Holts Summit

Action Worksheet	
Name of Jurisdiction	Holts Summit
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	enforce floodplain management requirements, regulate new construction in SFHSs, floodplain identification for mapping
Estimated Cost	Less than \$10,000
Benefits	IC, EMCC,LF, PD
Plan for Implementation	
Responsible Organization / Department	Holts Summit
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	City General Revenue
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	KEEP - Ongoing
Report on Progress	Funds not available to complete. We are keeping this action item and modifying to be consistent.

Action Worksheet	
Name of Jurisdiction	Holts Summit
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of structure to the public during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado Safe Room
Action or Project Description	building an additional shelter that offers safety for the public during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC, EMCC,LF
Plan for Implementation	
Responsible Organization / Department	Holts Summit
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, federal, state
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Ongoing
Report on Progress	Funds are not available to complete a second shelter. We are keeping this action item and modifying the language to be consistent.

Action Worksheet	
Name of Jurisdiction	Holts Summit
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	loss of essential function during power outage for periods of time
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Purchase generator(s) to insure proper functioning during local power outages
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF, IC, EMCC
Plan for Implementation	
Responsible Organization / Department	Holts Summit
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, federal, state
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Ongoing
Report on Progress	Purchase one generator within the last 5 years, but funds are not available to move forward with an additional action item. We are keeping this action item and modifying the language to be consistent.

Action Worksheet	
Name of Jurisdiction	Holts Summit
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of outdoor warning during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.8
Name of Action or Project	Outdoor weather siren
Action or Project Description	Continue to maintain and upgrade early weather warning systems
Estimated Cost	\$100,000 to \$500,000
Benefits	IC
Plan for Implementation	
Responsible Organization / Department	Holts Summit
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, federal, state
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Holts Summit
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	unaware of essential functions
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan
Action or Project Description	Build a COOP to prepare for loss of essential functions
Estimated Cost	Less than \$10,000
Benefits	LF
Plan for Implementation	
Responsible Organization / Department	Holts Summit
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	3-5 years
Potential Funding Source	local, federal, state
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Kingdom City

Action Worksheet	
Name of Jurisdiction	Kingdom City
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain development ordinance in accordance with NFIP participation, regulate new construction in the SFHAs and floodplain identification for mapping.
Estimated Cost	Less than \$10,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Floodplain Administrator
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	County, State, Federal
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	ongoing
Report on Progress	There have been no attempts to build in floodplain.

Action Worksheet	
Name of Jurisdiction	Kingdom City
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Lack of structure
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado Safe Room
Action or Project Description	Building a shelter that offers public safety for public
Estimated Cost	Over \$1,000,000
Benefits	IC,EMCC,LF,PD
Plan for Implementation	
Responsible Organization / Department	Kingdom City
Action / Project Staplee Score / Priority	HIGH
Timeline for Completion	More than 5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP,EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Modifying plan to be consistent. Funds not available.

Action Worksheet	
Name of Jurisdiction	Kingdom City
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Loss of essential function during power outages
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Purchase Generators
Estimated Cost	\$100,000 to \$500,000
Benefits	IC,PD,LF,EMCC
Plan for Implementation	
Responsible Organization / Department	Kingdom City
Action / Project Staplee Score / Priority	HIGH
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP,EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Modifying plan for essential and consistent power

Action Worksheet	
Name of Jurisdiction	Kingdom City
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Lack of outdoor warning system during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.8
Name of Action or Project	Warning Sirens
Action or Project Description	Install Warning Sirens
Estimated Cost	\$100,000 to \$500,000
Benefits	IC
Plan for Implementation	
Responsible Organization / Department	Kingdom City
Action / Project Staplee Score / Priority	HIGH
Timeline for Completion	3-5 years
Potential Funding Source	Local,State,Federal
Local Planning Mechanism to be Used	HMP,EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Kingdom City
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Essential Functions
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan
Action or Project Description	Build COOP to prepare for loss of facility or personnel
Estimated Cost	Less than \$10,000
Benefits	LF
Plan for Implementation	
Responsible Organization / Department	Kingdom City
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP,EOP
Action Status	
Status	New
Report on Progress	

Mokane

Action Worksheet	
Name of Jurisdiction	Mokane
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain management requirements, regulate new construction in the SFHAs, floodplain identification for mapping.
Estimated Cost	Less than \$10,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Floodplain Administrator
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	City General revenue
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	ongoing
Report on Progress	Funds not available to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	Mokane
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of structure for safety to the public during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	building a shelter that offers safety for public during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Mokane
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	Mokane
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	loss of essential function during power outage for periods of time
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Purchase generator(s) to insure proper functioning during local power outages.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Mokane
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	With Covid taking priority we were unable to move forward with this action item over the previous 5 years. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	Mokane
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of outdoor warning during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.8
Name of Action or Project	out weather siren
Action or Project Description	Continue to maintain and upgrade early weather warning systems
Estimated Cost	\$100,000 to \$500,000
Benefits	IC
Plan for Implementation	
Responsible Organization / Department	Mokane
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Mokane
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	unaware of essential functions
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan
Action or Project Description	build a COOP to prepare for loss of essential functions
Estimated Cost	Less than \$10,000
Benefits	LF
Plan for Implementation	
Responsible Organization / Department	Mokane
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Mokane
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	flash flooding in town
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	6.1
Name of Action or Project	Storm water mitigation
Action or Project Description	Upgrade stormwater infrastructure capacity throughout town to lessen flash flooding impacts.
Estimated Cost	
Benefits	
Plan for Implementation	
Responsible Organization / Department	Mokane
Action / Project Staplee Score / Priority	High
Timeline for Completion	
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Mokane
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	water flooding roadways and washing out the area
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	3.4
Name of Action or Project	culvert addition / replacement
Action or Project Description	Upgrade culvert capacity to mitigate flash flooding damage and road closure.
Estimated Cost	
Benefits	
Plan for Implementation	
Responsible Organization / Department	Mokane
Action / Project Staplee Score / Priority	High
Timeline for Completion	
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

New Bloomfield

Action Worksheet	
Name of Jurisdiction	New Bloomfield
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Lack of structure for safety to the public during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	Building a shelter that offers safety for public during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	New Bloomfield
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	New Bloomfield
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	Loss of essential function during power outage for periods of time
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Purchase generator(s) to insure proper functioning during local power outages
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	New Bloomfield
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	With Covid taking priority we were unable to move forward with this action item over the previous 5 years. We are keeping this action item and modifying language to be consistent

Action Worksheet	
Name of Jurisdiction	New Bloomfield
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	Lack of outdoor warning during tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.8
Name of Action or Project	Outdoor weather siren
Action or Project Description	Continue to maintain and upgrade early weather Warning
Estimated Cost	\$100,000 to \$500,000
Benefits	IC
Plan for Implementation	
Responsible Organization / Department	New Bloomfield
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	New Bloomfield
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	unaware of essential functions
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan
Action or Project Description	Build a COOP to prepare for loss of essential functions
Estimated Cost	Less than \$10,000
Benefits	LF
Plan for Implementation	
Responsible Organization / Department	New Bloomfield
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Fulton Public Schools

Action Worksheet	
Name of Jurisdiction	Fulton School District
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of structure for safety of students, faculty, staff during a tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	building a shelter that offers safety for students, staff, and faculty during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC,
Plan for Implementation	
Responsible Organization / Department	Fulton School District
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	Fulton School District
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	loss of essential function during power outage for periods of time longer than 24hrs
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Equip school with a generator to insure proper functioning during local power outages.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF
Plan for Implementation	
Responsible Organization / Department	Fulton School District
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP and Local Planning Mechanism
Action Status	
Status	KEEP - Modify
Report on Progress	With Covid taking priority we were unable to move forward with this action item over the previous 5 years. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	Fulton School District
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	inadequate system of internal communication during threat of event
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	8.1
Name of Action or Project	sound/phone system
Action or Project Description	The current system does not offer a safe way to communicate with staff in other rooms or building to building. The new system offers fiberoptic communication that allows for staff to office communication as well as sound alerts and/or silent alerts.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, LF
Plan for Implementation	
Responsible Organization / Department	Fulton School District
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP and EOP
Action Status	
Status	New
Report on Progress	

JC School District

Action Worksheet	
Name of Jurisdiction	JC Public Schools
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of structure for safety of students, faculty, staff during a tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	building a shelter that offers safety for students, staff, and faculty during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC,
Plan for Implementation	
Responsible Organization / Department	JC Public Schools
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	JC Public Schools
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	loss of essential function during power outage for periods of time longer than 24hrs
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Equip school with a generator to insure proper functioning during local power outages.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF
Plan for Implementation	
Responsible Organization / Department	JC Public Schools
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP and Local Planning Mechanism
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	JC Public Schools
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	inadequate system of internal communication during threat of event
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	8.1
Name of Action or Project	sound/phone system
Action or Project Description	The current system does not offer a safe way to communicate with staff in other rooms or building to building. The new system offers fiberoptic communication that allows for staff to office communication as well as sound alerts and/or silent alerts.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, LF
Plan for Implementation	
Responsible Organization / Department	JC Public Schools
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP and EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	JC Public Schools
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	the inability to send out mass notification of evacuations and reunification plans
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	9.1
Name of Action or Project	RAVE
Action or Project Description	JC Public School system has many different school locations across a two-county span. Currently there is a gap in mass notification to reach all the buildings as well as contact the police and fire departments as well as 911 operator. We would like to add this system to better adapt both staff and first responders of mass evacuation and reunification plans as they become available during an incident.
Estimated Cost	
Benefits	
Plan for Implementation	
Responsible Organization / Department	JC Public Schools
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP and EOP
Action Status	
Status	New
Report on Progress	

New Bloomfield R-III

Action Worksheet	
Name of Jurisdiction	New Bloomfield R-III
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of structure for safety of students, faculty, staff during a tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	building a shelter that offers safety for students, staff, and faculty during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC,
Plan for Implementation	
Responsible Organization / Department	New Bloomfield R-III
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	New Bloomfield R-III
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	loss of essential function during power outage for periods of time longer than 24hrs
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Equip school with a generator to insure proper functioning during local power outages.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF
Plan for Implementation	
Responsible Organization / Department	New Bloomfield R-III
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP and Local Planning Mechanism
Action Status	
Status	KEEP - Modify
Report on Progress	With Covid taking priority we were unable to move forward with this action item over the previous 5 years. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	New Bloomfield R-III
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	inadequate system of internal communication during threat of event
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	8.1
Name of Action or Project	sound/phone system
Action or Project Description	The current system does not offer a safe way to communicate with staff in other rooms or building to building. The new system offers fiberoptic communication that allows for staff to office communication as well as sound alerts and/or silent alerts.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, LF
Plan for Implementation	
Responsible Organization / Department	New Bloomfield R-III
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP and EOP
Action Status	
Status	New
Report on Progress	

North Callaway R-1

Action Worksheet	
Name of Jurisdiction	North Callaway R-1
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of structure for safety of students, faculty, staff during a tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	building a shelter that offers safety for students, staff, and faculty during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC,
Plan for Implementation	
Responsible Organization / Department	North Callaway R-1
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	North Callaway R-1
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	loss of essential function during power outage for periods of time longer than 24hrs
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Equip school with a generator to insure proper functioning during local power outages.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF
Plan for Implementation	
Responsible Organization / Department	North Callaway R-1
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP and Local Planning Mechanism
Action Status	
Status	KEEP - Modify
Report on Progress	With Covid taking priority we were unable to move forward with this action item over the previous 5 years. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	North Callaway R-1
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	inadequate system of internal communication during threat of event
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	8.1
Name of Action or Project	sound/phone system
Action or Project Description	The current system does not offer a safe way to communicate with staff in other rooms or building to building. The new system offers fiberoptic communication that allows for staff to office communication as well as sound alerts and/or silent alerts.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, LF
Plan for Implementation	
Responsible Organization / Department	North Callaway R-1
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP and EOP
Action Status	
Status	New
Report on Progress	

South Callaway R-II

Action Worksheet	
Name of Jurisdiction	South Callaway R-II
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	lack of structure for safety of students, faculty, staff during a tornado
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	1.6
Name of Action or Project	Tornado safe room
Action or Project Description	building a shelter that offers safety for students, staff, and faculty during a tornado
Estimated Cost	Over \$1,000,000
Benefits	IC,
Plan for Implementation	
Responsible Organization / Department	South Callaway R-II
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	Funds not available to complete. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	South Callaway R-II
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	loss of essential function during power outage for periods of time longer than 24hrs
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	Equip school with a generator to insure proper functioning during local power outages.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF
Plan for Implementation	
Responsible Organization / Department	South Callaway R-II
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP and Local Planning Mechanism
Action Status	
Status	KEEP - Modify
Report on Progress	With Covid taking priority we were unable to move forward with this action item over the previous 5 years. We are keeping this action item and modifying language to be consistent.

Action Worksheet	
Name of Jurisdiction	South Callaway R-II
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	inadequate system of internal communication during threat of event
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	8.1
Name of Action or Project	sound/phone system
Action or Project Description	The current system does not offer a safe way to communicate with staff in other rooms or building to building. The new system offers fiberoptic communication that allows for staff to office communication as well as sound alerts and/or silent alerts.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, LF
Plan for Implementation	
Responsible Organization / Department	South Callaway R-II
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, federal
Local Planning Mechanism to be Used	HMP and EOP
Action Status	
Status	New
Report on Progress	

MO School For the Deaf

Action Worksheet	
Name of Jurisdiction	Missouri School for the Deaf
Risk / Vulnerability	
Hazard(s) Addressed	Extreme Temperatures
Problem Being Mitigated	Extreme temperatures
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	7.1
Name of Action or Project	A/C
Action or Project Description	Installation of A/C in areas with extreme temps and has reached temps well over 100+
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Missouri School for the Deaf
Action / Project Staplee Score / Priority	High
Timeline for Completion	2-3 years
Potential Funding Source	Local State and Federal
Local Planning Mechanism to be Used	EOP, HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Missouri School for the Deaf
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Main Walkway - Floods through doorways and water stands in main walkway that creates a fall/slipping hazard
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	7.2
Name of Action or Project	Build retaining wall to revert water to prevent flooding
Action or Project Description	Build retaining wall to revert water to prevent flooding and other measures to re-direct water
Estimated Cost	\$10,000 to \$50,000
Benefits	IC, PD
Plan for Implementation	
Responsible Organization / Department	Missouri School for the Deaf
Action / Project Staplee Score / Priority	High
Timeline for Completion	2-3 years
Potential Funding Source	Local State and Federal
Local Planning Mechanism to be Used	EOP. HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Missouri School for the Deaf
Risk / Vulnerability	
Hazard(s) Addressed	Wildfire
Problem Being Mitigated	Overage, Brush Piles, Dead Trees
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	7.3
Name of Action or Project	Tree and Brush Removal
Action or Project Description	Remove all Tree and Brush in wildlife area that is utilized
Estimated Cost	\$10,000 to \$50,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Missouri School for the Deaf
Action / Project Staplee Score / Priority	High
Timeline for Completion	2-3 years
Potential Funding Source	Local State and Federal
Local Planning Mechanism to be Used	EOP, HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Missouri School for the Deaf
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Power Outages
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	7.4
Name of Action or Project	Electrical upgrades
Action or Project Description	Upgrade warning systems; however, the electrical infrastructure will not support additional usage unless the electrical is upgraded.
Estimated Cost	Over \$1,000,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Missouri School for the Deaf
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	Local State and Federal
Local Planning Mechanism to be Used	EOP, HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Missouri School for the Deaf
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Warning Systems
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	7.5
Name of Action or Project	Upgrade all warning systems
Action or Project Description	Warning systems are original to the building and need updated that are deaf-friendly
Estimated Cost	Over \$1,000,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Missouri School for the Deaf
Action / Project Staplee Score / Priority	High
Timeline for Completion	More than 5 years
Potential Funding Source	Local State and Federal
Local Planning Mechanism to be Used	EOP, HMP
Action Status	
Status	new
Report on Progress	

PWSD #1

Action Worksheet	
Name of Jurisdiction	PWSD #1
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	critical infrastructure power outage
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	purchase generator and items needed to operate generator during power outage to ensure continuity of operation
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	PWSD #1
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	in previous HMP action item was indicated already had generator. We currently are in need of additional generators to ensure continuity of operations within the buildings and wells

Action Worksheet	
Name of Jurisdiction	PWSD #1
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	inability to support critical functions if displaced
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan (COOP)
Action or Project Description	develop a COOP
Estimated Cost	Less than \$10,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	PWSD #1
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

PWSD #2

Action Worksheet	
Name of Jurisdiction	PWSD #2
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	critical infrastructure power outage
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	purchase generator and items needed to operate generator during power outage to ensure continuity of operation
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	PWSD #2
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	KEEP - Modify
Report on Progress	in previous HMP action item was indicated already had generator. We currently are in need of additional generators to ensure continuity of operations within the buildings and wells

Action Worksheet	
Name of Jurisdiction	PWSD #2
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	inability to support critical functions if displaced
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.3
Name of Action or Project	Continuity of Operations Plan (COOP)
Action or Project Description	develop a COOP
Estimated Cost	Less than \$10,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	PWSD #2
Action / Project Staplee Score / Priority	Medium
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	PWSD #2
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	damage of critical infrastructure due to lightning strike
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	14.1
Name of Action or Project	Ground Grid
Action or Project Description	purchase and install of ground grid for critical infrastructure site to redirect electrical surge due to lightning strike
Estimated Cost	\$10,000 to \$50,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	PWSD #2
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	PWSD #2
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	damage of critical infrastructure due to lightning strike
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	14.2
Name of Action or Project	surge protector
Action or Project Description	purchase and install surge protector for critical equipment at each site to prevent electrical surge
Estimated Cost	\$10,000 to \$50,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	PWSD #2
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Central Callaway Fire Protection District

Action Worksheet	
Name of Jurisdiction	Central Callaway FPD
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	critical infrastructure power outage
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	purchase generator and items needed to operate generator during power outage to ensure continuity of operation
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Central Callaway FPD
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Central Callaway FPD
Risk / Vulnerability	
Hazard(s) Addressed	Wildfire
Problem Being Mitigated	Disruption of services
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	15.1
Name of Action or Project	Community Wildfire Protection Plan
Action or Project Description	Put together a CWPP to identify vulnerable areas to wildfire and options to fight and prevent wildfires.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Central Callaway FPD
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Holts Summit Fire Protection District

Action Worksheet	
Name of Jurisdiction	Holts Summit FPD
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	critical infrastructure power outage
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1
Name of Action or Project	Generator
Action or Project Description	purchase generator and items needed to operate generator during power outage to ensure continuity of operation
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Holts Summit FPD board
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Holts Summit FPD
Risk / Vulnerability	
Hazard(s) Addressed	Wildfire
Problem Being Mitigated	Disruption of services
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	15.1
Name of Action or Project	Community Wildfire Protection Plan
Action or Project Description	Put together a CWPP to identify vulnerable areas to wildfire and options to fight and prevent wildfires.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Holts Summit FPD board
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	local, state, and federal
Local Planning Mechanism to be Used	HMP, EOP
Action Status	
Status	New
Report on Progress	

Table 4.4 Mitigation Action Matrix

#	Action	Priority	Goals Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
Prevention Public Education							
1.8	Upgrade Warning Sirens	H	1	T, TS	X	X	
8.1	Upgrade sound/phone system in schools	H	1	All	X	X	
9.1	Add RAVE system for mass notification	H	1	All	X	X	
1.4	Early Warning System - Smart 911, Weather Alert Radios, IPAWS	H	4	All	X	X	
7.4	Upgrade electrical system for updated warning systems	H	1	All	X		
7.5	Upgrade warning systems to deaf friendly	H	1	All	X	X	
Structure and Infrastructure Projects							
1.6	Build Safe Rooms	H	1	T,TS	X	X	
1.10	Underground utilities	H	2	All	X	X	
14.1	Install ground grid for critical infrastructure	H	2	TS	X	X	
14.2	Install surge protectors on essential equipment	H	2	TS	X	X	
1.2	Improve water supply and delivery systems	H	1	D, FL	X	X	
1.11	Identify at-risk structures and associated hazards	H	3	FL, E	X		
1.12	Improvement to roads/infrastructure to reduce flood damage	H	3	FL	X	X	
1.13	Reduce number of low water crossings	H	3	FL	X	X	
7.1	Install AC in extreme temp areas	H	1	ET	X		
7.2	Retaining wall for water diversion	H	3	FL	X		X
Natural Systems Protection							

1.1	Enforce NFIP	H	2	FL	X	X	X
3.4	Upgrade Culverts	H	3	FL	X	X	X
6.1	Upgrade stormwater infrastructure capacity	H	3	FL	X	X	X
1.5	Reduce the number of severe repetitive loss properties.	H	3	FL	X		X
1.9	Participation in the (NFIP) Community Rating System	M	3	FL	X	X	X
3.2	Water storage	H	4	D	X		
3.3	detention lake	H	4	FL	X	X	
7.3	Brush removal	H	3	WF	X	X	
Emergency Services							
2.1	Backup Generators	H	2	WW, T, TS	X	X	
1.7	Generator & Transfer switches	H	2	WW, E,T	X	X	
Education and Outreach							
1.3	COOP Plans	H	2	All	X	X	
15.1	Community Wildfire Protection Plan	H	2	WF	X	X	

Chapter 5: PLAN MAINTENANCE PROCESS

- 5.1 Monitoring, Evaluating, and Updating the Plan.....267
 - 5.1.1 Responsibility for Plan Maintenance
 - 5.1.2 Plan Maintenance Schedule
 - 5.1.3 Plan Maintenance Process
- 5.2 Incorporation into Existing Planning Mechanisms.....269
- 5.3 Continued Public Involvement.....271

CHAPTER 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 Callaway County Hazard Mitigation Plan will be monitored and evaluated on a yearly basis following its approval and adoption. These evaluations will begin approximately one year after the final approval of the plan and continue until the next 5-year update begins.

The monitoring and evaluation will be facilitated through the Mid-MO Regional Planning Commission. It will consist of the following:

1. A meeting of the Hazard Mitigation Planning Committee convened by planners at the Mid-MO Regional Planning Commission to discuss any general hazard mitigation issues
2. A survey emailed to all participating jurisdictions on such topics as changes/developments in the jurisdictions and implementation of mitigation actions.
3. A yearly addendum to the plan summarizing information from the planning meeting and the Surveys
4. Entry of any direct changes to the plan in the “Log of Changes Made to the Plan following Approval”

5.1.2 Plan Maintenance Schedule

The MPC agrees to meet annually or after a state or federally declared hazard event as appropriate to monitor progress and update the mitigation strategy. The Callaway County Emergency Management Director will be responsible for initiating the plan reviews and will invite members of the MPC 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 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 Callaway County Commission and the governing boards of the other participating jurisdictions.

5.2: Incorporation into Existing Planning Mechanisms

44 CFR Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Where possible, plan participants, including school and special districts, will use existing plans and/or programs to implement hazard mitigation actions. Based on the capability assessments of the participating jurisdictions, communities in Callaway 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:

- Ordinances of participating jurisdictions;
- Callaway County Emergency Operations Plan;
- Capital improvement plans and budgets;
- Other community plans within the County, such as water conservation plans, storm water management plans, and parks and recreation plans;
- School and Special District Plans and budgets; and
- Other plans and policies outlined in the capability assessment sections for each jurisdiction in Chapter 2 of this plan.

The MPC members involved in updating these existing planning mechanisms will be responsible for integrating the findings and actions of the mitigation plan, as appropriate. The MPC 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 Callaway County Emergency Management Director will provide the updated Mitigation Strategy with current status of each mitigation action to the County (Boards of Supervisors or Commissions) 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.

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
Callaway County	County Emergency Operations Plan, Comprehensive	Attended transportation meetings about road flooding. Annual budget	Annual budget process.

	Economic Development Strategy	process. Floodplain ordinances	
Auxvasse	zoning ordinances, Capital Improvement Plan, Transportation Plan	Annual Budget Process	Capital Improvement Plan, annual budget process
Fulton	Comprehensive Plan, Transportation Improvement Plan, Emergency Operations Plan, Comprehensive Economic Development Strategy	Attended transportation meetings about road flooding. Annual budget process. Floodplain ordinances, building codes	Comprehensive Plan update, annual budget process,
Holts Summit	Zoning ordinances, Transportation Plan	Attended transportation meetings about road flooding. Annual budget process	Comprehensive plan update, annual budget process
Kingdom City	Regional Transportation Plan, floodplain ordinances	Annual budget process, zoning ordinances	Annual Budget process, Capital Improvement Process
Mokane	Regional Transportation Plan, floodplain ordinances	Annual budget process, zoning ordinances	Annual Budget process, Capital Improvement Process
New Bloomfield	Regional Transportation Plan, floodplain ordinances	Annual budget process, zoning ordinances	Annual Budget process, Capital Improvement Process
Fulton Public Schools	Fulton Schools Planning committee & board of education	Annual Budget process, updated policy, system testing	Safety committee annual budget meeting, building policy updates, staff training
JC School District	Jeff City SD Planning Committee & Board of Education	Annual Budget process, updated policy, system testing	Safety committee annual budget meeting, building policy updates, staff training
New Bloomfield R-III	New Bloomfield R-III Planning Committee & Board of Education	Policy updated, staff training, notification system upgrade	Attended 1 meeting. Long-Range Plan update.
North Callaway R-I	Planning Committee & Board of Education	Updated policy, notification system upgrade	Emergency management department policies. Budget process.
South Callaway R-II	Planning Committee & Board of Education	Policy updated, staff training, notification system upgrade	Safety committee annual budget meeting, building policy updates, staff training

MO School For the Deaf	Board of Education	Policy update, staff training	Emergency management department, EOP, Budget process.
Public Water Supply District #1	Operations Plan, Ordinances, Policy	Standard Operating procedures	Annual budget, tax rates, policy update
Public Water Supply District #2	Operation Plan, facilities plan/policy	Standard Operating Procedures	Fees, Operation plan update
Central Callaway. FPD	Standard Operating procedures, HMP, EOP	Did Not participate	Procedural Update, EOP, Fire Board, Annual Budget Review
Holts Summit FPD	Standard Operating procedures, HMP, EOP	Did Not participate	Procedural Update, EOP, Fire Board, Annual Budget Review

5.3 Continued Public Involvement

44 CFR Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

The hazard mitigation plan update process provides an opportunity to publicize success stories resulting from the plan’s implementation and seek additional public comment. Information about the annual reviews will be posted on the Callaway 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.

Appendix A: Adoption Resolutions

CALLAWAY COUNTY, Missouri RESOLUTION NO. _____

2022-052722

A RESOLUTION OF CALLAWAY COUNTY ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS Callaway County recognizes the threat that natural hazards pose to people and property within Callaway County; and

WHEREAS Callaway County has participated in the preparation of a multi-hazard mitigation plan, hereby known as Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the Plan, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Callaway County from the impacts of future hazards and disasters; and

WHEREAS Callaway County recognizes that land-use policies have a major impact on whether people and property are exposed to natural hazards, Callaway County will endeavor to integrate the Plan into the comprehensive planning process and

WHEREAS adoption by Callaway County demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Plan

NOW, THEREFORE, BE IT RESOLVED BY CALLAWAY COUNTY, in the State of Missouri, THAT: In accordance with local rules for adopting resolutions, Callaway County adopts the final FEMA-approved plan.

ADOPTED by a vote of _____ in favor and _____ against, and _____ abstaining, this 31st day of May _____, 2022.

By Sig: *Gary Jungermann*
Print name: Gary Jungermann – Presiding
Commissioner

ATTEST:
By Sig: *Ronda Miller*
Print name: Ronda Miller – Callaway County Clerk

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



CITY OF AUXVASSE

RESOLUTION NO. 37-2022

A RESOLUTION OF THE CITY OF AUXVASSE ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the City of Auxvasse recognizes the threat that natural hazards pose to people and property within the City of Auxvasse; and

WHEREAS the City of Auxvasse has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the City of Auxvasse from the impacts of future hazards and disasters; and

WHEREAS the City of Auxvasse recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the City of Auxvasse will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the City of Auxvasse demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*


NOW THEREFORE, BE IT RESOLVED BY THE CITY OF AUXVASSE, in the State of Missouri, THAT:

The City of Auxvasse adopts the final FEMA-approved *plan*.

ADOPTED by a vote of 3 in favor and 0 against, and 0 abstaining, this 12 day of April, 2022.

By (Sig.): 
Print name: _____

ATTEST:
By (Sig.): 
Print name: Clifford W. [unclear]

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

RESOLUTION NUMBER 3459

A RESOLUTION OF THE CITY OF FULTON, MISSOURI ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN.

WHEREAS, the City of Fulton recognizes the threat that natural hazards pose to people and property within the city of Fulton, Missouri; and

WHEREAS, the City of Fulton, Missouri, has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the city of Fulton, Missouri, from the impacts of future hazards and disasters; and

WHEREAS, the City of Fulton recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, and the City of Fulton will endeavor to integrate the Plan into comprehensive planning processes; and


WHEREAS, adoption by the City of Fulton demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF FULTON, MISSOURI, AS FOLLOWS:

SECTION ONE: That the City Council hereby adopts the final FEMA-approved plan.

SECTION TWO: That this Resolution shall be in full force and effect after its passage by the Council and approval by the Mayor.

THIS RESOLUTION ADOPTED THIS 26th DAY OF July, 2022.



Lowe Cannell
President of the Council

THIS RESOLUTION APPROVED THIS 26th DAY OF July, 2022.

Resolution No. 3459
Page 2



Lowe Cannell
Mayor

ATTEST:



Courtney L. Doyle, CMC/MRDC
Asst. Deputy Director of Administration /
City Clerk

IN THE CITY OF HOLTS SUMMIT, MISSOURI

Resolution No. 2022-25

A RESOLUTION APPOINTING CITY ADMINISTRATOR, BRANDON RUEDIGER, TO THE CALLAWAY COUNTY HAZARD MITIGATION PLAN STEERING COMMITTEE FOR THE FIVE-YEAR UPDATE FOR CALLAWAY COUNTY, MISSOURI.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF HOLTS SUMMIT, MISSOURI, AS FOLLOWS:

Section 1. The Board of Aldermen of the City of Holts Summit, Missouri, hereby authorizes the Mayor to appoint Brandon Ruediger to serve on the Steering Committee for the five-year hazard mitigation plan update for Callaway County.

RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF HOLTS SUMMIT, MISSOURI, ON THIS 10TH DAY OF MAY 2022.


Landon Oxley, Mayor

ATTEST:


Rachel Anderson, City Clerk



VILLAGE OF KINGDOM CITY, MISSOURI

RESOLUTION NO. 2207

A RESOLUTION OF THE VILLAGE OF KINGDOM CITY
ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL
HAZARD MITIGATION PLAN

WHEREAS the Village of Kingdom City recognizes the threat that natural hazards pose to people and property within the Village of Kingdom City; and

WHEREAS the Village of Kingdom City has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Village of Kingdom City from the impacts of future hazards and disasters; and

WHEREAS the Village of Kingdom City recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Village of Kingdom City will endeavor to integrate the *Plan* into the comprehensive planning process; and

WHEREAS adoption by the Plan by the Village of Kingdom City demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*;

NOW THEREFORE, BE IT RESOLVED BY THE VILLAGE OF KINGDOM CITY, in the state of Missouri, THAT:

The Village of Kingdom City adopts the final FEMA-approved Callaway County Multi-Jurisdictional Hazard Mitigation Plan.

ADOPTED by a vote of 4 in favor and 0 against, and 0 abstaining, this 6 day of July, 2022.

By: Donald Thompson
Donald Thompson, Chairman

ATTEST:

Larry Doyle
Larry Doyle, Village Clerk

City of Mokane

RESOLUTION NO. 2022-03

A RESOLUTION OF THE CITY OF MOKANE ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN;

WHEREAS the City of Mokane recognizes the threat that natural hazards pose to people and property within the City of Mokane; and

WHEREAS the City of Mokane has participated in the preparation of a multi- hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the Plan, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the City of Mokane from the impacts of future hazards and disasters; and

WHEREAS the City of Mokane recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the City of Mokane will endeavor to integrate the Plan into the comprehensive planning process and

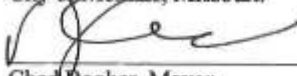
WHEREAS adoption by the City of Mokane demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Plan.

NOW THEREFORE, BE IT RESOLVED by the City of Mokane, in the State of Missouri, that in accordance with the FEMA requirements found at 44 CFR 201.6, the City of Mokane adopts the final FEMA-approved plan.

STATEMENT AYES AND NAYES

3 AYES 0 NAYES

ADOPTED AND DULY PASSED this 18th day of July, 2022 at the special meeting of the City of Mokane, Missouri.


Chad Booher, Mayor

7/18/2022
Date

Attest

(SEAL)


Tracy Hoffmann, City Clerk

7-18-22
Date

THE CITY OF NEW BLOOMFIELD, MISSOURI

RESOLUTION NO. 01-22

**A RESOLUTION OF THE CITY OF NEW BLOOMFIELD ADOPTING
THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD
MITIGATION PLAN**

WHEREAS the City of New Bloomfield recognizes the threat that natural hazards pose to people and property within the City of New Bloomfield; and

WHEREAS the City of New Bloomfield has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the City of New Bloomfield from the impacts of future hazards and disasters; and

WHEREAS the City of New Bloomfield recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the City of New Bloomfield will endeavor to integrate the *Plan* into the comprehensive planning process and


WHEREAS adoption by the City of New Bloomfield demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF NEW BLOOMFIELD in the State of Missouri, THAT the City of New Bloomfield adopts the Callaway County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 25th day of May, 2022.


Terry Shaw, Mayor

Attest:


John Joyce
City Clerk



Fulton Public Schools

Dr. Ty Crain, Superintendent of Schools
Dr. Chris Hubbuch, Assistant Superintendent

Dr. Cheri Fortney, Director of Special Services & Federal Programs
Sarah Manley, Coordinator of School & Community Programs

April 13, 2022

To Whom It May Concern:

The Callaway County Natural Hazard Mitigation Plan is a multi-jurisdictional hazard mitigation plan prepared in accordance with FEMA requirements at 44 C.F. R. 201.6.

Fulton School District 58 has participated in the preparation of the Callaway County Natural Hazard Mitigation Plan.

Fulton School District 58 officially adopts the Callaway County Natural Hazard Mitigation Plan as this jurisdiction's Hazard Mitigation Plan and resolves to execute the actions in the Plan.

Sincerely,

Ty A. Crain, Ed.D.
Superintendent

2 Hornet Drive, Fulton, MO 65251-2731
Phone: Voice/TDD 573.590-8000 MO Relay Number: 1.800.735.2966 TDD
Fax: 573.590.8090

JEFFERSON CITY SCHOOL DISTRICT, Missouri

A RESOLUTION OF THE JEFFERSON CITY SCHOOL DISTRICT ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS the Jefferson City School District recognizes the threat that natural hazards pose to people and property within the Jefferson City School District; and

WHEREAS the Jefferson City School District has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Jefferson City School District from the impacts of future hazards and disasters; and

WHEREAS the Jefferson City School District recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Jefferson City School District will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the Jefferson City School District demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE Jefferson City School District in the State of Missouri, THAT:

In accordance with School Board Policies and Procedures, the Jefferson City School District adopts the final FEMA-approved plan.

ADOPTED by a vote of X in favor and _____ against, and _____ abstaining, this 28 day of June, 2022.

By (Sig.): [Signature]
Print name: Frank Underwood

ATTEST:
By (Sig.): [Signature]
Print name: BRYAN MCGRAW

APPROVED AS TO FORM:
By (Sig.): [Signature]
Print name: Scott Howls

Christopher Dally
Superintendent



Regina Roesner
School Business Director

MISSOURI SCHOOL FOR THE DEAF

505 East Fifth Street | Fulton, MO 65251 | Phone: 573-592-2555 | Fax: 573-592-2570 | msd.dese.mo.gov

July 11, 2022

To Whom It May Concern:

The Callaway County Natural Hazard Mitigation Plan is a multi-jurisdictional hazard plan prepared in accordance with FEMA requirements at 44 C.F.R. 201.6.

Missouri School for the Deaf will be participating in the preparation of the Callaway County Natural Hazard Mitigation Plan.

Missouri School for the Deaf officially adopts the Callaway County Natural Hazard Mitigation Plan as this jurisdiction's Hazard Mitigation Plan and resolves to execute the actions in the Plan.

Sincerely,

A handwritten signature in cursive script that reads "Regina Roesner".

Regina Roesner
Director, Fiscal Affairs

"Education Without Limits!"

The mission of the Missouri School for the Deaf is to provide educational opportunities and outreach support for students to become successful life-long learners and productive citizens in a global society.

**NEW BLOOMFIELD R-III SCHOOLS
307 REDWOOD DRIVE
NEW BLOOMFIELD, MO 65063**

Superintendent of Schools
Sarah Wisdom, Superintendent

Central Office
Phone: 573/491-3700
Fax: 573/491-3772

Board President
Pending board meeting

4-19-22

To Whom It May Concern:

The Callaway County Natural Hazard Mitigation Plan is a multi-jurisdictional hazard mitigation plan prepared in accordance with FEMA requirements at 44 C.F. R. 201.6.

The New Bloomfield R-III School District has participated in the preparation of this Callaway County Natural Mitigation Plan.

The New Bloomfield R-III School District officially adopts the Callaway County Hazard Mitigation Plan as this jurisdiction's Hazard Mitigation Plan and resolves to execute the actions in the Plan.

Sincerely,



President
New Bloomfield R-III Board of Education



**NORTH CALLAWAY SCHOOL DISTRICT
CENTRAL OFFICE**



Mrs. Nicole Kemp
Superintendent

Mrs. Sarah Baumgartner
Director of Special Programs

Mrs. Kellie Chapin
Business Manager

Ms. Nicole Buschmann
Assistant Superintendent

2690 Thunderbird Drive • Kingdom City • Missouri • 65262 • Phone 573-386-2214 • Fax 573-386-2169

April 21, 2022

To Whom It May Concern:

The Callaway County Natural Hazard Mitigation Plan is a multi-jurisdictional hazard mitigation plan prepared in accordance with FEMA requirements at 44 C.F. R. 201.6.

The North Callaway R-1 School District has participated in the preparation of this Callaway County Natural Mitigation Plan.

The North Callaway R-1 School District officially adopts the Callaway County Hazard Mitigation Plan as this jurisdiction's Hazard Mitigation Plan and resolves to execute the actions in the Plan.

Sincerely,

Sandy Lavy, President
North Callaway R-1 School District Board of Education

A RESOLUTION OF THE SOUTH CALLAWAY R-II SCHOOL DISTRICT ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS the South Callaway School District recognizes the threat that natural hazards pose to people and property within the South Callaway District; and

WHEREAS the South Callaway School District has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the Plan, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the South Callaway School District from impacts of future hazards and disasters; and

WHEREAS the South Callaway School District recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the South Callaway School District will endeavor to integrate the Plan into the comprehensive planning process and

WHEREAS adoption by the South Callaway School District demonstrates their commitment to hazard mitigation and achieving the goals outline in the Plan.

NOW THEREFORE, BE IT RESOLVED BY THE SOUTH CALLAWAY R-II SCHOOL DISTRICT, in the State of Missouri, THAT:

In accordance with local and state rules for adopting these resolutions, the South Callaway R-II School District adopts the final FEMA-approved plan.

ADOPTED by a vote of 16 in favor and 0 against, and _____ abstaining, this 13th day of July, 2022.

Superintendent Corey Pontius Corey Pontius

ATTEST:
Board President Todd Mealy Todd A. Mealy

APPROVED AS TO FORM:
Board Secretary Debbie Popplewell Debbie Popplewell

Central Callaway Fire Prot. Dist.
(LOCAL GOVERNING BODY/SCHOOL DISTRICT), Missouri

RESOLUTION NO. 01-22

Central Callaway Fire Prot. Dist.
A RESOLUTION OF THE (LOCAL GOVERNING BODY/SCHOOL DISTRICT) ADOPTING THE
[SHOW-ME] COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Central Callaway FPD
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-hazard mitigation plan, hereby known as the [Show-Me] County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the Plan, in accordance with the Disaster Mitigation Act of 2000; and
WHEREAS the Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the (local governing body/school district) from the impacts of future hazards and disasters; and
WHEREAS the (local governing body/school district) 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 3 in favor and 0 against, and 0 abstaining, this 9th day of May, 2022.

By (Sig.): [Signature]
Print name: Bennie C. Young Sr

ATTEST:
By (Sig.): [Signature]
Print name: Shelly Huff

APPROVED AS TO FORM:

By (Sig.): _____
Print name: _____

Holts Summit, Missouri

RESOLUTION NO. 1-22

A RESOLUTION OF THE Holts Summit Fire Protection District ADOPTING THE Callaway COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the Holts Summit Fire Protection District recognizes the threat that natural hazards pose to people and property within the Holts Summit Fire Protection District; and

WHEREAS the Holts Summit Fire Protection District has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Holts Summit Fire Protection District from the impacts of future hazards and disasters; and

WHEREAS the Holts Summit Fire Protection District recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Holts Summit Fire Protection District will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the Holts Summit Fire Protection District demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE Holts Summit Fire Protection District, in the State of Missouri, THAT:


In accordance with approval of the Board of Directors, the Holts Summit Fire Protection District adopts the final FEMA-approved plan.

ADOPTED by a vote of 2 in favor and 0 against, and 1 abstaining, this 13TH day of APRIL, 2022.

By (Sig.): 

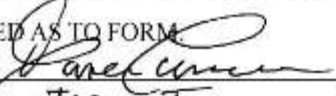
Print name: TIM MASSMAN HSFPD BOARD PRESIDENT

ATTEST:

By (Sig.): 

Print name: Chester E Hutchins Board Member

APPROVED AS TO FORM

By (Sig.): 

Print name: Jason Turner Fire Chief

Public Water District # 1 of Callaway County, Missouri

RESOLUTION NO. 2-D

A RESOLUTION OF THE Public Water District # 1 of Callaway County, Missouri
ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the Public Water District # 1 of Callaway County, Missouri

recognizes the threat that natural hazards pose to people and property within Public Water District # 1 of Callaway County, Missouri

WHEREAS the Public Water District # 1 of Callaway County, Missouri

has participated in the preparation of a multi- hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Public Water District # 1 of Callaway County, Missouri from the impacts of future hazards and disasters; and

WHEREAS the Public Water District # 1 of Callaway County, Missouri recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Public Water District # 1 of Callaway County, Missouri

will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the Public Water District # 1 of Callaway County, Missouri demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE Public Water District # 1 of Callaway County, in the State of Missouri, THAT:

In accordance with the Board of Directors the Public Water District # 1 of Callaway County, Missouri adopts the final FEMA-approved *plan*.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 5th day of April, 2022

By (Sig.): [Signature]
Print name: RON BEPENDZEN

ATTEST:
By (Sig.): [Signature]
Print name: TERESA FRANK

APPROVED AS TO FORM:
By (Sig.): [Signature]
Print name: BRAD SCRIVNER

Callaway 2 Water District, Fulton, Missouri

RESOLUTION NO. 175

A RESOLUTION OF THE *Callaway 2 Water District* ADOPTING THE CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS the *Callaway 2 Water District* recognizes the threat that natural hazards pose to people and property within the *Callaway 2 Water District*; and

WHEREAS the *Callaway 2 Water District* has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the *Callaway 2 Water District* from the impacts of future hazards and disasters; and

WHEREAS the *Callaway 2 Water District* recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the *Callaway 2 Water District* will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the *Callaway 2 Water District* demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE *Callaway 2 Water District*, in the State of Missouri, THAT:

In accordance with the Callaway County Multi-Jurisdictional Hazard Mitigation Plan, the *Callaway 2 Water District* adopts the final FEMA-approved plan.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 12th day of April, 2022

By (Sig.): Dale Rothermich
Print name: DALE ROTHERMICH

DALE ROTHERMICH, PRESIDENT

ATTEST:
By (Sig.): Alisha Hosentfelt
Print name: Alisha Hosentfelt, Clerk

APPROVED AS TO FORM:

By (Sig.): _____
Print name: _____

Appendix B: Sign-In Sheets

Callaway Co HMP all Jurisdictions

Individual meeting




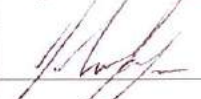
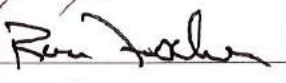
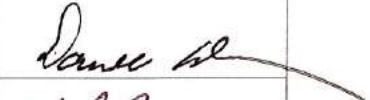




Date	Starting time	Ending time	meeting type in person/phone	City/School	Person meeting with
3/9/2022	1:00pm	2:00pm	person	Fulton School district	Ty Crain
4/25/2022	9:00am	10:30am	person	Jefferson City Public school	Frank Underwood
5/11/2022	9:00am	1:00pm	person	Callaway Co	Michelle Kidwell
7/11/2022	1:00pm	3:00pm	person	School of the Deaf	Regina Roesner
7/13/2022	2:30pm	4:30pm	person	Kingdom City	Larry Doyle
7/21/2022	10:00am	12:00pm	person	School of the Deaf	Regina Roesner
7/22/2022	10:00am	12:00pm	person	Callaway Co	Michelle Kidwell

Callaway Co HMP planning
1-28-2021 meeting 1:00pm – 3:00pm
Sign-in sheet

Name	Signature	Phone number	Email address
Melissa Stafford		573-353-1007	melissastafford@midmorpc.org
Michelle Kidwell		573-220-5972	michellekidwell@cceoc.org
Gary Jungermann		573-826-0100	gjungermann@callawaycounty.org

CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE KICKOFF MEETING—SIGN-IN SHEET

Project: Callaway County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time: March 1, 2022 10:00am – 1:00pm
Facilitator: Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room: Callaway Co Public Health Department 4950 County Road 304, Fulton, MO

Name	Title	Department/Agency	Email	Phone #	Signature
Brandon Ruediger	EMD/ Police Chief	Holtz Summit	BRUEDIGER@Holtzsummit.org	573-896-8435	
Michael Bertschinger	City Supervisor	Auxvasso	auxmaint@ktis.net	573-386-2280	
Ty Crain	Superintendent	Fulton Public Schools	tcraim@fulton58.org	573-590-8000	
John Joyce	City Clerk	New Bloomfield	nbcity@sunbeam.org	573-491-3614	
Ron Fischer	MANAGER Callaway 2	Callaway 2 Water	ron@callaway2water.com	220-1376	
Darrell Dunlap	Interim DOT Utilities	City of Fulton	ddunlap@fultonmo.org	573-592-5111	
Kyle Bruemmer	City Engineer	City of Fulton	cityengineer@fultonmo.org	573-680-4450	
Doug Kee	Transport Director	N. Callaway School	dkee@nc.k12.mo.gov	573-642-7700	
Michelle Kidwell	EMD Callaway Co	Callaway Co	MichelleKidwell@callawayco.org	573-220-5972	
Gary Jungermann	Presiding Commissioner	Callaway Co	gjungermann@CallawayCounty.org	573-642-0733	

CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE KICKOFF MEETING—SIGN-IN SHEET


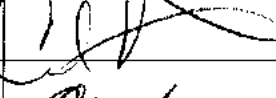
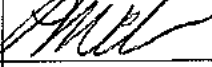
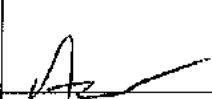
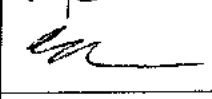

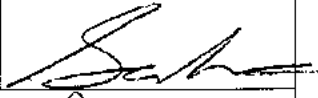
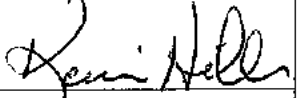

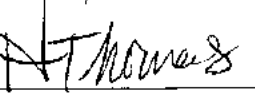
Project: Callaway County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time: March 1, 2022 10:00am – 1:00pm
Facilitator: Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room: Callaway Co Public Health Department 4950 County Road 304, Fulton, MO



Name	Title	Department/Agency	Email	Phone #	Signature
CLAY BOOTHER	ALDERMAN	City of Mokane	bootheralderman@ atlook.com atlook.com	573-220-9786	
Debbie Taylor	Alderman	City of Mokane	debbies@gmail.com	573-220-1477	
Robert Boone	A.P.O.A	City of Fulton	ADORA@Fultonmo.org	592-3114	
Mitchell Fletcher	RTB Supervisor	Callaway County	MFletcher@CallawayCounty.org	573-826-0079	
Nicky Kemp	Super.	NCRI	NKemp@nc.k12.mo.us	573-386-2214	
Paul Winkelmann	County Engineer	Callaway Co.	pwinkelmann@ callawaycounty.org	573 642-0240	
Kevin Coffelt	Fire Chief	City of Fulton	k.coffelt@Fultonmo.org	573-220-5385	
Lois Cannell	PDF-Maya	City of Fulton	Maya@Fultonmo.org	220-4012	

CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE KICKOFF MEETING—SIGN-IN SHEET

Project:	Callaway County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time:	March 1, 2022 10:00am – 1:00pm
Facilitator:	Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room:	Callaway Co Public Health Department 4950 County Road 304, Fulton, MO

Name	Title	Department/Agency	Email	Phone #	Signature
Jason Barnes	LT	FULTON Police Dept	jbarnes@fultondemo.org edonaldson	592-3100	
Carl Donaldson	EMD	Audrain Co. EMA	audraincounty.org	573.473.7867	
Lisa Wehmeyer	Ass. Chief HSFPD	Holts Summit Fire	Lisa.Wehmeyer@ HSFPD.ORG	5736909434	
Allen Wehmeyer	Ac	Holts Summit Fire	allen.wehmeyer@ hsfpd.org	690-4013	
Tim Howell	Lt	Fulton PD	Howell@fultondemo.org	592-3100	
Greg Luebbert	Chief	central callaway FPD	gluebbert1@ gmail.com	226 8278	
Sarah Wisdom	Superintendent	New Bloomfield RFD	Swisdom@nbk12.org	615-6790	
Kevin Hillman	Superintendent operations	South Callaway Callaway 2	kevin.hillman@k12. mo.us	523-5262000	
Jeff Gurratt	manager city	Water	jeff@callaway2water.com	573 220.1465	
Hanna Thomas	manager	Holts Summit	cityadministrator@ holtssummit.org	544-3043	

CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE MEETING #2—SIGN-IN SHEET

Project: Callaway County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update
 Melissa Stafford, Regional Planner & Procurement Officer
 Mid-Missouri Regional Planning Commission

Meeting Date/Time: March 17, 2022
 10:00am - 1:00pm

Facilitator: Melissa Stafford, Regional Planner & Procurement Officer
 Mid-Missouri Regional Planning Commission

Place/Room: Callaway Co Public Health Department
 4950 County Road 304, Fulton, MO

Name	Title	Department/Agency	Email	Phone #	Signature
Isa Wehmer	Ac	Hotts Summit Fire	Isa.Wehmer@HSPD.ORG	573 696 9434	
Allen Wehmer	Ac	Hotts Summit	allen.wehmer@hottsfire.org	690-4013	
Kevin Hillman	Superintendent	South Callaway	Kevin.hillman@sc.k12.mo.us	573-423 9557	
Sarah Wisdon	Superintendent	New Bloomfield	swisdon@nb.k12.mo.us	573-991-3709	
Michael Bertschinger	Supervisor	Auxvasse	auxmaint@ktis.net	573-220-7320	
Kevin Coffelt	Fire Chief	Fulton	Firechief@fultonmo.org	573-220-5385	
Melissa Stafford	Regional Planner	MIDMO RDC	melissastafford@midmorc.org	573-353-1007	
Gary Tupperman	Residing Commissioner	Callaway County	gtupperman@callawaycounty.org	(573) 220-8045	
Larry Doyle, Jr.	City Manager	Kingdom City	Larrydoyle@kingdomcitymo.com	573-592-2480	
Michelle Kistner	City Manager Director	Callaway EMA			











CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE MEETING #2—SIGN-IN SHEET

Project: Callaway County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update
 Melissa Stafford, Regional Planner & Procurement Officer
 Mid-Missouri Regional Planning Commission

Meeting Date/Time: March 17, 2022
 10:00am - 1:00pm

Facilitator: Melissa Stafford, Regional Planner & Procurement Officer
 Mid-Missouri Regional Planning Commission

Place/Room: Callaway Co Public Health Department
 4950 County Road 304, Fulton, MO

Name	Title	Department/Agency	Email	Phone #	Signature
Robert Boone	ADOR	City of Fulton	ADOR@fultronmo.org	592-5114	
Jason Barnes	LT	Fulton police	JBarnes@Fultrndpol.org	572-3100	
Debra Taylor	alderman Mokan	City of Mokane	dtaylor@36gm.com	573-222-1417	
Clara Rooster	MOBILE ALDERMAN	City Of Mokane	rooster.alderman@outlook.com	573-220-9784	
Nicky Kemp	Superv.	NCSD	nkemp@nc.k12.mo.us	573-489-8155	
Kellie Chapin	Business Manager	North Callaway schools	kechapin@nc.k12.mo.us	573-220-5966	
Hanna Thoma	City Manager	Holtz Summit	cityadmin@hstator.com	691-9070	
John Joyce	CITY Clerk	New Bloomfield	nbcity@emb.org.mil	573-491-3614	
Jeff Garnett	Management	Callaway Zwick	jeff@callaway-zwick.com	573-220-1465	
Ty Crain	Server/Trust	Fulton Public Schools	TCrain@fultron.org	573-550-8000	

CALLAWAY COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE FIRE DISTRICT MEETING —SIGN-IN SHEET

Project: Callaway County, Missouri Multi-Jurisdictional Hazard Mitigation Plan Update
Facilitator: Melissa Stafford, Regional Planner & Procurement Officer
 Mid-Missouri Regional Planning Commission

Meeting Date/Time: March 9, 2022 7:00pm -9:00pm
Place/Room: Fulton Fire Department
 151 Tennyson Rd Fulton MO 65251

Name	Title	Department/Agency	Email	Phone #	Signature
Melissa Stafford	Regional Planner	Mid-Mo RRC	melissastafford@midmorc.org	573-353-1007	
Michelle Kidwell	Director	Carbunnet EMA	Michelle Kidwell 1/	573-220-5716	
Russell Sing	Training Officer	Fulton Fire Dept.	training@fultonmo.org	573-592-3153	
Kevin Coffelt	Fire Chief	Fulton Fire Dept.	firechief@fultonmo.org	573-220-5385	
Christopher Pau	Asst. Chief	South Callaway FPD	C.Pau@Southcallawayfire.com	573-220-9142	
Gary Luebbers	Chief	South Callaway FPD	g.luebbers@scfd.com	573-220-8278	
Eric Hartman	State Fire Mutual Aid rec'd	MODES	Eric.Hartman@DFSMO.gov	573-821-0937	
Jason Besworth	Asst Chief	Millersburg FPD	jason@smillersburg.com	573-826-8032	
Dana Thachoff	Chief	North Callaway FPD	nealfire@gmail.com	573-826-0018	
Rebecca Stone	Chief	Auxvasse FD	nefd416@ycmoo.com	573-289-0557	

Water District HMP 4-4-22 10am - 1pm

NAME COMPANY EMAIL PHONE

Michelle Kidwell Callaway EMB michellekidwell@ceec.org

Pam Fischer Callaway 2 Water Pam@Callaway2water.com 573-228-1376

Brad Seviner Callaway 1 Water callaway-1@outlook.com 573-896-4788

Jeff Gerrist Callaway 2 Water jeff@Callaway2water.com 573-228-1465

Melissa Stafford

Callaway County Hazard Mitigation Meeting with Municipalities from 10 AM - 1 PM 4-6-22

First Name	Last Name	Department	Phone	Email	Title
Hanna	Thomars	Hotts Summit	544-3043	cityadministrator@hotts-summit.org	City Admin.
Lowe	Cannell	City of Fulton	573-220-4012	mayor@fultonmo.org	Mayor
Jasons	Barnes	FPO city of Fulton	573-598-3100	jbarnes@fitchsp.org	CT
Tim	Hewitt	FPP			
Russell	Siuca	Fulton Fire Dept.	573-253-4501	training@fultone.org	Post Chief
Robert	Koonce	City of Fulton	592-3114	ADOT@fultonmo.org	Asst. DOT
Darrell	Dunlop	City of Fulton	592-3111	Safety@fultone.org	Civilities
Kyle	Brewer	City of Fulton	552-3111	asstcityengineer@fultone.org	City Engineer
Larry	Doyle	Kingdom City	592-0588	larrydoyle@kingdomcitymo.com	City Manager
John	Joyce	New Bloomfield	573-491-3614	NBcity@embargmail.com	City Clerk
Anna	Booth	City Of Mokane	573-220-9788	boothr@alderman@outlook.com	Mayor
Debra	Taylor	City of Mokane	573-220-1417	tedeloria53@gmail.com	alderman
Michelle	Spive	Fulton Sun	407-314-8822	mskine@fultonsun.com	editor
Michelle	Kidwell	Callaway EMDA	573-220-5977	MichelleKidwell@ccg.org	Dir.
Gary	Jungsmann	Callaway Commission	573-442-0731	gjungsmann@callawaycounty.org	Pres. Comm
Michael	Bertschinger	Auxvasse	573-386-2227	auxmaint@ktis.net	City Supervisor

1pm - 3pm School of Deaf

Melissa Stafford

Melissa Stafford

Regina Roesner

Regina Roesner

7-13-22 230pm - 430pm Kingdom City

~~1800~~
Melissa Stafford
Larry Doyle

Appendix C: Questionnaires

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County: Callaway County _____

Jurisdiction: County Government _____

Return by: March 11, 2022 _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Michelle Kidwell, Director OEM _____

Phone: 573-592-2480 _____

Email: michellekidwell@cceoc.org _____

Date: March 1, 2022 _____

Please return questionnaires by email to:

Name: Melissa Stafford _____

Email: melissastafford@midmoprc.org _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column.

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	Provided in annual County Budget
City Emergency Operations Plan	N/A
County Emergency Operations Plan	update will be 2022
Local Recovery Plan	N/A
County Recovery Plan	No
City Mitigation Plan	N/A
County Mitigation Plan	2017
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	Regional-2016
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
School Mitigation Plan	No
Critical Facilities Plan (Mitigation/Response/Recovery)	Callaway Emergency Radiological Plan
Policies/Ordinance	
Zoning Ordinance	N/A
Building Code	N/A

Floodplain Ordinance	Updated pursuant to 44 CFR 60.3(d) Ordinance 102 effective 10/28/21
Subdivision Ordinance	N/A
Tree Trimming Ordinance	No
Nuisance Ordinance	No
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	N/A
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Only NFIP Floodplain Management Ordinance 102.
Codes Building Site/Design	N/A accept within floodplain then FP Ordinance.
Hazard Awareness Program	Public Education Programs for All Hazards through Office of Emergency Management, and Callaway LEPC for Chemical/Hazmat (If this isn't what you wanted let me know)
National Flood Insurance Program (NFIP)	NFIP Entry date 09/03/1983/ CID#290049
NFIP Community Rating System (CRS) program	
National Weather Service (NWS) Storm Ready	Implemented in 2018 updating in 2022
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	N/A
ISO Fire Rating	Each Fire Department would have their ISO rating.

Capabilities	Status Including Date of Document or Policy
Economic Development Program	County works with Fulton Area Development foundation
Land Use Program	No
Public Education/Awareness	Through Office of Emergency Management, CERT, COAD, Public Health (Each having programs throughout the year) Again, not sure what you wanted here.
Property Acquisition	Not since 2012
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	Callaway County Road and Bridge
Engineering Studies for Streams (Local/County/Regional)	Engineering studies conducted are hydrology and hydraulic reports for culverts and bridges on a case by case basis. These are done for new or replacement culverts and bridges through Road and Bridge Engineer.
Mutual Aid Agreements	MOU's w/ Red Cross, Ameren, Humane Society, Westminster, several churches for facility use, etc..
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	THIRA
Hazard Analysis/Risk Assessment (County)	THIRA

Flood Insurance Maps	Date of Maps 09/05/12 FEMA in process of updating maps with new LIDAR
FEMA Flood Insurance Study (Detailed)	9/5/2012
Evacuation Route Map	EPZ Evacuation Maps
Critical Facilities Inventory	Critical facility database (schools, residential care facilities,hospital, group homes transient attractions senior centers) , Tier II data and facility location map, Fire/LE/EMS facility location maps
Vulnerable Population Inventory	Yes individuals can register with Smart 911 or by contacting EMA
Land Use Map	
Staff/Department	
Building Code Official	N/A
Building Inspector	N/A
Mapping Specialist (GIS)	Greg Resz/Office of Emergency Management
Engineer	Paul Winkelmann/Road & Bridge County
Development Planner	N/A
Public Works Official	N/A
Emergency Management Director	Michelle Kidwell/Office of Emergency Management
NFIP Floodplain Administrator	Michelle Kidwell/Office of Emergency Management
Emergency Response Team	Michelle Kidwell/Office of Emergency Management
Hazardous Materials Expert	Various Fire Dept. Personnel trained to Tech level.
Local Emergency Planning Committee	Gary Jungermann Chair/Emergency Management Coordinates
County Emergency Management Commission	N/A
Sanitation Department	N/A
Transportation Department	Paul Winkelmann/Mitch Fletcher/ Road & Bridge
Economic Development Department	Callaway Chamber of Commerce
Housing Department	N/A
Historic Preservation	Kingdom of Callaway Historical Society
Non-Governmental Organizations (NGOs)	
American Red Cross	Red Cross Missouri Central Missouri Chapter
Salvation Army	Office located in Jefferson City, MO
Veterans Groups	VFW Post 2657, Veterans Alliance for Compassionate Access, Amvets Post 153
Local Environmental Organization	Callaway County Soil and Water Conservation, Callaway County Extension Office
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	Callaway Chamber of Commerce
Community Organizations (Lions, Kiwanis, etc.)	Rotary Club, Lions Club, Kiwanis Club, Several VFW Posts, Amvets Mokane, I'm sure there are several.

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	

Apply for Community Development Block Grants	Conducted through the Mid-Missouri Regional Planning Commission
Fund projects through Capital Improvements funding	Active, annual line placed on budget each year.
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	No
impact fees for new development	No
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	No

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members **COUNTY COMMISSION (3) PRESIDING, WESTERN DISTRICT AND EASTERN DISTRICT.**

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.
 - a. **Callaway County Office of Emergency Management participates in the Spring and Winter NWS/Statewide severe weather weeks designated each year. We also participate in the annual earthquake drill/tornado drill. We also provide ongoing public information, training and information programs through CERT, COAD, MRC, LTRC Meetings with various agencies/organizations and public presentations as well as sponsoring/participating with planned events throughout the County where either a booth/tent/table for public information is provided.**
 - b. **Callaway County Emergency Management also participates in the National Weather Ambassador Program which promotes weather awareness/safety/preparedness.**
 - c. **Callaway County Office of Emergency Management continually works with the public/private schools and universities to provide public information on where to receive emergency alerts/notifications, for functional and access need registry through Smart-911, Weather preparedness, Building kits etc..**
 - d. **Callaway County Office of Emergency Management works provides presentations on preparedness to 4-H, Boy Scouts, Girl Scouts and other clubs/organizations to include the Senior Center and Library.**
 - e. **Information and education is also provided through various social media venues by our office.**
 - f. **The Sheriff Dept., Fire Dept., Public Health and EMS also provide various public education and information for their respective areas of knowledge such as fire safety, active shooter, etc...**

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

- a. **Callaway County completed a Hazard Mitigation Grant Project to put an outdoor warning siren in the City of New Bloomfield. Project Completed in 2021.**

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

- a. **Callaway County Emergency Management utilizes Rave Prepare, which is an online system where individuals with functional/access needs, medical conditions, no transportation, or other vulnerabilities can input this information making it available to emergency management, putting this locations on a map and providing a means for emergency management to communicate information during a disaster. The concern is that not all individuals have opted in to provide this information. There is also a form that can be filled out by contacting my office to provide this information or assist them with getting their information into the preparedness portal.**

5. How many outdoor warning sirens are in your community? **34**

How are they activated (indicate responsible department/personnel)? **The responsible department with oversight on the policy and procedures for activating the outdoor warning sirens is Callaway County Emergency Management. The actual activation of the outdoor warning sirens is conducted via the consoles within the 9-1-1 Joint Communications Department.**

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe. **Rave Alerts (mass notification), IPAWS, NOAA Weather Radios, and Route Alerting as a redundant back-up.**
7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards? **Not owned and operated by county.**

Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

The addition of commercial and industrial development is ongoing. Pro Food Systems has expanded providing 43 more jobs. Danhuser Machine Company expanded adding an additional 32,000 square feet. The industrial park in Fulton has also expanded its territory. Central Missouri Meat & Sausage is a new meat processor and store/restaurant at 5009 Pendergras Road, Fulton.

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas. **New development within the floodplain is discouraged. There are no plans for development at this time however, studies are being conducted regarding a PORT which at this time is unknown whether it will be on the Cole County or Callaway Side of the Missouri River if the project moves forward.**

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

Callaway County Jail construction started in 2021 will be complete in 2022. This jail is being built to address capacity needs and to provide additional holding cells for inmates with medical or mental needs. It is located adjacent to the current County Jail, 1201 State Road O, Fulton MO.

Callaway County Justice Center construction started in 2021 will be complete in 2022. This project is to meet the area needs for additional space. This will house the Callaway County Courts, Judges, Prosecutor's office and Juvenile Offices.

Callaway County Office of Emergency Management Resource Building, construction is projected to begin in 2022 with completion in 2022. The purpose for this project is to provide necessary space for emergency management equipment and resources as well as providing a resource logistics area.

11. Please list major employers in your jurisdiction with an estimated number of employees.
This will be listed in the table allocated at the bottom of this questionnaire.

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not.

Callaway County Office of Emergency Management (Callaway County), New Bloomfield School District, North Callaway School District, South Callaway School District, Fulton School District, Callaway Water District I, Callaway Water District

II, Levee Districts, (7) Fire Districts, City of Fulton, Mokane, Holts Summit, New Bloomfield, Auxvasse, and Village of Kingdom City.

The planning committee did not meet as a whole however, each organization reviewed their mitigation actions individually working towards completing the actions listed. Moving forward the committee will meet as a whole annually to review the plan as a whole. Due to the pandemic meetings were not conducted during that period of onset.

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

Callaway County is a participating member of the NFIP. Compliance with the NFIP is enforced through the Callaway County Floodplain Management Ordinance 102. Floodplain Management Administrative Procedures are in the process of being approved which will also be used to enforce compliance with the County ordinance in compliance with the NFIP. The County works very closely with the State NFIP Coordinator to ensure compliance.

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Hospitals and other medical facilities
Police stations
Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Military installations
Hazardous material sites
Schools
Shelters
Day care centers
Nursing homes
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A"). In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
<u>Essential Facilities</u> such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
Callaway Community Hospital	10 S. Hospital Dr., Fulton MO 65251	48,450				EQ, ST, T
Callaway County Road and Bridge	5901 County Road 302, Fulton MO 65251					ALL WOULD IMPACT OPERATIONS
Callaway County Sheriff Department/Jail.	1201 State Road O, Fulton MO 65251				Jail 152 bed occupancy	ALL WOULD IMPACT OPERATIONS
Callaway County Office of Emergency Management	1201 State Road O, Fulton MO 65251					ALL WOULD IMPACT OPERATIONS
Callaway County 9-1-1 Joint Communications	1201 State Road O Fulton MO 65251					ALL WOULD IMPACT OPERATIONS
Callaway County EOC	1201 State Road O, Fulton MO 65251					ALL WOULD IMPACT OPERATIONS
Fulton State Hospital	600 E. 5 th Street Fulton MO 65251	413,000	211,000,000.00		300 bed	EQ, ST, SWW, T
<u>High Potential Loss Facilities</u> such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools)						
Callaway Rural Electric Cooperative						EQ, ST, SWW, T, WF
Ameren UE						EQ, ST, SWW, T, WF
Ameren UE Callaway Energy Nuclear Plant						RF, EQ, ST, T, WF
Callaway County Courthouse	10 E. 5 th Street, Fulton MO 65251	134x80 Ft.				EQ, ST, SWW, T
City of Fulton						

Callaway Rural Electric Cooperative						
Others listed on excel spread sheet attached.						
<u>Transportation and Lifelines</u> such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities, oil facilities and pipelines, communications facilities						
Greyhound Bus Station	2213 Cardinal Dr. Fulton Mo 65251					EQ, ST, SWW, T
Callaway OATS Transit	2501 Maguire Blvd, Columbia MO					RF, EQ, ST, SWW, T
SERVE Transport	4901 County road 304, Fulton MO 65251					RF, EQ, ST, SWW, T
Elton Hensley Memorial Airport	4420 County Road 304, Fulton, MO 65251	3600 sq. ft.				EQ, ST, SWW, T
Jefferson City Airport	500 Airport Rd. Jefferson City MO 65251 (in callaway county)	469 acres				RF, LF, EQ, LSS, ST, SWW, T
Interstate 70						
U.S. Highway 54						
U.S. 63 Highway						
State Highway 94						
Panhandle Eastern Pipe Line						
Fulton Natural Gas System (feeder)						
Magellan Pipeline Company						
Ameren Natural Gas						
Southern Star Central Gas Pipeline						
Missouri River Bridge	US Highway 54/63 Callaway/Cole County River Crossing					
Auxvasse Creek Bridge	Cr 231 and another one on Old US 54 between Auxvasse and Kingdom City in Callaway Co.					
Booker Bridge	CR 252					
Clabber Creek Bridge	CR 445					
County Road 353 Bridge	CR 353					

Fulton 10 th Street Bridge	Over Stinson Creek on E. 2 nd at Market St. Fulton MO					
Callaway County Road 389 Bridge over branch of Cedar Creek	CR 389					
Fulton 8 th Street Bridge	Over Smith Branch of Stinson Creek on E. 8 th St., Fulton MO					
Numerous Katy Trail Bridges	Over, Auxvasse Creek, Cedar Creek, Hillers Creek, Logan Creek, Middle River, Niemans Creek, Rivaux Creek, Turkey Creek, Wainscott Creek,					
KCS – I70 Overpass	Intact but closed to traffic.					
Loutre River Bridge	CR 1051					
Memorial Park Covered Bridge	Over Stinson Creek Memorial Park, Fulton MO					
Middle River Bridge	CR 435					
MFA Oil (Propane Supplier	Fulton MO					

Economic Assets (Major Employers, etc)

Asset	Address	Product/ Service	Value (if known)	Number of Employees	Hazards
Fulton State Hospital	600 E. 5 th St., Fulton MO	Mental Health		1250	EQ, ST, SWW, T
Ameren UE Callaway Nuclear Plant	8315 County Road 459, Steedman, MO 65077	Utility		923	RF, LF, EQ, ST, T, WF
ABB Power T&D Company	500 MO-94, Jefferson City MO 65101	Manufacturing		725	RF, LF, EQ, T, WF
Dollar General Distribution Center	1900 Cardinal Dr., Fulton MO 65251	Distribution		650	EQ, ST, SWW, T
Fulton Public Schools	1 Hornet Dr., Fulton Mo 65251	Education		450	EQ, ET, ST, SWW, T
Fulton Reception & Diagnostic Ctr	1393 SR O, Fulton MO 65251	Government		400	RF, EQ, ST, SWW, T
Wal-Mart Supercenter	1701 N. Bluff St., Fulton Mo	Retail		250	RF, EQ, ST, SWW, T

North Callaway School District	2700 Thunderbird Dr., Kingdom City MO	Education		221	RF, EQ, ET, ST, SWW, T
Callaway Community Hospital	10 S. Hospital Dr., Fulton MO	Health Care		210	EQ, ST, SWW, T
Westminster College	501 Westminster Ave., Fulton MO	Education		205	EQ, ST, SWW, T
William Woods University	1 University Ave., Fulton MO	Education		196	RF, EQ, ST, SWW, T
City of Fulton	18 E. 4 th St., Fulton Mo	Government		193	RF, EQ, D, ET, ST, SWW, T
Missouri School for the Deaf	505 E. 5 th St., Fulton MO	Education		190	EQ, ST, SWW, T
Callaway County	10 E. 5 th St., Fulton MO	Government		177	RF, LF, DF, EQ, LSS, D, ET, ST, SWW, T, WF
South Callaway School District	10135 State Hwy C, Mokane MO 65059	Education		150	RF, LF, EQ, LSS, ST, SWW, T, WF
AZZ Central Electric Company	7945 State Rd BB, Fulton, MO	Manufacturing		136	EQ, ST, SWW, T
ANH Refractories/ Harbison Walker International	111 W. Saint Eunice St., Fulton 1301 Westminster Ave., Fulton	Manufacturing		133	RF, EQ, ST, SWW, T
Walsworth	1201 N. Bluff St., Fulton MO	Manufacturing/Printin		125	RF, EQ, ST, SWW, T
The Callaway Bank	1101 S. Bus. 54 #10, Fulton MO	Financial		108	EQ, D, ST, SWW, T
New Bloomfield School District	307 Redwood Dr., New Bloomfield MO	Education		103	EQ, ET, ST, SWW, T
OCCI Fabricators	3101 & 3200 County Rd 257, Fulton MO	General Contractor		150	RF, EQ, ST, SWW, T
Danhuser Machine Company	500 E. Third St., Fulton MO	Manufacturing		135	RF, EQ, ST, SWW, T

Add number of each facility within jurisdiction

Jurisdiction	Airport Facility	Bus Facility	Childcare Facility	Communications Tower	Electric Power Facility	Emergency Operations	Fire Service	Government	Housing	Shelters	Highway Bridge	Hospital/Health Care	Military	Natural Gas Facility	Nursing Homes	Police Station	Potable Water Facility	Rail	Sanitary Pump Stations	School Facilities	Stormwater Pump Stations	Tier II Chemical Facility	Wastewater Facility	TOTAL
CALLAWAY COUNTY	2	1	24	8	4	2	21	7	?	15	11	1	1	1	12	4	0	0	130		0		55	

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	CALLAWAY COUNTY
Type of event	SEVERE STORMS/FLOODING
Nature and magnitude of event	FREQUENT HEAVY PERIODS OF RAIN CAUSED FLASH FLOODING/FLOODING CAUSING SEVERAL ROADS IN CALLAWAY COUNTY TO SEVERELY WASHOUT
Location	CALLAWAY COUNTY
Date of event	June 19 through July 1, 2021
Injuries	None known
Deaths	None
Property damage	N/A
Infrastructure damage	Numerous County Roads washed out.
Crop damage	Unknown
Business/economic impacts	Unknown
Road/school/other closures	No
Other damage	N/A
Insured losses	N/A
Federal/state disaster relief funding	DR-4612-MO Public Assistance In-progress
Source of information	Callaway County Office of Emergency Management
Comments	Due to heavy rains 5 culverts have been identified needing to be larger in order to handle the capacity of water flow. Because the culverts were not damaged this may likely not be mitigated as part of this disaster declaration.

Jurisdiction	CALLAWAY COUNTY
Type of event	COVID-19 DR-44990-MO
Nature and magnitude of event	PANDEMIC
Location	NATIONWIDE
Date of event	JANUARY 20, 2020 AND CONTINUING
Injuries	12,042 CASES
Deaths	124
Property damage	N/A
Infrastructure damage	N/A
Crop damage	N/A
Business/economic impacts	The business economic impacts were huge. 26 million in loans was allocated to assist businesses to remain open through the PPP Loan program. 830,000.00 was provided through the CARES Act funding in Callaway County and there were at least 3 businesses who were able to get grants through the State of Missouri.
Road/school/other closures	N/A
Other damage	N/A
Insured losses	Unknown if any
Federal/state disaster relief funding	Callaway was included in this disaster but due to CARES Act Funding and ARPA has not declared a loss for disaster relief funds at this time.
Source of information	Office of Emergency Management and Callaway Chamber of Commerce
Comments	

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County: Callaway County

Jurisdiction: City of Auxvasse

Return by: 3/11/2022

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Michael Bertschinger

Phone: 573-386-2227

Email: auxmaint@ktis.net

Date: 3/10/22

Please return questionnaires by email to:

Name: Melissa Stafford

Email: melissastafford@midmoprc.org

**CAPABILITY ASSESSMENT
&
INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND
TECHNICAL INFORMATION**

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column.

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	
Builder's Plan	
Capital Improvement Plan	
City Emergency Operations Plan	
County Emergency Operations Plan	Callaway County EOP
Local Recovery Plan	
County Recovery Plan	
City Mitigation Plan	
County Mitigation Plan	
Debris Management Plan	
Economic Development Plan	
Transportation Plan	Regional-2016
Land-use Plan	
Flood Mitigation Assistance (FMA) Plan	
Watershed Plan	
Firewise or other fire mitigation plan	
School Mitigation Plan	
Critical Facilities Plan (Mitigation/Response/Recovery)	
Policies/Ordinance	
Zoning Ordinance	2007
Building Code	
Floodplain Ordinance	
Subdivision Ordinance	1986
Tree Trimming Ordinance	
Nuisance Ordinance	2011
Stormwater Ordinance	
Drainage Ordinance	
Site Plan Review Requirements	
Historic Preservation Ordinance	

Landscape Ordinance	
Seismic Construction Ordinance	
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	
Hazard Awareness Program	
National Flood Insurance Program (NFIP)	No
NFIP Community Rating System (CRS) program	No
National Weather Service (NWS) Storm Ready	
Firewise Community Certification	
Building Code Effectiveness Grading (BCEGs)	
ISO Fire Rating	7

Capabilities	Status Including Date of Document or Policy
Economic Development Program	
Land Use Program	
Public Education/Awareness	
Property Acquisition	
Planning/Zoning Boards	Yes
Stream Maintenance Program	
Tree Trimming Program	
Engineering Studies for Streams (Local/County/Regional)	
Mutual Aid Agreements	North Callaway Fire District
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	
Hazard Analysis/Risk Assessment (County)	
Flood Insurance Maps	
FEMA Flood Insurance Study (Detailed)	
Evacuation Route Map	
Critical Facilities Inventory	
Vulnerable Population Inventory	
Land Use Map	
Staff/Department	
Building Code Official	
Building Inspector	
Mapping Specialist (GIS)	
Engineer	
Development Planner	
Public Works Official	Michael Bertschinger/City Supervisor
Emergency Management Director	
NFIP Floodplain Administrator	No
Emergency Response Team	
Hazardous Materials Expert	
Local Emergency Planning Committee	
County Emergency Management Commission	
Sanitation Department	

Transportation Department	
Economic Development Department	
Housing Department	
Historic Preservation	
Non-Governmental Organizations (NGOs)	
American Red Cross	
Salvation Army	
Veterans Groups	
Local Environmental Organization	
Homeowner Associations	
Neighborhood Associations	
Chamber of Commerce	
Community Organizations (Lions, Kiwanis, etc.)	Lions

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	
Fund projects through Capital Improvements funding	
Authority to levy taxes for a specific purpose	
Fees for water, sewer, gas, or electric services	
impact fees for new development	
Ability to incur debt through general obligation bonds	
Ability to incur debt through special tax bonds	
Ability to incur debt through private activities	
Withhold spending in hazard prone areas	

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members) Mayor/Council 5 members

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education. NA
3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants. NA
4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers. NA
5. How many outdoor warning sirens are in your community? 1 outdoor siren

How are they activated (indicate responsible department/personnel)? It is remotely operated through Callaway County 911 Dispatch Center.

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe. NA
7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards? NA

Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update. 10 new single family homes and 2 new commercial buildings including a community center and store.
9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas. Current projections for residential development do not anticipate growth in the floodplain. The same goes for the development in the industrial and commercial areas as currently zoned.

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.
11. Please list major employers in your jurisdiction with an estimated number of employees.

Show Me Oil	10
Casey's General Store	12
Kingdom Telephone	12
One Stop Custom	6
United Security Bank	8
Finck Supported Living Services	15
North Callaway Middle School	37
Noble Health Medical Group	6

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not.
13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally. NA

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best

available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Hospitals and other medical facilities
Police stations
Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Military installations
Hazardous material sites
Schools
Shelters
Day care centers
Nursing homes
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/Capacity (#)	Natural Hazards
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
Police Department	106 E Walnut	1200	176000	12700	8	EQ,ST,SWW,T,WF
Fire Department	101 N. Main St	5200	525000	78000	35	EQ,ST,SWW,T,WF
High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools)						
City Hall	104 S Main St	1300	247000	21800	20	EQ,ST,SWW,T,WF
Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities and pipelines, communications facilities						
Well 4	503 Park St	370	231800	NA	NA	EQ,ST,SWW,T,WF
Well 5	513 Crawford Way	480	289800	NA	NA	EQ,ST,SWW,T,WF
Water Tower	503 Park St	NA	253300	NA	NA	EQ,ST,SWW,T,WF
Lift Stations (6)		NA	412400	NA	NA	EQ,ST,SWW,T,WF

Economic Assets (Major Employers, etc)

Asset	Address	Product/ Service	Value (if known)	Number of Employees	Hazards
Show Me Oil	804 S Main St	Fuel/Store		10	EQ,ST,SWW,T,WF
Casey's General Store	405 E Harrison St	Fuel/Store		12	EQ,ST,SWW,T,WF
Kingdom Telephone Company	211 S Main St	Communication		12	EQ,ST,SWW,T,WF
One Stop Custom	119 S Main St	Custom printing, Shirts, Banners, vinyl lettering		6	EQ,ST,SWW,T,WF
United Security Bank	101 E Walnut St	Banking		8	EQ,ST,SWW,T,WF
Finck Supported Living	101 Love St	In home services		15	EQ,ST,SWW,T,WF
Nobel Health Medical Group	201 S Main St	Medical Clinic		6	EQ,ST,SWW,T,WF
North Callaway Middle School	650 E Harrison St	School		37	EQ,ST,SWW,T,WF

Add number of each facility within jurisdiction

Jurisdiction	Airport Facility	Bus Facility	Childcare Facility	Communications Tower	Electric Power Facility	Emergency Operations	Fire Service	Government	Housing	Shelters	Highway Bridge	Hospital/Health Care	Military	Natural Gas Facility	Nursing Homes	Police Station	Potable Water Facility	Rail	Sanitary Pump Stations	School Facilities	Stormwater Pump Stations	Tire Chemical Facility	Wastewater Facility	TOTAL
				1			1	3				1				1	2		6	1			1	17

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County: Callaway County _____

Jurisdiction: City of Fulton _____

Return by: Kyle Bruemmer _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Darrell Dunlap and Kyle Bruemmer _____

Phone: 573-592-3111 _____

Email: futility@fultonmo.org _____

Date: 3/11/2022 _____

Please return questionnaires by email to:

Name: Melissa Stafford _____

Email: melissastafford@midmoprc.org _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column.

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	yes
Builder's Plan	no
Capital Improvement Plan	yes
City Emergency Operations Plan	Yes (Electric, water, fire is with County)
County Emergency Operations Plan	yes
Local Recovery Plan	county
County Recovery Plan	
City Mitigation Plan	yes
County Mitigation Plan	
Debris Management Plan	yes
Economic Development Plan	Chamber of Commerce
Transportation Plan	Regional-2016
Land-use Plan	Yes
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	TMDL Developed for Stinson Creek
Firewise or other fire mitigation plan	No
School Mitigation Plan	Yes
Critical Facilities Plan(Mitigation/Response/Recovery)	Yes
Policies/Ordinance	
Zoning Ordinance	Yes, City Code Appendix A
Building Code	Yes, code chapter 18

Floodplain Ordinance	Yes, Ordinance 1549-20 10/27/2020
Subdivision Ordinance	Yes, Code chapter 102
TreeTrimming Ordinance	This is a policy
Nuisance Ordinance	Yes, Code chapter 46
Stormwater Ordinance	Yes, Code chapter 46
Drainage Ordinance	Yes, Code section 114-196
Site Plan Review Requirements	Yes
Historic PreservationOrdinance	Yes, Code ch. 62
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Yes, Code Appendix A
Codes Building Site/Design	Yes
Hazard Awareness Program	Tier II business listing
National Flood Insurance Program (NFIP)	Yes
NFIPCommunity Rating System (CRS) program	No
National WeatherService (NWS) StormReady	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	Yes, Rating = 4 on a scale of 1-10

Capabilities	Status Including Date of Document or Policy
Economic DevelopmentProgram	Yes, Chamber of Commerce
Land Use Program	Yes
PublicEducation/Awareness	Yes
Property Acquisition	Yes
Planning/Zoning Boards	Yes
Stream Maintenance Program	Yes, Stream Team Program
TreeTrimming Program	Yes, Electric Department Policy
Engineering Studies for Streams(Local/County/Regional)	TMDL on Stinson Creek developed by EPA/DNR
Mutual Aid Agreements	Yes, MPAU, American Public Power, Fire
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Fire Dept.
Hazard Analysis/Risk Assessment (County)	
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	Yes, County EOC
Critical Facilities Inventory	Yes
Vulnerable PopulationInventory	Yes
Land Use Map	Yes, zoning
Staff/Department	
Building Code Official	Yes
Building Inspector	Yes
Mapping Specialist (GIS)	Yes
Engineer	Yes
Development Planner	Yes

Public Works Official	Yes
Emergency Management Director	Yes, county
NFIP Floodplain Administrator	Yes
Emergency Response Team	Yes, regional teams with Jefferson City and Columbia
Hazardous Materials Expert	Yes, regional teams with Jefferson City and Columbia
Local Emergency Planning Committee	Yes
County Emergency Management Commission	
Sanitation Department	Yes
Transportation Department	Yes
Economic Development Department	Chamber of Commerce
Housing Department	Fulton Housing Authority
Historic Preservation	Yes, City Commission
Non-Governmental Organizations (NGOs)	
American Red Cross	
Salvation Army	Yes
Veterans Groups	Yes
Local Environmental Organization	Stream Team and College Organizations
Homeowner Associations	Yes, Southwinds, Tanglewood
Neighborhood Associations	
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	Yes
Fund projects through Capital Improvements funding	Yes
Authority to levy taxes for a specific purpose	Yes, with voter approval
Fees for water, sewer, gas, or electric services	Yes
impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes, with voter approval
Ability to incur debt through private activities	
Withhold spending in hazard prone areas	Yes

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

Mayor and 8 City Council (two per ward)

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

Municipal Separate Stormsewer system public education and involvement program
Stream Team Program
Yard Waste Collection
Solid Waste Collection
Recycling
Electronic Waste
Household Hazardous Waste
Pet Waste
Landscaping
Adopt a Street/Stream

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

Tree Trimming, drainage inspection and improvements, electric underground conversions, sanitary sewer inspection/improvement/lining program, water tower inspection and improvements, water and gas main yearly improvements

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

Loss of power to sick an elderly, ADA infrastructure, storm shelters and warming centers

5. How many outdoor warning sirens are in your community?

Not Sure

How are they activated (indicate responsible department/personnel)?

County Emergency Operation Center

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards? No

Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

Residential: Willow Creek Subdivision, Southwinds Subdivision

Industrial: Danuser Machine Expansion, Henderson Products

Commercial: Tanglewood Business Park

Institutional: New Fulton State Hospital, Fulton School System Additions, New Justice Center, New Callaway County Jail Expansion

Recreational: Fulton Community Recreation Center, YMCA Expansion

9. Describe development trends and expected growth areas.

Fulton's most recent population growth has been on the south side of Fulton with Willow Creek Subdivision and Southwinds Subdivision.

With DNR pushing increased regulations on private sewer systems near the City, the City has experienced an influx in requests to treat the wastewater from these systems. Meanwhile the City's wastewater treatment plant has been under scrutiny by DNR due to Stinson Creek's water quality status. It is unclear to date if this pressure will equal growth through annexations or service agreements or not.

Is any new development expected to occur in the 100-year floodplain?

The City is working with DNR to improve water quality in Stinson Creek. Stinson Creek is on EPA's impaired waters 303(d) list for low dissolved oxygen and excessive organic sediment. An integrated management plan that looks at Stinson Creek's watershed and land uses has been proposed to progressively improve the creek's water quality while potentially providing flood mitigation.

Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas.

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

New Water Tower and Well on South Side of Fulton

Wastewater Treatment Improvements for Stinson Creek Water Quality

Stormsewer improvements near Westminster College, Tractor Supply Water Shed, Nichols Street Water Shed, Saults Addition and Bluff Street Water Shed

Water main improvements along Westminster Avenue from Old Jefferson City Road to Business 54, Reed and Washington Subdivision, Herring Addition Subdivision, Bartley to St. Louis Road Subdivision, and Randal Subdivision.

11. Please list major employers in your jurisdiction with an estimated number of employees.

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not.

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

The city is a NFIP participant. It is administered and enforced by the Planning and Protective Services Department and Engineering Department through the plan review and building permit process.

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities	High Potential Loss Facilities	Transportation and Lifeline
Hospitals and other medical facilities	Power plants	Highways, bridges, and tunnels
Police stations	Dams/levees	Railroads and facilities
Fire station	Military installations	Bus facilities
Emergency Operations Centers	Hazardous material sites	Airports
	Schools	Water treatment facilities
	Shelters	Natural gas facilities and pipelines
	Day care centers	Oil facilities and pipelines
	Nursing homes	Communications facilities
	Main government buildings	

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/Capacity (#)	Natural Hazards
<u>Essential Facilities</u> such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
Callaway Community Hospital						
Fulton State Hospital						
City of Fulton Police						
City of Fulton Fire						
Callaway County EOC						
<u>High Potential Loss Facilities</u> such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools)						
Fulton Power Plant						
Fulton City Hall						
Fulton Wastewater Treatment						
Fulton Recreation Center						
Fulton Public Works Campus						
Senior Lake Dam						

Hawk Lake Dam						
Morningside Lake Dam						
Truman Park Lake Dam						
Tanglewood Golf Dam						
Veterans Park Dam						
Ashbury Heights						
Churchill Terrace						
Bridgeway Residential Care						
Bristol Manor Care Center						
Fulton Nursing and Rehab						
Valley Park North						
Presbyterian Manor						
Fulton Manor Care Center						
Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities, oil facilities and pipelines, communications facilities						
Elton Hensley Memorial Airport						
Fulton Natural Gas System						
Fulton Water System						
Fulton Electric System						
Fulton Sewer System						
Fulton Storm System						
2nd Street Bridge						
Westminster Bridge at 2nd						
7th Street Bridge						

William Woods RR Bridge						
Vine Street Bridge						
8th Street Bridge						
10 Street Bridge						
Bluff Street Bridge						
Business 54 and 2nd Street Box Culverts						
Business 54						
Highway 54						

Economic Assets (Major Employers, etc)

Asset	Address	Product/ Service	Value (if known)	Number of Employees	Hazards
State Hospital					
FRDC					
Callaway Community Hospital					
Dollar General					
Danusers					
City of Fulton					
Mid America Precast					
Walmart					

Add number of each facility within jurisdiction

Jurisdiction	Airport Facility	Bus Facility	Childcare Facility	Communications Tower	Electric Power Facility	Emergency Operations	Fire Service	Government	Housing	Shelters	Highway Bridge	Hospital/Health Care	Military	Natural Gas Facility	Nursing Homes	Police Station	Potable Water Facility	Rail	Sanitary Pump Stations	School Facilities	Stormwater Pump Stations	Tier II Chemical Facility	Wastewater Facility	TOTAL
City of Fulton	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	N	Y	Y	N		Y	Y

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	City of Fulton
Type of event	Flood
Nature and magnitude of event	
Location	
Date of event	June 24 to July 1, 2021
Injuries	
Deaths	
Property damage	
Infrastructure damage	Yes
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	On going
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County: Callaway County _____

Jurisdiction: Holts Summit

Return by: Hanna Thomas

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each “jurisdiction” that wishes to be included in the plan. According to FEMA’s definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated “For School Districts and Educational Institutions”.

Prepared by: Hanna Thomas

Phone: 573-896-8419

Email: cityadministrator@holtssummit.org

Date: 3/11/2022

Please return questionnaires by email to:

Name: Melissa Stafford _____

Email: melissastafford@midmoprc.org _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column.

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Unknown
Builder's Plan	n/a
Capital Improvement Plan	n/a
City Emergency Operations Plan	n/a
County Emergency Operations Plan	Callaway County EMA
Local Recovery Plan	n/a
County Recovery Plan	Callaway County EMA
City Mitigation Plan	n/a
County Mitigation Plan	Callaway County EMA
Debris Management Plan	n/a
Economic Development Plan	2009
Transportation Plan	Regional-2016
Land-use Plan	n/a
Flood Mitigation Assistance (FMA) Plan	n/a
Watershed Plan	n/a
Firewise or other fire mitigation plan	n/a
School Mitigation Plan	n/a
Critical Facilities Plan (Mitigation/Response/Recovery)	n/a
Policies/Ordinance	
Zoning Ordinance	YES – updated in 2017/2018
Building Code	International Building Codes 2012

Floodplain Ordinance	2021
Subdivision Ordinance	n/a
Tree Trimming Ordinance	n/a
Nuisance Ordinance	City Code 2006
Stormwater Ordinance	City code
Drainage Ordinance	City code
Site Plan Review Requirements	n/a
Historic Preservation Ordinance	n/a
Landscape Ordinance	n/a
Seismic Construction Ordinance	n/a
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	Unknown
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	Unknown
National Weather Service (NWS) Storm Ready	Unknown
Firewise Community Certification	Unknown
Building Code Effectiveness Grading (BCEGs)	Class PL 99 and CL5
ISO Fire Rating	Unknown – Fire District

Capabilities	Status Including Date of Document or Policy
Economic Development Program	n/a
Land Use Program	n/a
Public Education/Awareness	n/a
Property Acquisition	n/a
Planning/Zoning Boards	Planning and Zoning Commission
Stream Maintenance Program	n/a
Tree Trimming Program	n/a
Engineering Studies for Streams (Local/County/Regional)	n/a
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	n/a
Hazard Analysis/Risk Assessment (County)	Callaway County EMA
Flood Insurance Maps	2021
FEMA Flood Insurance Study (Detailed)	2021
Evacuation Route Map	n/a
Critical Facilities Inventory	n/a
Vulnerable Population Inventory	n/a
Land Use Map	n/a
Staff/Department	
Building Code Official	Mark Tate
Building Inspector	Mark Tate
Mapping Specialist (GIS)	Schargis – contract
Engineer	contract
Development Planner	n/a

Public Works Official	Keith Edwards – Sewer
Emergency Management Director	Brandon Ruediger
NFIP Floodplain Administrator	Hanna Thomas
Emergency Response Team	n/a
Hazardous Materials Expert	n/a
Local Emergency Planning Committee	n/a
County Emergency Management Commission	Callaway County EMA
Sanitation Department	n/a
Transportation Department	Mark Tate
Economic Development Department	n/a
Housing Department	n/a
Historic Preservation	n/a
Non-Governmental Organizations (NGOs)	
American Red Cross	
Salvation Army	
Veterans Groups	
Local Environmental Organization	
Homeowner Associations	
Neighborhood Associations	
Chamber of Commerce	Callaway County Chamber
Community Organizations (Lions, Kiwanis, etc.)	HSCBA

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	
Fund projects through Capital Improvements funding	
Authority to levy taxes for a specific purpose	
Fees for water, sewer, gas, or electric services	
impact fees for new development	
Ability to incur debt through general obligation bonds	
Ability to incur debt through special tax bonds	
Ability to incur debt through private activities	
Withhold spending in hazard prone areas	

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

Board of Alderman

Mayor

Alderman Ward 1 – 2 residents

Alderman Ward 2 – 2 residents

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

N/A

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

N/A

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

Low to moderate income

Elderly and disabled – 3 nursing homes

5. How many outdoor warning sirens are in your community?

6

How are they activated (indicate responsible department/personnel)?

Can be activated multiple ways. Callaway County Dispatch is responsible for the weather activation, the Police Department however can activate them remotely on our iPad.

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

Federal Signal

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

Yes

Please provide address locations:

245 S Summit Drive

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

Residential – Lake Mykee, Cedars Subdivision, Cochise Drive

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas.

No

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

Taco Bell- 137 North Summit

11. Please list major employers in your jurisdiction with an estimated number of employees.

None within City Limits

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not.

Rick Hess

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

Hanna Thomas is the Flood Plain Admin and they City is an active member.

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Hospitals and other medical facilities
Police stations
Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Military installations
Hazardous material sites
Schools
Shelters
Day care centers
Nursing homes
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
<u>Essential Facilities</u> such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
Police Department	245 S summit Drive	15,000	3000000.00	600000.00	unknown	ST,T,SWW,EG
Fire Department	557 S Summit Drive	Unknown	Unknown	Unknown	Unknown	See Fire Districts
St. Mary's Clinic	140 North Star	Unknown	Unknown	Unknown	Unknown	ST,T,SWW,EG
Capital Region Medical center Clinic	180 North star	Unknown	Unknown	Unknown	Unknown	ST,T,SWW,EG
<u>High Potential Loss Facilities</u> such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools)						
Summit Villa / Timbers	239 Karen Drive	Unknown	Unknown	Unknown	Unknown	ST,T,SWW,EG
Valley Park	335 Karen	Unknown	Unknown	Unknown	Unknown	ST,T,SWW,EG
Generations Day Care	550 Karen drive	Unknown	Unknown	Unknown	Unknown	ST,T,SWW,EG
A Place to grow	482 Karen / 531 S Summit	Unknown	Unknown	Unknown	Unknown	ST,T,SWW,EG
Grace Lutheran Child Center	618 Halifax	Unknown	Unknown	Unknown	Unknown	ST,T,SWW,EG
Lake Mykee Dam		n/a	427584.97	0n/a	n/a	DF, D

Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities, oil facilities and pipelines, communications facilities						
Wastewater Treatment Facility	396 Crest Ave	5000	4162650.06	n/a	n/a	ST,T,SWW,EG,

Economic Assets (Major Employers, etc) – None withing City Limits

Asset	Address	Product/Service	Value (if known)	Number of Employees	Hazards

Add number of each facility within jurisdiction

Jurisdiction	Airport Facility	Bus Facility	Childcare Facility	Communications Tower	Electric Power Facility	Emergency Operations	Fire Service	Government	Housing	Shelters	Highway Bridge	Hospital/Health Care	Military	Natural Gas Facility	Nursing Homes	Police Station	Potable Water Facility	Rail	Sanitary Pump Stations	School Facilities	Stormwater Pump Stations	Tier II Chemical Facility	Wastewater Facility	TOTAL
Holts Summit	0	0	4	Unknown	0	1	1	1		1	0	2	0	0	3	1	1	0	44	1	0	0	1	61

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	Emailed Michelle and she had no historical data

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County: Callaway County _____

Jurisdiction: Kingdom City _____

Return by: _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Larry Doyle _____

Phone: 573-592-0588 _____

Email: larrydoyle@kingdomcitymo.com _____

Date: 7-13-2022 _____

Please return questionnaires by email to:

Name: Melissa Stafford _____

Email: melissastafford@midmorpc.org _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column.

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	N/A
Builder's Plan	N/A
Capital Improvement Plan	N/A
City Emergency Operations Plan	N/A
County Emergency Operations Plan	N/A
Local Recovery Plan	N/A
County Recovery Plan	N/A
City Mitigation Plan	N/A
County Mitigation Plan	N/A
Debris Management Plan	N/A
Economic Development Plan	N/A
Transportation Plan	N/A
Land-use Plan	N/A
Flood Mitigation Assistance (FMA) Plan	N/A
Watershed Plan	N/A
Firewise or other fire mitigation plan	N/A
School Mitigation Plan	N/A
Critical Facilities Plan (Mitigation/Response/Recovery)	N/A
Policies/Ordinance	
Zoning Ordinance	N/A
Building Code	IBC 2017
Floodplain Ordinance	Aug 2019
Subdivision Ordinance	N/A

Tree Trimming Ordinance	215 Aug 2019
Nuisance Ordinance	215 Aug 2019
Stormwater Ordinance	700.610 Feb 2020
Drainage Ordinance	700.610 Feb 2020
Site Plan Review Requirements	N/A
Historic Preservation Ordinance	N/A
Landscape Ordinance	N/A
Seismic Construction Ordinance	N/A
Program	
Zoning/Land Use Restrictions	N/A
Codes Building Site/Design	IBC 2017
Hazard Awareness Program	N/A
National Flood Insurance Program (NFIP)	N/A
NFIP Community Rating System (CRS) program	N/A
National Weather Service (NWS) Storm Ready	N/A
Firewise Community Certification	N/A
Building Code Effectiveness Grading (BCEGs)	IBC 2017
ISO Fire Rating	N/A

Capabilities	Status Including Date of Document or Policy
Economic Development Program	N/A
Land Use Program	N/A
Public Education/Awareness	N/A
Property Acquisition	N/A
Planning/Zoning Boards	N/A
Stream Maintenance Program	N/A
Tree Trimming Program	N/A
Engineering Studies for Streams (Local/County/Regional)	N/A
Mutual Aid Agreements	Callaway Co Emergency Response
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	N/A
Hazard Analysis/Risk Assessment (County)	County
Flood Insurance Maps	N/A
FEMA Flood Insurance Study (Detailed)	N/A
Evacuation Route Map	N/A
Critical Facilities Inventory	N/A
Vulnerable Population Inventory	N/A
Land Use Map	SAM GIS 2022
Staff/Department	
Building Code Official	N/A
Building Inspector	N/A
Mapping Specialist (GIS)	SAM GIS 2022
Engineer	N/A
Development Planner	N/A
Public Works Official	Justin Quick
Emergency Management Director	Callaway Co – Michelle Kidwell

NFIP Floodplain Administrator	N/A
Emergency Response Team	Mutual Aid
Hazardous Materials Expert	N/A
Local Emergency Planning Committee	County LEPC not city
County Emergency Management Commission	Callaway Co – Michelle Kidwell
Sanitation Department	N/A
Transportation Department	N/A
Economic Development Department	N/A
Housing Department	N/A
Historic Preservation	N/A
Non-Governmental Organizations (NGOs)	
American Red Cross	N/A
Salvation Army	N/A
Veterans Groups	N/A
Local Environmental Organization	N/A
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	Callaway Co
Community Organizations (Lions, Kiwanis, etc.)	N/A

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	N/A
Fund projects through Capital Improvements funding	N/A
Authority to levy taxes for a specific purpose	N/A
Fees for water, sewer, gas, or electric services	All of 700 Feb 2020
impact fees for new development	N/A
Ability to incur debt through general obligation bonds	N/A
Ability to incur debt through special tax bonds	N/A
Ability to incur debt through private activities	N/A
Withhold spending in hazard prone areas	N/A

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

City Manager, Board of Trustees and Chairman, 3 employees

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

N/A

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

I-70 main repaired and creek repaired

Thunderbird Dr Sewer repaired

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

N/A

5. How many outdoor warning sirens are in your community?

1 outdoor siren

How are they activated (indicate responsible department/personnel)?

County EOC

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

None

Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

N/A

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas.

N/A

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

Car dealership / Distillery / Peter Built

11. Please list major employers in your jurisdiction with an estimated number of employees.
47 businesses in Kingdom City but unsure on staff for those facilities for a 51 resident village
Holiday Inn Express – 31

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not.

Larry Doyle – City Manager

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

N/A

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure;

natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Hospitals and other medical facilities
Police stations
Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Military installations
Hazardous material sites
Schools
Shelters
Day care centers
Nursing homes
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A"). In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
<u>Essential Facilities</u> such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
City Hall	5584 Dunn Dr Kingdom City MO 65262	7,200	\$1,738,912.00	\$76,491	No fire codes so no occupancy capacity	WF, T, SWW, ST, ET, D, EQ
Old City Hall	5846 Old Hwy 40 Kingdom City MO 65262	4800	\$183,682.00	\$45,020	No fire codes so no occupancy capacity	WF, T, SWW, ST, ET, D, EQ
Garage	5846 Old Hwy 40 Kingdom City MO 65262	2304	\$100,000.00	0.00	No fire codes so no occupancy capacity	WF, T, SWW, ST, ET, D, EQ
Pump House	Gold Rd Kingdom City MO 65262		\$316,692.00	0.00	No fire codes so no occupancy capacity	WF, T, SWW, ST, ET, D, EQ
Salt & Rock Storage	5846 Old Hwy 40 Kingdom City MO 65262	1300	\$40,586	0.0	No fire codes so no occupancy capacity	WF, T, SWW, ST, ET, D, EQ

High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools)

Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities, oil facilities and pipelines, communications facilities

Economic Assets (Major Employers, etc)

Asset	Address	Product/Service	Value (if known)	Number of Employees	Hazards
47 employers in the area					

Add number of each facility within jurisdiction

	Jurisdiction
	Airport Facility
	Bus Facility
	Childcare Facility
1	Communications Tower
	Electric Power Facility
	Emergency Operations
	Fire Service
1	Government
5 1	Housing
	Shelters
2	Highway Bridge
	Hospital/Health Care
	Military
	Natural Gas Facility
	Nursing Homes
	Police Station
1	Potable Water Facility
1	Rail
7	Sanitary Pump Stations
1	School Facilities
	Stormwater Pump Stations
7	Tier II Chemical Facility
1	Wastewater Facility
73	TOTAL

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	Kingdom City
Type of event	Sewer pipe failure
Nature and magnitude of event	High
Location	Between I-70 and Old 40
Date of event	7-2021
Injuries	None
Deaths	None
Property damage	None
Infrastructure damage	None
Crop damage	None
Business/economic impacts	None
Road/school/other closures	None
Other damage	Damage of major sewer pipe for the Village
Insured losses	None
Federal/state disaster relief funding	\$33,000.00
Source of information	MO 4612 - FEMA disaster number
Comments	MO 4612 - FEMA disaster number

**Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Local Governments**

County: Callaway County _____

Jurisdiction: County Government _____

Return by: March 11, 2022 _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Chad Booher, Mayor and Debbie Taylor Alderman _____

Phone: 573-676-5050 _____

Email: mokanemoclerk@gmail.com _____

Date: June 15, 2022 _____

Please return questionnaires by email to:

Name: Melissa Stafford _____

Email: melissastafford@midmoprc.org _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column.

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	N/A
City Emergency Operations Plan	N/A
County Emergency Operations Plan	2022
Local Recovery Plan	N/A
County Recovery Plan	No
City Mitigation Plan	N/A
County Mitigation Plan	2022
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	Regional-2016
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
School Mitigation Plan	No
Critical Facilities Plan (Mitigation/Response/Recovery)	Callaway Emergency Radiological Plan
Policies/Ordinance	
Zoning Ordinance	N/A
Building Code	N/A

Floodplain Ordinance	Updated pursuant to 44 CFR 60.3(d) Ordinance 102 effective 10/28/21
Subdivision Ordinance	N/A
Tree Trimming Ordinance	No
Nuisance Ordinance	No
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	N/A
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Only NFIP Floodplain Management Ordinance
Codes Building Site/Design	N/A accept within floodplain then FP Ordinance.
Hazard Awareness Program	Public Education Programs for All Hazards through Office of Emergency Management, and Callaway LEPC for Chemical/Hazmat (If this isn't what you wanted let me know)
National Flood Insurance Program (NFIP)	NFIP Entry date 09/03/1983/ CID#290049
NFIP Community Rating System (CRS) program	
National Weather Service (NWS) Storm Ready	2022
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	N/A
ISO Fire Rating	Each Fire Department would have their ISO rating.

Capabilities	Status Including Date of Document or Policy
Economic Development Program	N/A
Land Use Program	No
Public Education/Awareness	Through Office of Emergency Management, CERT, COAD, Public Health (Each having programs throughout the year) Again, not sure what you wanted here.
Property Acquisition	
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	Callaway County Road and Bridge
Engineering Studies for Streams (Local/County/Regional)	Engineering studies conducted are hydrology and hydraulic reports for culverts and bridges on a case by case basis. These are done for new or replacement culverts and bridges through Road and Bridge Engineer.
Mutual Aid Agreements	MOU's w/ Red Cross, Ameren, County
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	THIRA
Hazard Analysis/Risk Assessment (County)	THIRA
Flood Insurance Maps	Date of Maps 09/05/12 FEMA in process of updating maps with new LIDAR

FEMA Flood Insurance Study (Detailed)	9/5/2012
Evacuation Route Map	EPZ Evacuation Maps
Critical Facilities Inventory	
Vulnerable Population Inventory	Yes individuals can register with Smart 911 or by contacting EMA
Land Use Map	
Staff/Department	
Building Code Official	N/A
Building Inspector	N/A
Mapping Specialist (GIS)	
Engineer	
Development Planner	
Public Works Official	N/A
Emergency Management Director	Michelle Kidwell/Office of Emergency Management
NFIP Floodplain Administrator	Michelle Kidwell/Office of Emergency Management
Emergency Response Team	Michelle Kidwell/Office of Emergency Management
Hazardous Materials Expert	Various Fire Dept. Personnel trained to Tech level.
Local Emergency Planning Committee	Gary Jungermann Chair/Emergency Management Coordinates
County Emergency Management Commission	N/A
Sanitation Department	N/A
Transportation Department	
Economic Development Department	
Housing Department	N/A
Historic Preservation	
Non-Governmental Organizations (NGOs)	
American Red Cross	Red Cross Missouri Central Missouri Chapter
Salvation Army	Office located in Jefferson City, MO
Veterans Groups	VFW Post 2657, Veterans Alliance for Compassionate Access, Amvets Post 153
Local Environmental Organization	
Homeowner Associations	N/A
Neighborhood Associations	N/A
Chamber of Commerce	
Community Organizations (Lions, Kiwanis, etc.)	Lions Club, Amvets/VFW Post Mokane

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	Conducted through the Mid-Missouri Regional Planning Commission
Fund projects through Capital Improvements funding	Active, annual line placed on budget each year.
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Water, sewer
impact fees for new development	No

Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	No

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members **City Council; we have a mayor and 4 alderman seats.**

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education
3. Mokane relies on Callaway County;
 - a. **Callaway County Office of Emergency Management participates in the Spring and Winter NWS/Statewide severe weather weeks designated each year. We also participate in the annual earthquake drill/tornado drill. We also provide ongoing public information, training and information programs through CERT, COAD, MRC, LTRC Meetings with various agencies/organizations and public presentations as well as sponsoring/participating with planned events throughout the County where either a booth/tent/table for public information is provided.**
 - b. **Callaway County Emergency Management also participates in the National Weather Ambassador Program which promotes weather awareness/safety/preparedness.**
 - c. **Callaway County Office of Emergency Management continually works with the public/private schools and universities to provide public information on where to receive emergency alerts/notifications, for functional and access need registry through Smart-911, Weather preparedness, Building kits etc..**
 - d. **Callaway County Office of Emergency Management works provides presentations on preparedness to 4-H, Boy Scouts, Girl Scouts and other clubs/organizations to include the Senior Center and Library.**
 - e. **Information and education is also provided through various social media venues by our office.**
 - f. **The Sheriff Dept., Fire Dept., Public Health and EMS also provide various public education and information for their respective areas of knowledge such as fire safety, active shooter, etc...**

4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.
 - a. **Callaway County completed a Hazard Mitigation Grant Project to put an outdoor warning siren in the City of New Bloomfield. Project Completed in 2021.**
 - b. **FEMA funds approved after the 2019 flood. We installed risers on sewer lift stations to bring them above flood level. We replaced another lift station and raised it. Old**

city hall was damaged beyond repair and funds were issued to build a new city meeting hall and to purchase damaged equipment.

- c. FEMA funds approved after 2021 flood. Gravel was placed on city streets to replace the gravel that washed away. A caved in culvert was replaced under Third Street.
 - d. We are in the process of replacing the two bridges (culverts) on Third Street to control stream water better. CDBG and ARPA funds will be used.
5. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.
- a. Callaway County Emergency Management utilizes Rave Prepare, which is an online system where individuals with functional/access needs, medical conditions, no transportation, or other vulnerabilities can input this information making it available to emergency management, putting this locations on a map and providing a means for emergency management to communicate information during a disaster. The concern is that not all individuals have opted in to provide this information. There is also a form that can be filled out by contacting my office to provide this information or assist them with getting their information into the preparedness portal.
6. How many outdoor warning sirens are in your community? **1 provided by Ameren**

How are they activated (indicate responsible department/personnel)? **The responsible department with oversight on the policy and procedures for activating the outdoor warning sirens is Callaway County Emergency Management. The actual activation of the outdoor warning sirens is conducted via the consoles within the 9-1-1 Joint Communications Department.**

7. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe. **Rave Alerts (mass notification), IPAWS, NOAA Weather Radios, and Route Alerting as a redundant back-up.**
8. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards? **NO**
9. List residential, commercial and industrial development in your jurisdiction since last plan update.
- None**
10. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to

occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas.

11. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known. **We will be replacing the entire water and sewer infrastructure in the city.**
12. Please list major employers in your jurisdiction with an estimated number of employees.

This will be listed in the table allocated at the bottom of this questionnaire.

13. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not.

Callaway County Office of Emergency Management (Callaway County), New Bloomfield School District, North Callaway School District, South Callaway School District, Fulton School District, Callaway Water District I, Callaway Water District II, Levee Districts, (7) Fire Districts, City of Fulton, Mokane, Holts Summit, New Bloomfield, Auxvasse, and Village of Kingdom City.

The planning committee did not meet as a whole however, each organization reviewed their mitigation actions individually working towards completing the actions listed. Moving forward the committee will meet as a whole annually to review the plan as a whole. Due to the pandemic meetings were not conducted during that period of onset.

14. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

Callaway County is a participating member of the NFIP. Compliance with the NFIP is enforced through the Callaway County Floodplain Management Ordinance 102. Floodplain Management Administrative Procedures are in the process of being approved which will also be used to enforce compliance with the County ordinance in compliance with the NFIP. The County works very closely with the State NFIP Coordinator to ensure compliance.

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D

Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Hospitals and other medical facilities
Police stations
Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Military installations
Hazardous material sites
Schools
Shelters
Day care centers
Nursing homes
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A"). In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/Capacity (#)	Natural Hazards
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
Fire Department	Third St					EQ, ST, T, RF
Sewage lift stations and treatment facility	various			0	0	
City Office	509 Hilltop Drive	15 sq ft	5000	2500	3	EQ, ST, T
City meeting hall	509 Hilltop Drive	960 sq ft	26000		15	EQ, ST, T
Water tower and pump house	509 Hilltop Drive					EQ, ST, T

Add number of each facility within jurisdiction

Jurisdiction	Airport Facility	Bus Facility	Childcare Facility	Communications Tower	Electric Power Facility	Emergency Operations	Fire Service	Government	Housing	Shelters	Highway Bridge	Hospital/Health Care	Military	Natural Gas Facility	Nursing Homes	Police Station	Potable Water Facility	Rail	Sanitary Pump Stations	School Facilities	Stormwater Pump Stations	Tier II Chemical Facility	Wastewater Facility	TOTAL
CALLAWAY COUNTY	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	7	0	0	0	1	

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	Mokane
Type of event	SEVERE STORMS/FLOODING
Nature and magnitude of event	FREQUENT HEAVY PERIODS OF RAIN CAUSED FLASH FLOODING/FLOODING CAUSING SEVERAL ROADS IN CALLAWAY COUNTY TO SEVERELY WASHOUT
Location	CALLAWAY COUNTY
Date of event	June 19 through July 1, 2021
Injuries	None known
Deaths	None
Property damage	N/A
Infrastructure damage	Numerous County Roads washed out.
Crop damage	Unknown
Business/economic impacts	Unknown
Road/school/other closures	No
Other damage	N/A
Insured losses	N/A
Federal/state disaster relief funding	DR-4612-MO Public Assistance In-progress
Source of information	Callaway County Office of Emergency Management
Comments	Due to flooding, gravel had to be replaced as well as a storm drainage culvert

Jurisdiction	Mokane
Type of event	COVID-19 DR-44990-MO
Nature and magnitude of event	PANDEMIC
Location	NATIONWIDE
Date of event	JANUARY 20, 2020 AND CONTINUING
Injuries	12,042 CASES
Deaths	124
Property damage	N/A
Infrastructure damage	N/A
Crop damage	N/A
Business/economic impacts	N/A
Road/school/other closures	N/A
Other damage	N/A
Insured losses	Unknown if any
Federal/state disaster relief funding	Callaway was included in this disaster but due to CARES Act Funding and ARPA has not declared a loss for disaster relief funds at this time.
Source of information	Office of Emergency Management and Callaway Chamber of Commerce
Comments	

Jurisdiction	Mokane
Type of event	Flooding
Nature and magnitude of event	Enormous. The lower section of Mokane was under water for 3 months due to constant levee breaks
Location	
Date of event	2019
Injuries	
Deaths	
Property damage	yes
Infrastructure damage	yes
Crop damage	
Business/economic impacts	
Road/school/other closures	Multiple streets
Other damage	
Insured losses	0
Federal/state disaster relief funding	FEMA
Source of information	
Comments	

**Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Local Governments**

County: Callaway County _____

Jurisdiction: City of New Bloomfield _____

Return by: John Joyce _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: John Joyce _____

Phone: (573)-491-3614 _____

Email: nbcity@embarqmail.com _____

Date: 03/07/2022 _____

Please return questionnaires by email to:

Name: Melissa Stafford _____

Email: melissastafford@midmoprc.org _____

**CAPABILITY ASSESSMENT
&
INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS
AND TECHNICAL INFORMATION**

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column.

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	
Builder's Plan	
Capital Improvement Plan	
City Emergency Operations Plan	Yes 749-17
County Emergency Operations Plan	Yes 749-17
Local Recovery Plan	
County Recovery Plan	Yes
City Mitigation Plan	
County Mitigation Plan	Yes
Debris Management Plan	Yes 746-16
Economic Development Plan	
Transportation Plan	Regional-2016
Land-use Plan	
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	
Firewise or other fire mitigation plan	
School Mitigation Plan	
Critical Facilities Plan (Mitigation/Response/Recovery)	
Policies/Ordinance	
Zoning Ordinance	335
Building Code	830-21
Floodplain Ordinance	Yes
Subdivision Ordinance	YES 336-85
Tree Trimming Ordinance	No
Nuisance Ordinance	YES 746-16
Stormwater Ordinance	YES 811-20
Drainage Ordinance	YES 319-83
Site Plan Review Requirements	No
Historic Preservation Ordinance	No

Landscape Ordinance	No
Seismic Construction Ordinance	YES 385
Program	
Zoning/Land Use Restrictions	791-19
Codes Building Site/Design	830-21
Hazard Awareness Program	677-12
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	NO
National Weather Service (NWS) Storm Ready	YES
Firewise Community Certification	
Building Code Effectiveness Grading (BCEGs)	
ISO Fire Rating	

Capabilities	Status Including Date of Document or Policy
Economic Development Program	
Land Use Program	
Public Education/Awareness	
Property Acquisition	
Planning/Zoning Boards	323
Stream Maintenance Program	
Tree Trimming Program	
Engineering Studies for Streams (Local/County/Regional)	
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	
Hazard Analysis/Risk Assessment (County)	
Flood Insurance Maps	
FEMA Flood Insurance Study (Detailed)	
Evacuation Route Map	
Critical Facilities Inventory	
Vulnerable Population Inventory	
Land Use Map	
Staff/Department	
Building Code Official	
Building Inspector	
Mapping Specialist (GIS)	
Engineer	
Development Planner	
Public Works Official	
Emergency Management Director	
NFIP Floodplain Administrator	Yes
Emergency Response Team	
Hazardous Materials Expert	
Local Emergency Planning Committee	
County Emergency Management Commission	
Sanitation Department	

Transportation Department	
Economic Development Department	
Housing Department	
Historic Preservation	
Non-Governmental Organizations (NGOs)	
American Red Cross	
Salvation Army	
Veterans Groups	
Local Environmental Organization	
Homeowner Associations	
Neighborhood Associations	
Chamber of Commerce	
Community Organizations (Lions, Kiwanis, etc.)	

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	Yes
Fund projects through Capital Improvements funding	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
impact fees for new development	
Ability to incur debt through general obligation bonds	
Ability to incur debt through special tax bonds	
Ability to incur debt through private activities	
Withhold spending in hazard prone areas	

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

Mayor and City Council, Mayor/4Aldermen

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

Local fire station has issued a "call before you burn" letter

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

4. Describe any hazard-related concerns or issues regarding the vulnerability of special needs populations, such as the elderly, disabled, low-income, or migrant farm workers.

5. How many outdoor warning sirens are in your community?

1 Siren

How are they activated (indicate responsible department/personnel)?

Callaway county

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

No

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

No

Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update. NONE

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas. None

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known. None

11. Please list major employers in your jurisdiction with an estimated number of employees.
Dollar General / 7

12. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not.
Mike Rieken

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard

column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Hospitals and other medical facilities
Police stations
Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Military installations
Hazardous material sites
Schools
Shelters
Day care centers
Nursing homes
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Economic Assets

Economic assets at risk may include major employers or primary economic sectors, such as agriculture, whose losses or inoperability would have severe impacts on the community and its ability to recover from disaster.

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter “N/A”). In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
Sewer Plant	Town Creek		\$98,028			0
Pumphouse01	State Road J		\$32,676			0
Pumphouse02	State Road J		\$26,141			0
Chemical storage	State Road J		\$6,535			0
Sewer Plant Lab	Tower Creek		\$6,535			0
City Hall	501 Glenwood dr		\$60,428			0
High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools)						
Emergency Siren	501 Glenwood dr		\$22,991			0
Wastewater pump station	State road AE		\$99,583			0
Water Tower	Chevy Chase lane		\$435,680			0
Storage	Glenwood dr		\$6534			0
Transportation and Lifelines such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities, oil facilities and pipelines, communications facilities						

Economic Assets (Major Employers, etc)

Asset	Address	Product/ Service	Value (if known)	Number of Employees	Hazards
Dollar General store	9388 OLD US HIGHWAY 54 New Bloomfield, MO 65063-1244	General store	unknown	7	

Add number of each facility within jurisdiction

	Jurisdiction
0	Airport Facility
1	Bus Facility
2	Childcare Facility
1	Communications Tower
0	Electric Power Facility
1	Emergency Operations
2	Fire Service
1	Government
	Housing
0	Shelters
0	Highway Bridge
0	Hospital/Health Care
0	Military
0	Natural Gas Facility
1	Nursing Homes
0	Police Station
1	Potable Water Facility
	Rail
1	Sanitary Pump Stations
1	School Facilities
0	Stormwater Pump Stations
1	Tier II Chemical Facility
1	Wastewater Facility
	TOTAL

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Callaway Co _____

School District /
Educational Institution Name: Fulton Public Schools 58 _____

Return by: March 11, 2022 _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs.

Prepared by: Ty Crain _____

Phone: (573)590-8000 _____

Email: tcrain@fulton58.org _____

Date: March 2, 2022 _____

Please return questionnaires by mail, email, or fax to:

Name: Melissa Stafford _____

Address: PO Box 140 Ashland, MO 65010 _____

Email: melissastafford@midmorpc.org _____

Fax: 573-657-2829 _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the **underlined and bolded** elements, please provide a copy of the document to the contact indicated on the front of this questionnaire and indicate method in the comments column (i.e. available on the web, will email or mail).

Planning Elements	Yes/No	Date of Latest Version	Comments
Master Plan	Yes	December 2021	
Capital Improvement Plan	Yes	June 2020	Being revised for July 2022
<u>School Emergency Plan</u> Shelter in place protocols Evacuation protocols	Yes	August 2021	
Weapons Policy	Yes	June 6, 2011	Policy JFCJ

Administrative/Technical

Identify the technical and personnel resources responsible for activities related to hazard mitigation/loss prevention within your school district / institution.

Personnel Resources	Yes/No	Department/Position	Comments
Full-time building official (i.e. Principal)	Yes	Principal in each building	
Emergency Manager	Yes	Superintendent	
Grant Writer	No		
Public Information Officer	Yes	Superintendent	

Financial Resources

Identify whether your school district /institution has access to or is eligible to use the following financial resources for hazard mitigation.

Financial Resources	Accessible/Eligible to Use (Y/N)	Comments
Capital improvements project funding	Y	
Local funds	Y	
General obligation bonds	Y	
Special tax bonds	N	
Private activities/donations	Y	
State and federal funds	Y	

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe.

Yes, all of our buildings housing students are equipped with a PA system.

2. Does your school buildings' have NOAA Weather Radios?

Yes

3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur.

Additions to both Fulton Middle School and Fulton High School will include updated fire alarm systems.

4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.

5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards?

No

6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update (2010)? Please list the buildings and the improvement.

Yes in the process: additions to High School and Middle School

7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas?

Reviewing options for constructing a Kindergarten Center

8. What percentage is your projected enrollment expected to increase or decrease in the next five years?

Enrollment is projected to be relatively flat

9. Do you have your own campus police? Please explain your police department or who you rely on for security needs.

Fulton Police Department

VULNERABILITY ASSESSMENT

Asset Inventory

The purpose of this worksheet is to assist in the assessment of the vulnerable populations and facilities owned by your school district / institution. Use the table below to compile a detailed inventory of specific assets at risk. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. **If you have this data in GIS formats, or other formats, please provide in lieu of this.**

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
Attached						

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards

HISTORIC HAZARD EVENTS

Please fill out one sheet for each significant hazard event that affected **your school district / institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out one sheet for each significant hazard event that affected **your school district /institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Callaway _____

School District /
Educational Institution Name: Jefferson City School District _____

Return by: _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs.

Prepared by: Frank Underwood _____

Phone: 573-659-1190 _____

Email: frank.underwood@jcschools.us _____

Date: September 29, 2020 _____

Please return questionnaires by mail, email, or fax to:

Name: Melissa Stafford _____

Address: Mid-MO Regional Planning Commission PO Box 140 Ashland, MO 65010 _____

Email: Melissastafford@midmorpc.org _____

Fax: 573-657-2829 _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the **underlined and bolded** elements, please provide a copy of the document to the contact indicated on the front of this questionnaire and indicate method in the comments column (i.e. available on the web, will email or mail).

Planning Elements	Yes/No	Date of Latest Version	Comments
Master Plan	X	6/2020	
Capital Improvement Plan	X	9/2020	
<u>School Emergency Plan</u> Shelter in place protocols Evacuation protocols	X	6/2020	
Weapons Policy	X	10/2002	

Administrative/Technical

Identify the technical and personnel resources responsible for activities related to hazard mitigation/loss prevention within your school district / institution.

Personnel Resources	Yes/No	Department/Position	Comments
Full-time building official (i.e. Principal)	x	Building Principals	
Emergency Manager	x	Facilities / Director	
Grant Writer			
Public Information Officer	X	Communications / Director	

Financial Resources

Identify whether your school district /institution has access to or is eligible to use the following financial resources for hazard mitigation.

Financial Resources	Accessible/Eligible to Use (Y/N)	Comments
Capital improvements project funding	Y	
Local funds	N	
General obligation bonds	N	
Special tax bonds	N	
Private activities/donations	Y	
State and federal funds	Y	

Additional Capabilities Questions

SEMA advised to explain that Jefferson City public school participated in Cole Co HMP. They stated to use the same information in questionnaire and mitigation action items and specify that there are only 2 schools buildings in callaway co.

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe. PA announcements and fire alarms
2. Does your school buildings' have NOAA Weather Radios? Yes, all of them
3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur.

Asbestos awareness training, firstaid and stop the bleed program training, active shooter, tornado, earthquake and fire drills (multiple annually), FEMA rated tornado shelters at the high schools, tornado shelter in place awareness, loss of utilities and hazardous materials, medical emergency awareness, bomb threat threatening communications suspicious object or device procedures, weapons on campus, student or staff death/missing person procedures. Crisis support team to include reverse evacuation, safe house transportation, reunification and post crisis support and evaluations procedures.
4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. All listed above and to include annual inspections of elevators, escalators, door access functionality and security. Bi-annual inspection of facilities envelope and roof. Law enforcement inspection of building security processes and suggested upgrades.
5. Do any of your buildings have designated tornado shelters or "safe rooms"? If so, are they constructed in accordance with FEMA standards? Yes, both high schools
6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update (2010)? Please list the buildings and the improvement. Sold Simonsen 9th grade center, built Capital City High School, remodel of Jefferson City High School.
7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas? Yes, multiple remodels in the elementary schools, 2 new builds of 5-8 middle schools, none in known hazardous areas.
8. What percentage is your projected enrollment expected to increase or decrease in the next five years? Our average growth has been approx. 33 students per year, this last year we were over 90 additional enrolled.
9. Do you have your own campus police? Please explain your police department or who you rely on for security needs. We utilize a contract with the Jefferson City Police Depart to employee Building SROs.

VULNERABILITY ASSESSMENT

Asset Inventory

The purpose of this worksheet is to assist in the assessment of the vulnerable populations and facilities owned by your school district / institution. Use the table below to compile a detailed inventory of specific assets at risk. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. **If you have this data in GIS formats, or other formats, please provide in lieu of this.**

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
Belair Elementary	701 Belair Dr JCMO 65109	49430	6969677.00	512500.0 0	417/393	EQ,ST,SWW,T
Callaway Hills Elementary	2715 State RD. AA Holts Summit MO 65043	43840	6027703.00	512500.0 0	263/297	EQ,ST,SWW,T
Cedar Hills Elementary	1510 Vieth Dr JCMO 65109	47330	6579342.00	512500.0 0	392/349	EQ,ST,SWW,T
East Elementary	1229 E McCarty St JCMO 65101	39700	5680796.00	512500.0 0	298/342	EQ,ST,SWW,T
Lawson Elementary	1105 Fairgrounds Rd JCMO 65109	57789	7624716.00	512500.0 0	482/457	EQ,ST,SWW,T
Moreau Heights Elementary	1410 Hough Park JCMO 65101	49945	7276775.00	512500.0 0	352/369	EQ,ST,SWW,T
North Elementary	285 S Summit Dr Holts Summit Mo 65043	45670	6223992.00	512500.0 0	445/390	EQ,ST,SWW,T

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
Pioneer Trail Elementary	301 Pioneer Trail Dr Jefferson City Mo 65109	68375	7624716.00	512500.00	491/452	EQ,ST,SWW,T
South Elementary	707 Linden Dr JCMO 65101	43133	6341005.00	512500.00	317/317	EQ,ST,SWW,T
Thorpe Gordon Elementary	1101 Jackson JCMO 65101	42580	6103702.00	512500.00	338/314	EQ,ST,SWW,T
West Elementary	100 Dix Rd JCMO 65109	44755	6474908.00	512500.00	316/339	EQ,ST,SWW,T
Lewis and Clark Middle School	325 Lewis and Clark Dr JCMO 65101	140250	9306000.00	1537500.00	965/1080	EQ,ST,SWW,T
Thomas Jefferson Middle School	1201 Fairgrounds Rd JCMO 65109	140250	9306000.00	1537500.00	1084/1080	EQ,ST,SWW,T
Capital City High School	1650 Cavalier Dr JCMO 65109	236000	143105608.00	3075000.00	1800	EQ,ST,SWW,T
Jefferson City High School / Nichols Career Center	609 Union JCMO 65109	308000	159130748.00	4675225.00	1800	EQ,ST,SWW,T
SW Early Childhood Center	812 St Mary's Blvd JCMO 65109	49440	7105648.00	512500.00	325	EQ,ST,SWW,T
Board of Education Bldg	315 E Dunklin St JCMO 65101	19790	2375664.00	615000.00	48/55	EQ,ST,SWW,T
Dix Road IT Dept	204 Dix Rd JCMO 65101	12150	1440156.00	205000.00	22/33	EQ,ST,SWW,T
			236,058,196	15,027,725		

HISTORIC HAZARD EVENTS

Please fill out one sheet for each significant hazard event that affected **your school district / institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out one sheet for each significant hazard event that affected **your school district /institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Callaway Co _____

School District /
Educational Institution Name: New Bloomfield R-III _____

Return by: March 1, 2022 _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs.

Prepared by: Sarah Wisdom _____

Phone: 573-491-3700 _____

Email: swisdom@nb.k12.mo.us _____

Date: 2/24/22 _____

Please return questionnaires by mail, email, or fax to:

Name: Melissa Stafford _____

Address: PO Box 140 Ashland, MO 65010 _____

Email: melissastafford@midmorpc.org _____

Fax: 573-657-2829 _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with “N/A”. If applicable, please provide a completion date for the element. If your school district / institution has any of the **underlined and bolded** elements, please provide a copy of the document to the contact indicated on the front of this questionnaire and indicate method in the comments column (i.e. available on the web, will email or mail).

Planning Elements	Yes/No	Date of Latest Version	Comments
Master Plan	Y	January 2022	
Capital Improvement Plan	Y	January 2022	
<u>School Emergency Plan</u> Shelter in place protocols Evacuation protocols	Y	January 2022	
Weapons Policy	Y	January 2022	

Administrative/Technical

Identify the technical and personnel resources responsible for activities related to hazard mitigation/loss prevention within your school district / institution.

Personnel Resources	Yes/No	Department/Position	Comments
Full-time building official (i.e. Principal)	Y	Superintendent	
Emergency Manager	Y	Superintendent	
Grant Writer	Y	Superintendent	
Public Information Officer	Y	Superintendent	

Financial Resources

Identify whether your school district /institution has access to or is eligible to use the following financial resources for hazard mitigation.

Financial Resources	Accessible/Eligible to Use (Y/N)	Comments
Capital improvements project funding	Y	All funds could be available based on the districts needs
Local funds	Y	All funds could be available based on the districts needs
General obligation bonds	N	All funds could be available based on the districts needs
Special tax bonds	NA	All funds could be available based on the districts needs

Private activities/donations	Y	All funds could be available based on the districts needs
State and federal funds	Y	All funds could be available based on the districts needs

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe.

Yes- PA system through phones

2. Does your school buildings' have NOAA Weather Radios?

Yes- one in district housed in CO

3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur.

NA

4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.

NA

5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards?

NO

6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update (2010)? Please list the buildings and the improvement.

NO

7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas?

Yes- possible multipurpose addition, classrooms

8. What percentage is your projected enrollment expected to increase or decrease in the next five years?

5% increase

9. Do you have your own campus police? Please explain your police department or who you rely on for security needs.

Yes- SRO through the County

VULNERABILITY ASSESSMENT

Asset Inventory

The purpose of this worksheet is to assist in the assessment of the vulnerable populations and facilities owned by your school district / institution. Use the table below to compile a detailed inventory of specific assets at risk. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. **If you have this data in GIS formats, or other formats, please provide in lieu of this.**

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
Maintenance Shed	307 Redwood Dr.	4000	215133	102500		ST, SWW, T, EQ
Bus Trailer	307 Redwood Dr.	2800	138217	6323		ST, SWW, T, EQ
Elementary School	307 Redwood Dr.	75681	11462839	1939325		ST, SWW, T, EQ
MS/HS School	307 Redwood Dr.	73640	11196767	1887025		ST, SWW, T, EQ
Storage House	317 Oak Street	1128	190293	6323		ST, SWW, T, EQ
Red Shed/ Track	307 Redwood Dr.	1200	17304	8280		ST, SWW, T, EQ

HISTORIC HAZARD EVENTS

Please fill out one sheet for each significant hazard event that affected **your school district / institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out one sheet for each significant hazard event that affected **your school district /institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Callaway Co

School District /

Educational Institution Name: North Callaway R-1 School District

Return by: March 1, 2022

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs.

Prepared by: Nicky Kemp and Kellie Chapin

Phone: 573-386-2214

Email: nkemp@nc.k12.mo.us; kchapin@nc.k12.mo.us

Date: 3/8/2022

Please return questionnaires by mail, email, or fax to:

Name: Melissa Stafford _____

Address: PO Box 140 Ashland, MO 65010 _____

Email: melissastafford@midmorpc.org _____

Fax: 573-657-2829 _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the **underlined and bolded** elements, please provide a copy of the document to the contact indicated on the front of this questionnaire and indicate method in the comments column (i.e. available on the web, will email or mail).

Planning Elements	Yes/No	Date of Latest Version	Comments
Master Plan	No		
Capital Improvement Plan	No		
<u>School Emergency Plan</u> Shelter in place protocols Evacuation protocols	Yes		
Weapons Policy	Yes	February 2014	

Administrative/Technical

Identify the technical and personnel resources responsible for activities related to hazard mitigation/loss prevention within your school district / institution.

Personnel Resources	Yes/No	Department/Position	Comments
Full-time building official (i.e. Principal)	Yes	Hatton-McCredie Elementary-Christy Biggers; Williamsburg Elementary-Angela Wimmer; NCMS-Jess Huyser; NCHS-Lance Foulk; TLC-Tia Neal	
Emergency Manager	Yes	Doug Kee	
Grant Writer	No		
Public Information Officer	No		

Financial Resources

Identify whether your school district /institution has access to or is eligible to use the following financial resources for hazard mitigation.

Financial Resources	Accessible/Eligible to Use (Y/N)	Comments
Capital improvements project funding	Yes	For appropriate reasons
Local funds	Yes	For appropriate reasons

General obligation bonds	Yes	For appropriate reasons
Special tax bonds	No	
Private activities/donations	Yes	For appropriate reasons
State and federal funds	Yes	For appropriate reasons

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe. Yes. Williamsburg, NCMS, and NCHS uses older PA systems that are free standing and wiring is ran to speakers throughout the building. Hatton-McCredie uses a VOIP system that has a pager feature. TLC does not have a PA or pager system.
2. Does your school buildings' have NOAA Weather Radios? Yes
3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur. Fire, Tornado, and Earthquake drills completed throughout the year. Earthquake literature is shared with families at the beginning of the year.
4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. The North Callaway R-1 School District recently replaced a culvert on the private drive. The new culvert was much larger to assist with the rain runoff from 54 to help keep the private drive from flooding, including water going over the road. This may also help to reduce the flooding on Highway 54 due to the culvert being able to handle a larger water flow.
5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards? No
6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update (2010)? Please list the buildings and the improvement. Yes, Ag-Science building in 2015.
7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas? There are no plans at this time, but there is a committee currently forming to discuss options for a new facility of some sort.
8. What percentage is your projected enrollment expected to increase or decrease in the next five years? Decrease of about 2% each year.
9. Do you have your own campus police? Please explain your police department or who you rely on for security needs. No, we contract with Callaway County Sheriff's Office.

VULNERABILITY ASSESSMENT

Asset Inventory

The purpose of this worksheet is to assist in the assessment of the vulnerable populations and facilities owned by your school district / institution. Use the table below to compile a detailed inventory of specific assets at risk. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. **If you have this data in GIS formats, or other formats, please provide in lieu of this.**

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards

HISTORIC HAZARD EVENTS

Please fill out one sheet for each significant hazard event that affected **your school district / institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	Propane Gas Leak
Nature and magnitude of event	School was dismissed because of the leak
Location	NC High School
Date of event	12/8/08
Injuries	No
Deaths	No
Property damage	No
Infrastructure damage	No
Crop damage	No
Business/economic impacts	School at NCHS could not be in session
Road/school/other closures	School at NCHS was closed for ½ day
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	District; Columbia Tribune Newspaper
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out one sheet for each significant hazard event that affected **your school district /institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	Propane Gas Leak (#2)
Nature and magnitude of event	School was not in session
Location	NC High School
Date of event	01-09-2009
Injuries	No
Deaths	No
Property damage	Replace all gas pipes at an estimated \$70,000
Infrastructure damage	No
Crop damage	No
Business/economic impacts	School was closed for multiple days.
Road/school/other closures	School was closed for multiple days.
Other damage	No
Insured losses	Do not know
Federal/state disaster relief funding	No
Source of information	District; KRCG Article
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out one sheet for each significant hazard event that affected **your school district /institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	Faulty Furnace
Nature and magnitude of event	School was unable to be in session
Location	Williamsburg Elementary
Date of event	March 6, 2019
Injuries	Individuals did seek medical attention
Deaths	No
Property damage	No
Infrastructure damage	No
Crop damage	No
Business/economic impacts	Air quality testing, School not in session, Replacement of Faulty Furnace, Emergency crews on the scene
Road/school/other closures	Yes-multiple days
Other damage	No
Insured losses	No
Federal/state disaster relief funding	No
Source of information	District, News Tribune and KRCG articles
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out one sheet for each significant hazard event that affected **your school district /institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	Flooding of private road (only access point) going to the high school
Nature and magnitude of event	Flooding of private road (only access point) going to the high school
Location	NC High School
Date of event	4/8/2015
Injuries	No
Deaths	No
Property damage	No
Infrastructure damage	No
Crop damage	No
Business/economic impacts	No
Road/school/other closures	Road closure; school closure
Other damage	No
Insured losses	No
Federal/state disaster relief funding	No
Source of information	District; Columbia Tribune Article
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out one sheet for each significant hazard event that affected **your school district /institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	Flooding of private road (only access point) going to the high school
Nature and magnitude of event	Flooding of private road (only access point) going to the high school
Location	NC High School
Date of event	6/24/2021
Injuries	No
Deaths	No
Property damage	Yes-asphalt on the bridge was torn up
Infrastructure damage	Possibly
Crop damage	No
Business/economic impacts	Cost to replace the bridge with larger culverts.
Road/school/other closures	Road closure; building closure
Other damage	No
Insured losses	No
Federal/state disaster relief funding	No
Source of information	District; Picture from event
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Callaway Co

School District /
Educational Institution Name:

Return by: March 1, 2022

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process will not be eligible applicants for FEMA mitigation funding programs.

Prepared by: KEVIN HILLMAN

Phone: 573-676-5225

Email: kevin.hillman@sc.k12.mo.us

Date: 3-10-22

Please return questionnaires by mail, email, or fax to:

Name: Melissa Stafford

Address: PO Box 140 Ashland, MO 65010

Email: melissastafford@midmorpc.org

Fax: 573-657-2829

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the **underlined and bolded** elements, please provide a copy of the document to the contact indicated on the front of this questionnaire and indicate method in the comments column (i.e. available on the web, will email or mail).

Planning Elements	Yes/No	Date of Latest Version	Comments
Master Plan	YES	2017	
Capital Improvement Plan	PENDING		
School Emergency Plan			
Shelter in place protocols	YES	2021	
Evacuation protocols			
Weapons Policy	YES	2021	

Administrative/Technical

Identify the technical and personnel resources responsible for activities related to hazard mitigation/loss prevention within your school district / institution.

Personnel Resources	Yes/No	Department/Position	Comments
Full-time building official (i.e. Principal)	YES	4 Principals	
Emergency Manager	YES	Superintendent	
Grant Writer	YES	SAPP	
Public Information Officer	YES	Superintendent	

Financial Resources

Identify whether your school district / institution has access to or is eligible to use the following financial resources for hazard mitigation.

Financial Resources	Accessible/Eligible to Use (Y/N)	Comments
Capital improvements project funding	YES	
Local funds	YES	
General obligation bonds	YES	
Special tax bonds	YES	
Private activities/donations	YES	
State and federal funds	YES	

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe.

Yes. PA System and panic button in offices and radió

2. Does your school buildings' have NOAA Weather Radios?

Yes

3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur.

Radio upgrades and procedure reviews

4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.

We have moved server rooms and critical equipment into areas with greater protection

5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards?

We have designated areas in every building. These areas are strong but were not FEMA approved.

6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update (2010)? Please list the buildings and the improvement.

Just lockerrooms and concession stand

7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas?

Hope for a new PE gym at our EC building

8. What percentage is your projected enrollment expected to increase or decrease in the next five years?

Level

9. Do you have your own campus police? Please explain your police department or who you rely on for security needs.

We have a full-time SRO

VULNERABILITY ASSESSMENT

Asset Inventory

The purpose of this worksheet is to assist in the assessment of the vulnerable populations and facilities owned by your school district / institution. Use the table below to compile a detailed inventory of specific assets at risk. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural/Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. If you have this data in GIS formats, or other formats, please provide in lieu of this.

Bldg. #	Building Type	Name	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/Capacity (#)	Natural Hazards
1	SOV	Elem & Middle School (A & B)	Address 1 10105 State Road C	Square Footage 98203.00	Property Value 15978372.49	Content Value 2704084.90	Total Insured Value 18682457.39	
2	SOV	High School (C)	10135 State Road C	112863.00	19386295.29	2778245.75	22164541.04	
4	SOV	Pump House (M)	Hwy. C North	768.00	46636.87	785.62	47422.49	
5	SOV	Softball Restrooms/Storage (E)	Hwy. C North	1440.00	35874.78	6284.94	42159.72	
6	SOV	Baseball Restrooms/Storage (F)	Hwy. C North	540.00	8967.24	1885.04	10852.28	
7	SOV	Bus Storage Meeting Rm. (I)	Hwy. C North	5280.00	235222.53	89379.91	324602.44	
8	SOV	Bus Maintenance/Washbay (J)	10135 State Road C	4968.00	245850.16	249891.08	495741.24	
9	SOV	Concession/Track (D)	Hwy. C North	2400.00	68889.27	47148.41	116037.68	
10	SOV	Maintenance Bldg/Office (K)	10135 State Road C	3600.00	243415.55	218254.12	461669.67	
11	SOV	Concession Stand/B.B. Storage (G)	Hwy. C North	1440.00	26905.23	7857.32	34762.55	
12	SOV	Bus Storage/Maintenance (H)	10135 State Road C	9600.00	353978.06	194884.22	548862.28	
13	SOV	Early Childhood Learning Center (L)	10103 State Road C	59594.00	9595779.37	1597898.78	11193678.15	
14	SOV	Distr. Networking Equip. (O)	10135 State Road C	0.00	0.00	510781.96	510781.96	
15	SOV	Centralized Locker Room/Concession Bldg	10135 State Road C	6300.00	1125485.88	109553.18	1235039.06	

HISTORIC HAZARD EVENTS

Please fill out one sheet for each significant hazard event that affected your school district / institution with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	Nothing of large magnitude
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of Information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Callaway

School District /
Educational Institution Name: Missouri School for the Deaf

Return by: July 15, 2022

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process will not be eligible applicants for FEMA mitigation funding programs.

Prepared by: Regina Roesner

Phone: 573-592-2555

Email: regina.roesner@msd.deaf.mo.gov

Date: July 11, 2022

Please return questionnaires by mail, email, or fax to:

Name: Melissa Stafford

Address: PO Box 140 Ashland, MO 65010

Email: melissastafford@midmorpc.org

Fax: 573-657-2829

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan.

Please indicate which of the following your school district / institution has in place. For elements that do not pertain to you, please indicate with "N/A". If applicable, please provide a completion date for the element. If your school district / institution has any of the **underlined and bolded** elements, please provide a copy of the document to the contact indicated on the front of this questionnaire and indicate method in the comments column (i.e. available on the web, will email or mail).

Planning Elements	Yes/No	Date of Latest Version	Comments
Master Plan	yes		DESE
Capital Improvement Plan	yes		Office of Admin
<u>School Emergency Plan</u> Shelter in place protocols Evacuation protocols	yes	may/2022	INTERNAL
Weapons Policy	yes	01/01/2017	DESE

Administrative/Technical

Identify the technical and personnel resources responsible for activities related to hazard mitigation/loss prevention within your school district / institution.

Personnel Resources	Yes/No	Department/Position	Comments
Full-time building official (i.e. Principal)	yes	Elementary - Lindi Roberts MS/HS - JEANN Benfield	
Emergency Manager	yes	Regina Boesner	
Grant Writer	no		
Public Information Officer	yes	Jamie Danuser	

Financial Resources

Identify whether your school district /institution has access to or is eligible to use the following financial resources for hazard mitigation.

Financial Resources	Accessible/Eligible to Use (Y/N)	Comments
Capital improvements project funding	yes	
Local funds	yes	
General obligation bonds	no	
Special tax bonds	no	
Private activities/donations	yes	
State and federal funds	yes	

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system?
Please describe.
NO YES
2. Does your school buildings' have NOAA Weather Radios?
yes
3. List any past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect facilities or provide education regarding hazards that could occur.
N/A
4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.
N/A
5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards?
yes
6. Did your school district / institution make any additions to buildings or construction new buildings since the last plan update (2010)? Please list the buildings and the improvement.
N/A
7. Does your school district / institution plan to remodel or construct any buildings in the next 5 years? If so, please list the building or proposed building and planned improvements. Are any planned construction activities in known hazard areas?
N/A
8. What percentage is your projected enrollment expected to increase or decrease in the next five years?
+/- 5%
9. Do you have your own campus police? Please explain your police department or who you rely on for security needs.
NO
Over-night Watch but rely on Fulton PD / Callaway County 3

VULNERABILITY ASSESSMENT

Asset Inventory

The purpose of this worksheet is to assist in the assessment of the vulnerable populations and facilities owned by your school district / institution. Use the table below to compile a detailed inventory of specific assets at risk. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Please list buildings owned by your school district / institution including the square feet, values, and occupancy/capacity. If not applicable or not available, enter "N/A". Add as many rows as needed. If you have this data in GIS formats, or other formats, please provide in lieu of this.

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards

HISTORIC HAZARD EVENTS

Please fill out one sheet for each significant hazard event that affected your **school district / institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

N/A

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of Information	
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out one sheet for each significant hazard event that affected **your school district /institution** with as much detail as possible. This includes all hazard events listed on the Vulnerability Assessment page that have caused previous damage. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	



**STATE OF MISSOURI
Design & Construction**

**Facility Condition Assessment
Missouri School for the Deaf**

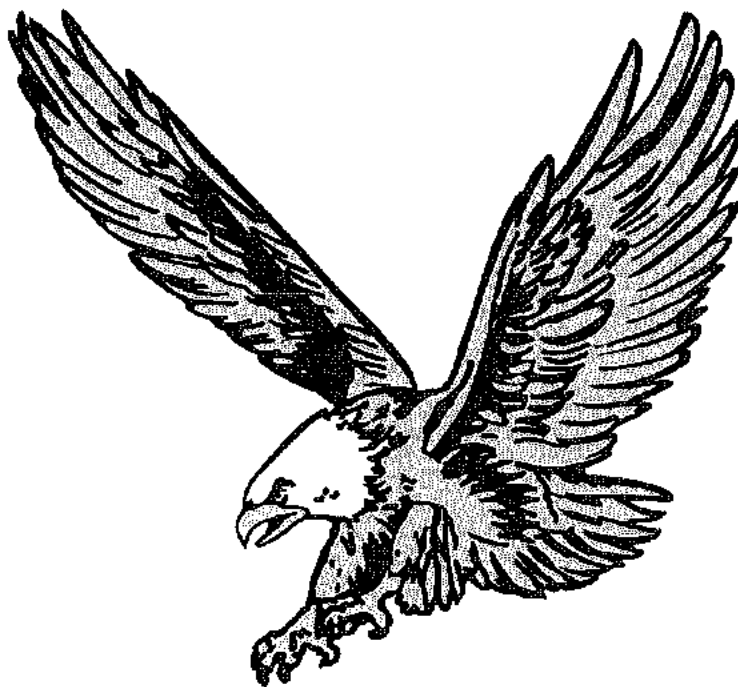
BUILDING NUMBER	BUILDING NAME	COST	YEAR
31001	Wheeler Hall/Administration	33,700	1958
31002	Ingle Auditorium	8,400	1959
31003	Harrison Gymnasium	19,200	1959
31004	McKee Hall/Eagles Nest	14,080	1958
31005	Superintendent Residence	2,080	1958
31006	Kerr Hall Dormitory	27,846	1958
31007	Tate Hall Dormitory	28,938	1958
31008	Recreation Building	3,679	1933
31009	*Stark School & Health Center	*23,709	1938
31011	Supply Building	4,560	1922
31012	Rice Dormitory and School	44,400	1971
31013	*G. Dewey Coats Vocational Complex	46,000	1928
31014	*Power House	15,485	1914
31015	**Student Services	12,391	1949
31016	Shipman Building	5,907	1934
31017	Salt Storage House	325	1972
31018	White Storage Barn	1,620	1930
	*Gannon House	*2332	1995
	*Redden House	*2195	1995
	*Reid House	*2195	1995
	*Athletic Storage	*720	1998
		*299,723	

Site Surface Paved Areas
Site Electrical Utilities
Site Mechanical Utilities

* Denotes changes made to original document 1/11/02

MISSOURI SCHOOL FOR THE DEAF

Emergency Procedures Handbook



INTRODUCTION

This information is being disseminated to assist all faculty and staff members in responding to different emergencies, which they may confront in the course of their duties at MSD. The Emergency Procedures Handbook should be maintained and visible in the building administrator, faculty, or staff member's desk or office area where it will be immediately available should one of the identified emergencies occur.

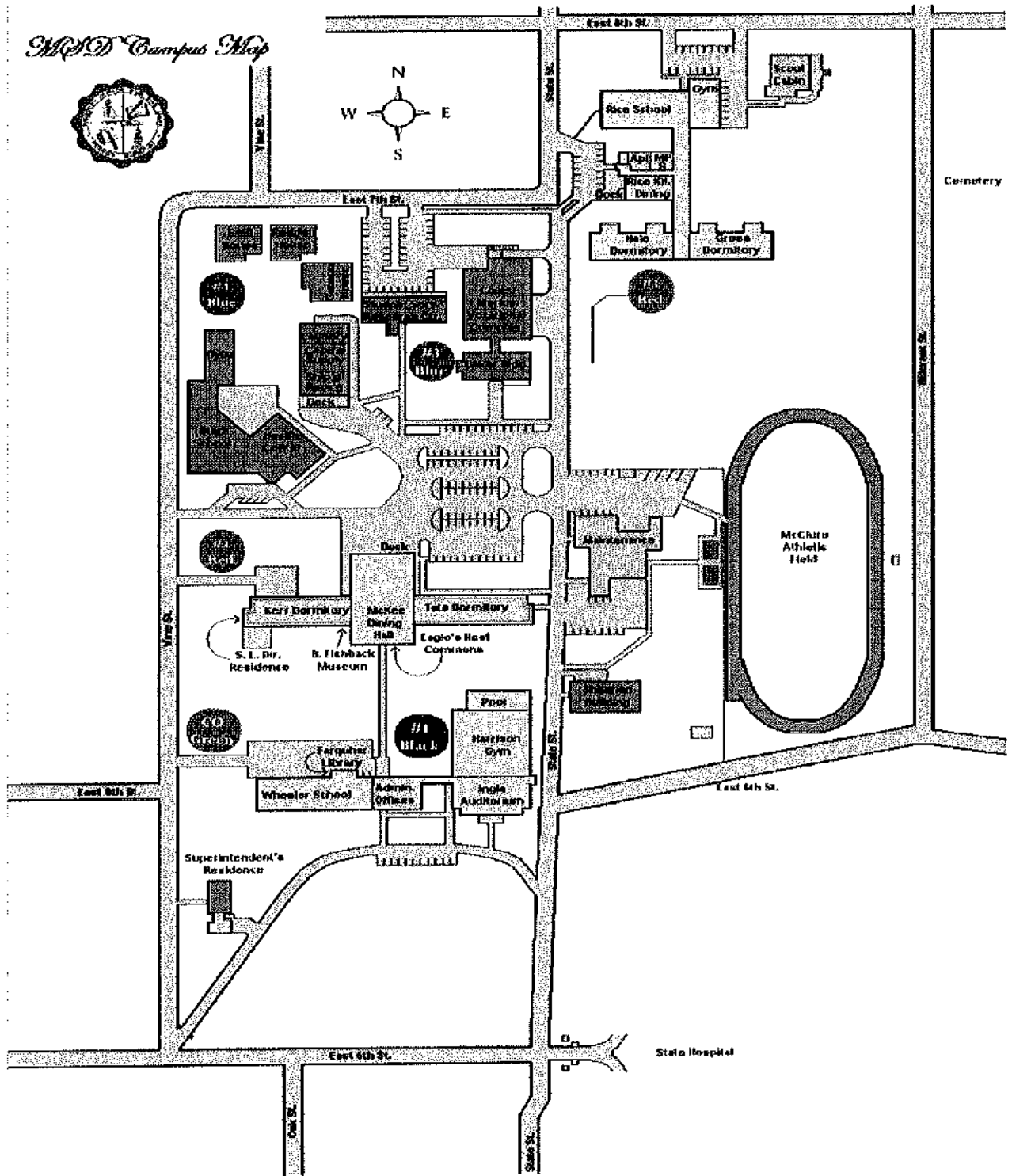
Please become familiar with the contents of the manual. In the event of an emergency, it will serve as a quick reference for effective action. New employees should be made familiar with it as part of the orientation program.

The names of First Aid and C.P.R. (Cardiopulmonary Resuscitation) qualified personnel should be listed where indicated under "Serious Injury or Illness." Other information blanks should also be filled in properly.

Missouri School for the Deaf Administration Personnel can be contacted at the following numbers:

Superintendent	573-592-2505 (O)	573-220-5089 (Cell)
Assistant Superintendent	573-826-4601 (VP)	573-220-7146 (Text only)
Director of Fiscal Affairs	573-592-2555 (O)	573-310-4312 (Cell)
Student Life Director	573-592-2528 (O)	573-220-9270 (Cell)
Outreach & Student Services Director	573-592-2541 (O)	573-544-7919 (Cell)
Police (Emergency)	9-1-1	
Fulton Police Department	573-592-3100	
Callaway Emergency Management Agency	573-526-9100	
American Red Cross	573-449-2656	
Disaster Program Manager	573-291-0776	
Callaway Electric	573-642-3326	
Callaway 2 Water District	573-642-6898	

SAFE ZONES



EVACUATION OF DISABLED/NEEDING ASSISTANCE

In the event of an emergency, occupants of wheelchairs and other disabled persons or persons in need of assistance should observe the following evacuation procedures:

- All persons shall move toward the nearest marked exit.
- When a wheelchair occupant or other person with mobility impairment reaches an obstruction, such as a staircase, he/she should request assistance from others in the area. Evac-Plus Chair/Emergency Wheelchairs are located at the top of the stairwell for assistance in Wheeler, Vocational, Kerr, and Student Services. Whistles are hanging from each Evac-Plus Chair to alert others that help/assistance is needed.

Note: It is suggested that the wheelchair occupant or person with mobility impairment or needing assistance prepare for an emergency ahead of time by instructing a classmate, teacher, or fellow worker on how to assist him/her in case of emergency.

- If assistance is not immediately available, the wheelchair occupant or person with mobility impairment or needing assistance should stay in the exit corridor, on the stairway or landing. If able, he/she should continue to seek assistance by utilizing the whistle attached to the Evac-Plus chair.
- If there is information that someone is trapped and needs assistance, please alert the nearest rescue personnel.
- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.

FIRE

SIGNAL: FIRE ALARM

- Discover/see fire
 - Close door to area (if area has door)
 - Activate Nearest Alarm
 - Call 9-1-1
 - Inform others in the building who may not have responded to the alarm to evacuate immediately.
 - The alarm may not sound continuously. If the alarm stops, continue to evacuate.
 - Warn others who may enter the building after the alarm stops

- ALL individuals should Evacuate area/building with:
 - First Aid Kit
 - Walkie-Talkie
 - Cell Phones (if applicable)
 - Class Rosters (if applicable)

- Stay Calm when exiting the building
 - DO NOT USE ELEVATORS
 - Request assistance, if applicable (See Page ___)
 - Evacuate to designated gathering area

THE DESIGNATED GATHERING AREA FOR YOUR BUILDING IS:

- After reaching Designated Gathering area
 - Take Roll, If applicable
 - Notify School Supervisor, Dorm Director, or Person in Charge of findings
 - Notify Public Safety Personnel or firefighter if you suspect someone is trapped or missing

- If fire is small and manageable, access nearest fire extinguisher
 - Use proper extinguisher for type of fire you are fighting
 - If unsure, instructions are on extinguishers

SERIOUS INJURY

- Do not move a seriously injured person unless there is a life-threatening situation.
- Call 9-1-1 for an ambulance from nearest phone or Video Phone (VP)
 - Give your name, location, and telephone number.
 - Give as much information as possible regarding the nature of the injury or illness, whether or not the victim is conscious, etc.
 - **Stay on the telephone or VP until the Dispatcher tells you to hang up.**
- Notify the School Administration, School Nurse, and CPR/First Aid Certified employee immediately (See Page 6).
- Return to the victim.
 - Keep the victim as calm and comfortable as possible.
 - The persons listed on the following page are CPR/First Aid Certified.
 - Remain with the victim until emergency medical help arrives.
- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.

CPR/FIRST-AID CERTIFIED STAFF

STUDENT LIFE NAME
Adams, Emily
Baker, Nancy
Bradley, Kayla
Carter, Amber
Colopy, Robert
Counsil, Charles
Danuser, Jamie - Instructor
Davis, Amanda
DeBrodie, Trish (ADD)
Drew, Brad
Dzurick, John
Elliott, Elizabeth
Gaines, Scott
Hartman, Kenneth III
Jackson, Tracy
Kingsbury, Alison
Kraus, Jonathan
Leroux, Allen
Love, Rebekah
McGrath, Hunter
McGrath, Caitlin

STUDENT LIFE NAME
Mitchell, Steve
Montez, Debbie (ADD)
Pittman, Betty
Pittmon, Stacy
Quick, Stephanie
Roberts, Kira
Wolfe, Denna
OTHER STAFF
Daily, Christopher
Burnaman, Debbie
Dunn, Heather
Galbreath, DeShawna
Gannon, Angela
Rivera, Luis
Roberts, Lindi
Santoriello, Cherise
Weggenmann, John
Wolfe, Paul

ARMED INTRUDER PROCEDURE

SIGNAL: INTRUDER ALARM

- Sound Alarm/Alarm will sound.
- See the following pages for further instructions on Internal Lockdown (p8) and External Lockdown (p9)
- Log on to email or Slack to monitor the situation and to assess the situation.
- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.

Internal Lockdown – There is a threat **INSIDE** the school. The goal of this procedure should be to keep everyone safe until the threat is completely removed. Communication will be sent via email, text, Eagle Alert, and/or Slack.

- Teachers/Staff will gather students into the nearest interior room.
- Move students from outdoor areas to indoors if safe to do so.
- Sweep any students in the hallway into your room.
- Lock, secure, and barricade the door if possible (students can assist)
- Cover windows/pull shades and turn out lights (students can assist).
- Move students/staff stay away from view of windows and doors.
- No unnecessary noise.
- Instruct students to stay calm, stay quiet, stay low, and stay out of sight.
- Do not open your door for any reason until an “all clear” is received.
- Care for students in your supervision (i.e. first aid, calm and re-assure upset students).
- Use your best judgment and whatever means possible to move students to a safer area if shooter is obviously approaching your area. This includes breaking windows and exiting through windows if possible.
- If you are certain the shooter is not within your immediate area, (i.e. shots heard away from your area) do attempt to exit the building with students.
- If you hear shots in your area, and there is no alternate escape route, instruct students to “turn turtle” and take cover behind overturned desks and backpacks.
- If a shooter is attempting to enter your room, and there are no alternatives, decisive action to “take out” an active shooter may be needed by staff and students.
- Be prepared to **ignore any fire alarm** activation, as the school **will not** be evacuated using this method during a Lockdown alert. (It may be a trick to get staff/students out into the halls by a shooter.)
- Wait for “All Clear Signal” or release by law enforcement officer.
- Communication will be provided to parents by administration as soon as possible.
- Encourage students to refrain from sending texts or tweets until everyone is safe. Students may use phones or texting if help from law enforcement is needed for any situation
- Administration may provide students with a text message (at some point) to send to parents to facilitate accurate communication about the incident.

External Lockdown – There is a threat **OUTSIDE** the school or building. The goal of this lockdown is to prevent the threat from entering the school or campus. Same procedures apply.

- Teachers/Staff will gather students into the nearest interior room.
- Move students from outdoor areas to indoors if safe to do so
- Sweep any students in the hallway into your room.
- Lock, secure, and barricade the door if possible (Students can assist)
- Cover windows/pull shades and turn off lights (students can assist).
- Move students/staff stay away from view of windows and doors.
- No unnecessary noise
- Instruct students to stay calm, stay quiet, stay low, and stay out of sight.
- Do not open your door for any reason until an “all clear” is received.
- Care for students in your supervision (i.e. first aid, calm and re-assure upset students).
- Use your best judgment and whatever means possible to move students to a safer area if shooter is obviously approaching your area. This includes breaking windows and exiting through windows if possible.
- If you are certain the shooter is not within your immediate area, (i.e. shots heard away from your area) do attempt to exit the building with students.
- If you hear shots in your area, and there is no alternate escape route, instruct students to “turn turtle” and take cover behind overturned desks and backpacks.
- If a shooter is attempting to enter your room, and there are no alternatives, decisive action to “take out” an active shooter may be needed by staff and students.
- Be prepared to **ignore any fire alarm** activation, as the school **will not** be evacuated using this method during a Lockdown alert. (It may be a trick to get staff/students out into the halls by a shooter.)
- Wait for “All Clear Signal” or release by law enforcement officer.
- Communication will be provided to parents by administration as soon as possible.
- Encourage students to refrain from sending texts or tweets until everyone is safe. Students may use phones or texting if help from law enforcement is needed for any situation.
- Administration may provide students with a text message (at some point) to send to parents to facilitate accurate communication about the incident.

BOMB THREAT

SIGNAL: FIRE ALARM

- Bomb threats usually occur by telephone or Video Phone (VP)
 - if you should spot a suspicious object, package, etc., report it to authorities
 - DO NOT touch it, tamper with it, or move it in any way
- The person receiving a bomb threat call should:
 - remain calm
 - Attempt to obtain as much information as possible from the caller by using the checklist given on the following page.
- Sound the fire alarm immediately to initiate building evacuation
 - Call 9-1-1 (Bomb and Arson Unit) by telephone or Video Phone (VP)
 - Inform law enforcement of the situation, including any information you may have as to the location of the bomb, time it is set to explode, and the time when you received the call.
 - EVACUATE building if seriousness of threat is present and inform your supervisor and/or building administrator immediately.
 -
- Move students to designated safe area on campus. If instructed to evacuate, move a safe distance away from the building (a minimum of 100 yards). If inclement weather conditions exist, you may move to another building a safe distance away. Do not re-enter the building until instructed that it is safe to do so.
- Contact a member of the Administration Staff and report the bomb threat as soon as it is practical to do so, in the following order until someone is notified.

Superintendent	573-592-2505 (O)	573-220-5089 (Cell)
Assistant Superintendent	573-826-4601 (VP)	573-220-7146 (Text only)
Director of Fiscal Affairs	573-592-2555 (O)	573-310-4312 (Cell)
Student Life Director	573-592-2528 (O)	573-220-9270 (Cell)
Outreach & Student Services Director	573-592-2541 (O)	573-544-7919 (Cell)

- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.

BOMB THREAT CHECKLIST

QUESTIONS TO ASK

1. When is the bomb going to explode? _____
2. Where is it right now? _____
3. What does it look like? _____
4. What kind of bomb is it? _____
5. What will cause it to explode? _____
6. Did you place the bomb? _____
7. What is your address? _____
8. What is your name? _____

Sex of caller: M/F Age _____ Race _____ Length of call _____

CALLER'S VOICE or APPEARANCE: (circle those that apply)

Calm	Laughing	Lisp	Distinguished	Angry
Ragged	Familiar	Like who?	_____	Rapid
Slow	Distinct	Slurred	Clearing Throat	Deep
Soft	Nasal	Deep	Breathing	Loud
Stutter	Cracking Voice		Demeanor	Appearance _____

BACKGROUND ENVIRONMENT: (circle those that apply)

Street Noises	House Noises	Clear	Other
Crockery	Motor	Static	_____
Voices	Office Machines	Local	_____
PA System	Factory Noises	Long Distance	
Music	Animal Noises	Booth	

THREAT LANGUAGE: (circle those that apply)

Well Spoken (Educated) Foul Incoherent Irrational Taped

Threat maker reading a scripted message

REMARKS:

Fill out completely, immediately after bomb threat:

Person receiving call: _____ Position _____ Date: _____
 Phone: _____

REPORT CALL IMMEDIATELY TO EMERGENCY OPERATIONS CENTER: 911 FROM A CAMPUS, VIDEO PHONE, OR CELL PHONE

HAZARDOUS MATERIALS LEAKS/SPILLS

(Flammable, Toxic, Corrosive, Oxygenic, Cryogenic)

SIGNAL: FIRE ALARM

If a gas cylinder or other chemical container should begin leaking and if in the judgement of the person(s) responsible for such materials, it presents any danger to themselves or other building occupants, the following steps should be taken:

- Identify threat to School – staff, faculty, and students.
- If condition warrants, dial Emergency Personnel at 9-1-1 and sound Fire Alarm to initiate building evacuation if seriousness of threat is present and inform your supervisor and/or building administrator immediately.
- If possible, confine the fumes or fire by shutting the room door.
- Evacuate to a safe area at least 500 feet away from the building. Do not return to the building until instructed that it is safe to do so.
- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.

EARTHQUAKES

SIGNAL: EARTHQUAKE ALARM

- **Sound Alarms.**
 - Earthquakes strike without warning and the immediate need is to protect faculty, staff, and students by taking the best available cover.
 - **All doors should remain OPEN to minimize jamming if the building shifts.**

- **If indoors, stay there. TAKE COVER.**
 - Get under a desk or table, if available, move to an inside wall or corner and assume the drop position covering your head with your hands, a jacket, a book, etc.
 - Stay in the protected position and remain silent until the earthquake is over and/or until further instructions are given.

- **If outdoors, get into an open area away from trees, buildings, walls and power lines.**
 - Assume the drop position covering your head with your hands, a jacket, a book, etc.
 - Stay in the protected position and remain silent until the earthquake is over and/or until further instructions are given.

- **After the shock subsides, the Administration will announce and implement evacuation procedures.**
 - **If the building is to be evacuated, take this Manual, Walkie-Talkies, Cell Phones, First Aid Kit, and Class Roster, or Student Checklist with you.**
 - Stay clear of buildings and trees.
 - Follow the procedures of this manual for fire, hazardous materials leaks, and serious injury if necessary.
 - Go to the Designated Gathering area.

THE DESIGNATED GATHERING AREA FOR YOUR BUILDING IS:

- **Upon reaching the Designated Gathering area:**
 - Take roll to determine if everyone is accounted for.
 - Notify your findings to the School Supervisor, Dorm Director, or Person in charge
 - You may be asked to evacuate to a different, safer location.
 - Identify and assist the injured.
 - Do not return to an evacuated building unless directed to do so by public safety personnel.

- **Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.**

TORNADOS

SIGNAL: TORNADO ALARM

- Tornado and severe storms frequently come from the southwest and may occur at any time. March through September is the most likely season. A tornado may be preceded by rain or hail, with a heavy downpour after the storm has passed.
- When the area is under severe weather or tornado watch, the building administrator should unobtrusively advise staff members through a personal visit or note. Upon receiving a local Tornado WARNING, weather will then consistently be monitored.
- **WHEN ALARM IS ACTIVATED:**
 - **Move to the designated shelter area. Take this manual, First-Aid Kit, Walkie-Talkies, Phones, Weather Radio (if available), and your Class Roster/Student Checklist with you.**

THE DESIGNATED SHELTER AREA FOR YOUR BUILDING IS:

- Have assigned staff members/students to assist handicapped individuals or any person/s needing assistance
- Instruct faculty, staff, and students to leave coats, books, and/or personal belongings.
- Building occupants walk rapidly, but quietly, in an orderly line, to the shelter area.
- Teachers/dorm personnel should take the roll; keep students quiet and calm.
- As storm approaches, instruct shelter occupants to:
 - Assume a protective squatting position with hands locked at back of neck.
 - Remain in this position until further word.
- After storm passes:
 - Check shelter occupants for injuries.
 - Report to the building administrator in a predetermined manner.
 - **AFTER ALL CLEAR:** Check classroom/work area for unsafe conditions.
- The building administrator has the responsibility of assigning persons to check restrooms, bringing the emergency walkie-talkie radio, the weather radio, and the first aid supplies to the shelter area. The Maintenance Department will assign personnel to each building to assist the Building Administrator.
- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.

NUCLEAR

SIGNAL: NUCLEAR ALARM

Because we are located within 10 miles of the plant, we are within the “Emergency Planning Zone.”

- Sound alarm
- Tune radio or television to the Emergency Alert System—follow the instructions you receive from this station.
 - All faculty, staff, and students report to Ingle Auditorium.
 - Teachers/dorm personnel should take the roll; keep students quiet and calm.
 - Student Life/RA’s are responsible for getting buses to the front of Ingle Auditorium.
 - Loaded buses are to head to the Hearn Center in Columbia, MO as our designated meeting place.
- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent’s Office.

RUNAWAY, ABDUCTION, OR MISSING STUDENT

- Contact Administration immediately.
- Contact appropriate Supervisors. Contact Advisors and ask them to speak with classmates and dorm mates.
- Call 9-1-1
- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.
- Initiate building search.
- Gather information about the students. Have picture of child with description of clothing being worn, if possible.
- Follow student if appropriate (runaway).

TERRORISM ALERTS

The Homeland Security and the American Red Cross set the following recommendations.

Severe (Red) Alert

- Listen to radio, watch TV, or check online for current information and instructions.
- Be alert to suspicious activity and report it to law enforcement immediately.
- Close school only if recommended doing so by civil defense authorities (usually only if there is an immediate local threat).
- All visitors must sign in at front office.
- Be prepared to “Shelter-in-place” (food, water, and other supplies for 3 days).
- Advise parents of information regarding school closings, etc., as it becomes available.

High (orange) Alert

- Be alert to suspicious activity and report it to law enforcement immediately.
- Review emergency response plans.
- All visitors must sign in at front office.
- Provide parents/guardians with information as needed.

Elevated (Yellow) Alert

- Be alert to suspicious activity and report it to law enforcement immediately.
- Ensure emergency supplies are stocked.
- All visitors must sign in at front office.

Guarded (Blue) Alert and Low (Green) Alert

- Be alert to suspicious activity and report it to law enforcement immediately.
- Review emergency response plans regularly.
- All visitors must sign in at front office.

- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent’s Office.

VISITORS

Visitors and guests are always welcome in our school. However, to safeguard our faculty, staff, and students, reasonable precautions should be taken.

Visitors should:

- Always report and sign in at the front desk of the Business Office
- Obtain a visitor's badge.
- Business Office staff will direct the visitor to his/her correct building/destination.
- Respect school rules.

Building Administrator or Contact Person:

- Ensure that a sign is posted for visitors to first report to the front desk of the building/destination.
 - Exterior doors locked except the front doors.
 - Provide training to all staff members on how to greet visitors.
 - Someone should greet every visitor and check to make sure they have a visitor's badge.
 - All visitors will be **escorted** to their destination within the building/destination or the student or employee will meet the visitor at the office area in the building/destination.
 - If the visitor refuses to go to the office area, send someone to notify the building administrator or contact person while you continue to observe the visitor.
 - The building administrator or contact person will request for the visitor to follow them to the office so that he/she can check in and receive a visitor's badge.
 - If the visitor refuses, the building administrator or contact person will inform the visitor that the police will be notified if he/she does not cooperate.
 - If the visitor refuses to cooperate, the building administrator or contact person will send someone to the office to notify the police. The building administrator or contact person will remain with the visitor until the police arrive if possible.
-
- Notify parent(s)/guardian(s) as soon as possible under the directive of the Administration and all media will be referred to Superintendent's Office.

EMERGENCY ALERT REFERENCE INFORMATION

Intruder Alert Wording

Intruder Warning. Please lock your doors, stay in your room, and hide out of sight - away from doors and windows

Nuclear Alert Wording

Nuclear Alert at the Callaway Plant. Staff should account for all students and bring them to Ingle auditorium for possible transport to Columbia.

Earthquake Alert Wording

Earthquake warning – duck and cover and crouch in a corner and shield your head from falling objects and glass.

Tornado Alert Wording

Tornado warning please go to the nearest indoor shelter away from glass. Crouch down and protect your head.

Fire Alert Wording

No message. Just repetitive high frequency noises and white flashing lights.

Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Special Districts

County: Callaway Co PWSO #1

School District /
Educational Institution Name: _____

Return by: March 11, 2022 _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Brad Scriener

Phone: 573-896-4788 573-680-0017

Email: callaway-1@outlook.com

Date: _____

Please return questionnaires by mail, email, or fax to:

Name: Melissa Stafford

Address: PO Box 140 Ashland, MO 65010

Email: melissastafford@midmorpc.org

Fax: 573-657-2829

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the **underlined and bolded** elements, please provide a copy of the document to the contact listed on the front and indicate method in the comments column (i.e. available on the web, will email or mail).

Element	Yes, No, N/A	Comments and/or Weblink
Planning Capabilities		
Capital Improvement Plan	Date: <i>yes</i>	
Emergency Operations Plan	Date: <i>yes</i>	
Continuity of Operations Plan	Date: <i>yes</i>	
Community Wildfire Protection Plan	Date: <i>NO</i>	
Other:		
Policies		
Programs		
Cross-Connection Program	<i>yes</i>	
Hydrant Flushing Program	<i>yes</i>	
Public Education/Awareness	<i>NO</i>	
Tree Trimming Program	<i>NO</i>	
Mutual Aid Agreements	<i>yes</i>	
Other:		

Element	Yes, No, N/A	Comments and/or Weblink
Studies/Reports/Maps		
Evacuation Route Map	NO	
Critical Facilities Inventory	yes	
Staff/Department		Full Time or Part Time?
4- maintenance workers		full
4- office workers		full
1- district manager		full
Financial Resources		Is your jurisdiction able to? Yes or No
Fund projects thru Capital Improvements funding		yes
Fees for water, sewer, gas, or electric services		yes
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		yes

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated in existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation
Capital Improvement Plan	operator-supervised program thru MODNR have had for 15 years
Emergency Operations Plan	DNR requirement / on file at office
Continuity of Operations Plan	on file at office
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	NA

Additional Questions

1. How is your Special District structure organized? (Board of Directors, Commission, how many members)

Board of Directors - 5

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

On our website ccwd1.com

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

None

4. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

Brad Senivner

yes

met with Callaway County Emergency Management

Asset Inventory

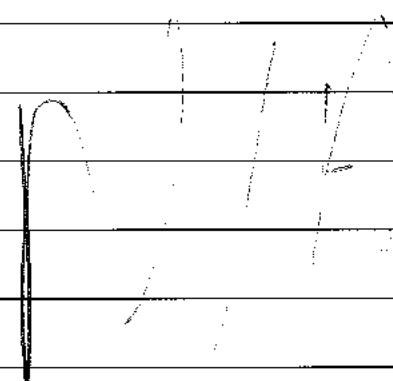
Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A". In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed. If this information is available in GIS format, please provide.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
Essential Facilities such as fire stations, Emergency Operations Centers						
Office	116 Franklin St, Holts Summit	3600'	509,317	350,000	10	EQ-ST-SWWT
Well #1	Diamond Dr Holts Summit	280'	42,257	73,319	N/A	EQ-ST-SWWT
Well #2	116 Franklin St Holts Summit	240'	38,199	73,319	N/A	EQ-ST-SWWT
Well #3	Honey Hill Orchard Rd Holts Summit	250'	42,257	73,319	N/A	EQ-ST-SWWT
Well #4	2494 Co Rd 370 New Bloomfield	294'	42,257	73,319	N/A	EQ-ST-SWWT
Well #5	Co Rd 499 Holts Summit	352'	42,257	73,319	N/A	EQ-ST-SWWT
Well #6	Co Rd 436/BB New Bloomfield	384'	42,257	73,319	N/A	EQ-ST-SWWT
Well #7	285 Edwards Dr Holts Summit	435'	183,212	73,319	N/A	EQ-ST-SWWT
warehouse Co Rd 370	2494 Co Rd 370 New Bloomfield	6000'	498,275	54160	N/A	EQ-ST-SWWT
warehouse #1	Diamond Dr Holts Summit	3200'	193,931	73,319	N/A	EQ-ST-SWWT

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	Callaway County
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	N/A
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

ASSESSMENT OF PREVIOUSLY PROPOSED ACTIONS

Jurisdiction: Callaway County

The contractor/plan development facilitator has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- For **completed actions** provide a description of the implementation process. This may be a success story you would like to publicize in your community.
- Some of the actions might have been **ongoing** in nature, such public information and education programs. When this is the case, indicate what activity has occurred during the previous five years, and indicate if this program is still viable enough that it should be carried on into the future.
- If **no progress** has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)*.

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep - ✓ Delete - X Modify - M
		Complete	Ongoing	No Progress		
			<i>No Progress</i>			

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Hazardous material sites
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Special Districts

County: Callaway Co _____

School District /
Educational Institution Name: Callaway 2 Water District _____

Return by: March 1, 2022 _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Jeff Garriott _____

Phone: 573-642-6898 _____

Email: jeff@callaway2water.com _____

Date: 3/9/22 _____

Please return questionnaires by mail, email, or fax to:

Name: ___Melissa Stafford _____

Address: ___PO Box 140 Ashland, MO 65010 _____

Email: ___melissastafford@midmorpc.org _____

Fax: ___ 573-657-2829 _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the **underlined and bolded** elements, please provide a copy of the document to the contact listed on the front and indicate method in the comments column (i.e. available on the web, will email or mail).

Element	Yes, No, N/A	Comments and/or Weblink
Planning Capabilities		
Capital Improvement Plan	Date: No	
Emergency Operations Plan	Date: Yes	
Continuity of Operations Plan	Date: No	
Community Wildfire Protection Plan	Date: No	
Other:		
Policies		
Programs		
Cross-Connection Program	Yes	
Hydrant Flushing Program	Yes	
Public Education/Awareness	Yes	
Tree Trimming Program	No	
Mutual Aid Agreements	No	
Other:		

Element	Yes, No, N/A	Comments and/or Weblink
Studies/Reports/Maps		
Evacuation Route Map	N/A	
Critical Facilities Inventory	Yes	
Staff/Department		Full Time or Part Time?
Management		3 Full Time Employees
Office		4 Full Time Employees
Maintenance		6 Full Time Employees
Financial Resources		Is your jurisdiction able to? Yes or No
Fund projects thru Capital Improvements funding		Yes
Fees for water, sewer, gas, or electric services		Yes
Incur debt through general obligation bonds		Yes
Incur debt through special tax bonds		No
Incur debt through private activities		Yes
Withhold spending in hazard prone areas		?

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated in existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation
Capital Improvement Plan	
Emergency Operations Plan	
Continuity of Operations Plan	
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	

Additional Questions

1. How is your Special District structure organized? (Board of Directors, Commission, how many members)

5 member Board of Directors

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

We have some information available on our website. Updated monthly.

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

We have a portable generator that can be used to run our wells and pumps during a power outage.
We have a generator located at our main office that we can utilize during a power loss.
We store fuel onsite that will power the two generators mentioned.

4. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

Randal Crocker was an employee who helped with the previous plan. He has retired since the last plan.

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
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Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Critical Facilities and Infrastructure

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Essential Facilities

Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Hazardous material sites
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
<u>High Potential Loss Facilities</u> such as power plants, dams/levees, hazardous materials sites, main government buildings (Do not include schools—they will be reported by the school districts)						
N/A						
<u>Transportation and Lifelines</u> such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities, oil facilities and pipelines, communications facilities						
Callaway 2 Water Main Office	2610 N Westminster, Fulton, MO 65251	9,000	821,600	205,400		EQ,ST,SWW,T,WF
Storage Building	2610 N Westminster, Fulton, MO 65251	7,200	256,750	60,593		EQ,ST,SWW,T,WF
Well 3, Pump house/Water tower	4100A County Road 238, Fulton, MO	384	557,148	264,350		EQ,ST,SWW,T,WF
Well 4, Pump house/Water tower	918 County Road 245, Auxvasse, MO	384	619,076	264,350		EQ,ST,SWW,T,WF
Well 6, Pump house/Water tower	5077 County Road 404, Fulton, MO	384	866,377	264,350		EQ,ST,SWW,T,WF
Well 7, Pump house/Water tower	2501 County Road 292, Auxvasse, MO	384	804,552	264,350		EQ,ST,SWW,T,WF
Well 8, Pump house/Water tower	7261 State Road J, New Bloomfield, MO	384	804,552	264,350		EQ,ST,SWW,T,WF
Well 9, Pump house/Water tower	4950 Chandler Road, Fulton, MO	384	804,552	264,350		EQ,ST,SWW,T,WF
Well 10, Pump house/Water tower	10680 County Road 1053,Portland, MO	384	804,552	264,350		EQ,ST,SWW,T,WF
Well 11, Pump house/Water tower	9808 Old US HWY 40, Williamsburg, MO	384	495,117	264,350		EQ,ST,SWW,T,WF

***If replacement cost data is not available, use the best available data (assessed valuation or other method for estimating cost) and explain any data deficiencies.**

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	None
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	None
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

ASSESSMENT OF PREVIOUSLY PROPOSED ACTIONS

Jurisdiction: _____

The contractor/plan development facilitator has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

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During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)*.

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Special Districts

County: Callaway Co

School District /

Educational Institution Name: Central Callaway Fire Protection District

Return by: March 1, 2022

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Greg Luebbert, Chief

Phone: 573 220-8278

Email: gluebbert1@gmail.com

Date: 2/26/2022

Please return questionnaires by mail, email, or fax to:

Name:___Melissa Stafford

Address:___PO Box 140 Ashland, MO 65010

Email:___melissastafford@midmorpc.org

Fax:_____ 573-657-2829

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the **underlined and bolded** elements, please provide a copy of the document to the contact listed on the front and indicate method in the comments column (i.e. available on the web, will email or mail).

Element	Yes, No, N/A	Comments and/or Weblink
Planning Capabilities		
Capital Improvement Plan	Date:	
Emergency Operations Plan	Date:	
Continuity of Operations Plan	Date:	
Community Wildfire Protection Plan	Date: NO	
Other:		
Policies		
Programs		
Cross-Connection Program		
Hydrant Flushing Program		Dry hydrants located in various places
Public Education/Awareness		
Tree Trimming Program		
Mutual Aid Agreements	Yes	Local And Statewide
Other:		

Element	Yes, No, N/A	Comments and/or Weblink
Studies/Reports/Maps		
Evacuation Route Map		
Critical Facilities Inventory	St 1 4965 County Rd. 304 Fulton, MO 65251	Fire Station
	St 2 4601 State Rd JJ Fulton, MO 65251	Fire Station
Staff/Department		Full Time or Part Time?
		Volunteer Firefighters
Financial Resources		Is your jurisdiction able to? Yes or No
Fund projects thru Capital Improvements funding		Yes
Fees for water, sewer, gas, or electric services		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

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated in existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation
Capital Improvement Plan	
Emergency Operations Plan	
Continuity of Operations Plan	
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	

Additional Questions

1. How is your Special District structure organized? (Board of Directors, Commission, how many members)

Board of Directors with 3 Board members

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.
3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.
4. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Fire station
Emergency Operations Centers

High Potential Loss Facilities

Power plants
Dams/levees
Hazardous material sites
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A"). In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed. If this information is available in GIS format, please provide.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
<u>Essential Facilities</u> such as fire stations, Emergency Operations Centers						
Central Callaway FPD Station1	4965 County Rd. 304	7,000	4,000,000	7,000,000		EQ, ST, SWW,T
Central Callaway FPD Station 2	4601 State Rd. JJ	2,400	750,000	1,000,000		EQ, ST, SWW,T

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
<u>High Potential Loss Facilities</u> such as power plants, dams/levees, hazardous materials sites, main government buildings (Do not include schools—they will be reported by the school districts)						
<u>Transportation and Lifelines</u> such as highways, bridges, and tunnels; railroads and facilities, bus facilities, airports, water treatment facilities, natural gas facilities and pipelines, oil facilities, oil facilities and pipelines, communications facilities						

***If replacement cost data is not available, use the best available data (assessed valuation or other method for estimating cost) and explain any data deficiencies.**

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

HISTORIC HAZARD EVENTS (continued)

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete with as much detail as possible. This includes all events associated with the hazards listed below that have caused previous damage in your jurisdiction. It is especially important to capture events that either were not included in the previous Hazard Mitigation Plan or occurred since the plan was completed. Attach supporting documentation, photocopies of newspaper articles, or other original sources.

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Business/economic impacts	
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Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

ASSESSMENT OF PREVIOUSLY PROPOSED ACTIONS

Jurisdiction: _____

The contractor/plan development facilitator has provided a list of actions proposed in the previously approved plan for each jurisdiction. Use the worksheet below to evaluate whether each action is still current, feasible, desirable, and/or creates benefit that outweighs the cost.

The worksheet should include information on the status of the action and progress made in implementation, if any. This includes:

- For **completed actions** provide a description of the implementation process. This may be a success story you would like to publicize in your community.
- Some of the actions might have been **ongoing** in nature, such public information and education programs. When this is the case, indicate what activity has occurred during the previous five years, and indicate if this program is still viable enough that it should be carried on into the future.
- If **no progress** has been made in the implementation of a given action, discuss why. Note that implementation is not a requirement. However, if no progress has been made, perhaps this is an action that would be appropriate to delete in the updated plan.

During review of the previously approved actions, consider whether any new actions should be proposed. Perhaps damages from a recent hazard event have indicated the need for new approaches to protect property and life. Review the problem statements from the updated plan for ideas. Also review the FEMA publication *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)*.

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

#	Action	Status			Description of Implementation Activities or Reasons for Lack of Progress	Keep – ✓ Delete – X Modify – M
		Complete	Ongoing	No Progress		

Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Special Districts

County: Callaway Co HOLTS SUMMMIT FIRE PROTECTION DISTRICT _____

School District /
Educational Institution Name: _____

Return by: March 1, 2022 _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Allen Wehmeyer _____

Phone: 573-896-4589 (office) 573-690-4013 (cell phone) _____

Email: allen.wehmeyer@hsfpd.org _____

Date: 03/06/2022 _____

Please return questionnaires by mail, email, or fax to:

Name: ___Melissa Stafford _____

Address: ___PO Box 140 Ashland, MO 65010 _____

Email: ___melissastafford@midmorpc.org _____

Fax: ___ 573-657-2829 _____

CAPABILITY ASSESSMENT & INCORPORATION OF EXISTING PLANS, STUDIES, REPORTS AND TECHNICAL INFORMATION

The purpose of this section is to collect information to document existing capabilities as well as determine existing plans, studies, reports, and technical information that may need to be incorporated in the mitigation plan. Although some of this information may have been captured in your previous mitigation plan, it is important to ensure this information is current in the plan update

Please indicate which of the following your jurisdiction has in place. For elements that do not pertain to your type of public entity, please indicate with "N/A". If applicable, please provide a completion date for the element. If your jurisdiction does not have a particular element, and a higher level of government has the authority pertaining to your jurisdiction, please indicate this in the comments column. If your jurisdiction has any of the **underlined and bolded** elements, please provide a copy of the document to the contact listed on the front and indicate method in the comments column (i.e. available on the web, will email or mail).

Element	Yes, No, N/A	Comments and/or Weblink
Planning Capabilities		
Capital Improvement Plan	Date:	
Emergency Operations Plan	Date:	
Continuity of Operations Plan	Date:	
Community Wildfire Protection Plan	Date:	We do not have one but would be a good addition
Other:		
Policies		
Programs		
Cross-Connection Program		
Hydrant Flushing Program		Water district does this
Public Education/Awareness		Do not have a written program
Tree Trimming Program		
Mutual Aid Agreements	State wide agreement	
Other:		

Element	Yes, No, N/A	Comments and/or Weblink
Studies/Reports/Maps		
Evacuation Route Map		
Critical Facilities Inventory	yes	
Staff/Department		Full Time or Part Time?
Jason Turner Chief		Part Time
Amy Knoll, Office Manager		Part time
Lisa Wehmeyer, Assistant Chief		
Allen Wehmeyer, Assistant Chief		
Financial Resources		Is your jurisdiction able to? Yes or No
Fund projects thru Capital Improvements funding		Yes
Fees for water, sewer, gas, or electric services		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		

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated in existing authorities, policies, programs, and resources. Next to each applicable planning mechanism, indicate how your jurisdiction incorporated the previous mitigation plan. If no incorporation has occurred, please explain, including background information detailing any challenges preventing incorporation.

Planning Capabilities	Method of Incorporation Since Previous Plan or Challenges Preventing Incorporation
Capital Improvement Plan	
Emergency Operations Plan	
Continuity of Operations Plan	
Firewise or other Fire Mitigation Plan such as Community Wildfire Protection Plan	

Additional Questions

1. How is your Special District structure organized? (Board of Directors, Commission, how many members)

Board of Directors, 3 members, elected to 6-year terms

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

Public education primary through elementary schools or when requested

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

Fire Station #1 has back up dispatch that could be used for County Fire including back up generator, all funded through regular budget items.

Fire Station #2 houses the County Fire repeater that receives analog frequency and broadcast digital signal to be picked up by the state of Missouri Moswin system. Looking to add a back up generator and increase antenna height.

4. Please list Mitigation Planning Committee members who served during the development of the previously approved plan. Was the process set forth for monitoring the implementation of the previously approved mitigation plan adhered to? Did the Committee meet as was specified in the previously approved plan? Why or why not?

Not sure if we knew about the previous plan or if we were invited to participate

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (by assigned abbreviation) which of the following hazards the asset is vulnerable to:

Natural Hazards	
Flooding (Major & Flash) - RF	Drought - D
Levee Failure - LF	Extreme Temperature - ET
Dam Failure - DF	Severe Thunderstorm (incl. winds, hail, lightning) - ST
Earthquake - EQ	Severe Winter Weather (incl. snow, ice, severe cold) - SWW
Land Subsidence / Sinkholes - LSS	Tornadoes - T
Drought - D	Wildfire - WF

Critical Facilities and Infrastructure

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA's HAZUS-MH loss estimation software uses the following three categories of critical assets. 'Essential facilities' are those that if damaged would have devastating impacts on disaster response and/or recovery. 'High potential loss facilities' are those that would have a high loss or impact on the community. Transportation and lifeline facilities are third category of critical assets; examples are provided below.

Essential Facilities

Fire station
Emergency Operations
Centers

High Potential Loss Facilities

Power plants
Dams/levees
Hazardous material sites
Main government buildings

Transportation and Lifeline

Highways, bridges, and tunnels
Railroads and facilities
Bus facilities
Airports
Water treatment facilities
Natural gas facilities and pipelines
Oil facilities and pipelines
Communications facilities

Asset Inventory

Please list critical facilities and other community assets, the square feet, values, and occupancy/capacity. If not applicable, enter "N/A"). In the last column, use the codes from the previous page to indicate hazards to which the asset is vulnerable. Add as many rows as needed. If this information is available in GIS format, please provide.

Critical Facilities

Name of Asset	Address	Area (sq.ft.)	Replacement Value (Insured) (\$)	Contents Value (\$)	Occupancy/ Capacity (#)	Natural Hazards
<u>Essential Facilities</u> such as fire stations, Emergency Operations Centers						
Fire Station #1	557 South Summit Drive	14,400	6 million	5 million	60	EQ, T,SWW,T
Fire Station #2	3275 County Road 4044	2400	800,000	1.2 million	6	EQ, T,SWW,T

HISTORIC HAZARD EVENTS

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Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

HISTORIC HAZARD EVENTS (continued)

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Appendix D: Nuclear Power Plant

NUCLEAR INCIDENT

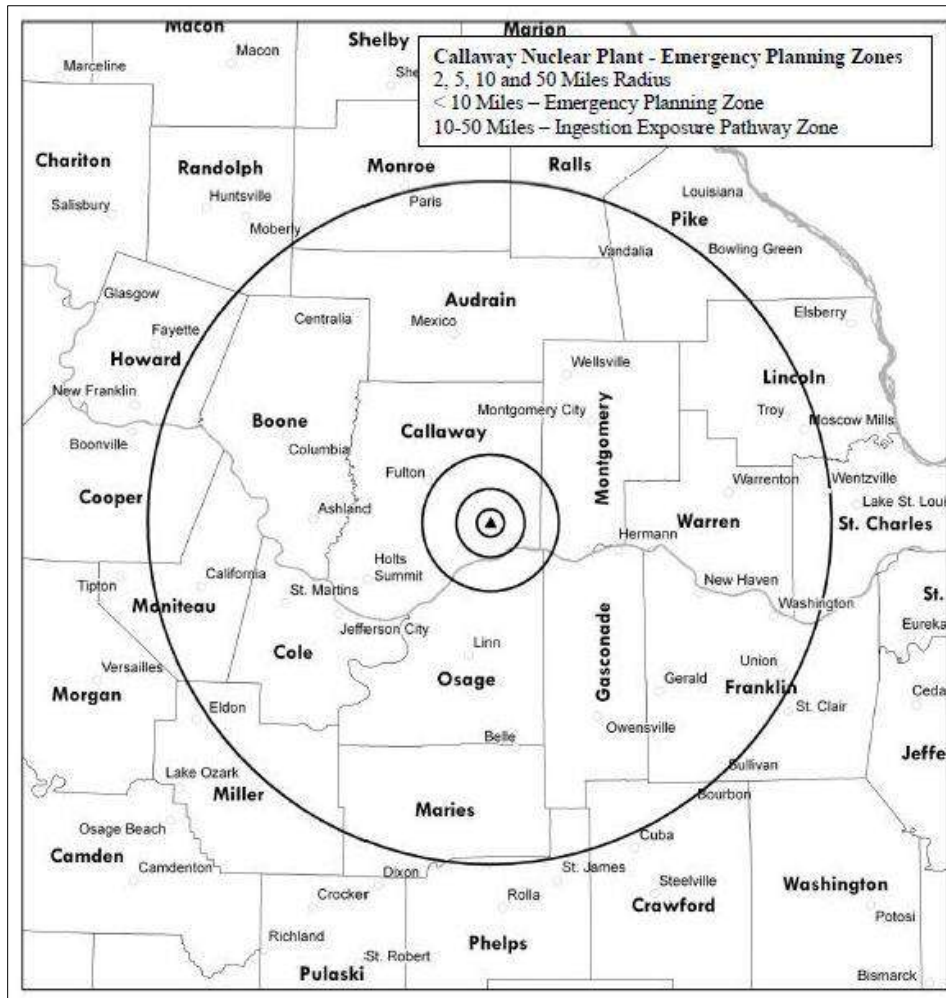
DESCRIPTION OF HAZARD

This section will deal specifically with the risks posed by a nuclear incident at a nuclear reactor. A commercial nuclear power reactor, the Callaway Nuclear Plant, is located in the southeast portion of Callaway County. The plant is owned and operated by the Ameren Corporation. It was originally licensed to operate until 2024 but the Nuclear Regulatory Commission (NRC) recently extended its operating license to 2044.

Location

Several counties are within the 10-50 mile radius Ingestion Exposure Pathway Zone (Figure 3.5). Mokane is located within the <10 mile Emergency Planning Zone for the plant, along with several small unincorporated communities.

Figure 1.1



Source: Missouri Hazard Analysis, 2013

Extent

There are four classes of Emergency Action Levels used for early notification of incidents at nuclear reactors:

A. Notification of Unusual Event - This indicates a potential degradation of the safety level of the plant; no releases of radioactive material requiring off-site response or monitoring are expected unless safety systems are further degraded.

B. Alert - Unusual events are in process or have occurred and indicate a potential degradation of the level of plant safety; any releases are expected to be limited to small fractions of the Environmental Protection Agency (EPA) Protective Action Guideline (PAG) exposure levels.

C. Site Area Emergency – Events are in process or have occurred that involve actual or likely major failures of the plant functions needed to protect the public; no releases are expected to exceed EPA PAG exposure levels except near the site boundary.

D. General Emergency - An event is in process or has occurred that involves actual or imminent substantial core degradation or melting, with the potential for loss of containment integrity; releases can reasonably be expected to exceed the EPA PAG exposure levels off-site for more than the immediate site area

Callaway Nuclear Plant - Only the most serious incident (General Emergency) has the potential to have a direct effect on the planning area. Whether a General Emergency would result in contamination in the planning area would depend on the nature of the incident and meteorological conditions during the release.

Previous Occurrences

The only nuclear incident in the United States equivalent to a General Emergency was the leaking of radioactive materials at Three Mile Island in Pennsylvania in 1979. According to 2013 information from FEMA, there have been five Site Area Emergencies with no release of radioactive materials at commercial nuclear power plants and four at non-commercial reactors.

Callaway Nuclear Reactor - The Callaway Nuclear Reactor has been in operation since 1984 and has had no major safety concerns in that time. During its period of operation there have been a number of Unusual Events declared at the reactor; the most recent two were in 2015 and resulted in temporary shutdowns of the plant.

Probability of Future Events – Low

“The Reactor Safety Study conducted by the NRC rated the chances of a major nuclear disaster as very low (a probability of one in one million per plant operating year). The report concluded that the worst accident type that could affect a nuclear power plant would be one resulting in a meltdown, which could be expected to occur once in 20,000 years of reactor operation. The report also stated that a meltdown would likely cause less than one fatality or injury. This low hazard rating is due to all of the added safety engineered instrumentation used to monitor and shut down nuclear plant systems before any severe damage occurs” (*Missouri Hazard Analysis*).

In addition, following the 2011 nuclear accident at Fukushima in Japan, the NRC increased requirements for nuclear plants in the United States. This has resulted in major upgrades to the Callaway Nuclear Reactor site including a new hardened facility sited next to the original facility; the Callaway Plant now has backup systems for its backup systems.

VULNERABILITY

Measure of Severity – Low

In the case of a General Emergency at the Callaway Nuclear Reactor, people located in the exposure zone would be instructed to evacuate to one of four locations. Jason Gym at Lincoln University is a designated shelter location for some of the evacuees. Should sheltering and services be required for a lengthy time, this could have an economic effect on the surrounding area.

Jefferson City Memorial Airport, in Callaway County but owned and operated by Jefferson City, would be used to fly in equipment and personnel; law enforcement and public works departments in the planning area might be called upon for assistance.

Potential Impact - Life

If contamination occurred in the planning area, it could pose a threat to the health and safety of humans, animals, and agricultural production. This could affect dairy farms, dairy processing plants, egg processors and distributors, grain warehouses, meat processing plants, commercial fruit and vegetable producers. The agricultural community would be notified and advised on what actions to take in the event of a radiological emergency.

The nature of the incident and extent of contamination would determine the state or federal resources activated to address contamination concerns as well as methods for decontamination, sheltering in place or evacuation of members of the public, and isolation of contaminated areas. While portions of the planning area may be impacted by wind spread radiological contamination, it is expected that the contamination will be minimal due to the distance travelled from source of contamination, nature of particle size and mass, and deposition mechanics of the height of plume, including wind speed and direction.

Should contamination of the planning area occur, it is very likely that the Missouri State Emergency Management Agency, along with initial responders from the Missouri Department of Health and Senior Services, Missouri Department of Natural Resources and other local offsite organizations such as local fire departments and radiological technical experts from the University of Missouri in adjacent Boone County, would be the initial group to begin response and assessment of contamination. This initial response would soon be followed up by a mobilization of numerous response teams from federal agencies such as the EPA and U.S. Nuclear Regulatory Commission, U.S. Department of Agriculture, U.S. FDA etc. to determine the nature and extent of the radiological contamination as well as recommend “Early” “Intermediate”, and “Late or Recovery” phase response actions.

The initial assessments would attempt to estimate the levels of internal or external exposure for a member of the public from plume contaminants (radioactive iodines, strontiums, etc.) as well as contamination of drinking water supplies and food stuffs. Once those levels of contamination and projected worst case exposures are estimated then it is likely that the state and federal response agencies will make recommendations to local and state policy makers of impacted areas on action to be taken to protect the public, animals, pets, etc. In most cases the guidelines and protective actions as established in the EPA Manual “Protective Action Guides and Protective Actions for Nuclear Incidents” (PAG 400 Manual) would be used.

The EPA PAG is a valuable aid to state and local authorities making radiation protection decisions during an emergency. Decision-makers compare estimates of projected dose (a dose that can be averted by protective actions) with values in the appropriate PAG to determine what actions to take.

The protection action plan can be broken down into three phases:

- Early Phase - can last from hours to days until the release has stopped
- Intermediate Phase - can last from a week to months
- Late Phase - can last from months to years

Early Phase The “Early Phase” of the protection action recommendations would focus on physical action which can be taken to avoid exposure, based upon projected dose to members of the public.

Two primary pathways exist for radiation exposure to the public in the Early Phase. As the radioactive plume moves from the incident site across surrounding areas, members of the public may receive direct exposure to radioactive materials. These materials may be deposited on the skin and clothing. The extent of direct exposure will depend on the radiation source and the particular conditions of the incident.

A second important pathway is inhalation. This can occur when members of the public are directly immersed in the plume. In most cases, the dose from inhalation of radioactive particles is of greater concern than skin or clothing contamination.

Currently the recommendations would be to Evacuate or Shelter in place. As an example, should a projected dose from exposures from a plume approach 1 to 5 rem (REM=Roentgen Equivalent Man) then either an evacuation or shelter in place (depending on individual locations of constituents) would be one of several recommended actions for policy holders to consider. The recommendations would also specifically focus on methods to limit dose and exposures to adults and children’s thyroids (based up FDA age-specific guides) such as the issuance of KI (stable potassium iodine) to first responders and/or members of the public.

Early Phase process:

- Notification of state and/or local authorities
- Immediate evacuation/sheltering (if necessary) based on preliminary information or measurements indicating severity or inability prevent accident from getting worse
- Monitoring of releases and exposure rate measurements
- Estimation of dose consequences
- Implementation of protective actions in other areas, if necessary

Intermediate Phase Activities in the “Intermediate Phase” are intended to reduce or avoid dose to the public, control worker exposures, control the spread of radioactive contamination, and prepare for long-term cleanup operations. This phase covers doses received in the first year and up to 50 years. These would include food and drinking water PAGs to limit uptake or intake of contaminated waters or foods stuffs to avoid a dose of either the 0.5 rem projected dose limit for the whole body or the 5 rem limit to the most exposed organ or tissue.

In addition, recommendations would be provided to local decision-makers on how to protect an area’s local food sources. Such action might be covering exposed food products, moving animals to shelter, and providing protected feed and water to animals. It may also be necessary to place temporary embargoes on food and agricultural products to prevent public consumption of potentially contaminated food.

It is important to remember that these dose limits are based on projected dose for the first year of exposure. Actions are taken to avoid this dose.

The recommended PAG for drinking water is 0.5 rem committed effective dose equivalent in the first year of exposure. A committed effective dose equivalent is used because only one pathway, ingestion, is involved. The drinking water PAG does not apply to all potable water sources. The Intermediate Phase PAG covers other water uses like swimming and bathing.

If the projected dose is expected to exceed this threshold, then alternate sources of drinking water may be necessary. It is also possible that water treatment or other actions may help to reduce the radiation doses received from drinking contaminated water.

A key aspect of the drinking water PAG is that it is not intended to set an acceptable level of contamination of water, nor is it intended to serve as a remediation level in water. This PAG dose is in addition to the primary Intermediate Phase PAG and applies only in an emergency situation.

The “Intermediate Phase” objectives would focus on the need to relocate. The Protective Action Recommendation based on PAG is shown in Figure 5.8.

Figure 1.2

Protective Action Recommendation	PAG (projected dose)	Comments
Relocate the general population	≥ 2 rem (20 mSv) First year	Beta dose to skin may be up to 50 times higher
Apply simple dose reduction techniques	< 2 rem (20 mSv) First year	Reduce doses to as low as practical levels
Longer term objectives	0.5 rem (5 mSv)	In any single year after the first
	≤ 5 rem (50 mSv)	Cumulative dose over 50 years

Additional Objectives:

- Identify high dose rate areas
- Relocate population from high dose rate areas
- Allow return of evacuees to non-contaminated areas
- Establish relocation areas
- Establish procedures for reducing exposure of non-relocated population
- Perform detailed environmental monitoring
- Decontaminate essential facilities and routes
- Begin recovery activities

Surface Contamination Control General Guidance (applies to both Early and Intermediate Phases):

- Do not allow monitoring and decontamination to delay evacuation
- If necessary, establish emergency contamination screening stations
- Establish monitoring and personnel decontamination facilities at evacuation centers
- Set up monitoring and decontamination stations at exits from the relocation area
- Establish auxiliary monitoring in low background areas
- Do not waste effort trying to contain contaminated wash water

Decontamination:

- Decontamination of persons, vehicles, facilities, crops, soils, pets and animals, and water sources will be performed during the intermediate phase. Contaminated individuals will be provided assistance at mass decontamination staging areas such as Jason Gym at Lincoln University which will be used during a Nuclear Incident as a Reception and Care Facility; both monitoring and decontamination will take place at Jason Gym. The staging

area will also be set up to address pets and vehicles driven to the mass decontamination area.

- Decontamination guidelines will be set up initially by local and state agencies. The early and intermediate phases will be based upon gross decontamination of persons to avoid exposures to values indicated above.
- Local and state agencies will make modifications to the decontamination guidelines if necessary during the intermediate, late and recovery phases.

Drinking Water PAG:

- Drinking water— limit to 0.5 rem (5 mSv) first year committed effective dose equivalent
- Applicable to drinking water from any source
- EPA Safe Drinking Water Standards after first year

Some additional protective actions for water:

- Wait for flow-by
- Ration clean water supplies
- Treat contaminated water
- Activate existing connections to neighboring systems
- Establish pipeline connections to closest sources/systems
- Import water in tanker trucks and import bottled water

Late Phase The late phase cleanup process begins sometime after the commencement of the intermediate phase and proceeds independently of intermediate phase protective action activities. The transition is characterized by a change in approach, from strategies predominantly driven by urgency, to strategies aimed at both reducing longer-term exposures and improving living conditions.

The late phase involves the final cleanup of areas and property at which contamination directly attributable to the incident is present. It is in the late phase that final cleanup decisions are made and final recovery efforts are implemented. Unlike the early and intermediate phases of a radiological incident, decision makers will have more time and information during the late phase to allow for better data collection, stakeholder involvement and options analysis. There will be opportunities to involve key stakeholders in providing sound, cost-effective cleanup recommendations.

Generally, emergency phase decisions will be made directly by elected public officials, or their designees, with limited stakeholder involvement due to the need to act within a short timeframe. Longer-term decisions should be made with stakeholder involvement and can also include incident-specific technical working groups to provide expert advice to decision makers on impacts, costs and alternatives. Community members will influence decisions such as if and when to allow people to return home to contaminated areas. There will be people living in contaminated areas, outside the evacuation and relocation zones, where efforts to reduce exposures will be ongoing.

Late Phase Goals:

- The types of contamination; the technical feasibility, cost, timeliness and effectiveness of decontamination measures; and the availability and cost of options for the disposal of wastes.
- The size and character of the areas that are contaminated; past and projected future uses for these areas; and the preservation or destruction of places of historical, national, or regional significance.
- Site-specific natural and anthropogenic background levels of radioactivity.
- Estimates of the impacts of both contamination and options for decontamination, on human health, communities, the economy, ecosystems and ecosystem services.
- Public acceptability and intergenerational equity.

Factors to consider in determining cleanup actions include evaluating:

- areas impacted (e.g., size, location relative to population);
- actions already taken during the early and intermediate phases;
- the ability of a remedy to maintain reliable protection of overall human health and the environment over time;
- assessing the relative performance of treatment technologies on the toxicity, mobility or volume of contaminants;
- the success or effectiveness of the cleanup or remediation as the cleanup progresses (contaminant removal);
- the adverse impacts on human health and the environment that may be posed in the time it takes to implement the remedy and achieve the community-based remediation goals;
- the impacts of alternative levels of clean up on the local and regional economy (e.g., job loss due to closed businesses, job creation due to decontamination and waste handling operations) and on residents' sense of place (e.g., continued limited access to one's home and community until clean up levels have been reached);
- preservation or destruction of places of historical, national, or regional significance;
- the technical and administrative feasibility of the remedy, including the availability of materials and services needed to implement each component of the option in question;
- the cost of each alternative, including the estimated capital and operation and maintenance costs and net present value of capital and operation and maintenance costs;
- state concurrence with the remedy;
- community support for the remedy.

This may be an iterative process. As experience is gained, adjustments may be required to achieve long-term goals.

The goals of late or recovery phase decontamination efforts are:

- Restoration of incident site to conditions as near as possible to pre-existing—creation of a “new normal”
- Remove contamination
- Eliminate access restrictions
- End food and water controls
- Return population to homes and jobs

Potential Impact - Existing Structures

There would be no physical damage to existing structures in the planning area from a nuclear incident. However, buildings would need to be assessed for external and internal contamination and remediated, if needed. This would be supported on the local, state, and federal levels.

Potential Impact - Future Development

Theoretically, population growth in the planning area will put more people at risk from contaminated food and water should there be a General Emergency level incident at the Callaway Nuclear Reactor which results in contamination in the Planning area. However, this needs to be viewed in the context of the likelihood of the occurrence of such an event; the likelihood is extremely low.

Existing Mitigation Activities

The nuclear industry is heavily regulated with many safeguards in place; the Callaway Nuclear Plant is in compliance with all regulations.

The State of Missouri, as well as the utility company, have developed emergency operations plans to ensure the health and safety of the general population within the emergency planning zones. Missouri SEMA and the Callaway Nuclear Plant run exercises/drills throughout the year.

Problem Statement

All jurisdictions in the planning area have a very low vulnerability to adverse effects from a nuclear incident while some small unincorporated communities and Mokane would be at greater risk if an incident were to occur due to how close they are to the plant.

There is an extremely low probability of an incident occurring at the Callaway Nuclear Plant due to extensive industry regulations industry and the numerous safeguards in place. Should a major incident occur, there is the possibility of contamination of food and water in the planning area but this would be dependent on the nature of the incident and meteorological conditions at the time of release. There are extensive guidelines in place at the state and federal level to deal with such a possibility.

In the case of a major incident occurring at the Callaway Nuclear Plant, some personnel and facilities in the planning area would potentially function in a supportive role for the emergency response.