

Howard County
Natural Hazard Mitigation Plan
2022



The planning process for the update of the Howard 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 Howard County.

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U.S. Department of Homeland Security
 FEMA Region 7
 11224 Holmes Road
 Kansas City, MO 64131

FEMA

July 14, 2022

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

Subject: Review of the Howard County Multi-Jurisdiction Hazard Mitigation Plan Update

Dear James Remillard:

The purpose of this letter is to provide the status of the above referenced Local Hazard Mitigation Plan, pursuant to the requirements of 44 CFR Part 201 - Mitigation Planning and the Local Multi-Hazard Mitigation Planning Guidance. The Local Hazard Mitigation Plan Review Tool documents the Region's review and compliance with all required elements of 44 CFR Part 201.6, as well as identifies the jurisdictions participating in the planning process. FEMA's approval will be for a period of five years effective starting with the approval date indicated below.

Prior to the expiration of the plan, the community will be required to review and revise their plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities. After the review or revisions are completed, the plan will need to be resubmitted for approval by FEMA in order to continue to be eligible for mitigation project grant funding.

Plan Name	Date Submitted	Date Approved	Date of Plan Adoption	Date of Plan Expiration	Review Status
Howard County	June 9, 2022	July 14, 2022	March 8, 2022	July 14, 2027	Approved

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

Sincerely,

CATHERINE R
 SANDERS

Catherine R. Sanders, Director
 Mitigation Division

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Contributors

Howard County Hazard Mitigation Planning Committee

Jurisdictional Representatives

Participating Jurisdictions			
Name	Title	Department	Jurisdiction
Derry Wiswall	Director of Operations	Central Methodist University	Central Methodist University
Don Clear	Safety	Central Methodist University	Central Methodist University
Rebecca Kurtz	City Council Member	City of Armstrong Council	City of Armstrong
Bill Johh	City EMD	City of Fayette	City of Fayette
Tara Kunze	City Clerk	City of Fayette	City of Fayette
Andrew Frazier	City Administrator	City of Glasgow	City of Glasgow
Melissa Crowley	City Clerk	City of New Franklin	City of New Franklin
Todd Baslee	Alderman	City of New Franklin	City of New Franklin
Jill Wisean	Superintendent	Fayette R-III school	Fayette R-III school
Sonya Fuemmeler	Superintendent	Glasgow School	Glasgow School
Jason Wright	GIS	Glasgow Special road	Glasgow Special road
Anthony Martin	Fire Fighter	Howard Co Fire Protection District Station 2	Howard Co Fire Protection District
Chris Wilhoit	Chief	Howard Co Fire Protection District	Howard Co Fire Protection District
Ethan Shipp	Board Member	Howard Co Fire Protection District	Howard Co Fire Protection District
Gary Kunze	Chief	Howard Co Fire Protection District Station 1	Howard Co Fire Protection District
Jeremy McCowan	Assistant Chief	Howard Co Fire Protection District Station 3	Howard Co Fire Protection District

Lee Young	Director	Howard Co Fire Protection District	Howard Co Fire Protection District
Rick Newell	Lieutenant	Howard Co Fire Protection District	Howard Co Fire Protection District
Scotty Shiflett	President	Howard Co Fire Protection District	Howard Co Fire Protection District
Nichole Wilsmeier	Clerk	Howard Co PWSD#1	Howard Co PWSD#1
Mike Hilseduk	Superintendent	Howard Co Road and Bridge	Howard Co Road and Bridge
Bryan Kunze	Howard Co EMD	Howard Co Emergency Management	Howard county
Jeff Stockhorst	Eastern Commissioner	Howard Co Commission	Howard County
Jeremiah Johnmeyer	Presiding Commissioner	Howard Co Commission	Howard County
Mathew Freese	Western Commissioner	Howard Co Commission	Howard County
Brian Cordel	Superintendent	New Franklin R-I	New Franklin R-I
Jessee Howell	Manager	Maintenance	Regional Water Commission

Stakeholder Representatives

Stakeholders			
Name	Title	Department	Jurisdiction
Mike Vreman	Board Member	Armstrong Special Road District	Armstrong Special Road District
Scott Larson	President	Armstrong Fire Protection District	Armstrong Fire Protection District
David Ford	Chief	Fayette Police	Fayette Police
Greg Lanham	Captain	Fayette Police	Fayette Police
Jayce Olendorff	Chief	Glasgow Fire Protection District	Glasgow Fire Protection District
Nick Meyer	Captain	Glasgow Fire Protection District	Glasgow Fire Protection District
Tyler Poson	Chief	Glasgow Police	Glasgow Police
Lisa Calvert	Director	Howard Co 911	Howard Co 911
Sherri Beeler	Assistant Director	Howard Co 911	Howard Co 911
Jeff Oswald	Sheriff	Howard Co Sheriffs Department	Howard Co Sheriffs Department

Branden Lightfoot	Manager	Howard County Electric Cooperative	Howard County Electric Cooperative
Mark Schupp	President	Levee Dist #3	Levee Dist #3
Brenda Gerlach	Regional Coordinator	SEMA	SEMA
Kent Monnig	Principal	St Mary School	St Mary School

The Howard County Hazard Mitigation Plan was developed by the communities and citizens of Howard County, their elected officials, and public servants. The process was carried out by identifying the natural hazards that impact Howard 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 2005 study conducted by the National Institute of Building Science found that every dollar spent on mitigation activities saves four dollars in post-disaster recovery costs. Hazard mitigation is a good business practice for both the public and private sectors.

The Plan: The Howard 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 Howard
- Armstrong
- Fayette
- Glasgow
- New Franklin
- Fayette R-III
- Glasgow School District
- New Franklin R-I
- Central Methodist University
- Howard Co FPD
- PWSD #1
- Howard Co. Regional Water Commission
- Glasgow Special Road District

Those who were invited but chose not to participate or did not meet the established requirements for official participation are as follows:

- Boone County
- Cooper County
- Moniteau County
- Franklin
- Higbee R-VIII
- Salisbury R-IV
- Harrisburg R-VIII

- Levee District #3

The risk assessment (Chapter 3) profiles the natural hazards (dam failure, drought, earthquake, extreme temperatures, flood, levee failure, land subsidence/sinkhole, 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 Howard County Natural 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

Howard 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 Howard 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 Howard County and its jurisdictions.

The Howard County Natural Hazard Mitigation Plan can be found online at:

<https://www.midmorpc.org/plans-publications-master/howard-county-hazard-mitigation-plan-2022>

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.

Chapter 1: Introduction and Planning Process

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Chapter 1: Introduction and Planning Process

1.1 Purpose

The Howard 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 Howard County. Each year natural hazards take a great toll in the United States. Howard 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 Howard County Hazard Mitigation Plan was developed by the communities and citizens of Howard 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 Howard 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. Howard 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 Howard 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:

- Howard Co
- Armstrong
- Fayette
- Glasgow
- New Franklin
- Fayette R-III
- Glasgow School District
- New Franklin R-I
- Central Methodist University
- Howard Co FPD
- PWSD #1
- Howard Co. Regional Water Commission
- Glasgow Special Road District

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

- Cooper County
- Boone County
- Moniteau County
- Franklin
- Higbee R-VIII
- Salisbury R-IV
- Harrisburg R-VIII
- Levee District #3

All jurisdiction who participated in the 2017 update chose to participate in the 2022 update. The Village of Franklin did not participate in the 2017 and chose to not participated 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 Overview, Assets, 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 Howard 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 Howard County Mitigation Planning Committee

Participating Jurisdictions			
Name	Title	Department	Jurisdiction
Derry Wiswall	Director of Operations	Central Methodist University	Central Methodist University
Don Clear	Safety	Central Methodist University	Central Methodist University
Rebecca Kurtz	City Council Member	City of Armstrong Council	City of Armstrong
Bill John	City EMD	City of Fayette	City of Fayette
Tara Kunze	City Clerk	City of Fayette	City of Fayette
Andrew Frazier	City Administrator	City of Glasgow	City of Glasgow
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Todd Baslee	Alderman	City of New Franklin	City of New Franklin
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Jason Wright	GIS	Glasgow Special road	Glasgow Special road
Anthony Martin	Fire Fighter	Howard Co Fire Protection District Station 2	Howard Co Fire Protection District
Chris Wilhoit	Chief	Howard Co Fire Protection District	Howard Co Fire Protection District
Ethan Shipp	Board Member	Howard Co Fire Protection District	Howard Co Fire Protection District
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Jermy McCowan	Assistant Chief	Howard Co Fire Protection District Station 3	Howard Co Fire Protection District
Lee Young	Director	Howard Co Fire Protection District	Howard Co Fire Protection District
Rick Newell	Lieutenant	Howard Co Fire Protection District	Howard Co Fire Protection District
Scotty Shiflett	President	Howard Co Fire Protection District	Howard Co Fire Protection District
Nichole Wilsmeier	Clerk	Howard Co PWSD#0	Howard Co PWSD#1
Mike Hilseduk	Superintendent	Howard Co Road and Bridge	Howard Co Road and Bridge
Bryan Kunze	Howard Co EMD	Howard Co Emergency Management	Howard county
Jeff Stockhorst	Eastern Commissioner	Howard Co Commission	Howard County
Jeremiah Johnmeyer	Presiding Commissioner	Howard Co Commission	Howard County
Mathew Freese	Western Commissioner	Howard Co Commission	Howard County
Brian Cordel	Superintendent	New Franklin R-I	New Franklin R-I
Jessee Howell	Manager	Maintenance	Regional Water Commission

Table 1.3 Stakeholder Representatives

Stakeholders			
Name	Title	Department	Jurisdiction
Mike Vreman	Board Member	Armstrong Special Road District	Armstrong Special Road District
Scott Larson	President	Armstrong Fire Protection District	Armstrong Fire Protection District
David Ford	Chief	Fayette Police	Fayette Police
Greg Lanham	Captain	Fayette Police	Fayette Police
Jayce Olendorff	Chief	Glasgow Fire Protection District	Glasgow Fire Protection District
Nick Meyer	Captain	Glasgow Fire Protection District	Glasgow Fire Protection District
Tyler Poson	Chief	Glasgow Police	Glasgow Police
Lisa Calvert	Director	Howard Co 911	Howard Co 911
Sherri Beeler	Assistant Director	Howard Co 911	Howard Co 911
Jeff Oswald	Sheriff	Howard Co Sheriffs Department	Howard Co Sheriffs Department
Branden Lightfoot	Manager	Howard County Electric Cooperative	Howard County Electric Cooperative
Mark Schupp	President	Levee Dist #3	Levee Dist #3
Brenda Gerlach	Regional Coordinator	SEMA	SEMA
Kent Monnig	Principal	St Mary School	St Mary School

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			
Howard County	X	X	X	X	X	X
Armstrong	X	X	X		X	X
Fayette	X	X	X		X	X
Glasgow	X	X	X		X	X
New Franklin	X	X	X		X	X
Fayette R-III	X				X	
Glasgow SD	X				X	
New Franklin R-I	X				X	
Central Methodist U.	X				X	X
Howard Co. FPD	X	X		X	X	X
PWSD #1	X					
Howard Co. Regional Water Commission	X					
Glasgow Special Rd District	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 Howard 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 the questionnaire and updated mitigation actions.
- 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	Meeting #3	individual meeting	Data Collection Questionnaire Response	Update/Develop Mitigation Actions	Resolution
Howard County	X	X	X		X	X	X
Armstrong			X		X	X	X
Fayette	X	X	X		X	X	X
Glasgow	X	X	X		X	X	X
New Franklin	X	X	X	X	X	X	X
Fayette R-III		X	X		X	X	X
Glasgow School District	X		X		X	X	X
New Franklin R-I			X		X	X	X
Central Methodist University	X		X		X	X	X
Howard Co. FPD				X	X	X	X
PWSD #1			X	X	X	X	
Howard Co. Regional Water Commission				X	X	X	X
Glasgow Special Rd. District	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	Task 6: Develop a Mitigation Strategy 44 CFR 201.6(c)(3)(i); 44 CFR 201.6(c)(3)(ii); and 44 CFR 201.6(c)(3)(iii)
Step 7. Review possible activities	
Step 8. Draft an action plan	
Step 9. Adopt the plan	Task 8: Review and Adopt the Plan
Step 10. Implement, evaluate, revise	Task 7: Keep the Plan Current
	Task 9: Create a Safe and Resilient Community 44 CFR 201.6(c)(4)

Step 1. Organize

Contact lists were made for past participating jurisdictions as well as neighboring communities to Howard, and email notices were directly sent out to all jurisdictions and special districts in Howard 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 January 21, 2022 at the Keller Building in Fayette. 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 February 10, 2022 at the Keller Building in Fayette. 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.

Meeting 3 took place February 28, 2022 at the Keller Building in Fayette. New mitigation action items were discussed and questions answered. Plan Goals were reviewed and finalized..

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 • Handed out questionnaires 	1/21/2022
Meeting #2	<ul style="list-style-type: none"> • Return questionnaires • Discussed questions about the questionnaire • Discussed Risk Assessments • Reviewed Previous Action Items 	2/10/2022
Meeting #3	<ul style="list-style-type: none"> • New Mitigation Actions • Goal Finalizing 	2/28/2022

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 3 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 Fayette 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. No public comments 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.

KPC Facebook page and a calendar with meetings shared via email to jurisdictions and stakeholders throughout the 6 county RPC region.

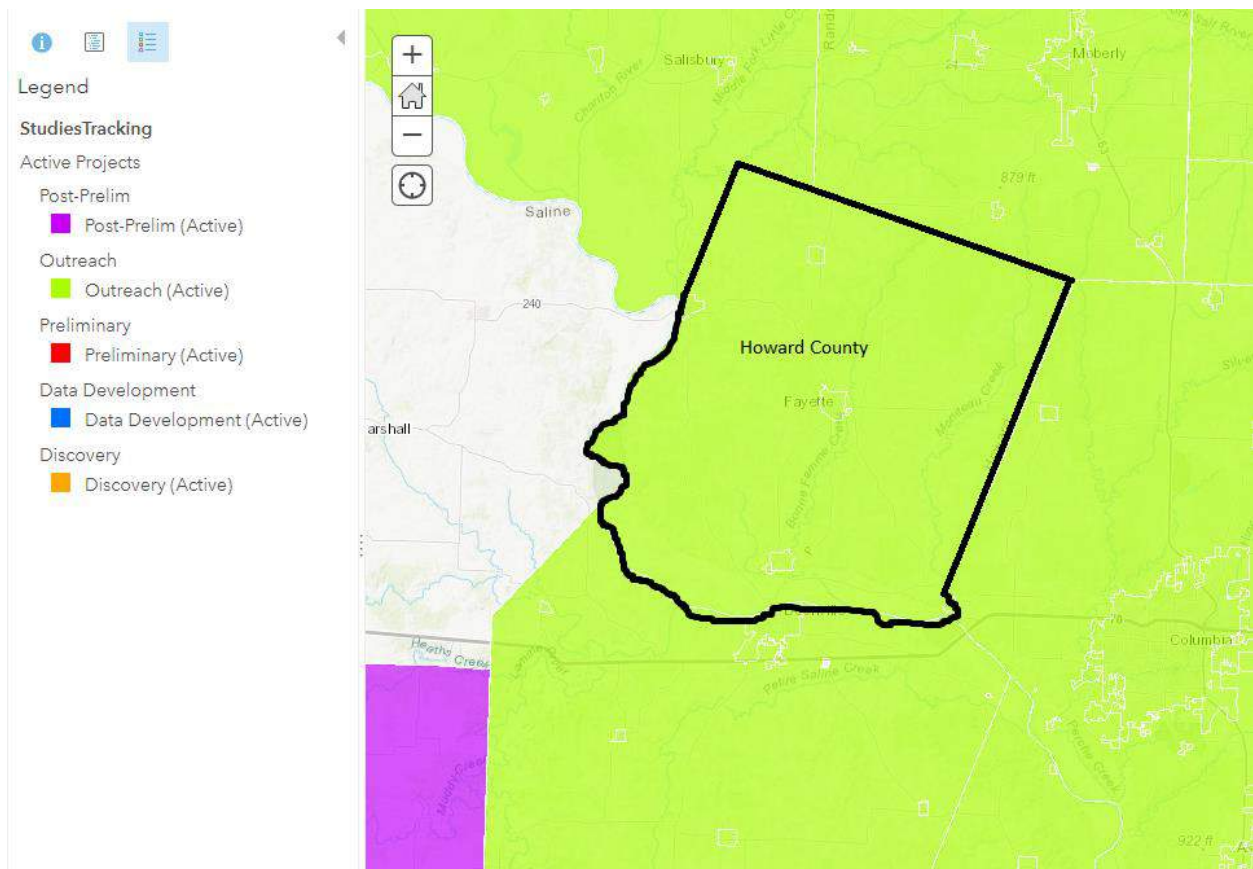
Table 1.8: Invited Stakeholders

Stakeholder/Jurisdiction	Position/Department
Cooper County	Commission
Boone County	Commission
Moniteau County	Commission
Franklin	Mayor
Glasgow Fire	Chief
Armstrong Fire	Chief
Fayette Fire	Chief
Fayette Police	Chief
Howard Co. 911	Director
Armstrong Special Road District	President
Red Cross	Director
St Mary's School	Superintendent
Levee District #3	President
Higbee School District	Superintendent
Salisbury School District	Superintendent
Harrisburg School District	Superintendent

Coordination with FEMA Risk MAP Project

Figure 1.1 shows the status of Risk Mapping in Howard County. The southern boundary of Howard 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*

- Howard 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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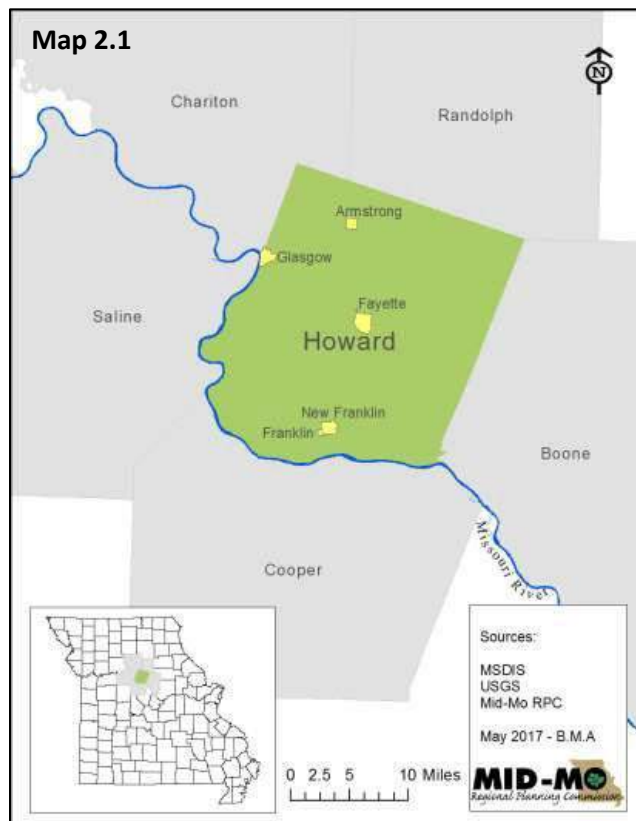
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Chapter 2: Planning Area Profile

Howard County is located in central Missouri with an area covering approximately 472 squaremiles. It is midway between Kansas City to the west and St. Louis to the east.



The county is bordered on the south and southwest by the Missouri River, which separates it from Cooper and Saline Counties, respectively. It is bordered on the northwest by Chariton County, on the north by Randolph County, and on the east by Boone County.

The 2020 Census indicated an overall population decrease in Howard County of almost 2% with a decrease in housing units. The greatest decline in growth was in Armstrong which saw a 5.63% decrease in population. Franklin saw the greatest loss in housing units with a drop by 34.62%. This decrease is not unexpected though considering the nature of the floodplain that dominates the corporate limits of Franklin.

2019 ACS estimates that the median household income for Howard County to be \$52,700 which is lower than the state median

household income of only \$51,542, but is behind the National average of \$68,703.

Median home prices in Howard County are estimated around \$130,100 still fall short of the state median of \$185,247 and the national price of \$239,100.

2.1.1 Geography, Geology, and Topography

Ecologically, the county is situated where the Ozark Highlands to the south meet the plains to the north.

Ozark Highlands

Most of the county, except for the northwest section, is located in the northern part of the OzarkHighlands. The *Atlas of Missouri Ecoregions*, published by the Missouri Department of Conservation, describes the Ozark Highlands as:

“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.”

The Ozark Highlands is very diverse biologically and geographically with rugged hills, prairies, savannas, and open woodlands. The predominant underlying bedrock is carbonate (limestone and dolomite), giving rise to karst topographic features such as caves, underground streams, and sinkholes. The majority of land in Howard County falls into two different subsections of the Ozark Highlands distinguished by differing landforms, soils, and vegetation (see Figure 2.1.1). In turn, these subsections give rise to differences in land use patterns, conservation needs, and vulnerability to certain natural hazards.

The following information summarized from the *Atlas of Missouri Ecoregions* gives brief descriptions of the land types found within the Ozark Highlands subsections in Howard County.

Missouri River Alluvial Plain

This subsection, consisting of the Missouri River channel and its adjoining alluvial plain, is found along the southern and southwestern 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. The area is primarily used for cropland. The cities of Franklin and New Franklin are located at least partially in the Missouri River Alluvial Plain.

Outer Ozark Border

This subsection comprises most of the land area of the County, except for that in the northwest and along the Missouri River channel. The land is transitional between the Ozarks and the Dissected Till Plain. Local relief of 150 feet may reach 200 feet near the Missouri River. The uplands have a covering of loess over till; the loess may be quite deep in the bluffs. Deep ravines are found in some areas. Springs are saline and streams tend to be also. Historically, the area was oak forest. Currently, the area is predominantly pasture with cropland; second-growth forests and cedar thickets are found in isolated patches. The City of Fayette is located in the Outer Ozark Border.

Central Dissected Till Plains

The northwest part of the county is located in the Central Dissected Till Plains, which the *Atlas of Missouri Ecoregions* describes as:

“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.”

More specifically, the land in Howard County is found in two subsections of the Central Dissected Till Plains, the Loess Hills Subsection and the Chariton River Hills Subsection (see Figure 2.1.1).

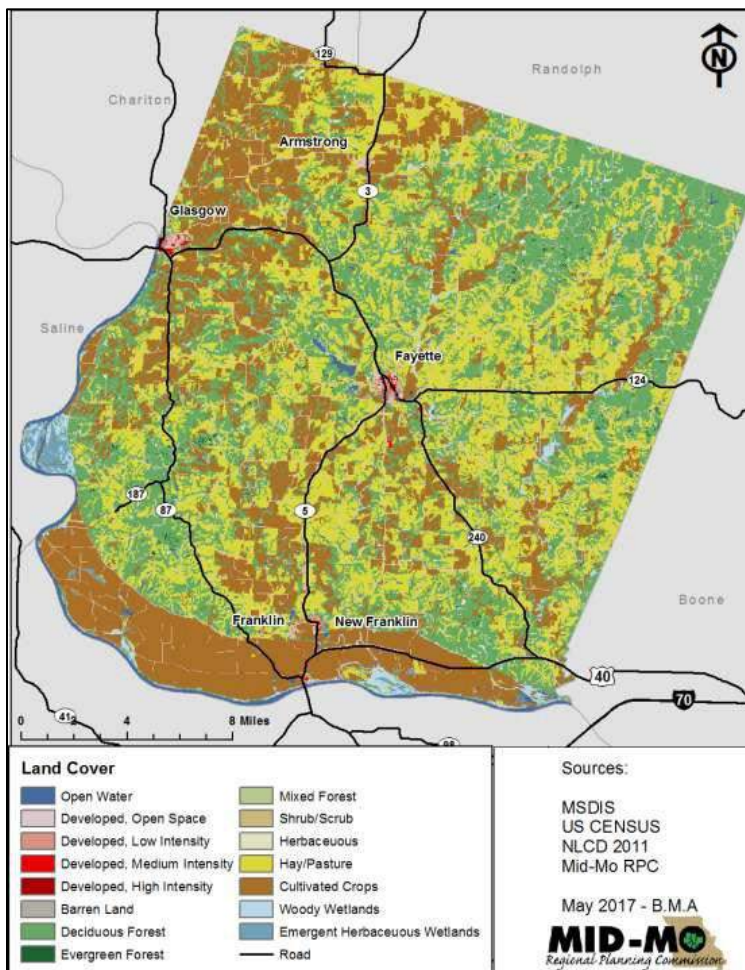
Loess Hills Subsection

This subsection, which comprises most of northwest Howard County including the cities of Glasgow and Armstrong, consists of rugged, deep loess hills with local relief typically over 200 feet. Historically, the area was forested with oak and other hardwoods. Currently, second growth forests remain along with pasture and scattered croplands.

Chariton River Hills Subsection

A small slip of the land east of Armstrong belongs to this subsection which is characterized by local reliefs of 100-200 feet and moderately wide valleys. The southern part of this subsection was mined for coal, but much of the land has been reclaimed. The area is currently cropland and pastureland.

Map 2.2



The Missouri River

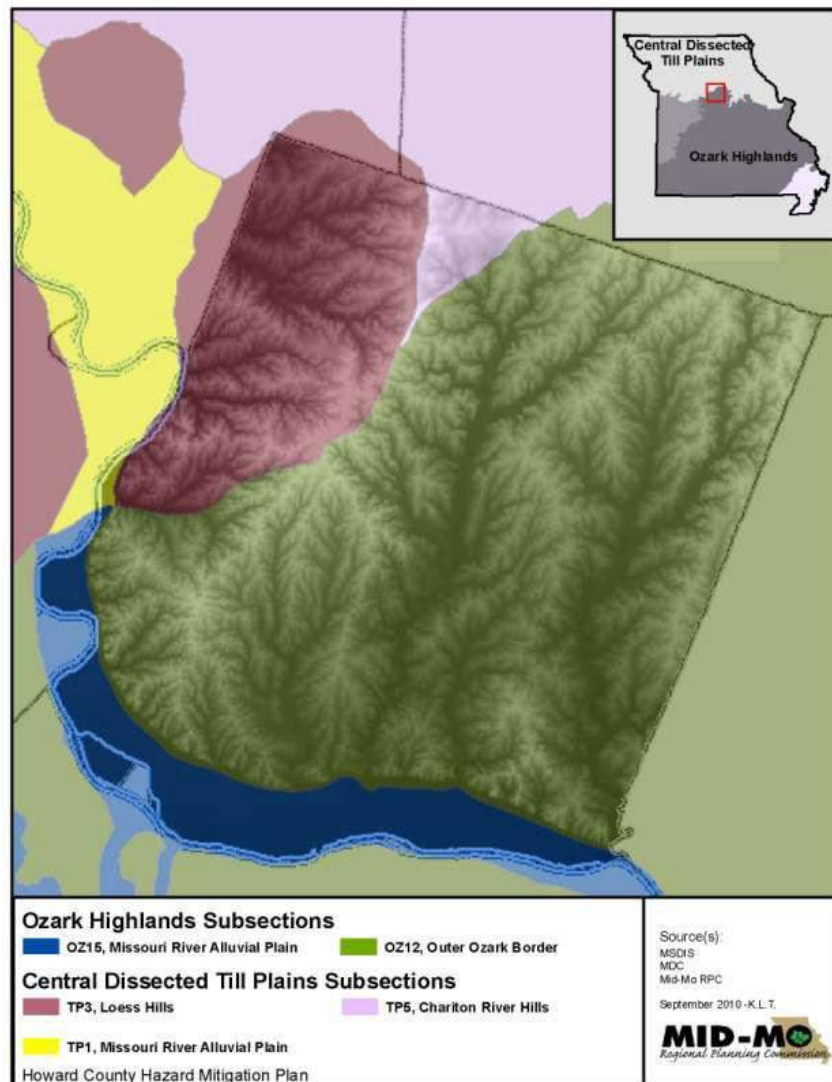
The Missouri River's relationship to Howard County deserves special attention. It is the defining physical feature in Mid-Missouri and forms the southern and southwestern borders of the County. The location of population centers close to the river has meant significant flooding damage in the County in the recent past.

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 Howard County is shown in Map 2.3.

Map 2.3



2.1.3 Climate

Howard 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.”

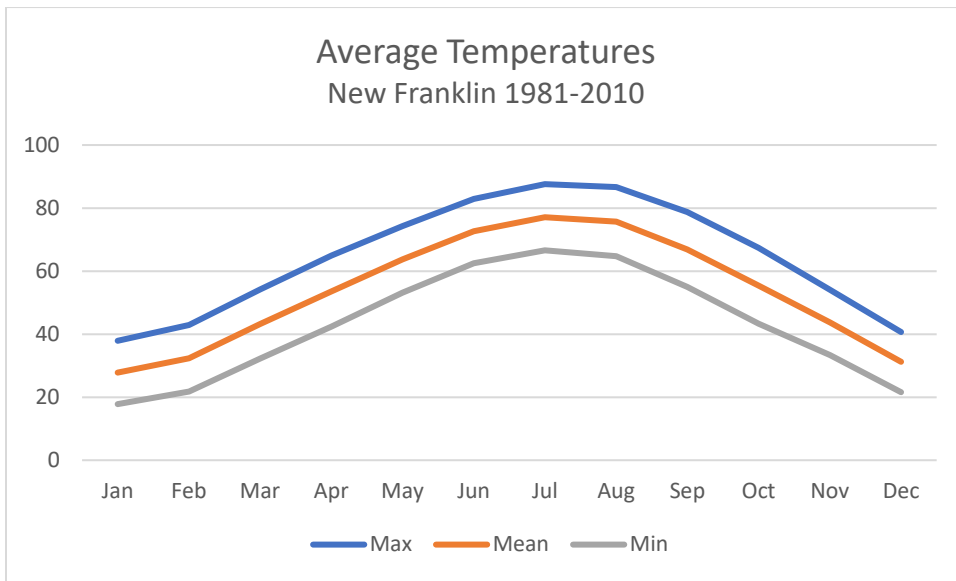
At times, the flow of air from one of the source regions will settle in and persist for weeks or months. These periods are associated with particular upper air flow patterns and associated surface conditions.

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.”

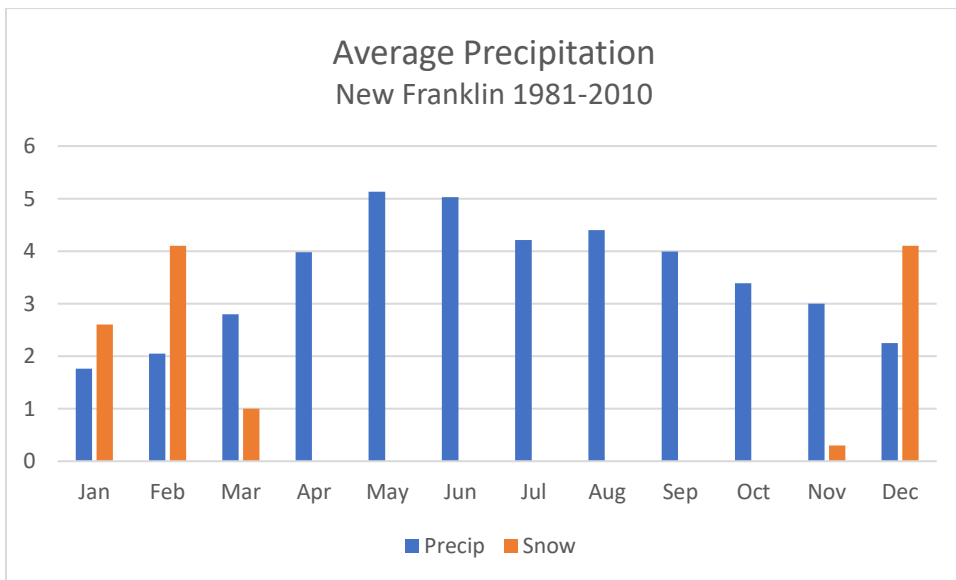
While Howard County does have extreme variations in weather at times, there is a relative pattern of temperature and rainfall consistent with a humid continental climate. The data shown in the charts was collected at the Boonville weather station in the years 1981-2010 (Figures 2.1-2.2). The rainfall 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



Source: <https://ggweather.com/normals/MO.html#F>

Figure 2.2



Source: <https://ggweather.com/normals/MO.html#F>

2.1.4 Population/Demographics

There are five incorporated communities in Howard County: Fayette (the county seat), Armstrong, Franklin (not participating), New Franklin, and Glasgow.

In Howard County, the 2020 Census indicated a 1.98% decrease in population and a 4.67% decrease in housing units which is a greater decrease in population than ACS estimates initially expected.

Table 2.1 Howard County Population 2010-2020 by Jurisdiction

Jurisdiction	2020 Population	2010 Population	2019 Annual Population Estimate or ACS Population	# Change (2010-2020)	% Change (2010-2020)
Unincorporated	4,800	4,885	5,032	-85	-1.74
Armstrong	268	284	198	-16	-5.63
Fayette	2,663	2,688	2,693	-25	-0.93
Glasgow	1,074	1,103	1,038	-29	-5.08
New Franklin	1,047	1,089	1,191	-42	-3.86
Total	9,943	10,144	10,058	-201	-1.98

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

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 22% of the county’s population is under the age of 18; approximately 18.5% is 65 years and older, according to 2019 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. Howard was given a Medium Low SOVI Index Ranking within the state of Missouri.

Table 2.2 Unemployment, Poverty, Education, and Language Percentage Demographics, Howard 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
Howard County	4,863	2.7	14.1	21.2	8.1	1.4
Armstrong	91	5	46	0	0	0

Fayette	1,281	1.2	19.4	10.3	9.7	1.9
Glasgow	464	2.9	9.8	50.8	13.8	2.5
New Franklin	494	1.9	13.4	50.7	6.7	0.4
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, 2019 American Community Survey, 5-year Estimates.

2.1.5 History

The area which is now Howard County first gained the attention of European Americans when the famous Lewis and Clark expedition explored the banks of the Missouri River. Their voyage stopped in and near Howard County both on their outgoing and homeward journeys in 1804 and 1806 respectively.

The county was officially organized on January 23, 1816 and took its name from Benjamin Howard, the first governor of the Missouri Territory. It received its nickname, the “Mother of Counties,” because it was the first county in the Boon’s Lick region of central Missouri and “gave birth” to most of the surrounding counties. Twenty-nine counties were eventually carved out of the original area of Howard County.

Migration West

Howard County was also the beginning of the famous Santa Fe Trail during America’s original westward migration. Unlike many of the trails which were essentially one-way trails leading settlers to the west, the Santa Fe Trail was a two-way trail for trade and commerce. It brought people, goods, and services through Howard County from 1821 until the completion of railroad routes in the 1860s.

2.1.6 Occupations

Many of the major employers for Howard County residents are not located in Howard County. Howard County citizens rely heavily on nearby populated regional centers such as Columbia (Boone County), Boonville (Cooper County), Moberly (Randolph County) and Marshall (Saline County) for employment and other commercial activity.

Howard County was removed from the Columbia, MO Metropolitan Statistical Area (MSA) in 2010 when commuting between the county and other affiliated counties in the MSA dropped significantly.

Table 2.3 Occupation Statistics, Howard 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
Howard County	1,709	937	776	501	725
Armstrong	12	32	14	13	13
Fayette	414	351	181	51	255
Glasgow	144	99	74	37	85
New Franklin	110	99	139	71	58

Source: U.S. Census, 2019 American Community Survey, 5-year Estimates.

2.1.7 Agriculture

Agriculture is still widely seen throughout Howard 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.

The University of Missouri’s Horticulture & Agroforestry Research Center (HARC) is located in New Franklin. The 665-acre research farm is also the site of the U.S. National Arboretum Midwest Plant Research and Education Site. Key research areas include flood tolerance studies, high value mushroom production, and development of eastern black walnut, northern pecan, and Chinese chestnut orchard crops. The annual Missouri Chestnut Roast in the fall draws more than 4,000 visitors to the Center.

There are 218,591 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 243,420 acres in 2012. Farmland comprises 72.36% of the land area of the county. Of the total farmland, 133,284 acres are cropland, and 108,909 acres were harvested in 2017.

Soybeans, corn, and wheat are the major crops in the county; cattle and sheep are the main livestock. Other crops include grain sorghum, grapes, garden vegetables, nuts, fruit, native plants, trees, and shrubs. The total market value for all agricultural products (crops and livestock) sold in 2017 was \$55,944,000.

Table 2.4 Agricultural Overview, Howard County	2012	2017	Change
Approximate land area (acres)	302,080	302,080	-
Land in farms (acres)	243,420	218,591	
Percentage in farms	80.58	72.36	
Number of farms	765	690	
Average size of farm (acres)	318	317	
Estimated market value of land and buildings			
Average value per farm	807,152	957,809	

Average value per acre	2,537	3,023	
Total sales	47,778,000	55,944,000	
Average sales per farm	62,455	81,078	
Source: USDA Census of Agriculture 2017			

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

There have been no HMA grants in the planning area since the last update. The last recorded HMA grant was in 1993 and listed as an Acquisition of Private Real Property. 73 properties were listed to acquire as part of the project for a project amount of \$1,901,119.

2.1.9 FEMA Public Assistance (PA) Grants in Planning Area

There has been over \$3 million in Public Assistance (PA) grants awarded in Howard County. Below is \$3,642,266.94 in projects that have varied in size and location through the county.

Table 2.5 FEMA PA Grants in County from 1993-2020

Disaster Number	Applicant	Project Type	Project Size	Project Total
1403	City of Fayette	Debris Removal	Small	3107
1403	Howard County	Debris Removal	Small	7239.5
1403	Glasgow FPD	Protective Measures	Small	1525.95
1403	City of Glasgow	Debris Removal	Small	3847.01
1403	Armstrong FPD	Debris Removal	Small	1644.84
1403	City of Glasgow	Protective Measures	Small	465
1403	Armstrong FPD	Protective Measures	Small	548.28
1403	City of Glasgow	Debris Removal	Small	0
1412	Howard County	Roads and Bridges	Small	25004.5
1412	Howard County	Roads and Bridges	Small	3961.97
1412	Howard County	Roads and Bridges	Small	50160
1412	Howard County	Roads and Bridges	Small	2100.8
1412	Howard County	Roads and Bridges	Small	6124.2
1412	Howard County	Roads and Bridges	Small	2967.08
1412	Howard County	Roads and Bridges	Small	2462.1
1412	Howard County	Roads and Bridges	Small	1033.15
1412	Howard County	Roads and Bridges	Small	1635
1412	Howard County	Roads and Bridges	Small	2288.37
1412	Howard County	Roads and Bridges	Small	4294.45
1412	Howard County	Roads and Bridges	Small	6660.23
1412	Howard County	Roads and Bridges	Small	4950
1412	Howard County	Roads and Bridges	Small	2271.25

1412	Howard County	Roads and Bridges	Small	1903.45
1412	Howard County	Roads and Bridges	Small	2626.76
1412	Howard County	Roads and Bridges	Small	3755.62
1412	Howard County	Roads and Bridges	Small	4015.24
1412	Howard County	Roads and Bridges	Small	4378.9
1412	Howard County	Roads and Bridges	Small	4969
1412	Howard County	Roads and Bridges	Small	1557.69
1412	Howard County	Roads and Bridges	Small	5805.8
1412	Howard County	Roads and Bridges	Small	4736.02
1412	Howard County	Roads and Bridges	Small	6555
1412	Howard County	Roads and Bridges	Small	1186.6
1412	Howard County	Roads and Bridges	Small	2663.5
1412	Armstrong Special Road District	Roads and Bridges	Small	23498
1412	Glasgow Special Road District	Roads and Bridges	Small	2450
1412	Glasgow Special Road District	Roads and Bridges	Small	3064
1412	Glasgow Special Road District	Roads and Bridges	Small	14821
1412	Glasgow Special Road District	Roads and Bridges	Small	2170
1412	Howard County	Roads and Bridges	Small	3092.86
1412	Howard County	Roads and Bridges	Small	2087.15
1412	Howard County	Roads and Bridges	Small	4100.69
1412	Howard County	Roads and Bridges	Small	3925.33
1463	City of Armstrong	Water Control Facilities	Small	3000
1463	Armstrong Special Road District	Roads and Bridges	Small	10723.2
1463	Howard County	Debris Removal	Small	11910.5
1463	Howard County	Roads and Bridges	Large	55908
1463	City of Glasgow	Roads and Bridges	Small	12871
1463	City of Fayette	Debris Removal	Small	3069.1
1463	Howard County	Roads and Bridges	Small	38556
1463	City of Fayette	Protective Measures	Small	3959.58
1463	Glasgow Special Road District	Roads and Bridges	Small	14462.33
1463	City of Fayette	Public Buildings	Small	1000
1463	City of Fayette	Recreational or Other	Small	12532
1463	City of Fayette	Public Utilities	Small	10495
1463	Howard County	Public Buildings	Small	2000

1463	City of Fayette	Public Utilities	Small	21580
1463	City of Fayette	Public Utilities	Small	5200
1463	City of Fayette	Roads and Bridges	Small	10147.25
1463	Howard County	Public Buildings	Small	1000
1631	Howard County	Protective Measures	Small	1369.05
1631	Howard County	Public Buildings	Small	1500
1631	City of New Franklin	Debris Removal	Small	1432.5
1631	Howard County	Debris Removal	Small	9733.6
1631	City of New Franklin	Protective Measures	Small	1129.95
1631	City of New Franklin	Roads and Bridges	Small	2934.71
1631	City of Fayette	Roads and Bridges	Small	1016.19
1708	Howard County	Roads and Bridges	Small	23794.54
1708	Howard County	Public Buildings	Small	500
1708	City of Glasgow	Recreational or Other	Small	4926.97
1749	Howard County	Roads and Bridges	Small	14222.32
1749	Howard County	Roads and Bridges	Small	2318.29
1749	Howard County	Debris Removal	Small	2060
1773	Howard County	Roads and Bridges	Small	3205.75
1773	Howard County	Roads and Bridges	Large	222642.28
1773	City of Glasgow	Recreational or Other	Small	2804.5
1773	City of Fayette	Recreational or Other	Small	1000
1773	City of Glasgow	Roads and Bridges	Small	9415.99
1773	City of Fayette	Debris Removal	Small	3033.88
1773	City of Fayette	Roads and Bridges	Small	2794.07
1773	Howard County	Roads and Bridges	Small	8944.15
1773	Howard County	Roads and Bridges	Small	16002.78
1773	City of Fayette	Debris Removal	Small	2248.57
1773	City of Glasgow	Roads and Bridges	Small	0
1809	Howard County Road & Bridge	Roads and Bridges	Small	8392.38
1809	Howard County Road & Bridge	Roads and Bridges	Small	37109.14
1809	Howard County Road & Bridge	Roads and Bridges	Small	16199
1809	City of Glasgow	Roads and Bridges	Small	1562.81
1809	City of Glasgow	Roads and Bridges	Large	7867
1809	City of Glasgow	Roads and Bridges	Large	0
1809	Howard County Road & Bridge	Recreational or Other	Small	9201.48
1934	Howard County	Roads and Bridges	Small	4722.81
1934	Howard County	Roads and Bridges	Small	36891.95

1934	Howard County	Roads and Bridges	Small	6602.19
1934	City of New Franklin	Roads and Bridges	Small	2500
1934	Howard County	Roads and Bridges	Small	9436.18
1934	City of Glasgow	Recreational or Other	Small	0
1934	City of Glasgow	Roads and Bridges	Large	132563
1934	City of Glasgow	Roads and Bridges	Small	0
1934	City of Glasgow	Roads and Bridges	Small	4639.09
1934	City of Glasgow	Roads and Bridges	Small	0
1934	City of Glasgow	Roads and Bridges	Small	8400.74
1934	City of Glasgow	Public Utilities	Large	1042056
1961	City of New Franklin	Protective Measures	Small	3530.35
1961	Armstrong Special Road District	Protective Measures	Small	2420.2
1961	City of Glasgow	Protective Measures	Small	3827.96
1961	Armstrong Special Road District	Protective Measures	Small	3819.95
1961	Armstrong FPD	Public Buildings	Small	2653.7
1961	City of Fayette	Protective Measures	Small	1430.59
1961	City of Fayette	Protective Measures	Small	12146.14
1961	Howard County	Protective Measures	Small	18448.04
1961	Glasgow Special Road District	Protective Measures	Small	4939.2
1961	Glasgow Special Road District	Roads and Bridges	Small	1015.35
4012	Howard County	Roads and Bridges	Small	12139.84
4012	Howard County	Roads and Bridges	Small	15862.85
4012	Howard County	Roads and Bridges	Small	11525.28
4012	Howard County Drainage District 1	Protective Measures	Small	39792.94
4012	Howard County Drainage District 1	Debris Removal	Small	1625
4012	Bonne Femme Levee District #1	Protective Measures	Small	28085
4012	Howard County Levee District #3	Protective Measures	Small	16409.63
4012	Howard County Levee District #3	Debris Removal	Small	1482.4
4012	Howard County Drainage District 1	Debris Removal	Small	33200
4012	Bonne Femme Levee District #1	Water Control Facilities	Small	5460

4130	Howard County	Roads and Bridges	Large	83452.76
4130	Howard County	Roads and Bridges	Large	72116.13
4451	City of Glasgow	Protective Measures	Small	3265.01
4451	City of New Franklin	Protective Measures	Small	22519.61
4451	Howard County Drainage District 1	Protective Measures	Small	19461
4451	Howard County Drainage District 1	Debris Removal	Small	22015
4451	Howard County Levee District #7	Protective Measures	Small	68499.88
4451	Howard County Drainage District 1	Public Buildings	Small	10920
4451	Howard County Levee District #3	Protective Measures	Small	78511.65
4451	City of Glasgow	Roads and Bridges	Small	13559.6
4451	City of Glasgow	Recreational or Other	Large	141247.72
4451	City of New Franklin	Public Buildings	Small	3916.87
4451	City of New Franklin	Public Utilities	Small	45532.08
4451	Howard County	Roads and Bridges	Large	285749.71
4451	Howard County Levee District #7	Public Buildings	Small	29800
4451	City of Glasgow	Public Utilities	Small	47017.13
4451	Howard County Drainage District 1	State Management	Small	0
4451	City of Glasgow	State Management	Small	10254.48
4451	Howard County Levee District #7	State Management	Small	4915
4451	Howard County	State Management	Small	0
4612	Unknown	Water Control Facilities	Small	74937.5
4612	Glasgow Special Road District	Roads and Bridges	Small	70880.77
4612	Unknown	Debris Removal	Small	7200
4612	Unknown	Protective Measures	Small	35084.94
4612	Howard County	Roads and Bridges	Small	119115.37
4612	City of Glasgow	Debris Removal	Small	4239.2
4612	City of Glasgow	Public Utilities	Small	25000
Total				3642266.94

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 Howard County is profiled first, followed by the incorporated communities, special districts, the public schools, and higher education.

2.2.1 Unincorporated Howard County

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

Howard County has the following departments and offices:

- Assessor
- Auditor
- Collector
- County Clerk
- Emergency Management
- Prosecuting Attorney
- Public Administrator
- Public Health Department
- Public Works
- Recorder
- Sheriff
- Treasurer

The following offices and departments play particularly important roles in hazard mitigation:

Emergency Management

Howard County created an emergency management agency in 1980. According to the Howard County Emergency Operations Plan (EOP), the agency was charged with "...the preparation and implementation of emergency functions for Howard County in accordance with Chapter 44, RSMo and the State of Missouri Emergency Operations Plan."

Sheriff

The Howard County Sheriff is the law enforcement coordinator for the unincorporated areas of the County and for the incorporated communities of Armstrong, Franklin, and New Franklin, which do not have their own law enforcement agencies.

Public Works

The County Maintenance Supervisor provides Public Works services for the unincorporated areas of the County. There are two Special Road Districts in the County (Armstrong and Glasgow) which also provide public works services. There has been work around the water treatment plants in recent years to create new and better facilities.

Table 2.6: Unincorporated Howard County 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	Yes
Local Recovery Plan	n/a
County Recovery Plan	n/a
City Mitigation Plan	n/a
County Mitigation Plan	Yes in progress
Debris Management Plan	n/a
Economic Development Plan	n/a
Transportation Plan	Regional-2016
Land-use Plan	n/a
Flood Mitigation Assistance (FMA) Plan	Yes
Watershed Plan	Yes
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	No
Building Code	No
Floodplain Ordinance	Yes
Subdivision Ordinance	No
Tree Trimming Ordinance	No
Nuisance Ordinance	No
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	No

Codes Building Site/Design	No
Hazard Awareness Program	Yes
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
National Weather Service (NWS) StormReady	No
Firewise Community Certification	Yes
Building Code Effectiveness Grading (BCEGs)	Yes
ISO Fire Rating	Yes
Capabilities	Status Including Date of Document or Policy
Economic Development Program	Yes
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	No
Staff/Department	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	Yes in the assessors office
Engineer	No
Development Planner	No
Public Works Official	Yes
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes
Emergency Response Team	Yes
Hazardous Materials Expert	No
Local Emergency Planning Committee	Yes
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	Yes
County Economic Development Commission	Yes
Housing Department	No

Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	Yes
Salvation Army	No
Veterans Groups	Yes
Local Environmental Organization	No
Homeowner Associations	Yes
Neighborhood Associations	Yes
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.	Yes Optimist, Lions

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	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	n/a
Withhold spending in hazard prone areas	yes

2.2.2 Armstrong

Armstrong was laid out in 1878 and located along the Chicago & Alton Railroad line; it was incorporated in 1879.

Armstrong is governed by a City Council and Mayor. City staffing consists of part-time positions to carry out the duties of City Clerk, Collector, and Public Works.

The City Hall/Community Building was completed in 2013. It is equipped with an automatic generator; when the electricity goes out, the generator automatically comes on.

The city received used playground equipment from Kansas City Missouri School Board and was installed in the City Park. The Installation was completed in June 2012.

Working with Mid-MO Regional Planning Commission, the City of Armstrong has received a grant from CDBG for street improvements and additional repairs of manholes and manhole covers. The city is in the process of obtaining a building to house street and maintenance equipment. This project should be accomplished by the time the CDBG grant is finished.

The city installed a larger warning siren behind the new city hall that was donated by the Armstrong Fire Protection District.

The city has purchased battery lights for use at the Baptist Church basement, which is designated as a Red Cross shelter during storms.

Table 2.7: Armstrong Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	N/A
Capital Improvement Plan	N/A
City Emergency Operations Plan	No
County Emergency Operations Plan	N/A
Local Recovery Plan	No
County Recovery Plan	N/A
City Mitigation Plan	No
County Mitigation Plan	N/A
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)	No
Policies/Ordinance	
Zoning Ordinance	N/A
Building Code	No
Floodplain Ordinance	Yes
Subdivision Ordinance	N/A
Tree Trimming Ordinance	No
Nuisance Ordinance	N/A
Stormwater Ordinance	No
Drainage Ordinance	N/A
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	No
Codes Building Site/Design	No
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	N/A
National Weather Service (NWS) StormReady	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	N/A
Capabilities	Status Including Date of Document or Policy
Economic Development Program	No
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams(Local/County/Regional)	No
Mutual Aid Agreements	N/A
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	No
Hazard Analysis/Risk Assessment (County)	N/A
Flood Insurance Maps	No
FEMA Flood Insurance Study (Detailed)	No
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	No
Staff/Department	

Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	No
Engineer	No
Development Planner	No
Public Works Official	No
Emergency Management Director	No
NFIP Floodplain Administrator	Yes
Emergency Response Team	N/A
Hazardous Materials Expert	No
Local Emergency Planning Committee	N/A
County Emergency Management Commission	N/A
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.	No

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	Yes
Fund projects through Capital Improvements funding	No
Authority to levy taxes for a specific purpose	No
Fees for water, sewer, gas, or electric services	Yes
impact fees for new development	Yes
Ability to incur debt through general obligation bonds	No
Ability to incur debt through special tax bonds	No
Ability to incur debt through private activities	Yes
Withhold spending in hazard prone areas	Yes

2.2.3 Fayette

Fayette was laid out in 1823 as the county seat of Howard County. It was named after General Lafayette, the Revolutionary War hero from France, who was visiting the United States that same year. Fayette remains the county seat and is home to Central Methodist University. Recently a demolition project on the west side of the square has been started to expand retail and dormitory space for CMU.

The City of Fayette has generator backup for its critical infrastructure. Generators are located at the fire department, police department and wastewater treatment plant. In addition, engines at the old power plant could supply part of the town with power, if absolutely necessary. The City of Fayette is currently working under a FEMA Grant for the D.C. Rogers Wing Wall damage from flooding.

New sewer and natural gas lines are being laid.

Table 2.8: Fayette Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Y
Builder's Plan	Y
Capital Improvement Plan	N/A
City Emergency Operations Plan	Y
County Emergency Operations Plan	N/A
Local Recovery Plan	Y
County Recovery Plan	N/A
City Mitigation Plan	Y
County Mitigation Plan	Y
Debris Management Plan	Y
Economic Development Plan	Y
Transportation Plan	Regional-2016
Land-use Plan	Y
Flood Mitigation Assistance (FMA) Plan	Y
Watershed Plan	Y
Firewise or other fire mitigation plan	Y
School Mitigation Plan	Y
Critical Facilities Plan (Mitigation/Response/Recovery)	N
Policies/Ordinance	
Zoning Ordinance	Y
Building Code	Y
Floodplain Ordinance	Y
Subdivision Ordinance	N/A
Tree Trimming Ordinance	N

Nuisance Ordinance	Y
Stormwater Ordinance	Y
Drainage Ordinance	Y
Site Plan Review Requirements	Y
Historic Preservation Ordinance	Y
Landscape Ordinance	Y
Seismic Construction Ordinance	Y
Program	
Zoning/Land Use Restrictions	Y
Codes Building Site/Design	Y
Hazard Awareness Program	Y
National Flood Insurance Program (NFIP)	Y
NFIP Community Rating System (CRS) program	N/A
National Weather Service (NWS) Storm Ready	N
Firewise Community Certification	Y
Building Code Effectiveness Grading (BCEGs)	N/A
ISO Fire Rating	Y
Capabilities	
Status Including Date of Document or Policy	
Economic Development Program	Y
Land Use Program	Y
Public Education/Awareness	Y
Property Acquisition	N
Planning/Zoning Boards	Y
Stream Maintenance Program	N
Tree Trimming Program	Y
Engineering Studies for Streams (Local/County/Regional)	N
Mutual Aid Agreements	Y
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	N
Hazard Analysis/Risk Assessment (County)	N/A
Flood Insurance Maps	Y
FEMA Flood Insurance Study (Detailed)	N
Evacuation Route Map	Y
Critical Facilities Inventory	N
Vulnerable Population Inventory	N
Land Use Map	Y
Staff/Department	
Building Code Official	Y
Building Inspector	Y
Mapping Specialist (GIS)	With County
Engineer	Y
Development Planner	Y
Public Works Official	Y
Emergency Management Director	Y

NFIP Floodplain Administrator	Y
Emergency Response Team	Y
Hazardous Materials Expert	N
Local Emergency Planning Committee	Y
County Emergency Management Commission	Y
Sanitation Department	Contract with
Transportation Department	Y
Economic Development Department	Y
Housing Department	N
Historic Preservation	Y
Non-Governmental Organizations (NGOs)	
American Red Cross	Y
Salvation Army	Y
Veterans Groups	Y
Local Environmental Organization	Y
Homeowner Associations	N
Neighborhood Associations	N
Chamber of Commerce	N
Community Organizations (Lions, Kiwanis, etc.)	Y

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

2.2.4 Glasgow

Glasgow was settled in 1836 by Europeans in search of a port location on the Missouri River. The river port and a bridge built over the river by the Chicago & Alton Railroad for its Chicago-Kansas City route combined to make Glasgow an important commercial center.

A small portion of Glasgow is located in Chariton County to the north of Howard County.

After flooding in 2010, the City of Glasgow was presented with the unique challenge of silt and sludge deposits in their wastewater lagoon. To remove the deposits, the City of Glasgow partnered with the Mid-Missouri Regional Planning Commission to apply for funding. The removal project was completed, but the City of Glasgow has been unable to secure funds to raise the berms around the lagoon to prevent future flooding from re-silting the lagoon. Glasgow is unable to move the lagoon and would prefer to switch to a controlled discharge lagoon. The city applied for mitigation funding to address future lagoon issues but were denied funds. Future flooding, if severe, will have the same effects on the lagoon if not mitigated in the near future.

The city also has plans to upgrade the drinking water lines in two sections of town. This potential project is in the preliminary design stages; it has taken a back seat to the more pressing problem with the wastewater system and lagoon. The lagoons water/sewer lines are in the process of being assessed by an engineering firm and reports are expected in the future.

Monnig Industry has expanded their operation in Glasgow which is expected to take them near Greggs Creek.

Table 2.9: Glasgow Capabilities

Capabilities	Status Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	No
County Emergency Operations Plan	No
Local Recovery Plan	No
County Recovery Plan	No
City Mitigation Plan	Res. No. 17-10 ; Adopting Howard County Hazard Plan
County Mitigation Plan	Yes
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	500.030 The BOCA National Fire Prevention Code, 1996 Edition.

School Mitigation Plan	(see school district plan)
Critical Facilities Plan(Mitigation/Response/Recovery)	No
Policies/Ordinance	
Zoning Ordinance	405.020 - 030 Zoning Map/regulations. 1993
Building Code	500.010 The BOCA National Building Code, 1996 Edition.
Floodplain Ordinance	Yes
Subdivision Ordinance	400.120 Subdivision Regulations. 1993
Tree Trimming Ordinance	§ 395.010 Owner Responsible For Maintaining Clear Vision Clearance On Lots Alongside Intersecting Streets, Etc. 1993
Nuisance Ordinance	205.230 Violations Deemed A Nuisance. 1993
Stormwater Ordinance	410.060 Streets. 1993
Drainage Ordinance	230.310 Rules And Regulations. 1993
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	§ 500.130 Earthquake And Seismic Design Requirements. 1993
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
National WeatherService (NWS) StormReady	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	N/A
Capabilities	Status Including Date of Document or Policy
Economic Development Program	No
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	Yes
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams(Local/County/Regional)	Anderson Engineering currently employed by the city
Mutual Aid Agreements	Yes 225.100
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	No
Hazard Analysis/Risk Assessment (County)	No
Flood Insurance Maps	No
FEMA Flood Insurance Study (Detailed)	No

Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	No
Staff/Department	
Building Code Official	Yes
Building Inspector	Yes
Mapping Specialist (GIS)	No
Engineer	Yes
Development Planner	No
Public Works Official	Yes
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes
Emergency Response Team	Yes
Hazardous Materials Expert	Yes
Local Emergency Planning Committee	No
County Emergency Management Commission	Yes
Sanitation Department	No
Transportation Department	No
Economic Development Department	Yes
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Lions Club, Knights of Columbus

Capabilities	Status Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block Grants	No
Fund projects through Capital Improvements funding	No
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
impact fees for new development	No
Ability to incur debt through general obligation bonds	No
Ability to incur debt through special tax bonds	GO Bond
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	No

2.2.5 New Franklin

A major flood of the Missouri River in 1826 contributed to the settlement of the area which became the town of New Franklin. The town of Franklin (sometimes referred to as “Old Franklin”) was severely flooded; many residents decided to move further away from the river and settled in the area which became New Franklin.

New Franklin was incorporated by order of the legislature in 1833. The route of the Missouri, Kansas, & Texas Railroad (MKT) passed through the town and helped contribute to population growth.

New Franklin is governed by a Board of Aldermen and Mayor. The city staff is composed of a City Administrator, Collector, and two City Services employees (public works). The Mayor serves as the Emergency Management Director.

New Franklin joined with the City of Fayette and Howard County Consolidated Public Water Supply District #1 to develop the Howard County Regional Water Commission. The new regional water system, Howard County Regional Water Commission, became operational Spring 2017. The wells and water treatment plant in New Franklin are no longer used, but serve as a back-up water supply if necessary.

Table 2.10: New Franklin 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	No
County Emergency Operations Plan	Yes
Local Recovery Plan	No
County Recovery Plan	N/A
City Mitigation Plan	No
County Mitigation Plan	N/A
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)	No
Policies/Ordinance	
Zoning Ordinance	Yes

Building Code	Yes
Floodplain Ordinance	Yes
Subdivision Ordinance	Yes
Tree Trimming Ordinance	Yes
Nuisance Ordinance	Yes
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	Yes
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	Yes
ISO Fire Rating	N/A
Capabilities	Status Including Date of Document or Policy
Economic Development Program	No
Land Use Program	Yes
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	No

Engineer	No
Development Planner	No
Public Works Official	Yes
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes
Emergency Response Team	Yes
Hazardous Materials Expert	No
Local Emergency Planning Committee	Yes
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	Yes

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	Yes
Authority to levy taxes for a specific purpose	No
Fees for water, sewer, gas, or electric services	Yes
impact fees for new development	No
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	Yes
Withhold spending in hazard prone areas	No

Table 2.11 Mitigation Capabilities Summary Table

CAPABILITIES	Uninc. Howard	Armstrong	Fayette	Glasgow	New Franklin
Planning Capabilities					
Comprehensive Plan	N/A	No	Yes	No	N/A
Builder's Plan	N/A	N/A	Yes	No	N/A
Capital Improvement Plan	N/A	N/A	N/A	No	N/A
Local Emergency Plan	N/A	No	Yes	No	No
County Emergency Plan	Yes	N/A	N/A	No	Yes
Local Recovery Plan	N/A	No	Yes	No	No
County Recovery Plan	N/A	N/A	N/A	No	N/A
Local Mitigation Plan	N/A	No	Yes	Yes	No
County Mitigation Plan	Yes	N/A	Yes	Yes	N/A
Local Mitigation Plan (PDM)	No	No	No	No	No
County Mitigation Plan (PDM)	No	No	No	No	No
Debris Management Plan	N/A	No	Yes	No	No
Economic Development Plan	N/A	No	Yes	No	No
Transportation Plan	Yes	Yes	Yes	Yes	Yes
Land-use Plan	N/A	No	Yes	No	No
Flood Mitigation Assistance (FMA) Plan	Yes	No	Yes	No	No
Watershed Plan	N/A	No	Yes	No	No
Firewise or other fire mitigation plan	N/A	No	Yes	Yes	No
School Mitigation Plan	N/A	No	Yes	Yes	No
Critical Facilities Plan (Mitigation/Response/Recovery)	N/A	No	No	No	No
Policies/Ordinance					
Zoning Ordinance	No	N/A	Yes	Yes	Yes
Building Code	No	No	Yes	Yes	Yes
Floodplain Ordinance	Yes	Yes	Yes	Yes	Yes
Subdivision Ordinance	No	N/A	N/A	Yes	Yes

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

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

CAPABILITIES	Uninc. Howard	Armstrong	Fayette	Glasgow	New Franklin
Economic Development Department	Yes	No	Yes	Yes	No
Housing Department	No	No	No	No	No
Historic Preservation	No	No	Yes	No	No
American Red Cross	Yes	No	Yes	No	No
Salvation Army	No	No	Yes	No	No
Veterans Groups	Yes	No	Yes	No	No
Environmental Organization	No	No	Yes	No	No
Homeowner Associations	Yes	No	No	No	No
Neighborhood Associations	Yes	No	No	No	No
Chamber of Commerce	Yes	No	No	Yes	No
Community Organizations (Lions, Kiwanis, etc.)	Yes	No	Yes	Yes	No
Apply for Community Development Block Grants	Yes	Yes	Yes	No	N/A
Fund projects through Capital Improvements funding	Yes	No	Yes	No	Yes
Authority to levy taxes for specific purposes	Yes	No	Yes	Yes	No
Fees for water, sewer, gas, or electric services	Yes	Yes	Yes	Yes	Yes
Impact fees for new development	N/A	Yes	Yes	No	No
Incur debt through general obligation bonds	Yes	No	Yes	No	Yes
Incur debt through special tax bonds	Yes	No	Yes	No	Yes
Incur debt through private activities	N/A	Yes	No	No	Yes
Withhold spending in hazard prone areas	Yes	Yes	Yes	No	No

Source: Data Collection Questionnaire, 2021

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 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 Howard 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.

Armstrong is served by Thomas Hill Public Water Supply District #1; Franklin, New Franklin, and Fayette are served by Howard County Regional Water Commission. Glasgow currently has their own city water systems.

The following interconnections exist between water supplies in the Planning Area:

- An agreement and interconnection exists between Thomas Hill Public Water Supply District #1 and the City of Fayette Water for backup when needed.
- Public Water Supply District #2 gets its water from the City of Glasgow; the City of Glasgow Water does not have any backup or interconnections in place but it does have two wells from which to operate. A mitigation action (#1.1.5) is included in Glasgow's mitigation strategy which deals with establishing cooperative agreements for backup with other water districts.
- In 2008, Fayette, New Franklin and Howard Co. Consolidated Public Water Supply District #1 joined together to form the Howard Co. Regional Water Commission. The Howard Co. Regional Water Commission began operating spring 2017, providing reliable water to the three entities (roughly 2/3rds of Howard County).

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 Howard 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 Howard County non-profits are well prepared to respond to a natural disaster. Through their legislative efforts, they also work to help make Missouri and Howard County as disaster resistant as possible.

2.3.3 Levee Districts

There are 7 levee districts in Howard County. All the levees mostly protect agricultural land and agriculture related assets. They are governed by voluntary boards. Levee District #3 has recently completed renovations to restore levee heights back to pre-1993 flood protection levels. Impacts to levee districts will be discussed more in detail in Section 3.4.2: Levee Failure.

2.3.4 Fire Districts

There are four fire protection districts/departments which respond to fires, accidents, and other emergencies within the Planning Area. The districts/departments are also responsible for search and rescue operations and first aid.

Fayette Fire Department and Howard County Fire Protection District Station #1 are housed in the same building in Fayette; they maintain separate equipment. The City of Fayette and Howard County Fire Protection District own the building together; improvements and insurance costs are shared equally. The building is equipped with a transfer switch for generator backup.

Mutual aid agreements exist between all the districts/departments and also with those in surrounding counties through the statewide mutual aid agreement; Howard 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.

2.3.5 Road Districts

In addition to the Howard County Roads and Bridges Department (General Road District #1), there are two special road districts located within the county which have their own elected officials.

Armstrong Special Road District #42 maintains 27 miles of road in the northern part of the county; Glasgow Special Road District #60 maintains 30 plus miles of road in the Glasgow area. The district is governed by a 3-member commission and is currently working on bridge repairs needed that happened during the 2021 flood season.

2.4 Public School district Profile and Mitigation Capabilities

There are 6 school districts that intersect the Howard County boundary. Only 3 districts chose to participate in the Howard plan update. They are:

- Fayette R-III
- Glasgow School District
- New Franklin R-I

Map 2.4 displays the school districts and how they are situated within and around the Howard County boundary.

Pre K-12

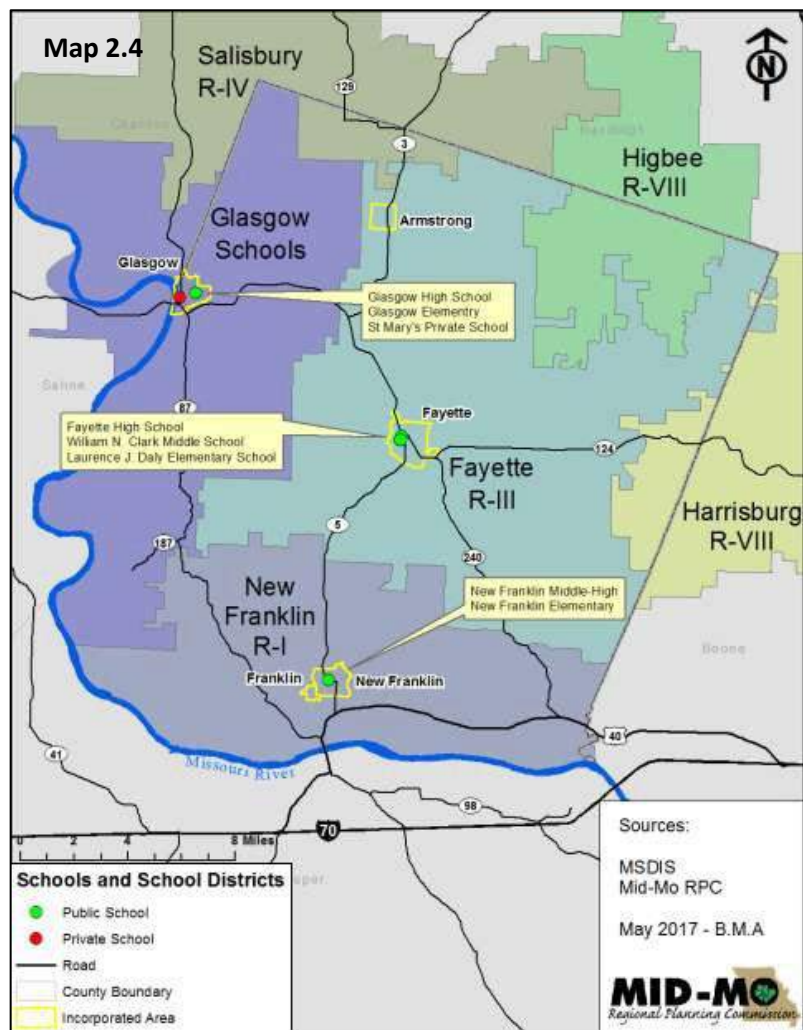
There are three public school districts with school buildings in the Planning Area (New Franklin R-I School District, Glasgow School District, and Fayette R-III School District) All three of these districts are participating jurisdictions in the Howard Co. Hazard Mitigation Plan.

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

2.4.1 Fayette R-III

Fayette R-III School District serves K-12 in three schools –

Laurence J. Daly Elementary, William N. Clark Middle School and Fayette High School. Since the last update work was completed to construct a new Central Office building, a new pre-school wing was constructed which adjoins the new Daly-Clark



office. The Daly-Clark kitchen was also remodeled, a new bus barn and storage facility was constructed and the ag building entrance and restrooms were remodeled. The facilities committee is currently reviewing district needs and consider updates of the Clark Middle School wing, Ag building, and football field press box/restrooms/concession area in the future.

The Daly/Clark building is vulnerable to flash flooding event. The most recent was in June of 2021 where there was damage to classroom and offices.

District Name	Building Name	Building Enrolment
Fayette R-III	Fayette High	186
	Clark Middle	134
	Daly Elementary	332

Name of Asset	Address	Replacement Value (Insured) (\$)	Contents Value (\$)	Total (\$)
Fayette High School	510 N. Cleveland	\$12,309,295	\$2,864,313	\$15,173,608
Daly/Clark Elementary/Middle	704 Lucky Street	\$12,504,930	\$3,111,503	\$15,616,433
Vo-Ag Building and Greenhouse	510 N. Cleveland	\$1,034,245	\$244,378	\$1,278,623
Maintenance/Transportation Building	700 Lucky Street	\$1,137,981	\$475,089	\$1,613,070
Storage Shed	700 Lucky Street	\$270,681	\$92,558	\$363,239
Home Ec/Industrial Arts Building	510 N. Cleveland	\$936,170	\$231,120	\$1,167,290
Central Office	705 Lucky Street	\$651,906	\$118,248	\$770,154
Press Box/Concession building at FB field	403 Lucky Street	\$106,362	\$0	\$106,363
Press Box/Concession building at SB field	Spring Street	\$55,079	\$28,925	\$84,004
FB field entrance	510 N. Cleveland	\$49,317	\$0	\$49,317

2.4.2 Glasgow School District

Howard R-II school district had a formal name change in 2006 to the Glasgow School District. The Glasgow School District serves K-12 in one school building located in Glasgow which houses both Glasgow Elementary School and Glasgow High School. Enrollment is expected to stay stable over the next 5 years with no plans for expansion. Since the last update the school district added a new softball/baseball complex with a concession stand/bathroom/press box area.

District Name	Building Name	Building Enrolment
Glasgow School District	Glasgow High	196
	Glasgow Elementary	166

Name of Asset	Address
Glasgow Elementary	860 Randolph
Glasgow Jr H/HS	860 Randolph
Monnig Community Track	10 th St
John Donaldson Field	10 th St

2.4.3 New Franklin R-I

The New Franklin R-I School District educates K-12 students in an elementary, middle, and highschool. The original school building was built by the citizens of New Franklin in the 1930's as aWPA (Works Progress Administration) project. An elementary school was constructed in the 1960's and a middle school addition added in the 1990's. All three schools are connected on a single campus.

The current high school was a dedicated Civil Defense shelter in the past. This is where the majority of students are directed during severe storms. They do have a FEMA rated storm shelter.

District Name	Building Name	Building Enrolment
New Franklin R-I	New Franklin Middle/High	242
	New Franklin Elementary	212

Name of Asset	Replacement Value (Insured) (\$)	Contents Value (\$)	Total (\$)
Main School k-12	\$14,316,205	\$2,784,837	\$17,101,043
Athletic Field Restrooms	\$25,586	\$2,040	\$27,627
Marque Sign	\$41,247	\$0	\$41,247

Maintenance/Transportation Building	\$41,399	\$79,566	\$120,966
Bus Shed	\$29,670	\$0	\$29,670
Gym	\$3,308,781	\$31,826	\$3,340,608

Table 2.12 Summary of Mitigation Capabilities- Howard County School Districts

Capability	Fayette R-III	Glasgow SD	New Franklin R-I
Planning Elements			
Master Plan/ Date	No	No	No
Capital Improvement Plan/Date	No	No	N/A
School Emergency Plan / Date	Yes, 2015	Yes, 2015	Yes, 2021
Weapons Policy/Date	Yes, 2001	Yes, 2013	Yes
Personnel Resources			
Full-Time Building Official (Principal)	Yes	Yes	Yes
Emergency Manager	No	No	Yes
Grant Writer	Yes	No	Yes
Public Information Officer	Yes	Yes	Yes
Financial Resources			
Capital Improvements Project Funding	Yes	No	Yes
Local Funds	Yes	Yes	Yes
General Obligation Bonds	Yes	No	No
Special Tax Bonds	No	No	No
Private Activities/Donations	No	Yes	No
State and Federal Funds/Grants	Yes	No	Yes
Other			
Public Education Programs	Yes	Yes	Yes
Privately or Self- Insured?	Self	Self	Self
Fire Evacuation Training	Yes	Yes	Yes
Tornado Sheltering Exercises	Yes	Yes	Yes
Public Address/Emergency Alert System	Yes	Yes	Yes
NOAA Weather Radios	No	No	Yes
Lock-Down Security Training	Yes	Yes	Yes
Mitigation Programs	Yes	Yes	Yes
Tornado Shelter/Saferoom	Yes	Yes	Yes
Campus Police	No	No	No

2.5 Higher Education

2.5.1 Central Methodist University

Central Methodist University was founded in 1854. It is a private, nonprofit educational institution.

Campus safety officials work closely with the City of Fayette Police and Fire Departments on safety issues and emergency response. A large number of the campus maintenance staff are volunteer firemen; this provides one connection to local emergency alerts.

The CMU Crisis Committee, composed of faculty and staff, is responsible for coordinating emergency drills which are held during each school year for active shooter, fire, and severe weather/tornado. There are five emergency call stations located on campus which connect directly to Howard County 911 dispatch and campus security. In addition, there is an alert app currently in the use.

The Fayette warning siren can be heard in outdoor locations on campus as well as in parts of some buildings. The campus has a text messaging/computer banner alert system for emergency information. Faculty, staff, and students can all sign up for the alerts.

The CMU website contains pages addressing both earthquake and tornado safety procedures in the Campus Safety section. The information is thorough and covers what to do both during and after the event.

Over the years CMU has gone through a number of remodels and additions. They include:

- Clingenpeel full remodel-2022
- Assembly Hall full remodel-2021
- Stedman Hall full remodel-2019
- Throgmorton newly built-2015
- Linn Church full remodel-2014
- Classic Hall full remodel-2012
- Rec Center newly built-2012
- Library full remodel-2012

Name of Asset	Address	Replacement Value (Insured) (\$)
HP North	411 Central Methodist Square	\$8,016,920
HP South		
Givens		\$681,950
Brannock		\$3,597,520
*Holt		\$11,640,720
Pres House		\$651,700
Rec Center		\$3,753,900
OAF		\$521,640
Mabee Weight Fac		\$1,834,830
Classic		\$7,653,630
Allied Health		N/A
Soccer House	407 Mulberry	\$11,230
Basketball House	315 Mulberry	\$74,860
White GA House	111 Reynolds	\$6,000
Brown GA House	305 Mulberry	\$12,493
Colman House	502 Linn	\$270,000
McGraw House	506 Linn	\$202,500

Chapter 3: Hazards Risk Assessment

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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
- Land Subsidence/Sinkhole
- Severe Thunderstorms (includes Damaging Winds, Hail, and Lightning)
- Tornado
- Severe Winter Weather (Snow, Ice, and Extreme Cold)
- Drought
- Extreme Temperatures
- Wildfire

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 Howard 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 Howard County Plan.

3.1.2 Review Disaster Declaration History

Severe storms and flooding are the most common events to warrant a disaster declaration in Howard 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 Howard 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
1993	Severe Storms & Flooding	995
1995	severe storms, tornadoes, hail, flooding	1054
2002	Severe Storms, tornadoes, and flooding	1412
	Severe Winter Ice Storm	1403
2003	Severe storms, tornadoes, & flooding	1463
2005	Hurricane Katrina Evacuation	3232
2006	Severe Storms, tornadoes, and flooding	1631
2007	severe winter storms	1736
	severe winter storms	3281
2008	Severe Storms & Flooding	1749
	severe storms, flooding, and tornado	1809
2009	severe winter storm	3303
2010	severe storms, flooding, and tornado	1934
2011	flooding	3325
		4012
	severe winter storm	3317
	severe winter storm and snowstorm	1961
2013	severe storms, straight-line winds, tornadoes & flooding	4130
2016	severe storms, tornadoes, straight-line winds & flooding	3374
2019	Severe storms, tornadoes, and Flooding	4451
2020	COVID-19	3482

	COVID-19 Pandemic	4490
2021	severe storms, straight-line winds, tornadoes & 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 Howard 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 (Hazus)
- 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) National 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)	Land Subsidence/Sinkholes	Levee Failure	Severe Winter Weather	Thunderstorm/Lightning/Hail/High Wind	Tornado	Wildfire
Howard County	x	x	x	x	x	x	x	x	x	x	x
Armstrong		x	x	x	x			x	x	x	x
Fayette	x	x	x	x	x			x	x	x	x
Glasgow		x	x	x	x			x	x	x	x
New Franklin		x	x	x	x		x	x	x	x	x
Schools and Special Districts											
Fayette R-III		x	x	x	x			x	x	x	x
Glasgow School District		x	x	x	x			x	x	x	x
New Franklin R-I		x	x	x	x			x	x	x	x
Central Methodist University		x	x	x	x			x	x	x	x
Glasgow Special Rd District		X	X	X	X			X		X	X
Public Water Supply District #1		X	X		X					X	X
Howard County Regional Water Commission		X	X	X	X			X		X	
Howard County FPD	X		X	X	X	X	X	X	X	X	X

3.1.5 Multi-Jurisdictional Risk Assessment

The 2022 Howard 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. Fayette 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, sinkholes/land subsidence, 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 (\$)
Unincorporated Howard	4,800	2534	510262	306563	816825
Armstrong	268	150	30820	19068	49888
Fayette	2,663	1179	321673	206367	528040
Glasgow	1,074	529	144462	104237	248699
New Franklin	1,047	514	99273	60015	159288
Total	9,943	4906	1106490	696250	18027403

Source: U.S. Bureau of the Census, Annual population estimates/ 5-Year American Community Survey 2019; 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
Howard County	422399	38004	13585	24150	498138
Armstrong	25372	2488	519	636	29015
Fayette	239954	47189	3631	1193	291967
Glasgow	89827	23388	9264	4773	127252
New Franklin	81441	6179	3064	0	90684
Total	858993	117248	30063	30752	1037056

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
Howard County	2282	98	37	105	2522
Armstrong	137	6	2	3	148
Fayette	1027	93	13	7	1140
Glasgow	442	51	11	11	515
New Franklin	484	18	5	0	507
Total	4372	266	68	126	4832

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 (\$)
Fayette R-III	652	9	29,055,966	7,166,134	36,222,100
Glasgow SD	362	2	N/A	N/A	N/A
New Franklin R-I	453	5	17,762,888	2,898,269	20,661,157
Central Methodist University	1141	17	38,929,893	N/A	38,929,893

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	
Howard County	0	0	4	0	0	2	3	1	2282	0	1	0	0	3	1	3	0	0	0	0	0	0	2300
Armstrong	0	0	0	0	0	0	1	1	137	0	0	0	0	0	1	0	0	1	0	0	0	1	142
Fayette	0	0	4	0	0	1	1	1	1027	1	2	0	0	5	1	0	0	1	2	1	1	1	1048
Glasgow	0	0	2	0	0	1	1	1	442	1	1	0	0	1	1	1	0	1	1	1	1	1	456
New Franklin	0	0	0	0	0	0	1	1	484	0	0	0	0	0	1	0	0	1	1	0	1	1	490
Total	0	0	10	0	0	4	7	5	4372	2	4	0	0	9	5	4	0	5	4	2	5	5	4429

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 pipeline 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.

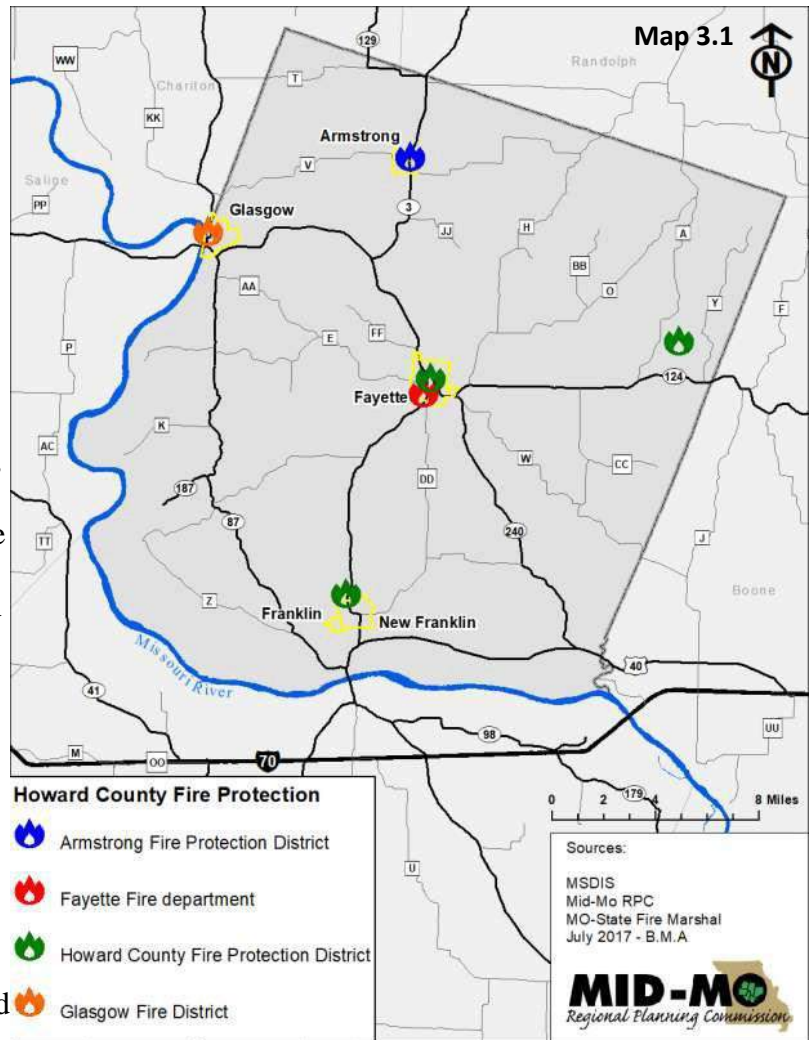
GOVERNMENT

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

FIRE PROTECTION

There are four fire protection districts/departments which respond to fires, accidents, and other emergencies within the Planning Area. The districts/departments are also responsible for search and rescue operations and first aid. They are dispatched by the Howard County E-911 Dispatch Center, fire pagers and fax machines.

Fayette Fire Department and Howard County Fire Protection District Station #1 are housed in the same building in Fayette; they maintain separate equipment. The City of Fayette and Howard County Fire Protection District own the building together; improvements and insurance costs are shared equally. The building is equipped



with a transfer switch for generator backup.

Mutual aid agreements exist between all the districts/departments and also with those in surrounding counties through the statewide mutual aid agreement; Howard 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 (see Map 3.2). 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.

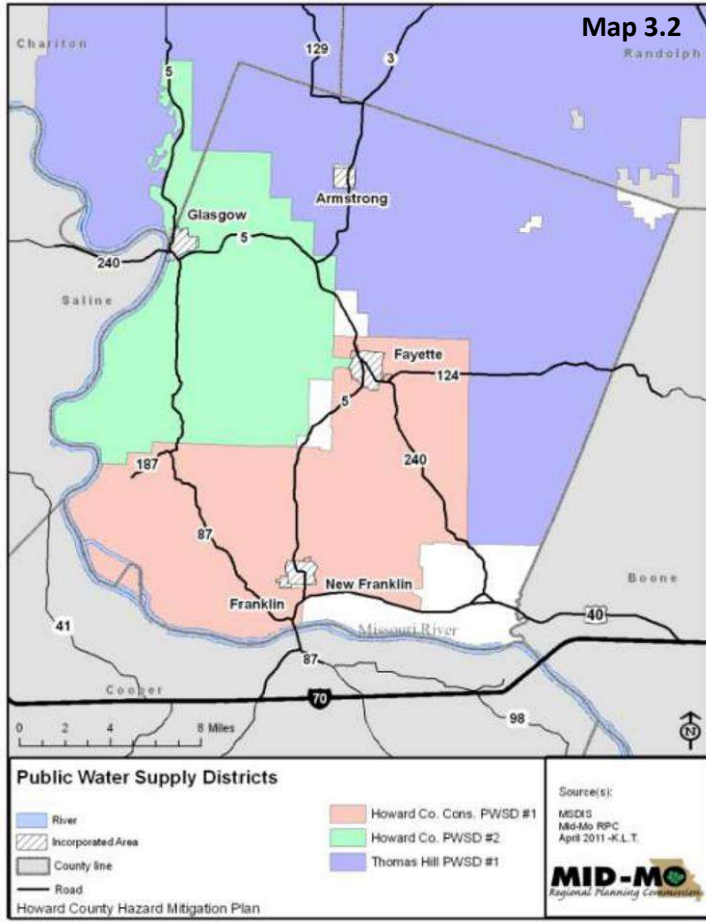
Each water district is composed of an elected board. Water Districts are primarily related to mitigation activities focused on drought, wildfire, and flood. Connecting water supplies so that rural areas of Howard County have multiple water supplies is an important mitigation technique. Protecting water supply infrastructure from floodwaters is an important task also under the purview of the districts.

Armstrong is served by Thomas Hill Public Water Supply District #1; Franklin, New Franklin, and Fayette are served by Howard County Regional Water Commission. Glasgow currently has their own city water systems.

Howard County Consolidated Public Water Supply District #1 is a participating jurisdiction in the Hazard Mitigation Plan and is discussed in detail in Section 2.10 (Participating Jurisdictions-Profiles and Assets).

The following interconnections exist between water supplies in the Planning Area:

- An agreement and interconnection exists between Thomas Hill Public Water Supply District #1 and the City of Fayette Water for backup when needed.
- Public Water Supply District #2 gets its water from the City of Glasgow; the City of Glasgow Water does not have any backup or interconnections in place but it does have two wells from which to operate. A mitigation action (#1.1.5) is included in Glasgow's mitigation strategy which deals with establishing cooperative agreements for backup with other water districts.
- In 2008, Fayette, New Franklin and Howard Co. Consolidated Public Water Supply District #1 joined together to form the Howard Co. Regional Water Commission. The Howard Co. Regional Water Commission began



operating spring 2017, providing reliable water to the three entities (roughly 2/3^{rds} of Howard County).

Transportation

Road Districts

In addition to the Howard County Roads and Bridges Department (General Road District #1), there are two special road districts located within the county which have their own elected officials.

Armstrong Special Road District #42 maintains 27 miles of road in the northern part of the county; Glasgow Special Road District #60 maintains 30 plus miles of road in the Glasgow area.

Roadways

Howard County, like most of the rural United States, is heavily dependent upon roads and personal

vehicles. Roads are the dominant artery for the county, moving all goods and services that flow in and out of the county. The Missouri Department of Transportation (MoDOT) maintains the state and federal roads in the county. Howard County Public Works takes care of the remaining roads while the incorporated communities maintain their roads.

The busiest roads in Howard County are Routes 5 and 240. Route 5 runs north-south through the county and Route 240 runs from the southeast to the northwest. Between 2,000 and 3,000 cars a day travel Route 5 and roughly the same amount travel Route 240. Access to Interstate 70 is a short distance from New Franklin and is often used to go to regional centers such as Columbia.

Public Transportation

OATS, Inc., a private not-for-profit corporation, is the predominant provider of public transportation in Howard County. The organization 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 serves a wide diversity of citizens in 87 Missouri counties for them to travel in-town, within the county, to adjacent county, or long-distance beyond two counties. From Howard County, OATS provides a monthly service to Moberly in Randolph County. OATS

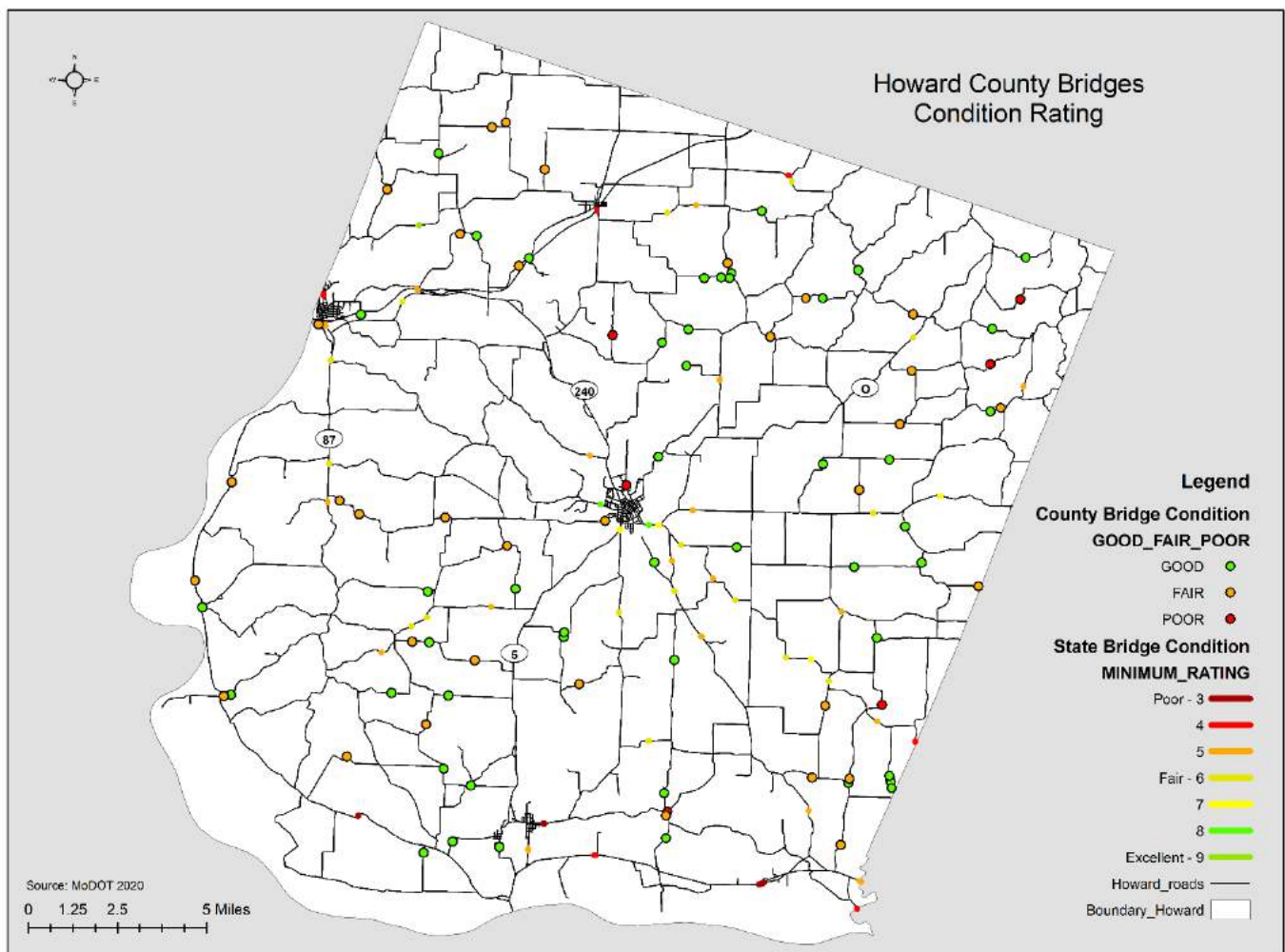
predominantly serves the elderly and disabled, but will serve anyone needing transportation.

Bridges

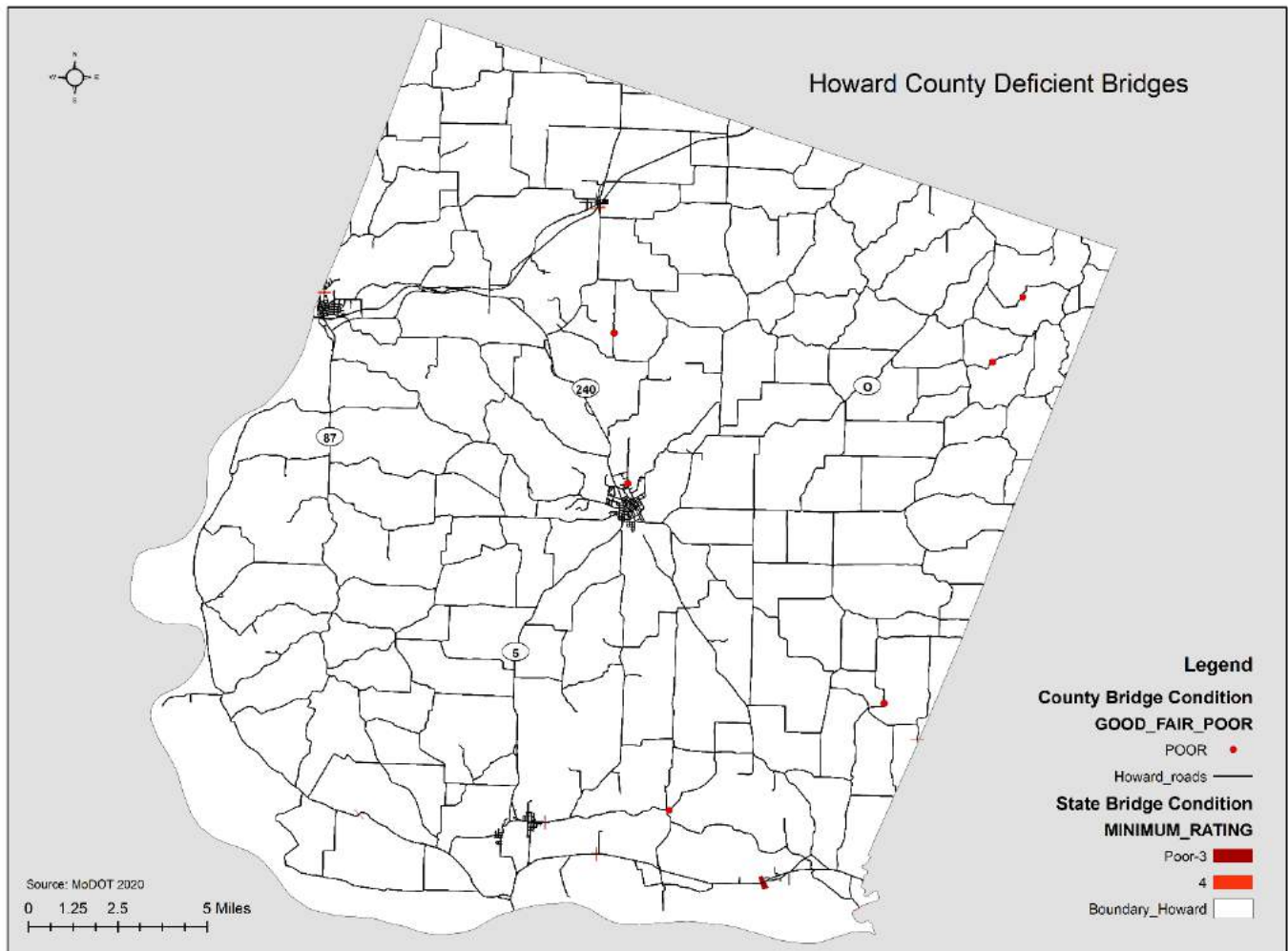
Bridge conditions are described using a “scour index”. This index rates bridges on their vulnerability to scour during a flood and is based on a scale of 0 to 9. Zero are failed bridges. Bridge with a scour index of 9 are new bridges. An index rating of 1 to 3 are in critical condition. A rating of 4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

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

Map 3.3 Bridge Conditions



Map 3.4 Deficient Bridges



Railroads

Rail Freight

The Gateway and Western Railroad carries freight through the Northern third of Howard County; the freight trains enter the County at Glasgow, pass through Armstrong, and exit the County near the northern boundary with Randolph County.

Passenger Rail

The nearest Amtrak passenger rail connection in Jefferson City (Cole County), approximately 60 miles from Fayette.

Airports

Howard County does not have a public passenger airport. There is a small public-use airport owned by the City of Boonville in neighboring Cooper County to the south.

The nearest airport with commercial service is the Columbia Regional Airport (Boone County),

approximately forty miles to the southeast of Fayette, the seat of Howard County. Airports in Kansas City to the west and St. Louis to the east provide national and international service; both cities are located approximately 150 miles from Fayette.

Water

The Missouri River hosts a commercial port operated by the Howard/Cooper County Regional Port Authority. The port is located in Howard County on the north side of the Missouri River, directly across from the City of Boonville. According to the Missouri Port Authority, the facility has storage capacity for 250,000 bushels of grain and 4 million gallons of liquid chemicals. The facility is also equipped with two cranes, a dock, two dry storage buildings, several support vehicles, and a 15,000 ton outside storage pad. The port is the only Missouri River public shipping access point between Kansas City and St. Louis.

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 10 plant and animal species listed as threatened or endangered that are known or are believed to occur in Howard County.

Table 3.8 Threatened and Endangered Species in Howard County

Common Name	Scientific Name	Status
Regal fritillary (insect)	Speyeria Idalia	Under Review
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
Monarch Butterfly (insect)	Danaus Plexippus	Candidate

Eastern Prairie Fringed Orchid (plant)	Platanthera Leucophaea	Candidate
Red Knot (bird)	Calidris Canutus Rufa	Threatened
Least Tern (bird)	Sterna Antillarum	Recovery

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

Public Land

There are several acres of public land in Howard County. These areas are owned and managed by state and federal agencies.

Name	Address	City
Rudolf Bennitt Conservation Area	CR 2930	Clark
Davisdale Conservation Area	CR 445	New Franklin
Diana Bend Conservation Area	Mo Conservation Rd	New Franklin
Franklin Island Conservation Area	CR 465	New Franklin
Hungry Mother Conservation Area	CR 127	Higbee
Moniteau Creek Conservation Area	Route A	Fayette
Boone’s Lick State Historic Site	MO 187	Franklin
Lisbon Bottom National Wildlife Refuge	CR 317	Glasgow

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

Howard County Properties on the National Register of Historic Places

There are 25 sites located in Howard 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 Howard County.

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

Property	Address	City	Date Listed
Payne Bedford House	308 S. Main St	Fayette	1/23/1998
Boonslick State Park	MO 187	Boonesboro	12/30/1969
Campbell Chapel	602 Commerce St	Glasgow	11/13/1997

Cedar Grove	West of Franklin	Franklin	7/19/1982
CMC Historic District	Mulberry, Elm, Church, and MO 5	Fayette	9/15/1980
Coleman Hall	502 N. Linn	Fayette	6/11/1986
Fayette City Park Pool	Memorial Park	Fayette	4/15/1999
Fayette Courthouse Historic District	Main, Morrison, Church, and Davis	Fayette	2/5/1998
Fayette Residential Historic District	Church Morrison, Cleveland	Fayette	9/3/2009
Finks-Harvey Plantation	West of Roanoke	Roanoke	12/11/1978
Glasgow Commercial Historic District	First, Market, Second	Glasgow	1/16/1992
Glasgow Presbyterian Church	Commerce and 4 th	Glasgow	9/9/1982
Glasgow Public Library	Market and 4 th	Glasgow	5/21/1969
Greenwood	MO 5	Fayette	3/29/1983
Harris-Chilton Ruble House	108 N Missouri Ave	New Franklin	9/4/1980
Thomas Hickman House	10 Research Center Rd.	New Franklin	7/19/2006
Inglewood	701 Randolph St	Glasgow	6/21/1990
Prior Jackson Homeplace	MO DD	Fayette	3/10/1980
Morrison House	MO 5	Fayette	4/16/1969
New Franklin Commercial Historic District	Broadway	New Franklin	1/23/2013
Oakwood	1 Leonard Ave	Fayette	9/23/1982
Rivercene	RFD 1	New Franklin	2/16/1973
St. Mary's Episcopal Church	104 Davis	Fayette	9/9/1982
S. Main St. Historic District	South Main	Fayette	2/5/1999
Uriel Wright Office	120 Church St.	Fayette	12/22/1987

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 Howard County residents are not located in Howard County. Howard County citizens rely heavily on nearby populated regional centers such as Columbia (Boone County), Boonville (Cooper County), Moberly (Randolph County) and Marshall (Saline County) for employment and other commercial activity.

Howard County was removed from the Columbia, MO Metropolitan Statistical Area (MSA) in 2010 when commuting between the county and other affiliated counties in the MSA dropped significantly.

Employer	Employees	Employer	Employees
Braun Home	65	City of Fayette	25
County of Howard	24	Fayette R-III School District	35
CMU	35	Aspire Living	15
Addison Labs	15	M.E.M. Food	10
MFA	5	Monnig Industries	75

Phoenix	30	Penny Plate	50
New Franklin School	60	Jennings Premium Meats	20
Source: Data Provided by County			

Agriculture is still widely seen throughout Howard 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.

The University of Missouri’s Horticulture & Agroforestry Research Center (HARC) is located in New Franklin. The 665-acre research farm is also the site of the U.S. National Arboretum Midwest Plant Research and Education Site. Key research areas include flood tolerance studies, high value mushroom production, and development of eastern black walnut, northern pecan, and Chinese chestnut orchard crops. The annual Missouri Chestnut Roast in the fall draws more than 4,000 visitors to the Center.

There are 690 farms listed in the 2017 Ag Census. Those farms do not usually employ several people though. The average size of a farm in Howard County is 317 acres and employs less than 10 people.

Table 3.12 Agriculture Employment

Employment Information	Farms	Workers	\$1,000 Payroll
Hired Farm Labor	140	281	1,721
Farms with One Worker	67	67	-
Farms with two Workers	40	80	-
Farms with Three or Four Workers	25	86	-
Farms with Five to Nine Workers	7	X	-
Farms with 10 Workers or More	1	X	-
Reported only workers working 150 days or more	30	38	886
Reported only workers working less than 150 days	95	192	573
Reported Both	15	51	263
Unpaid Workers	279	596	-

Source: 2017 Ag Census

3.3 Land Use and Development

3.3.1 Development Since Previous Plan Update

Howard County has shown a decline in growth. Communities with the largest decline were the jurisdictions of Armstrong, Glasgow, and Franklin. Large portions of Franklin are located in floodplain and residents have vacated

Table 3.13 Howard County Population 2010-2020 by Jurisdiction

Jurisdiction	2020 Population	2019 Annual Population Estimate or ACS Population	# Change (2010-2020)	% Change (2010-2020)
Unincorporated Howard	4,800	4,832	-85	-1.74
Armstrong	268	198	-16	-5.63
Fayette	2,663	2,693	-25	-0.93
Glasgow	1,074	1,038	-29	-5.08
New Franklin	1,047	1,191	-42	-3.86
Total	9,943	10,058	-201	-1.98

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.

Table 3.14 Change in Housing Units, 2010-2019

Jurisdiction	Housing Units 2020	Housing Units 2010	2010-2020 # Change	2010-2020 % Change
Unincorporated	2,144	2,218	-74	-3.34
Armstrong	118	137	-19	-13.87
Fayette	1,070	1,097	-27	-2.46
Glasgow	504	533	-29	-5.44
New Franklin	498	545	-47	-8.62
Total	4,368	4,582	-214	-4.67

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 Board of Directors of the Howard County Economic Development Council (HCEDC), with a wide representation of jurisdictions and agencies throughout the county, directs the economic development strategy for the county.

In November 2011, the Howard County Industrial Park was successfully designated as Missouri Certified Site #11 in the State of Missouri by the Missouri Department of Economic Development (DED). It is still the only certified site in Howard County. The purpose of the Certified Sites Program, according to the DED website, is to:

“... provide consistent standards regarding the availability and development potential of commercial or industrial development sites.... The certification of a site is performed through a comprehensive review of items including the availability of utilities, site access, environmental concerns, land use conformance, and potential site development costs... the certification process works to assemble current and accurate information into a single, useable package and format it such that potential buyers can have this information readily available for review immediately upon showing interest in a site.”

The site is promoted on the Missouri Department of Economic Development Certified Sites webpage and by Moberly Area Economic Development Corporation. Currently the Missouri Pacific Lumber Company is located on the site with space available for more businesses to come in.

The school districts, fire district, road district, and water commission do not expect any major development. There hasn't been any meaningful growth in the county with no plans for that to change in the future.

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 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 Howard 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 Howard 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.”

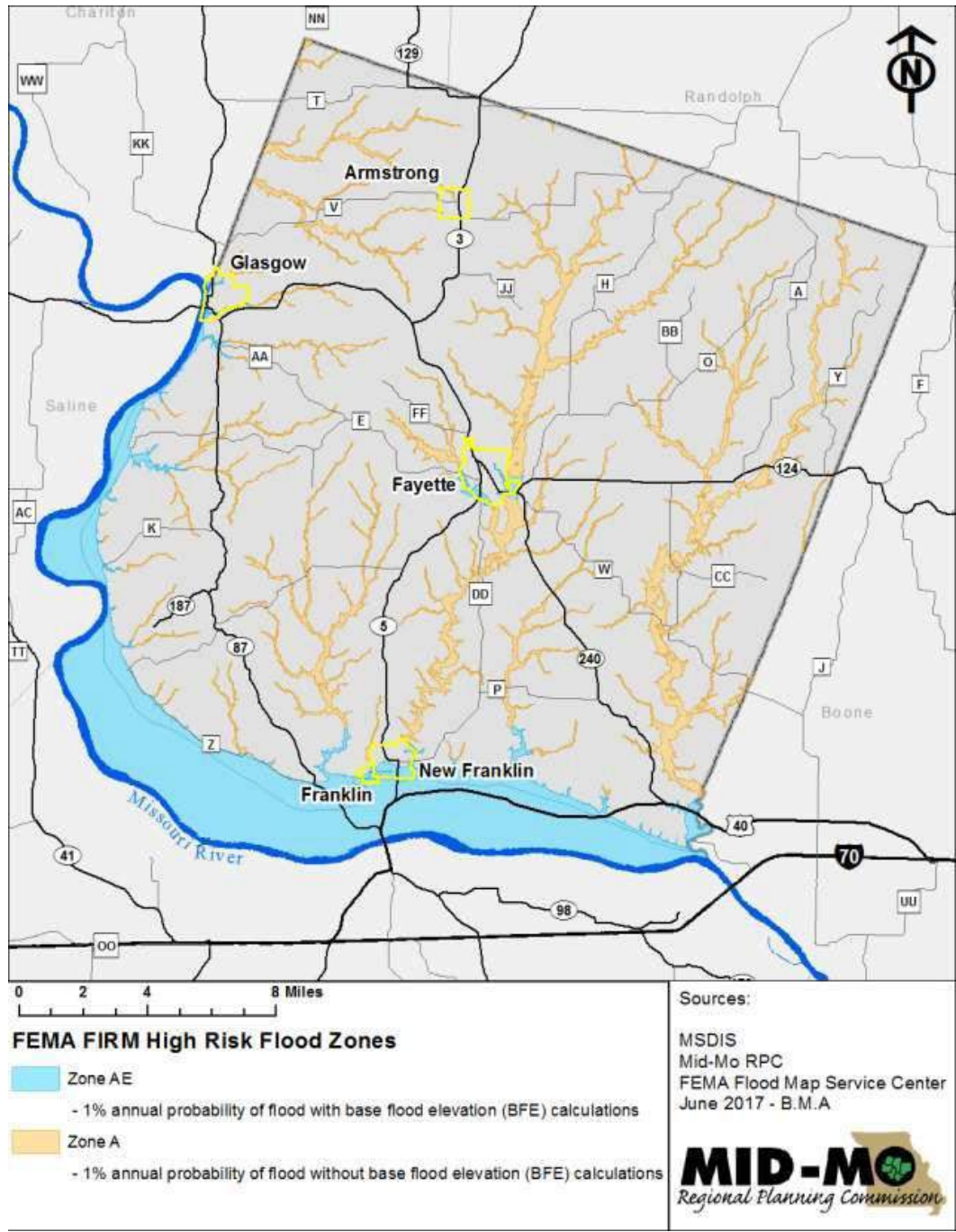
Local **storm water flooding** can result when tremendous flow of water occurs due to large rain events. Local flooding can create public safety issues due to flooded roadways and drainage structures.

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

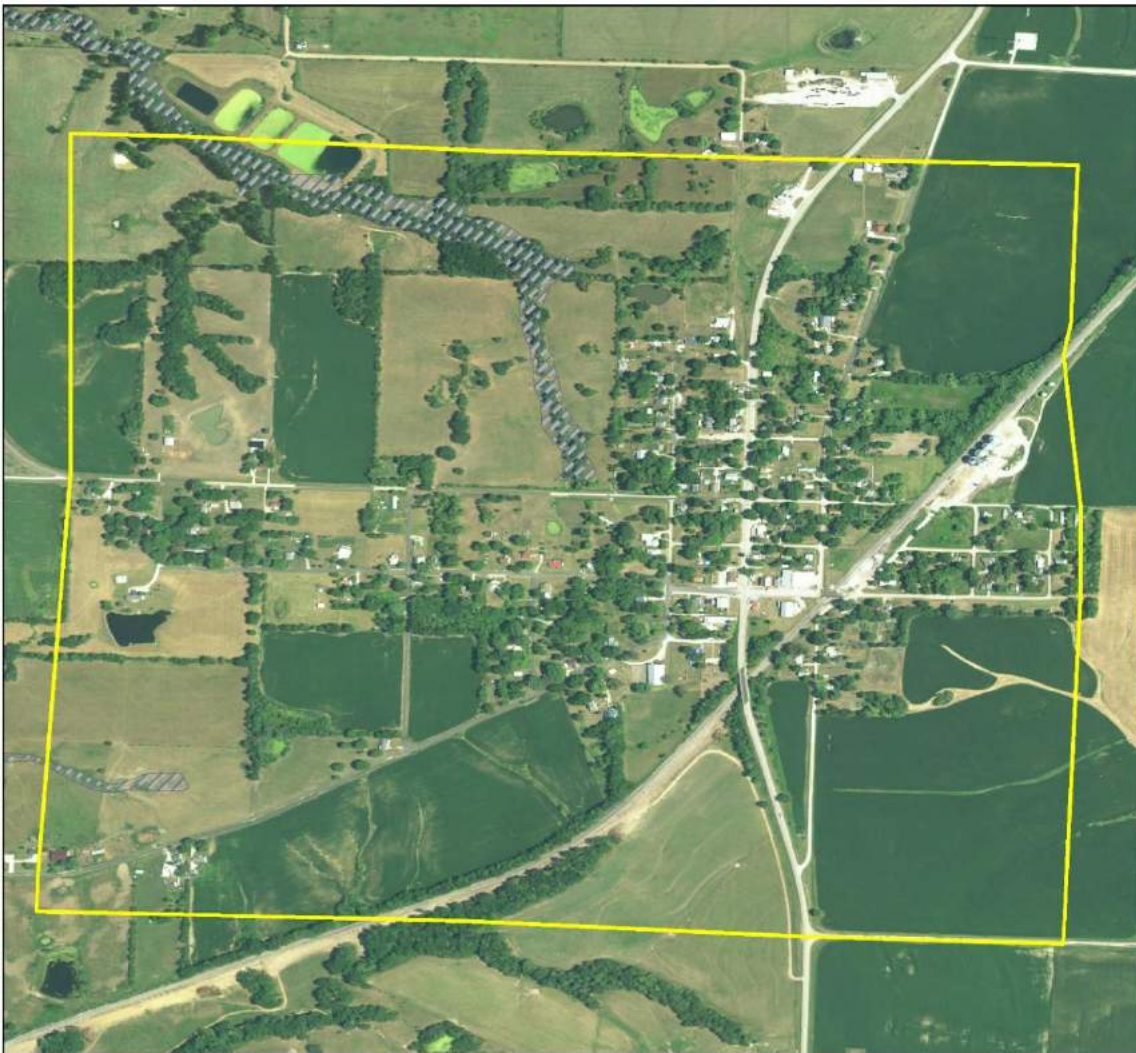
Location

The entire planning area is at risk from some type of flooding. Franklin, Glasgow, New Franklin and Howard County (unincorporated areas near the Missouri River) are at higher risk of riverine flooding than the rest of the planning area. The school districts and special districts have floodplain in their boundaries but do not have any of their critical facilities located in floodplain.

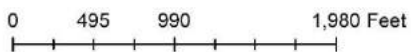
Map 3.5



Map 3.6



Armstrong Floodplain




Legend

 City Boundaries

Floodplain

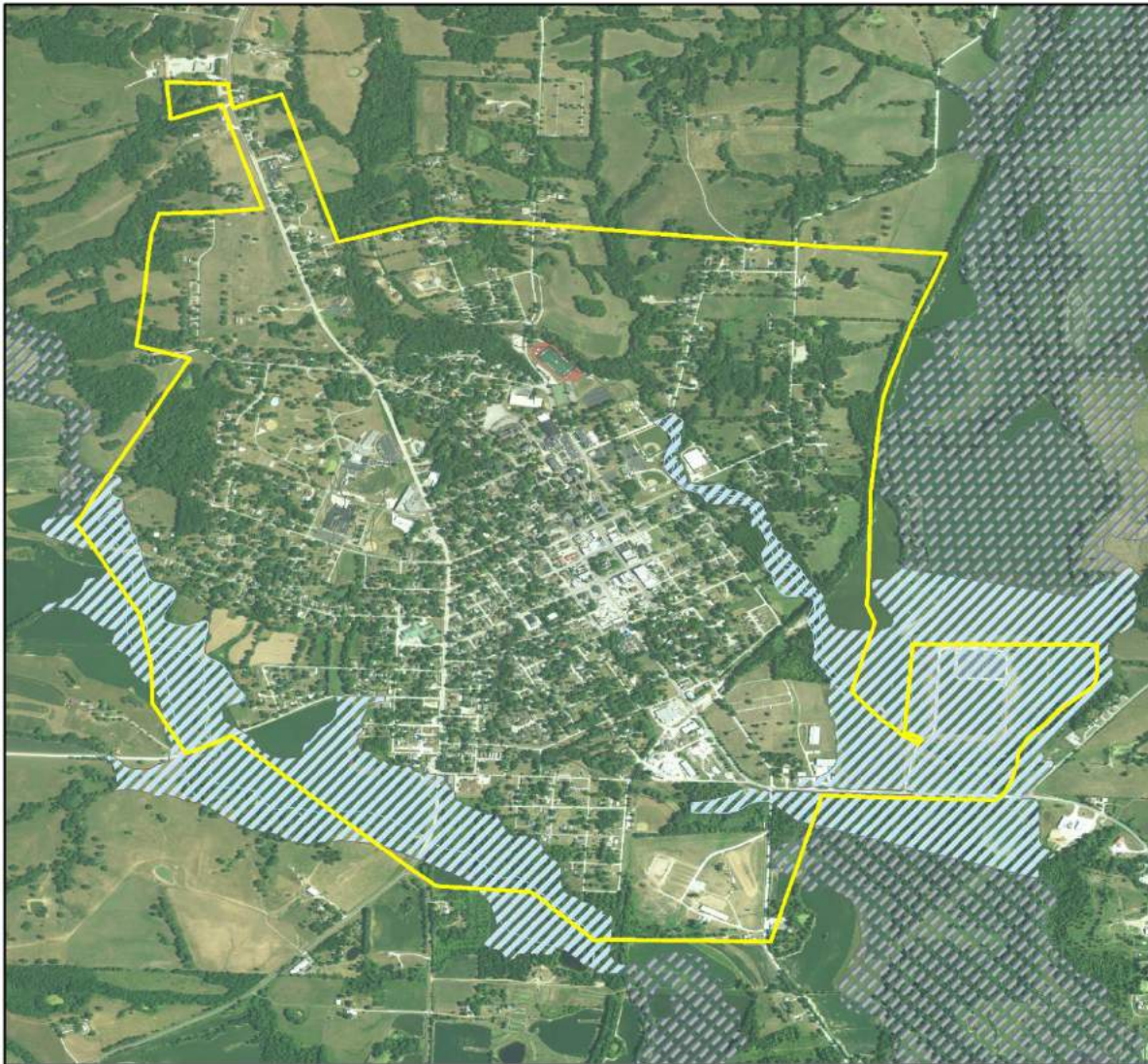
FLD_ZONE

 500 Yr Flood

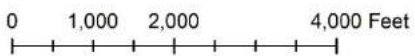
 100 Yr Flood

 Out

Map 3.7



Fayette Floodplain



Legend

 City Boundaries

Floodplain

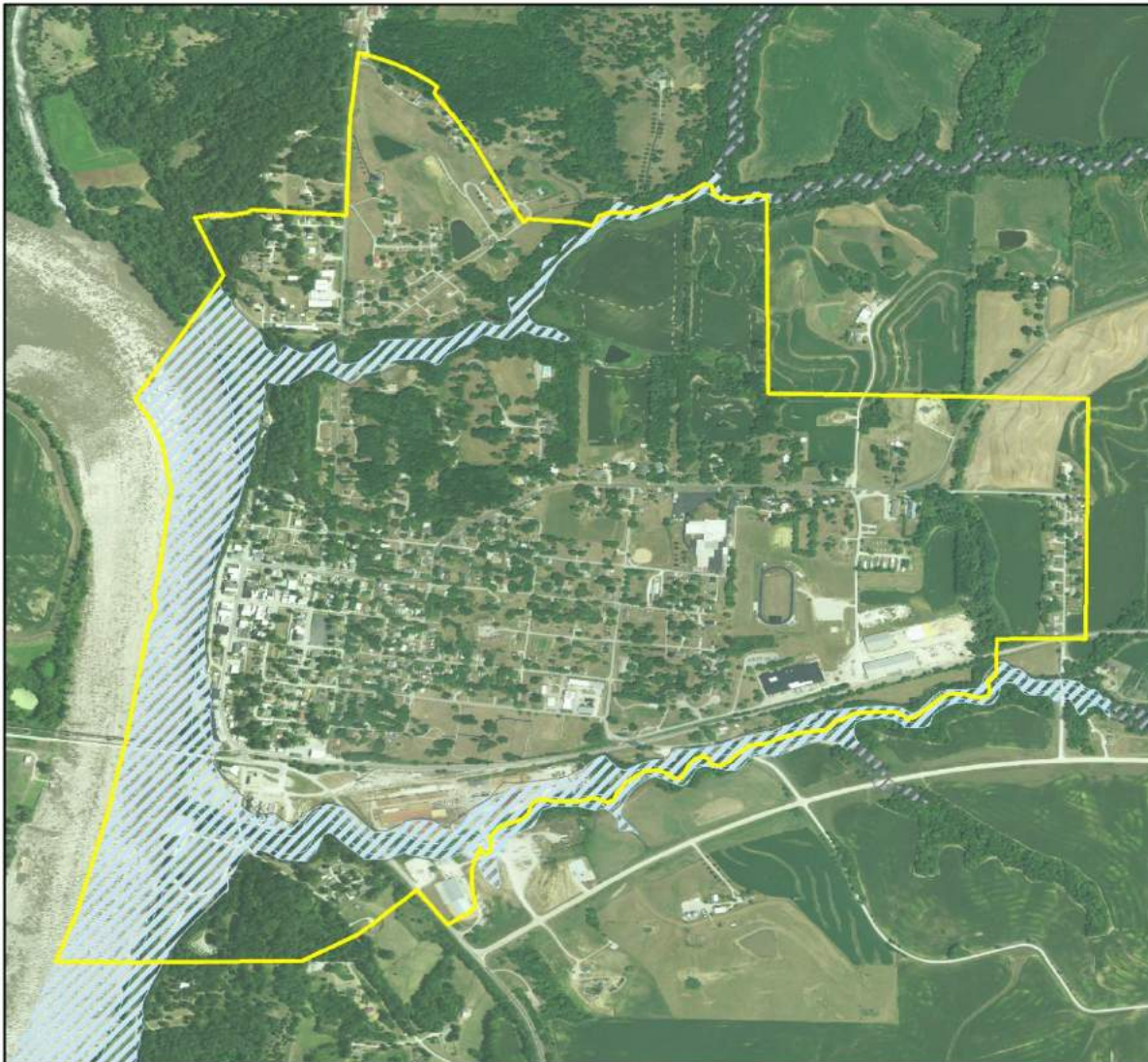
FLD_ZONE

 500 Yr Flood

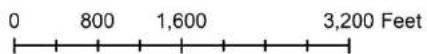
 100 Yr Flood

 Out


Map 3.8



Glasgow Floodplain



Legend

 City Boundaries

Floodplain

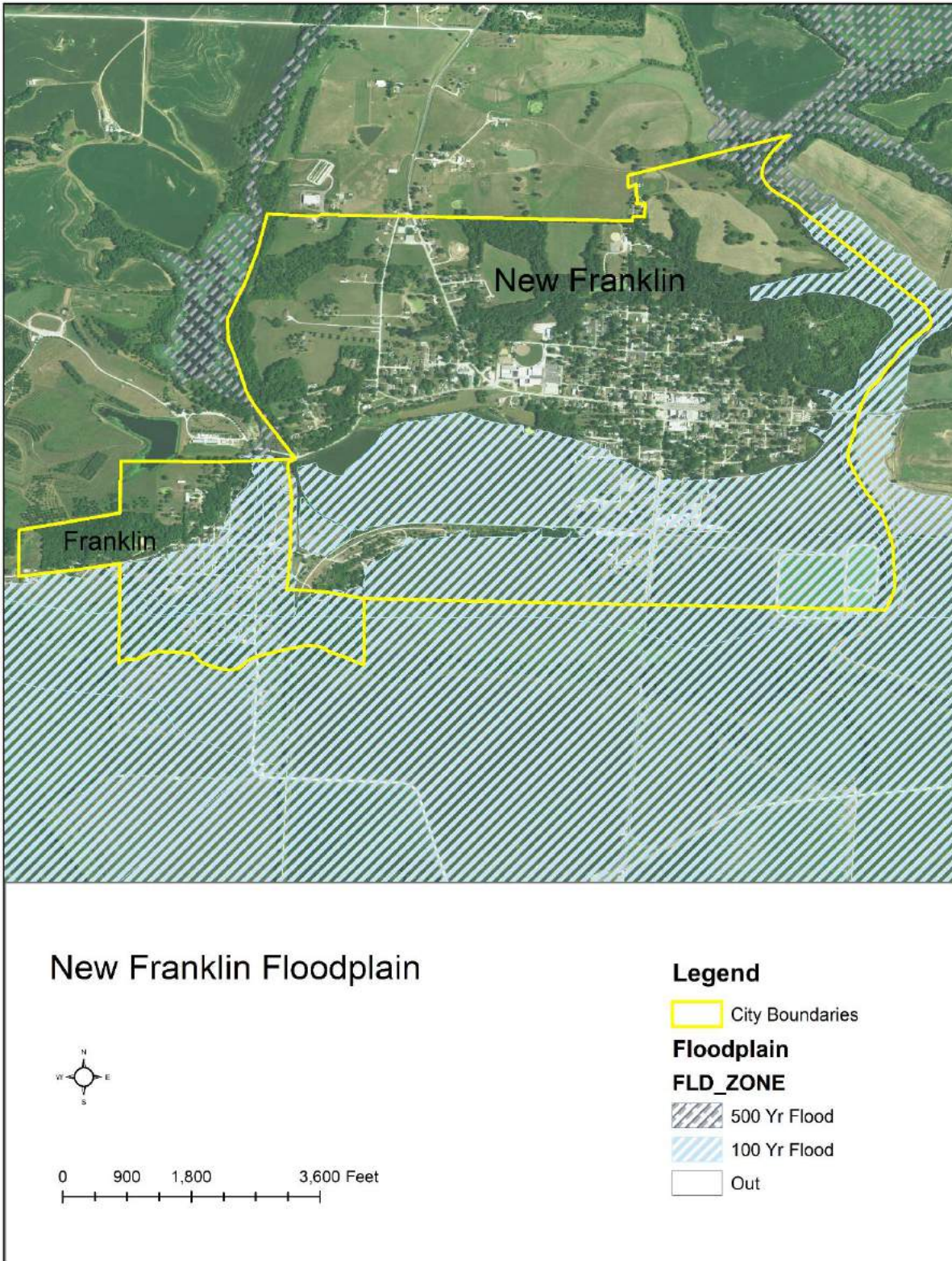
FLD_ZONE

 500 Yr Flood

 100 Yr Flood

 Out

Map 3.9



Low Water Crossings and Flash Flooding

Howard County has been proactive about low-water crossings and roads affected by potential flooding within the county. The county addresses these issues on an ongoing basis and is aware of all low-water crossings. Two of the low water crossings are in the Howard County Road District, two are in the Glasgow Special Road District, and one is in the Armstrong Road District.

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 1996, through December 2020, indicates an average duration of approximately 3.9 days per event (Table 3.15).

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, according to the NOAA data (Table 3.15). The data of reported events in the NOAA database indicates an average duration of 4.7 hours.

Table 3.15 Howard County Flooding Events 2000-2020

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
HOWARD (ZONE)	1/29/2001	Flood	0	0	0	0
HOWARD (ZONE)	2/9/2001	Flood	0	0	0	0
HOWARD (ZONE)	2/24/2001	Flood	0	0	0	0
HOWARD (ZONE)	3/16/2001	Flood	0	0	0	0
HOWARD (ZONE)	4/11/2001	Flood	0	0	0	0
HOWARD (ZONE)	6/4/2001	Flood	0	0	0	0
HOWARD (ZONE)	6/21/2001	Flood	0	0	0	0
HOWARD (ZONE)	4/21/2002	Flood	0	0	0	0
HOWARD (ZONE)	5/6/2002	Flood	0	0	0	0
HOWARD (ZONE)	5/12/2002	Flood	0	0	0	0
HOWARD (ZONE)	6/12/2002	Flood	0	0	0	0
HOWARD (ZONE)	5/8/2003	Flood	0	0	0	0

FAYETTE	5/10/2003	Flash Flood	0	0	0	0
HOWARD (ZONE)	5/10/2003	Flood	0	0	0	0
HOWARD (ZONE)	6/12/2003	Flood	0	0	0	0
FAYETTE	6/12/2003	Flash Flood	0	0	0	0
HOWARD (ZONE)	9/1/2003	Flood	0	0	0	0
HOWARD (ZONE)	12/10/2003	Flood	0	0	0	0
HOWARD (ZONE)	3/4/2004	Flood	0	0	0	0
FAYETTE	3/26/2004	Flash Flood	0	0	0	0
HOWARD (ZONE)	3/26/2004	Flood	0	0	0	0
HOWARD (ZONE)	3/26/2004	Flood	0	0	0	0
HOWARD (ZONE)	5/19/2004	Flood	0	0	0	0
NEW FRANKLIN	6/14/2004	Flash Flood	0	0	0	0
FRANKLIN	7/6/2004	Flash Flood	0	0	0	0
FRANKLIN	7/6/2004	Flash Flood	0	0	0	0
HOWARD (ZONE)	7/6/2004	Flood	0	0	0	0
FRANKLIN	8/4/2004	Flash Flood	0	0	0	0
HOWARD (ZONE)	8/4/2004	Flood	0	0	0	0
HOWARD (ZONE)	8/28/2004	Flood	0	0	0	0
HOWARD (ZONE)	11/1/2004	Flood	0	0	0	0
HOWARD (ZONE)	11/27/2004	Flood	0	0	0	0
HOWARD (ZONE)	1/3/2005	Flood	0	0	0	0
FAYETTE	1/4/2005	Flash Flood	0	0	0	0
HOWARD (ZONE)	1/4/2005	Flood	0	0	0	0
FAYETTE	1/12/2005	Flash Flood	0	0	0	0
HOWARD (ZONE)	2/13/2005	Flood	0	0	0	0
HOWARD (ZONE)	6/13/2005	Flood	0	0	0	0
FAYETTE	7/4/2006	Flash Flood	0	0	0	0
FAYETTE	11/30/2006	Flood	0	0	0	0
FAYETTE	2/24/2007	Flood	0	0	0	0
FAYETTE	3/30/2007	Flood	0	0	0	0
FAYETTE	4/26/2007	Flood	0	0	0	0
FAYETTE FLD ARPT	5/6/2007	Flood	0	0	0	0
FAYETTE FLD ARPT	2/5/2008	Flood	0	0	0	0
FAYETTE FLD ARPT	2/17/2008	Flood	0	0	0	0
FRANKLIN	3/17/2008	Flood	0	0	0	0
HILLDALE	3/17/2008	Flood	0	0	0	0
HILLDALE	4/10/2008	Flood	0	0	0	0
FAYETTE FLD ARPT	12/27/2008	Flood	0	0	0	0
FAYETTE	4/24/2010	Flash Flood	0	0	0	0
FAYETTE	4/24/2010	Flash Flood	0	0	0	0

FAYETTE	5/26/2013	Flash Flood	0	0	0	0
FAYETTE	5/26/2013	Flash Flood	0	0	0	0
FAYETTE	5/26/2013	Flash Flood	0	0	0	0
FAYETTE	5/15/2015	Flash Flood	0	0	0	0
ARMSTRONG	7/3/2016	Flood	0	0	0	0
FAYETTE FLD ARPT	7/13/2016	Flash Flood	0	0	0	0
GLASGOW	4/1/2019	Flood	0	0	0	0
NORTH BOONVILLE	5/1/2019	Flood	0	0	0	0
PETERSBURG	5/31/2019	Flash Flood	0	0	100000	100000
PETERSBURG	6/1/2019	Flash Flood	0	0	100000	100000
GLASGOW ARPT	6/1/2019	Flood	0	0	0	0
PETERSBURG	6/1/2019	Flash Flood	0	0	100000	100000
FRANKLIN	6/9/2020	Flood	0	0	0	0
BURTON	6/9/2020	Flood	0	0	0	0
HILLDALE	6/9/2020	Flood	0	0	0	0
Total			0	0	300000	300000

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 3.16 NFIP Participation in Howard

Community ID #	Community Name	NFIP Participant (Y/N/Sanctioned)	Current Effective Map Date	Regular-Emergency Program Entry Date
290162B	Howard County	Yes	3/21/2017	1/5/1989
290764	Armstrong	Yes	10/16/2009	8/3/1984
290163	Fayette	Yes	10/16/2009	1/19/1983
290164B	Glasgow	Yes	3/21/2017	8/2/1982
290500B	New Franklin	Yes	3/21/2017	1/19/1983

Table 3.17: NFIP Policy and Claim Statistics

Community Name	Policies in force	Insurance in Force	Closed Losses	Total Payments
Howard County	8	\$631,600	17	\$522,986
Fayette	2	\$420,000	0	\$0
Franklin	2	\$151,000	39	\$100,171
New Franklin	9	\$426,900	25	\$120,394
Armstrong	0	\$0	2	\$1,274
Total	21	\$1,629,600	81	\$744,825

Source: NFIP Community Status Book, [09/24/19]; BureauNet, <http://bsa.nfipstat.fema.gov/reports/reports.html>; *Closed Losses are those flood insurance claims that resulted in payment. Loss statistics as of 09/30/22.

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 federal restrictions on data sharing, the state was unable to provide full Repetitive Loss data or current Severe Repetitive Loss data. This also impacts information on Property Type and whether the properties are mitigated or non-mitigated.

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. Howard County does not have any severe repetitive loss properties. Below is the repetitive loss property information for the county.

Table 3.18: Repetitive Loss Properties by Jurisdiction

Community Name	Building Payments	Contents Payment	Number of Losses	Total Paid	Average Paid	Number Mitigated
Franklin	84984.73	12224.45	13	97209.18	8541.94	6
Howard County	0	69267.48	3	69267.48	23089.16	0
New Franklin	5112.56	0	3	5112.56	1704.19	0

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 Howard County were overtopped during the Flood of 1993. There was one death in the County during the 1993 Flood.

Franklin, Glasgow, New Franklin 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.

Howard County was included in Presidential Disaster Declarations for flooding in the past.

Table 3.19 NCEI Howard County Flash Flood Events Summary 2000-2020

Year	# of Events	# of Deaths	# of Injuries	Property Damage	Crop Damage
2003	2	0	0	0	0
2004	5	0	0	0	0
2005	2	0	0	0	0
2006	1	0	0	0	0
2010	2	0	0	0	0
2013	3	0	0	0	0
2015	1	0	0	0	0
2016	1	0	0	0	0
2019	3	0	0	300000	300000
Total	20	0	0	300000	300000

Table 3.20 NCEI Howard County Riverine Flood Events Summary 2000-2020

Year	# of Events	# of Deaths	# of Injuries	Property Damage	Crop Damage
2001	7	0	0	0	0

2002	4	0	0	0	0
2003	5	0	0	0	0
2004	9	0	0	0	0
2005	4	0	0	0	0
2006	1	0	0	0	0
2007	4	0	0	0	0
2008	6	0	0	0	0
2016	1	0	0	0	0
2019	3	0	0	0	0
2020	3	0	0	0	0
Total	47	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	11	52%	High
Flash flood	9	43%	High

Probability: High

Severity: Varies widely in planning area

High - Glasgow, New Franklin, Howard Co. Consolidated PWSD#1, Howard Co. Regional Water Commission

Moderate - Planning Area as a whole, Howard Co. (unincorporated), Fayette, FayetteR-III School District

Low - Armstrong, New Franklin R-I School District, Howard Co. R-II School District, Central Methodist University

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

Howard County residents, structures, and infrastructure lying in or near the Missouri River Floodplain or Moniteau Creek 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.

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 Howard 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.

Howard County (unincorporated)

There is extensive 100-year floodplain along branches and creeks throughout Howard County in addition to the floodplain along the Missouri River. There are definitely occupied homes in the floodplain, according to county personnel. The actual number of occupied residences in the floodplain is not known.

Fayette

The biggest flooding issue in Fayette is flash flooding in the area of Shield Street in the southwestern part of the city. This area is within the 100-year flood plain. Shield Street is both a city street and a county road. The City would like to do a road buildup and drainage project at Shield Street to mitigate the flash flooding problem.

Other areas within the 100-year flood plain are almost devoid of structures, other than roads and the Fayette Waste Water Treatment Plant. The road leading into the treatment plant was formerly subject to flash flooding. The road was built up to mitigate this problem and flash flooding is no longer an issue in that area.

Glasgow

Except for single-family houses, there are no other residential structures sitting in the 100-year floodplain in Glasgow but significant parts of the city's water and wastewater system are in the floodplain, according to geographic information provided by Missouri Geographic Resource Center and FEMA Flood Map Service Center.

- The two city wells are located in Chariton County, north of the main part of City of Glasgow; they flood at a river stage of 28 feet (Boonville gage). When flooding threatens, city workers check to make sure everything is working properly at the wells. The wells will function until a river stage of 44 feet, a point at which Glasgow would need to be evacuated anyway.
- The Waste Water Treatment Facility (lagoons) south of the city floods at a river stage of 32 feet. In the flood of 2010, there were approximately 2,000 tons of sand and silt deposited in the 9-acre Waste Water Treatment Facility Cell #1; the average depth of sludge fill was 18 inches. The City of Glasgow was approved for PA from Disaster Declaration #1934 to dispose of this sludge; the total project cost was estimated to be \$633,674.
- After the last update of this plan, the City of Glasgow, with the Mid-Missouri Regional Planning Commission, began to address this issue. As previously stated, the project has exceeded costs of \$1.2 million to date. At the current

time, the project is ongoing but the levee has been elevated as well as areas of the treatment plant to prevent any future silt/sand deposits and lagoon leakage. If funding becomes available, the City of Glasgow would like to find long term solutions to this issue.

In addition to structures actually in the 100-year floodplain, the following structures and areas of Glasgow experience flash flooding associated with high river and creek levels:

- Both wastewater lift stations are subject to flash flooding. The northern lift station will flood at a river stage of 28 feet; the southern (located on Stump Island) around a river stage 29.5. When the lift stations flood, they are bypassed and sewage goes into the creeks and the Missouri River.
- The Stump Island area in the southwestern part of the city begins to flood at river stage 28 at which time water moves into the center of the island. Around river stage 29.5 the entire island, including the southern lift station, is flooded. Stump Island Park is closed when flooding is severe. Closures in the last decade include 4 months in 2002, all of summer 2010, and most of summer 2011.

New Franklin

The following significant city infrastructure is located in the 100-year floodplain: the water treatment plant, the wastewater lagoon, the two city wells, the animal control shelter and a maintenance shed.

The following mitigation actions have been taken in the past to alleviate issues with flooding:

- An 8-foot wall surrounds the water treatment plant. When flood threatens, a backhoe is used to drop a metal door into the opening in the wall.
- The wastewater lagoon is elevated on a platform to a height above the 500-year floodplain.
- A well is located about one mile southwest of the city (in unincorporated Howard County). It is also elevated on a platform above the 500-year floodplain.

When significant flooding occurs, the water treatment plant and the lagoon can only be accessed by boat even though they are protected from flooding.

There are also homes and an MFA (Missouri Farmers Association) grain elevator complex located in the 100-year floodplain. Private citizens will either sandbag (if sandbags are available) or evacuate their homes when flood threatens. The main building at the MFA complex is elevated.

Armstrong

While Armstrong does have area which lies within the 100-year floodplain, there are no vulnerable structures in these areas. There is one area in the very northeast of the City which experiences flash flooding; the water usually recedes within about 12 hours. City officials indicated that a culvert needs to be installed under a driveway in this area and they plan to encourage the owner to do so.

While the school districts and other special districts have floodplain in their boundaries they do not have any critical facilities located in the floodplain area.

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 Howard 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.

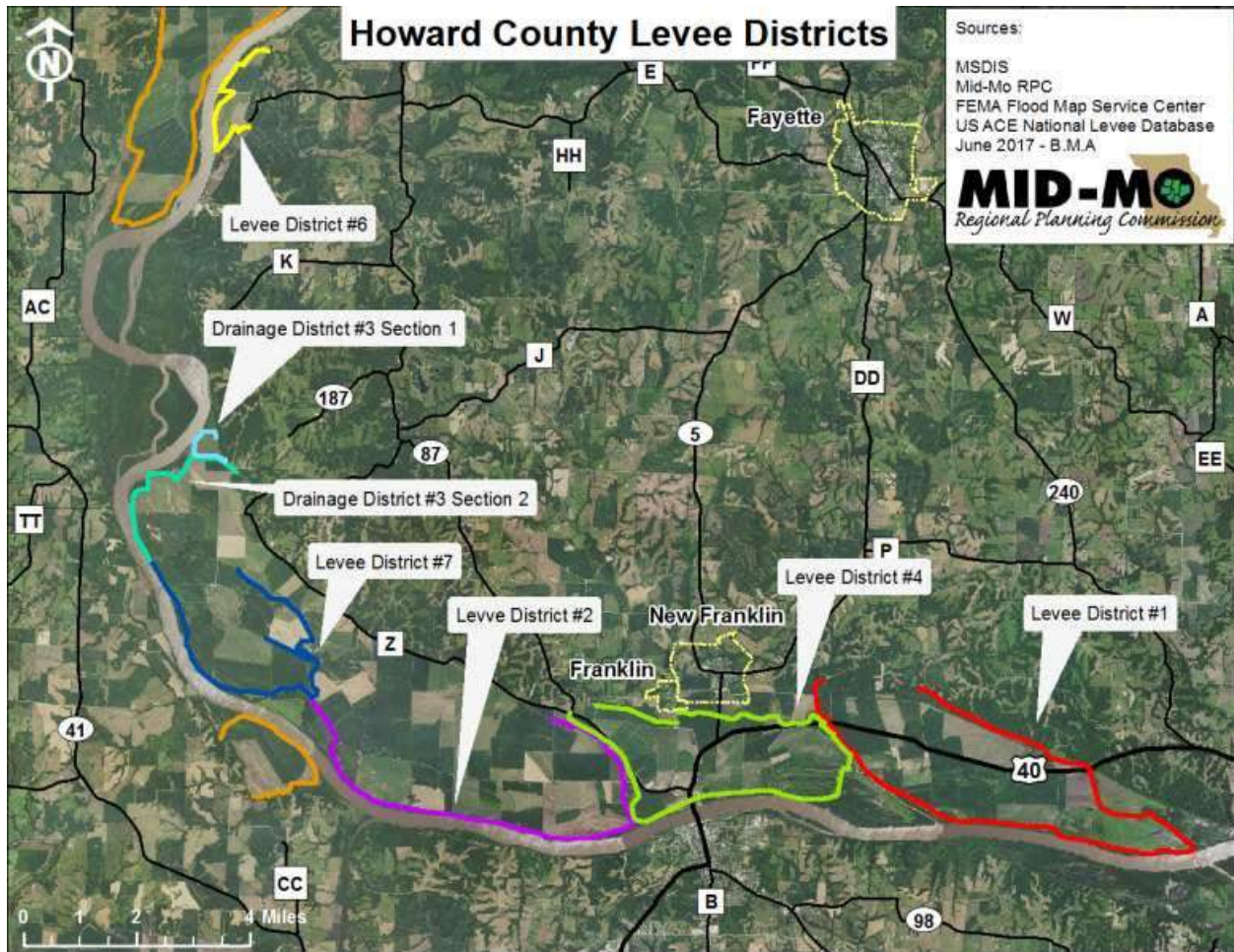
Location

The major levees in the planning area are located along the Missouri River in the southwestern and southern part of Howard County. Vulnerability is being assessed for failure of these main levees which are managed by six separate levee and drainage districts.

Other privately owned levees exist in the planning area but official data on their locations is not available. Vulnerability assessments are not being completed for these private levees due to the lack of official data on their locations.

The levees managed by the levee districts are agricultural levees and part of the U.S. Army Corps of Engineers Rehabilitation Program. They are currently eligible for levee rehabilitation assistance should they undergo damage during a flood event.

Map 3.10



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 3.22.

Table 3.22 Major Levees in Planning Area

Levee Name	Segment Length	Levee Acreage	Inspection Date	Rating
Bonne Femme District 1	16.07	5,165	7/27/2012	Low
Howard Co. District 3 Section 1	1.4	100	10/31/2012	Low
Howard Co. District 4	15.42	6,000	9/12/2012	Low
Howard Co. District 7	3.2	N/A	N/A	N/A
Howard Co. District 2	18.62	13,861	10/31/2012	Low
Howard Co. District 6	3.51	430	5/9/2013	Low

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.

Howard County and its vulnerable communities are well aware of the hazard posed to their lives and livelihood by the threat of flooding. The County and three of the incorporated communities belong to the NFIP; adopting floodplain regulations is a requirement for membership in the NFIP. This insures that future development in the floodplain will adhere to standards set forth to minimize the hazard posed by flooding.

Previous Occurrences

All levees in the planning area were overtopped in the flood of 1993. Levee District #4's levee was overtopped again in the flood of 1995; subsequently, there were major updates made to the levee which has allowed it to hold higher floodwater than the 1995 floodwater. In 1997, water came close to the top of Levee District #4's levee but it was not overtopped.

The floodwaters causing the most problems for flooding of levees in the planning area are those entering the Missouri River from the Grand River and Chariton River. These rivers enter the Missouri in neighboring Chariton County to the north, approximately 23 miles and 12 miles respectively upstream from where the Missouri River reaches the Howard County border at the City of Glasgow.

There was extensive flooding on the Missouri River in 2011. While the levees in the planning area were not overtopped in 2011, there was a large problem with seepage and water that could not be drained from fields due to the high river levels. Some of the levee districts incurred high costs for pumping during the prolonged period of elevated river waters.

In 2019 all levees in Howard County experienced overtopping but did not breach despite near 1993 flood levels. The Bonne Femme Levee suffered overtopping and erosion due to a poor condition pipe.

Probability of Future Events

Probability: Moderate

There haven't been any levee breaches in the planning area in the last 20 years. 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.

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

Vulnerability Overview

Portions of unincorporated Howard County are vulnerable to Levee issues. The portions at risk though are mostly all agriculture land where risk to life is low. Failure or overtopping of a levee can damage or kill crops being grown in the fertile lowland areas and also contaminate soil with sand and other things washed in from the Missouri River which can create significant long-term impacts for farmers.

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 Losses to Existing Development

Structures in Howard 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. Most of these structures would be agriculture related.

Impact to Previous and 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. It is important to note that levees in Howard County are located in designated floodplains.

SUMMARY OF VULNERABILITY

Jurisdictions: Howard County (unincorporated areas near the Missouri River), New Franklin, 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.

Dam construction varies widely throughout the state. 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.

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 3.23.

Table 3.23 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 3.24 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 79 dams in Howard County according to the Department of Natural Resources database. Of these, only 6 are regulated by the state.

Hazard Category	Regulated Dams	Unregulated Dams	All County Dams	Percentage of Total Dams
High	2	8	10	12%
Significant	1	0	1	1%
Low	3	67	70	88.4%
Total	6	75	81	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 Howard 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 locations of the dams in the DNR database for Howard County are shown in Map 3.11. It must be remembered that, according to information from Missouri DNR, much of this data, perhaps most of it, for the unregulated dams have 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.

There are not any dams outside the planning area that would impact the region in the event of a failure.

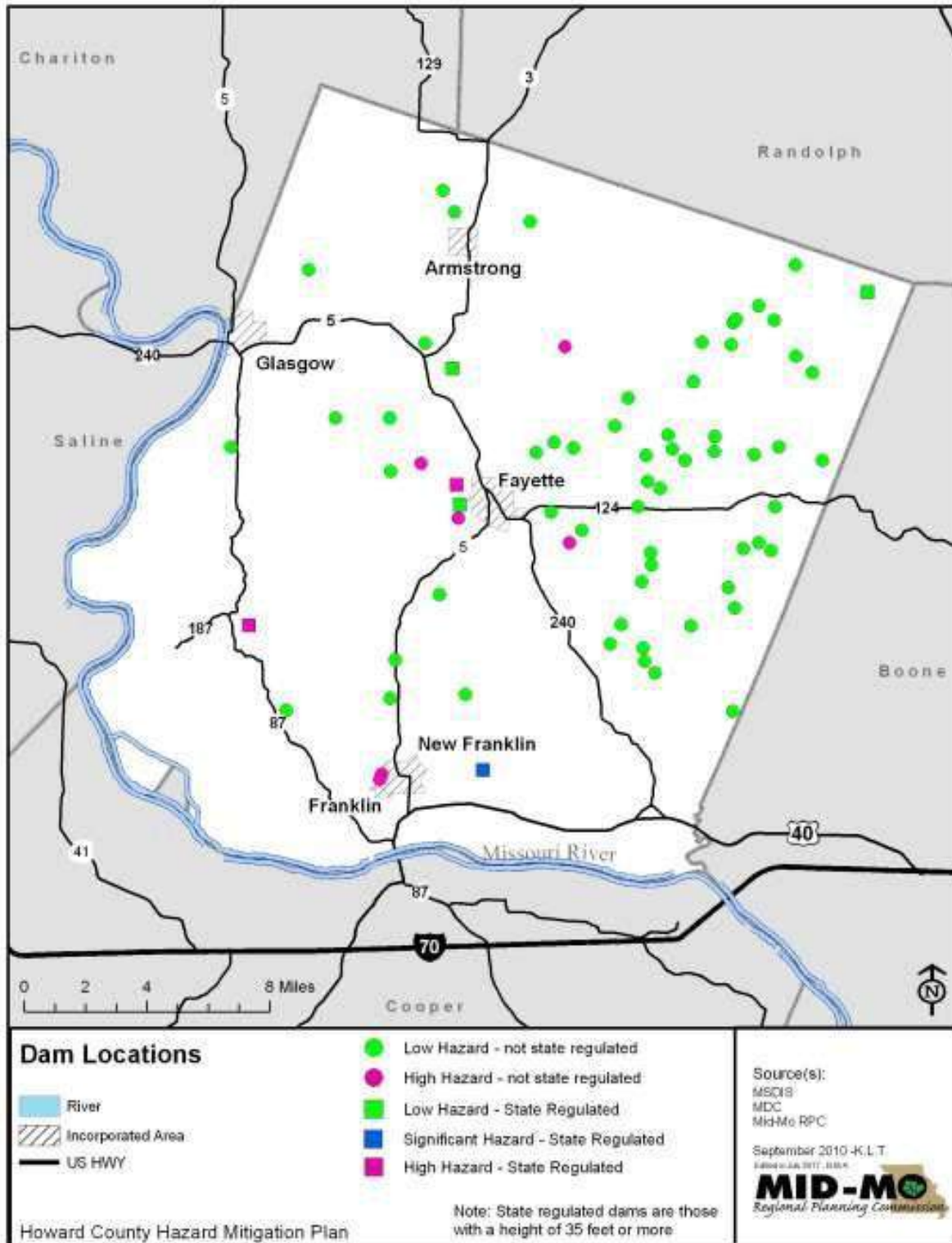
Table 3.26 High Hazard Dams in Howard County

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
Lake View Acres	No	47	390	3/21/2017	Goose Creek	Glasgow	20	Private
Rogers Lake Dam	Yes	45	4400	11/22/2016	Adams Fork	Fayette	10	City of Fayette

Fayette New City Lake Dam	No	33	1889	9/20/1978	Adams Fork	Fayette	10	City of Fayette
Johnmeyer Lake	No	32	103	N/A	Doe/Dry Creek	Fayette	5	J Johnmeyer
Fayette Old City Lake Dam	No	30	193	9/13/1978	Adams Fork	Fayette	10	City of Fayette
New Horticulture Farm Dam	No	26	111	6/1/1979	Cottonwood Creek	Franklin	1	MU-Columbia
Hayen Lake Dam	No	24	244	N/A	Salt Fork	Fayette	25	Rudy Heyen Jr
Reservoir Dam	No	23	394	6/1/1979	Cottonwood Creek	Franklin	1	MU-Columbia
Sunset Lake Dam	No	47	425	N/A	Runoff	Fayette	5	Private
Davis Lake Dam	No	35	895	N/A	Runoff	Fayette	1	Private

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 3.11 Howard County Dams



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

While there have been no dam failures in Howard County in recent history, the issue was highlighted in the mid-Missouri region by a dam failure in nearby Boone County in 2008 and a near failure in Cole County in 2009.

The Moon Valley Lake Dam in Columbia (Boone County) failed in March 2008. This 18-foot high unregulated dam had been built in 1964; it drained 2,100 acres and had a 13-acre reservoir, according to the DNR database. Moon Valley Lake Dam was classified as high hazard, but there was no loss of life with the dam failure. The City of Columbia estimated the cost of removing the sediment and stabilizing about 2,000 feet of the stream bank to be about \$400,000.

Failure of the Renn's Lake Dam in Jefferson City (Cole County) was averted in late October and early November 2009 through the work of emergency crews and volunteers who relieved pressure on the earthen dam by pumping thousands of gallons of water from 7-acre Renn's Lake. The 30-foot high unregulated dam, built in 1950, had been weakened by the growth of trees; heavy rainfall caused a 15-foot section to erode. Renn's Lake is located immediately to the west of U.S. Highway 54, and the failure of the dam would have threatened the highway.

Boone County and Cole County are not the only counties in Missouri to experience dam failures. On December 14, 2005, there was a huge dam failure that destroyed Johnson Shut-Ins State Park in Reynolds County. AmerenUE's Taum Sauk Reservoir Dam at their hydroelectric complex failed; 1.5 billion gallons of water were released into the park in 10 minutes. There was no loss of life, even though the superintendent's family was swept out of their home. However, if this failure had occurred during the summer—a time when the popular park has many visitors—it could have resulted in a catastrophic loss of life.

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

Probability of Future Events

Probability: Low

Severity: Low

There have been zero failures in Howard County in the last 20 years of Dams. Seven dams in Howard County are considered to pose high hazard should there be a dam break, according to their state classification. Of these dams, six are not regulated by the state and thus not subject to inspection requirements.

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 seven dams in the planning area classified by the state as High Hazard; only one of these are regulated by the State of Missouri and inspected on a regular basis. There are 64 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 Structures

Most of the dams in the planning area are located in unincorporated Howard County. The cities of Fayette and New Franklin have dams inside, or within a mile upstream of, their city limits. The Planning Committee determined that New Franklin is not at risk from failure of the dam located near its western boundary because of the topography of the land and the resulting direction of water flow.

For the City of Fayette, the Roger's Lake Dam is a state regulated High Hazard dam; its failure would probably impact a carbon treatment shed owned by the City. The Fayette Old City Lake Dam is an unregulated 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 to Future Development

It would be wise to consider the potential threat of dam failure when development is under consideration in the planning area. If development occurs without knowledge of potential problems presented by dams upstream, structures and lives can be put in jeopardy.

There are currently no county-wide zoning regulations or building codes in Howard County, although there are municipal building codes throughout the county in incorporated areas; public sentiment indicates that this will be true for the foreseeable future. Therefore, there are no legal means to control development to lessen the threat of flooding from dam failure in the unincorporated areas of Howard County.

Fayette does have zoning regulations and could restrict development in any dam inundation areas which might exist within its city limits. However, inundation areas are not known at this time and if development occurs outside of city limits, Fayette regulations would not apply.

Where the legal power is lacking, public education can be used to help raise awareness of the issue so that is taken into consideration when purchasing or developing property. The inundation studies and development of EAPs for the two state regulated high hazard dams in the planning area will provide information helpful for making informed decision in the area of those dams, if this information is readily available and the public is aware of its existence. Eventually, it is hoped that inundation studies will be completed on all of the state regulated dams; this would provide inundation information on four more dams in the planning area.

Hazard Summary by Jurisdiction

There are no dams lying upstream from any school district structures.

Most of the dams in the planning area are located in unincorporated Howard County. The results of a dam failure could range from very minimal environmental damage to a significant loss of infrastructure. All impacts are dependent upon several variables: water, debris, people, and structures. A dam failure would include the breach of a dam wall or embankment allowing the water and debris to flow downstream from the dam.

The dam inventory for the state of Missouri was compiled in the late 1970s and early 1980s. The state has classified 8 of Howard County's dams as "High Hazard". Two of the High Hazard dams are unregulated. The state has no jurisdiction over maintenance of unregulated dams and this leads into the overall problem of dam location and development downstream.

State-regulated dams are classified by what lies downstream of the dam and what will be impacted by the failure of that dam. Unregulated dams received their classifications nearly 30 years ago or more and development that occurs downstream is not monitored by any agency; this potentially puts the public at risk. Also, development upstream that might increase the contents held by the dam can cause failure. Because there is no entity in charge of unregulated dams, the original classifications for these dams may not be correct. Some dams may not exist anymore while others may pose a greater downstream threat than their classifications indicate.

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.

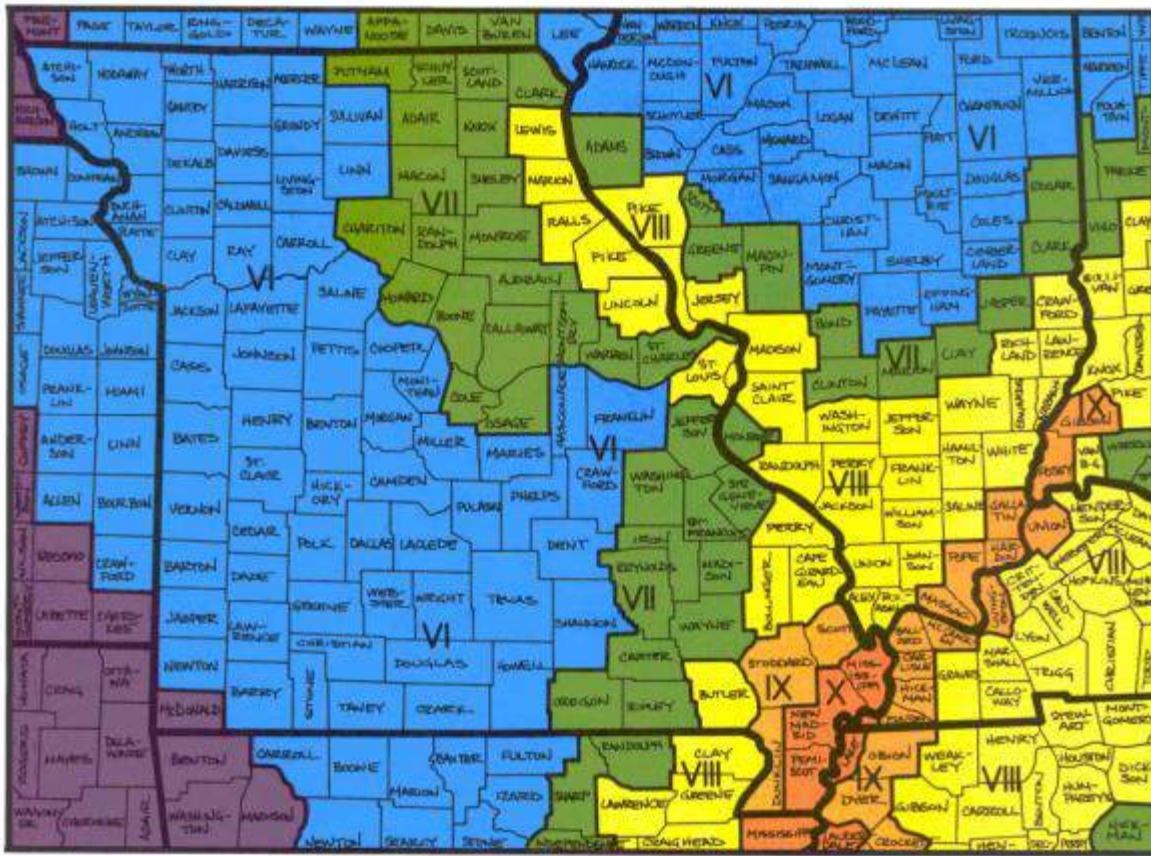
The New Madrid Seismic Zone (NMSZ), which runs through southeastern Missouri, is the most active seismic zone east of the Rocky Mountains. Any hazard mitigation planning in Missouri must, of necessity, take possible earthquakes into account.

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.

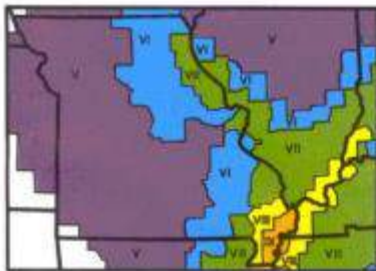
Location

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. The soil, or alluvium, along river channels is especially vulnerable to liquefaction from earthquake waves; river alluvium also tends to amplify the waves.

Figure 3.1 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.

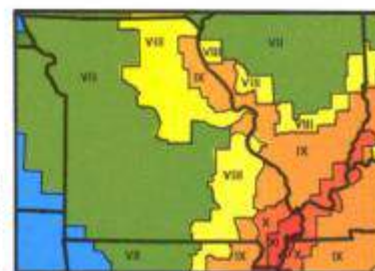
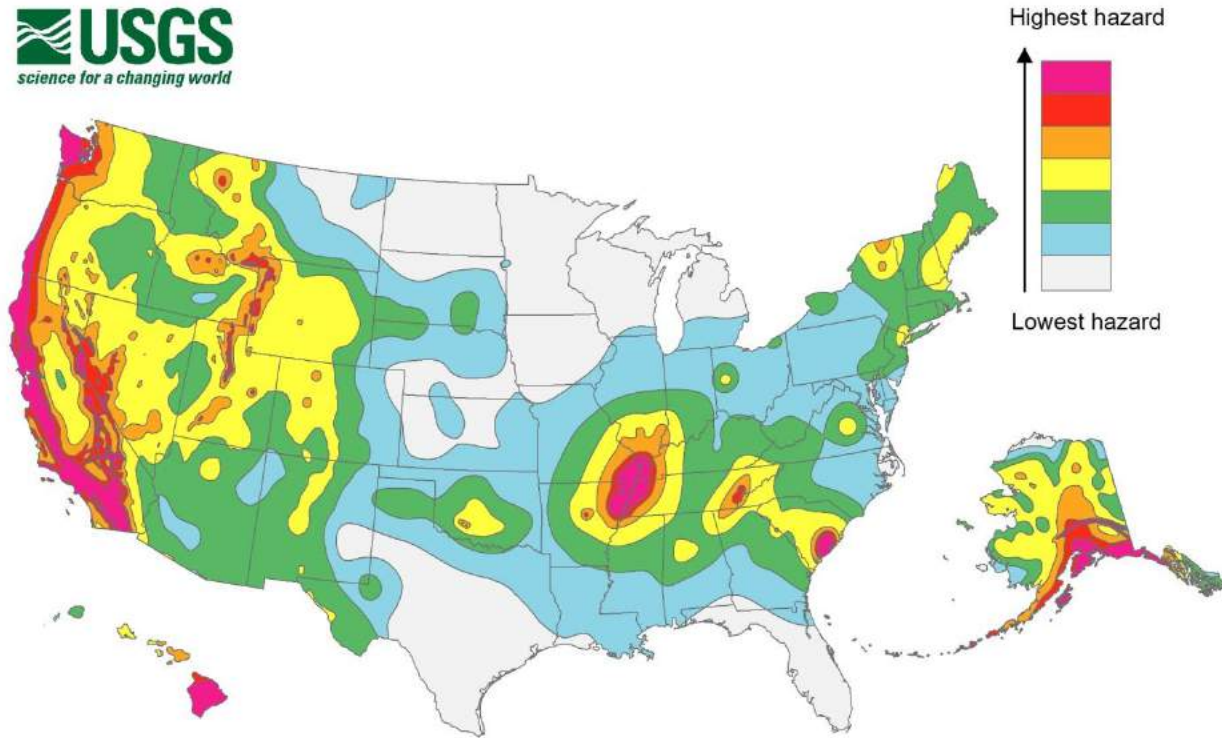


Table 3.27 Modified Mercalli Intensity Scale

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 3.12 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. For example, comparing a 5.3 and a 6.3 earthquake shows that the 6.3 quake is ten times bigger in magnitude. Each whole number increase in magnitude represents a tenfold increase in measured amplitude because of the logarithm. Each whole number step in the magnitude scale represents a release of approximately 31 times more energy.

Modified Mercalli Intensity Scale

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

The intensity scale currently used in the United States is the Modified Mercalli (MM) Intensity Scale. It was developed in 1931 and is composed of 12 increasing levels of intensity.

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 (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.

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.
- 7 -10% chance of a magnitude 7.5 - 8.0 quake (magnitudes similar to those in 1811-1812)

According to information provided by MO SEMA, the above expectations can be translated into the following likelihoods for a given year in the 50-year period:

- 1.0-1.6% likelihood of a magnitude 6.0 and greater earthquake
- 0.28-0.40% likelihood of a magnitude 7.5-8.0 earthquake

Since a magnitude 6.0 earthquake would affect the planning area the probability has been determined to be moderate.

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 Howard County is summarized in Table 3.28.

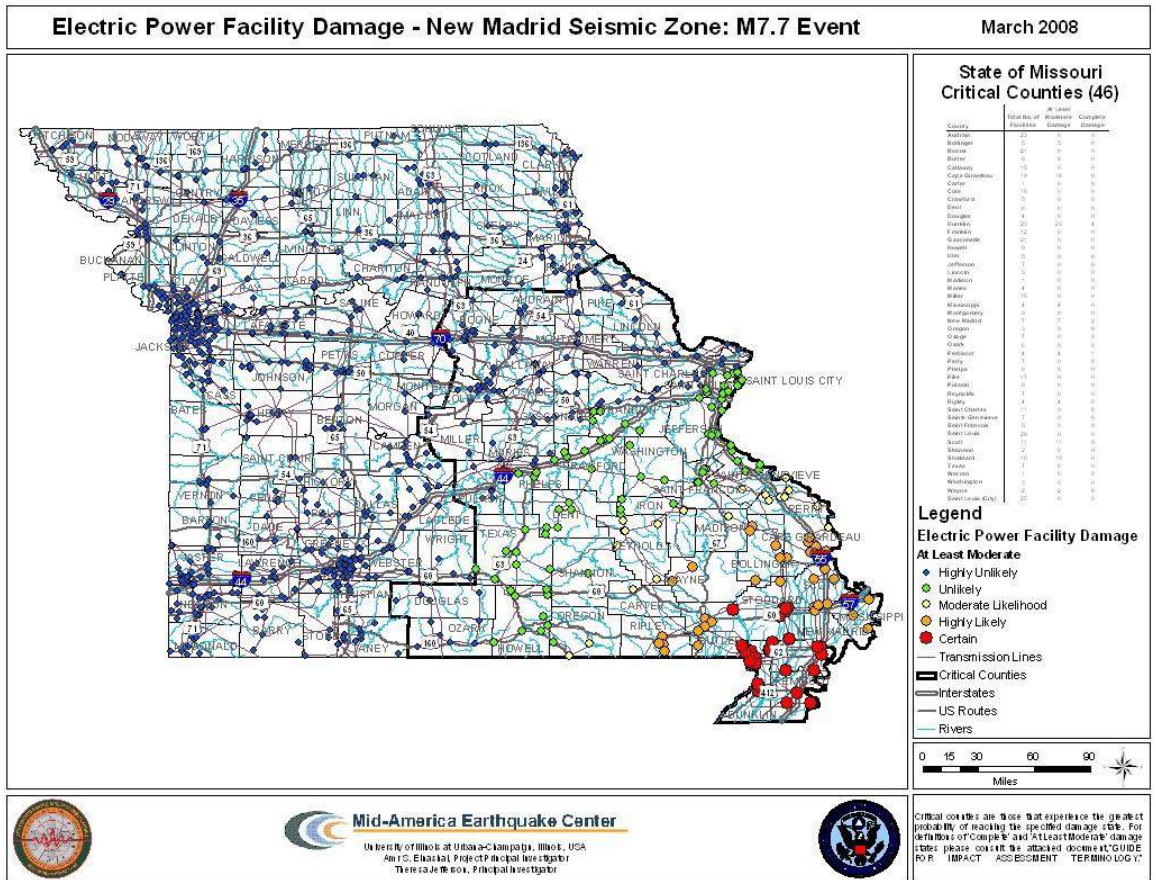
Table 3.28			
Projected Earthquake Hazard for Planning Area			
Probability of Occurrence (2002-2052)	Intensity in Planning Area (MMI**)	MMI** Descriptor	Expected Damage

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



Missouri State Hazard Mitigation Plan (2018) Analysis: Specific modeling of damage and loss from earthquake scenarios has been conducted for the state using HAZUS 2.1 software; the findings are included in the *Missouri State Hazard Mitigation Plan (2018)*. (HAZUS software is used by FEMA to compare relative risk from earthquakes and other natural hazards.)

The following analyses were done:

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 Howard 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 Howard County are shown in Table 3.29.

Table 3.29 Hazus-MH Earthquake Loss Estimate: Annualized Loss Scenario

County	Total Losses, in \$ Thousands	Loss Per Capita, in \$ Thousands	Loss Ratio, in \$ Per Million
Howard	\$19	\$0.0018	\$17

While Howard County has among the lowest loss ratios in the state, it’s estimated building damage in actual dollars ranks 84th. (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 Howard 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 3.30 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
Howard	\$2,257	\$4,984	\$1,548	\$40	0.67	\$1,327	\$241	\$365	\$512	\$11,274

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 Howard 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 Howard 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 Howard 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

Personnel of the Howard County Emergency Management Agency are well-trained and well-equipped to respond to disasters of all types.

Centrally located and easily accessible staging areas have been identified by Howard County Emergency Management in the event that an evacuation is ordered. Transportation will be provided from the staging areas to designated safe areas for those persons who do not have their own transportation. In addition, the staging areas can be used as drop-off and pick-up sites for resources and supplies. The identified staging areas are:

- Central Methodist Baseball and Football Field (Fayette)
- Fayette R-III Schools (Fayette)
- Howard County R-II Schools (Glasgow)
- New Franklin R-I (New Franklin)

The specific staging area(s) to be used would depend upon the event.

School Districts The Revised Statutes of Missouri, Section 160.451, require that, “The governing body of each school district which can be expected to experience an intensity of ground shaking equivalent to a Modified Mercalli of VII or above from an earthquake occurring along the New Madrid Fault with a potential magnitude of 7.6 on the Richter Scale shall establish an earthquake emergency procedure system in every school building under its jurisdiction.”

SAVE Coalition This is a program of the Missouri State Emergency Management Agency. According to the SEMA website:

The Missouri Structural Assessment and Visual Evaluation (SAVE) Coalition is a group of volunteer engineers, architects, building inspectors, and other trained professionals that assists the Missouri State Emergency Management Agency with building damage

inspections. After a disaster, SAVE volunteers are trained to move quickly to determine which buildings are safe to use and which should be evacuated.

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 Land Subsidence/Sinkholes

HAZARD PROFILE

DESCRIPTION OF HAZARD

“Land subsidence is sinking of the earth’s surface due to the movement of earth materials below the surface. This sinking can be sudden or gradual...In Missouri, subsidence is primarily associated with sinkholes but...can also occur from void space left by mining and natural caves...” (*MO State Hazard Mitigation Plan, 2018*)

Gradual or sudden land subsidence is a key sign of sinkhole formation. The Stormwater Design Manual from Boone County, Howard County’s neighbor to the east, distinguishes between two types of sinkholes associated with karst topography:

- Depression sinkholes which have a defined drainage area and are generally shown as closed contours on a topographic map; best management practices are required to protect groundwater when runoff from development drains into these areas
- Collapse sinkholes are areas of “karst-related subsidence with no defined drainage area when occurring outside of a depression sinkhole. Collapse sinkholes can occur in the bottom of a depression sinkhole and are commonly referred to as the ‘eye’ of the sinkhole”

Construction excavation and well drilling can also cause sinkholes, according to the Missouri Department of Natural Resources (DNR).

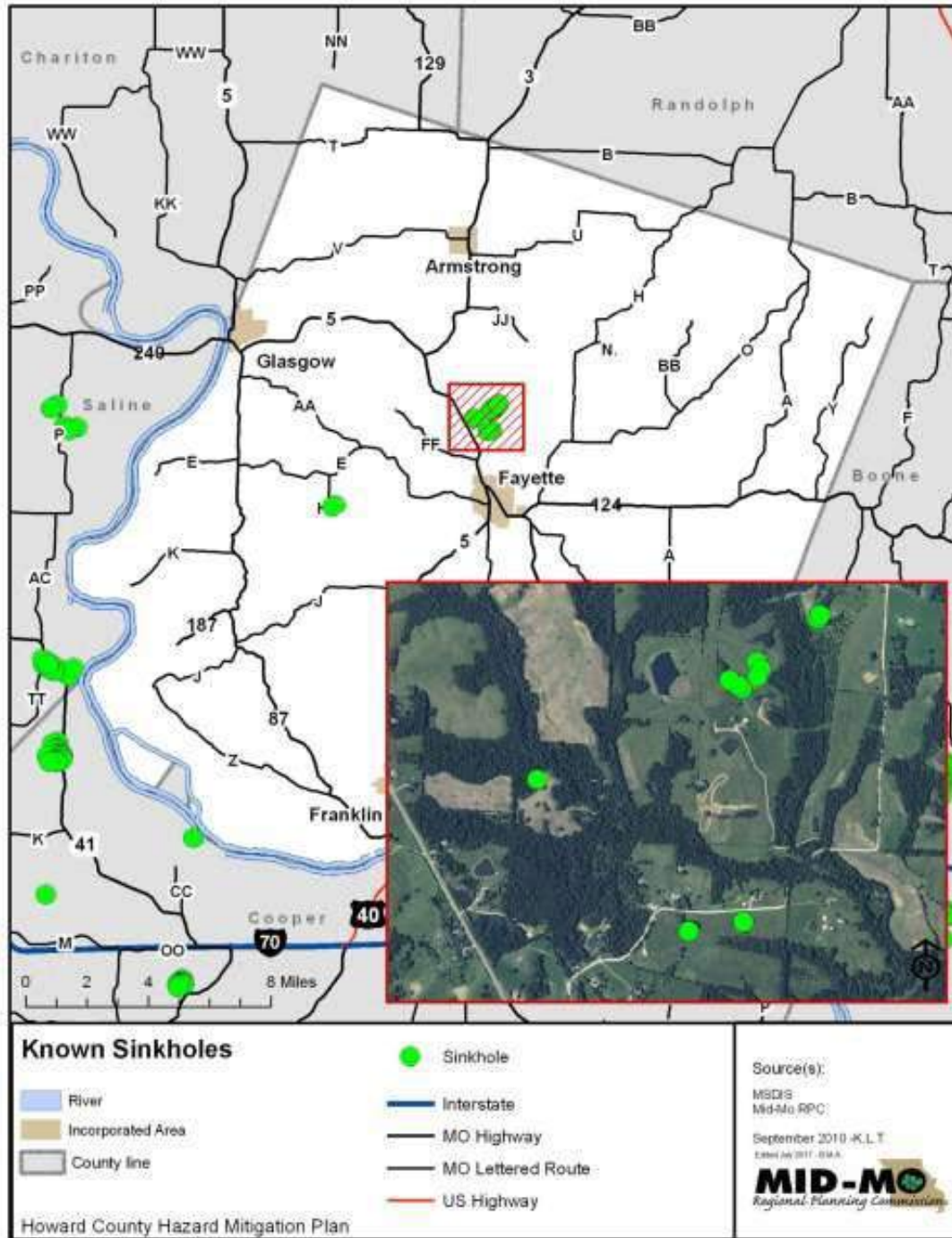
In addition to being at risk for land subsidence and sinkhole collapse associated with karst topography, the planning area is at risk from land subsidence/collapse associated with underground mining and exploratory drilling for petroleum.

Location

There are twelve known sinkholes in the planning area (see Map 3.14).

It is important to note that future sinkhole development has the potential to occur near these areas and also in other areas that currently do not have sinkholes or ground collapse. Gradual or sudden land subsidence is a key sign of sinkhole formation

Map 3.14



Strength/Magnitude/Extent

Sinkholes can vary “from a few feet to hundreds of acres and from less than one to more than 100 feet deep,” according to the USGS.

There have been 15,891 sinkholes identified in Missouri. One hundred and sixty sinkhole collapses examined by the Missouri Department of Natural Resources between 1970 and 2007

were less than 10 feet in diameter and less than 10 feet deep. However, there were also some very large collapses within the state: one collapse drained a lake near St. Louis; one drained a sewage lagoon in West Plains; and one swallowed a garage with a car in it in Nixa.

Previous Occurrences

There have been no *recorded* recent occurrences of sinkhole collapse in Howard County. Just because no occurrences have been recorded does not mean that they have not happened. Previous occurrences of sinkhole development in other parts of Missouri with similar geologic features are a source of concern.

According to the Missouri DNR, sewage lagoons in West Plains and Republic in southern Missouri were drained of their contents due to the development of sinkholes. Sinkholes drain directly into underground water sources and can impact or pollute area water sources. In West Plains, sinkholes had drained the lagoon twice before the final collapse; local officials had tried to patch the collapses with cement and other materials. The final collapse in 1978 resulted in sewage draining directly into underground water sources. Mammoth Spring in Arkansas was contaminated, and more than 800 local residents reported illness, according to the Missouri DNR. While this occurred in southern Missouri, the potential exists for a similar situation to occur in the planning area.

Probability and Severity of Future Events

Probability - low

Severity - low

There have been no recorded sinkhole collapses in the recent history in Howard County and the known sinkholes are not located within city limits or near any major clustering of structures or important infrastructure.

CHANGING FUTURE CONDITIONS CONSIDERATIONS

With expected rainfall events to happen more frequently and with higher intensity with climate change, instances of sinkhole collapse could go up in the planning area due to erosion from flooding and severe runoff exposing depressions below. Periods of rain followed by drought also elevate potential for sinkholes to open up with the fluctuating water table. There is also the opportunity for aging infrastructure such as water and sewer lines located underground to collapse as they get weaker with age or vehicle travel becomes more-heavy.

VULNERABILITY

Vulnerability Overview

Severity: Low to High

It is very difficult to predict the severity of a sinkhole collapse due to their great variance in size, varying speeds of collapse onset, and proximity to the built environment. The severity of a sinkhole collapse will also be greater if contamination occurs.

Potential Impact – Life

Sinkhole collapse poses a potential threat to human life; there have been numerous news stories in recent years of collapsing sinkholes swallowing up people. In 2013, a man hunting in southern Missouri lost his life when he stepped in a sinkhole that had possibly opened up due to recent heavy rain.

Sinkhole collapse potentially poses a threat to public health via contamination of the water supply. According to information from the Missouri DNR, a 1978 sinkhole collapse in southern Missouri drained the West Plains lagoon, resulting in sewage draining directly into underground water sources. More than 800 local residents reported illness, and Mammoth Spring in Arkansas was contaminated.

Potential Impact - Existing Structure

Sinkholes vary in size and can potentially cause damage to roads, water/sewer lines, buildings, and lagoons. It is difficult to determine the potential impact of land subsidence and sinkholes on existing structures for a number of reasons:

There is a lack of data on historic damages caused by land subsidence and sinkhole collapse in Missouri.

Even with the mapping of known and possible sinkhole locations, it is difficult to predict where a sinkhole will collapse and if the collapse will be significant enough to damage any structures in the vicinity.

Because sinkhole collapse is not predictable, there is no direct way to assess a cost impact for this hazard. Vulnerable structures, roads, or property could potentially be impacted by a sudden and usually localized drop in elevation. The resulting damage incurred from the sinkhole could result in broken roads, building collapse, compromises to water sources, environmental impacts, and/or loss of life. While loss of life could occur, it would most likely be minimal.

Potential Impact - Future Development

It is difficult to assess the effects of sinkholes on future development because sinkhole development is unpredictable and few sinkhole areas have been identified in the planning area. However, it should be noted that future development can affect the impact of this hazard. Construction of septic tanks, lagoons, and structures can cause shifts in soil and may plug or disturb karst areas, allowing for the formation of a sinkhole. Also, soil disturbance can cause the drainage pattern to change, which may lead to blockage of a sinkhole and potentially cause flooding.

Hazard Summary by Jurisdiction

Land subsidence and sinkhole collapse are not of great concern in the planning area. There are no known sinkholes in any areas that would impact a school district structure. The only known sinkhole areas in the planning area are in unincorporated Howard County. It is important to note the potential for future sinkhole development near these areas and in other

areas that presently do not have developed sinkholes. Gradual or sudden land subsidence is a key sign of sinkhole formation.

Problem Statement

Howard County and its jurisdictions are all vulnerable to land subsidence/sinkholes to some extent.

Sinkhole collapse in karst areas poses the threat of contamination of the groundwater over a wide region. By keeping infrastructure properly maintained and tracking new collapse occurrences jurisdictions can more easily discourage land disturbance near potential problem areas.

3.4.6 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. As an aid to analysis and discussion, the research literature has defined different categories of drought.

There are four types of drought conditions relevant to Missouri, according to the State Plan, which are as follows.

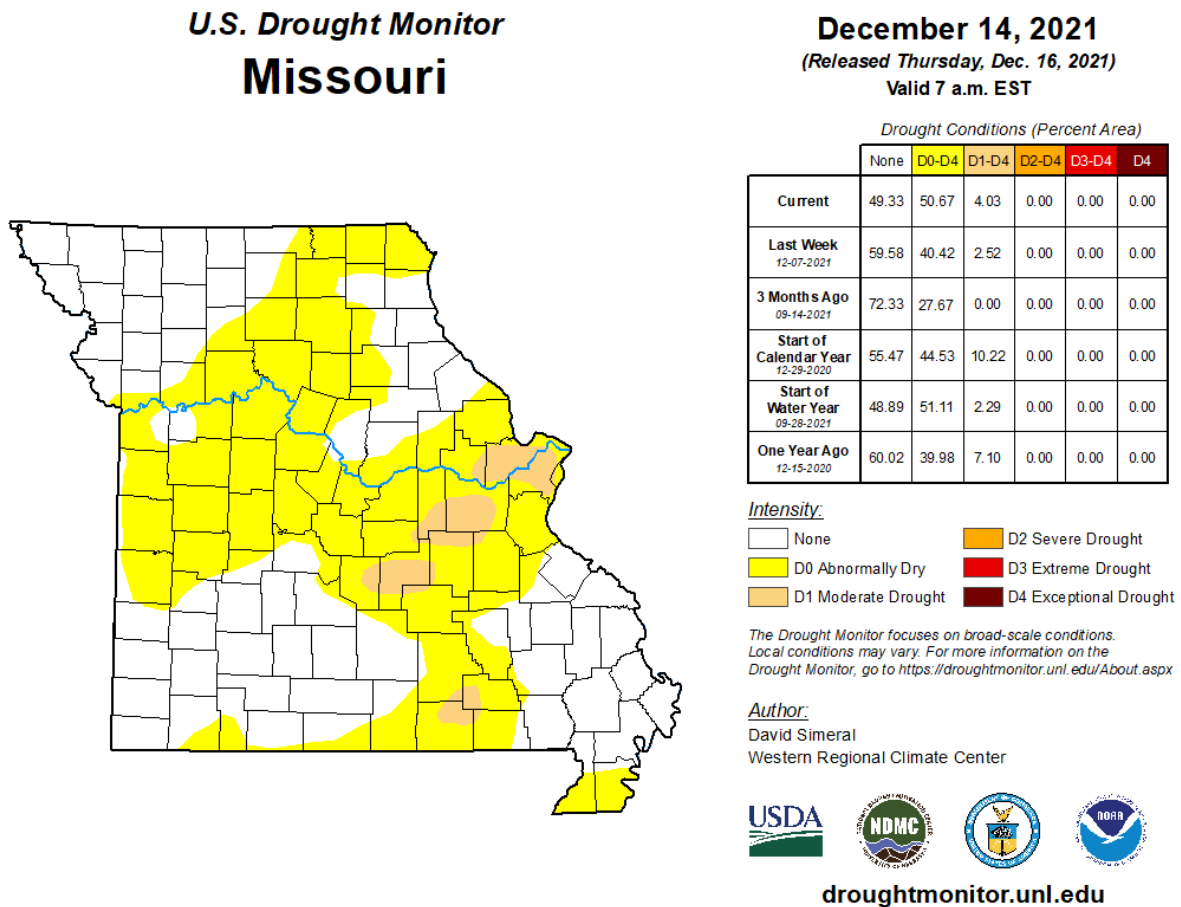
- Meteorological drought is defined in terms of the basis of the degree of dryness (in comparison to some “normal” or average amount) and the duration of the dry period. A meteorological drought must be considered as region-specific since the atmospheric conditions that result in deficiencies of precipitation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

- 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 Howard County are most at risk. Drought can mean crop failure in these areas and the resulting immediate, and potentially severe, economic loss.

Map 3.15 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 3.31), which is published jointly by NOAA and the U.S. Department of Agriculture (USDA).

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; Howard 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 3.32).

Based on the Drought Severity Classification from the NDMC, Howard 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 3.32

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

The Dust Bowl years of the 1930s and early 1940s were dry in Missouri but not as dry as the period from 1953 through 1957. A major nationwide drought in the late 1980s resulted in low water and decreased barge traffic on the Mississippi River and the Missouri River. The fall of 1999 was another serious drought period in the state; in October of that year, all counties in Missouri were declared agricultural disaster areas by the USDA.

The drought that affected the entire state in the summer of 2012 was the worst drought in 30 years, according to the *MO State Hazard Mitigation Plan (2013)*. The planning area and the surrounding region suffered agricultural losses.

Even though Howard County averages between 38 to 42 inches of precipitation per year, it has been subject to droughts in the past.

Probability of Future Events

In the 21-year period 2000-2020, there were 12 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 33%. (Probability calculation: $1 - (7/21 * 100) = 33.33$)

The probability of occurrence of the maximum drought severity in any given year, based on the 2000-2020 data, has also been calculated (Table 3.33).

Severity Scale	Drought Description	# of years with drought event (2000-2020)	Probability	Probability Rating
D1	Moderate	7	33%	High
D2	Severe	7	33%	High
D3	Extreme	6	29%	High
D4	Exceptional	2	10%	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 – Howard 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*, 72.3% of Howard County land use is tied to farming activities. In 2017 the market value of Howard County farm products was estimated at nearly \$60 Million.

Howard Co. Consolidated Public Water Supply District #1 has been evaluated as not vulnerable to Drought because the source of its water, the alluvial water of the Missouri River, is abundant and is pumped from wells 90-100 feet deep. The Chief Water Operator of the District noted that water supply has never been a problem nor, due to the abundance of alluvial water, can he imagine a situation when it ever would be.

The Howard Co. Regional Water Commission has its wells in the Missouri River floodplain, so it is not being considered vulnerable to Drought.

Potential Impact – Life

Both crops and livestock are at risk from drought. During the Exceptional Drought conditions in 2012, there were large sell-offs of livestock in the mid-Missouri region.

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. Missouri American Water thought that the 2012 drought played a role in the 29 main breaks of cast iron pipe in August of that year; the number of breaks was higher than would have been expected. 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. The jurisdictions of the planning area are planning for the future through such actions as the formation of the Howard Co. Regional Water Commission and continuing discussions of other interconnections arrangements and agreements.

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 Howard 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 Howard 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.

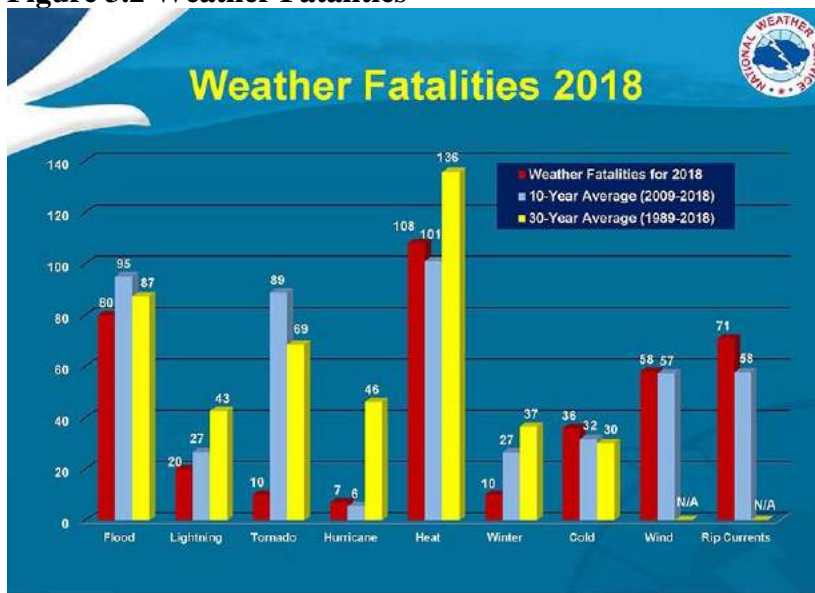
3.4.7 Extreme Temperatures

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 3.2). In contrast to the visible, destructive, and violent nature of floods, hurricanes, and tornadoes, extreme heat is a silent killer.

Figure 3.2 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.

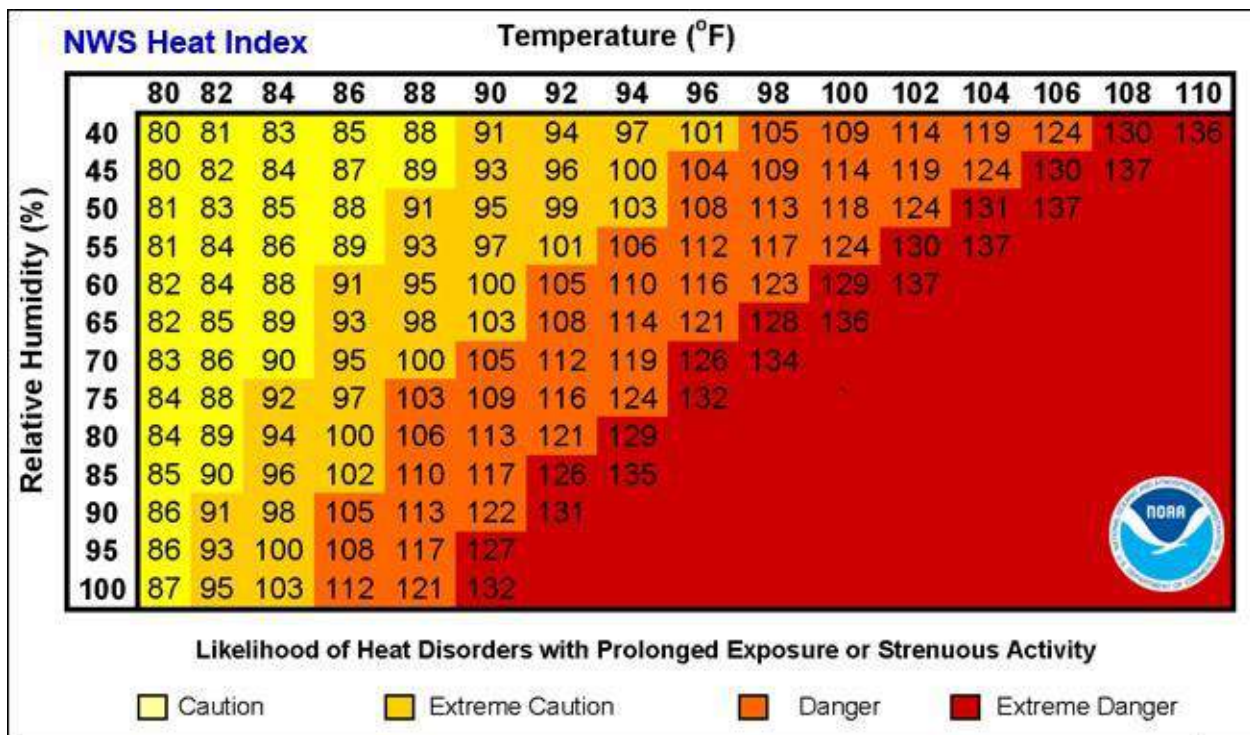
Geographic Location

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 3.3). 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 3.3 Heat Index Guide



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

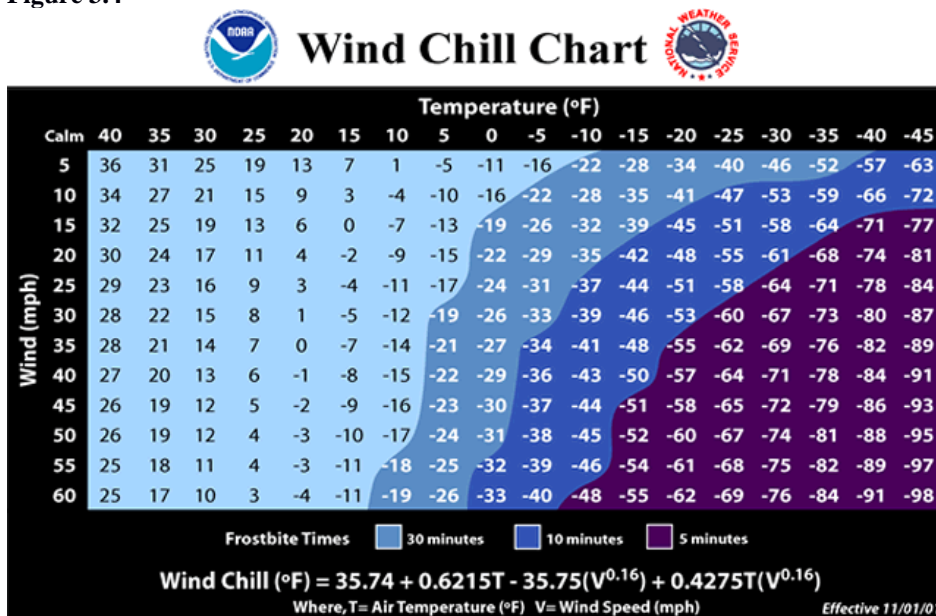
Note: Exposure to direct sun can increase Heat Index values by as much as 15°F. The shaded zone above 105°F corresponds to a HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

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 3.4



Previous Occurrences

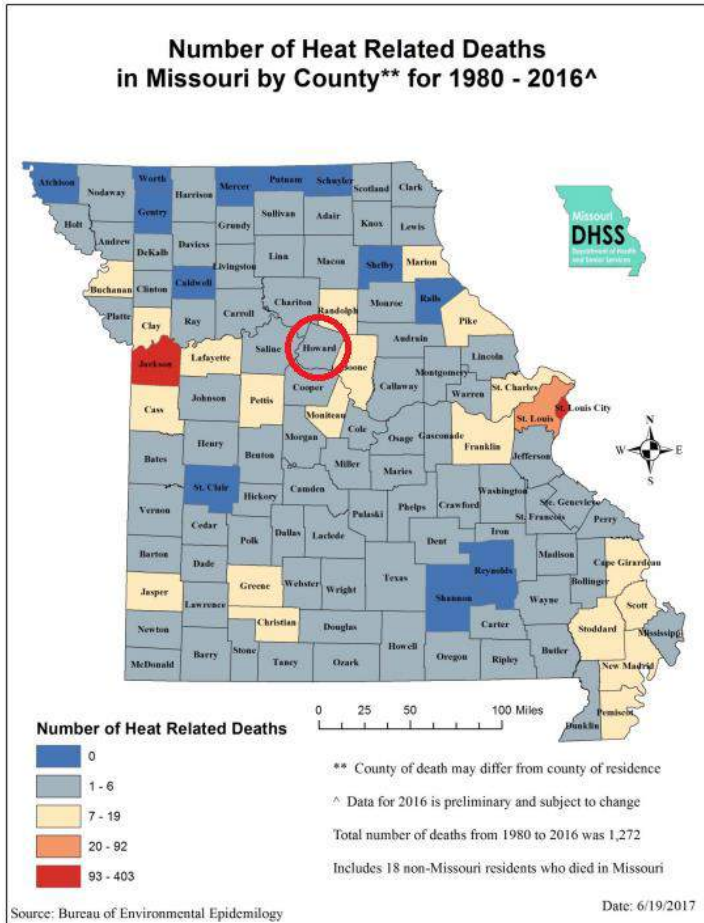
Howard County has had periods of extreme temperature in the last two decades but have not recorded any losses to crops, property, or lives. However, the state of Missouri has.

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 3.34 Extreme Temperature Events

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
HOWARD (ZONE)	8/28/2000	Heat	0	0	0	0
HOWARD (ZONE)	9/1/2000	Heat	0	0	0	0
HOWARD (ZONE)	10/6/2000	Extreme Cold/Wind Chill	0	0	0	0
HOWARD (ZONE)	12/10/2000	Extreme Cold/Wind Chill	0	0	0	0
HOWARD (ZONE)	7/6/2001	Heat	0	0	0	0
HOWARD (ZONE)	7/17/2001	Heat	0	0	0	0
HOWARD (ZONE)	8/1/2001	Heat	0	0	0	0
HOWARD (ZONE)	8/9/2001	Heat	0	0	0	0
HOWARD (ZONE)	7/4/2003	Heat	0	0	0	0
HOWARD (ZONE)	7/21/2005	Heat	0	0	0	0
HOWARD (ZONE)	7/16/2006	Heat	0	0	0	0
HOWARD (ZONE)	7/29/2006	Heat	0	0	0	0
HOWARD (ZONE)	8/1/2006	Heat	0	0	0	0
HOWARD (ZONE)	8/6/2007	Excessive Heat	0	0	0	0
HOWARD (ZONE)	7/18/2012	Excessive Heat	0	0	0	0
HOWARD (ZONE)	1/6/2014	Cold/Wind Chill	0	0	0	0

Map 3.16 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 13 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 38%. (Probability calculation: $1 - (13/21) = 0.38$)

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.

Changing Future Conditions Considerations

According to the 2018 Missouri Hazard Mitigation Plan, under a higher emissions pathway, historically unprecedented warming is projected by the end of the century. Even under a more conservative estimation of greenhouse gas emissions, average annual temperatures are projected to most likely exceed historical record levels by the middle of the 21st century. Temperature increases will cause future heat waves to be more intense, a concern for this region which already experiences hot and humid conditions.

Higher demands and costs for electricity to run air conditioners can stress power systems. Higher temperatures can also cause harmful algal blooms in warmer water – resulting in poor water quality.

**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 3.35) 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. One known death occurred in the planning area in August 2002. when a 59-year-old Boone County man died from heat exhaustion after collapsing while doing yard work.

Table 3.35 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 2019 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 3.36: Howard County Population by Age

Jurisdiction	Population Under 5 yrs	Population 65 yrs and over
Unincorporated Howard County	591	1,857
Armstrong	9	24
Fayette	93	437
Franklin	8	37
Glasgow	56	270
New Franklin	10	232

Source: American Community Survey 5-year Estimates 2019

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.

Fayette, the major population center in 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 2019 estimates show 1,857 citizens in Howard County (18.5% 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.

3.4.8 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.

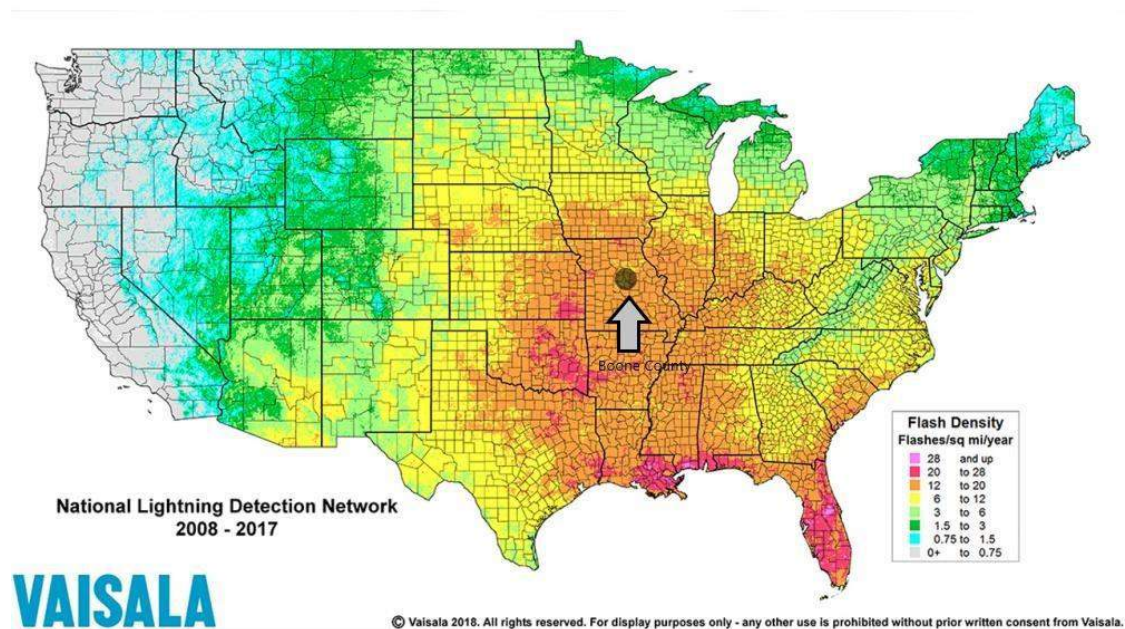
Hail is formed when updrafts in thunderstorms carry raindrops up to very high and cold areas where they freeze into ice. Hail, especially large sized hail, can cause severe damage and presents a threat to automobiles, airplanes, roofs, crops, livestock, and even humans.

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

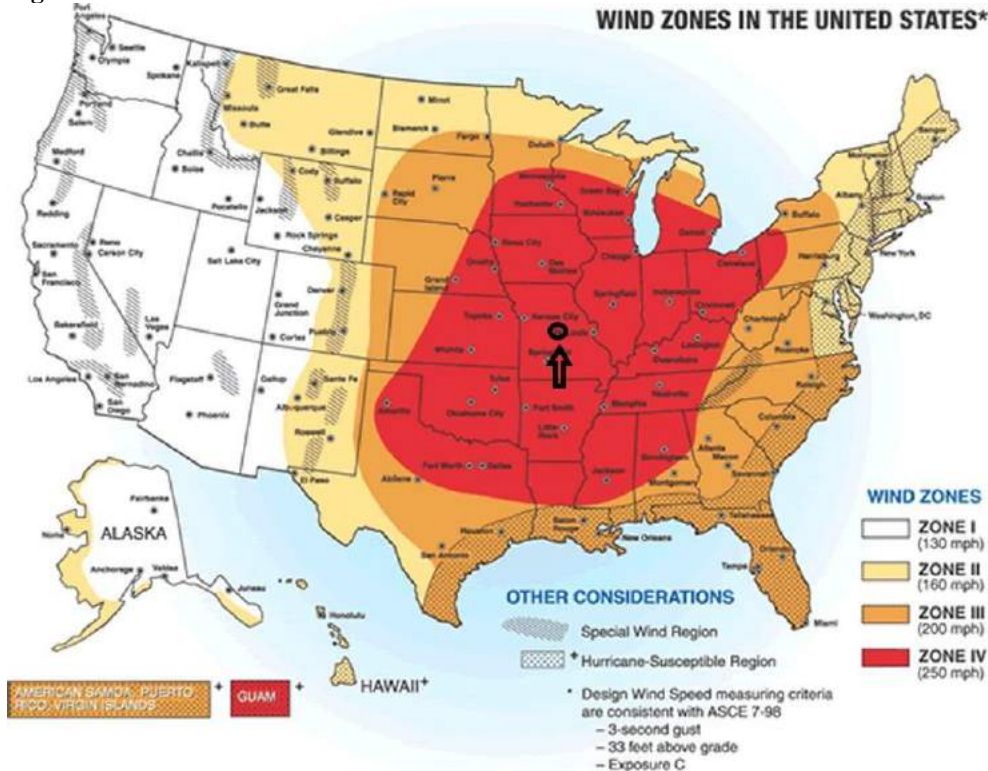
The entire planning area is at risk from severe thunderstorms and all the related threats accompanying them. Although these events occur similarly throughout the planning area damages are more likely to occur in more densely developed areas and areas with older homes. Howard County is located in central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

Figure 3.17: 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.

Figure 3.18 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 3.37 below describes typical damage impacts of the various sizes of hail.

Table 3.37: 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 >	Widespread glass damage, vehicle bodywork damage

			squash ball	
Destructive	41-50	1.6-2.0	Golf ball >	Wholesale destruction of glass, damage to tiled roofs,
			Pullet's egg	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 >	Severe roof damage, risk of serious injuries
			cricket ball	
Destructive	76-90	3.0-3.5	Large orange >	Severe damage to aircraft bodywork
			Soft ball	
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 3.38 Crop Insurance Claims Paid in Howard County from High Winds, 2010-2020

Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2012	Other	Excess Wind	527
2016	Corn	Excess Wind	1369
2018	Corn	Excess Wind	673
2018	Other	Excess Wind	320
2019	Soybeans	Excess Wind	2471
Total			5360

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

Table 3.39 Crop Insurance Claims Paid in Howard County from Hail, 2010-2020

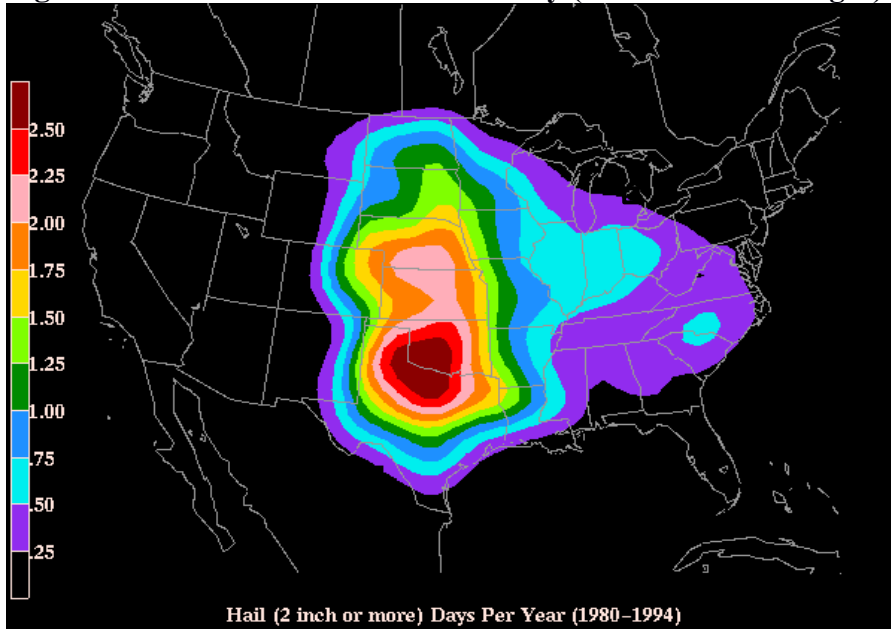
Crop Year	Crop Name	Cause of Loss Description	Insurance Paid
2010	Corn	Hail	877
2012	Corn	Hail	126
2012	Soybeans	Hail	335
2014	Wheat	Hail	1007
2017	Soybeans	Hail	492
Total			2837

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

Figure 3.5 Annual Hailstorm Probability (2” diameter or larger) 1980-1994

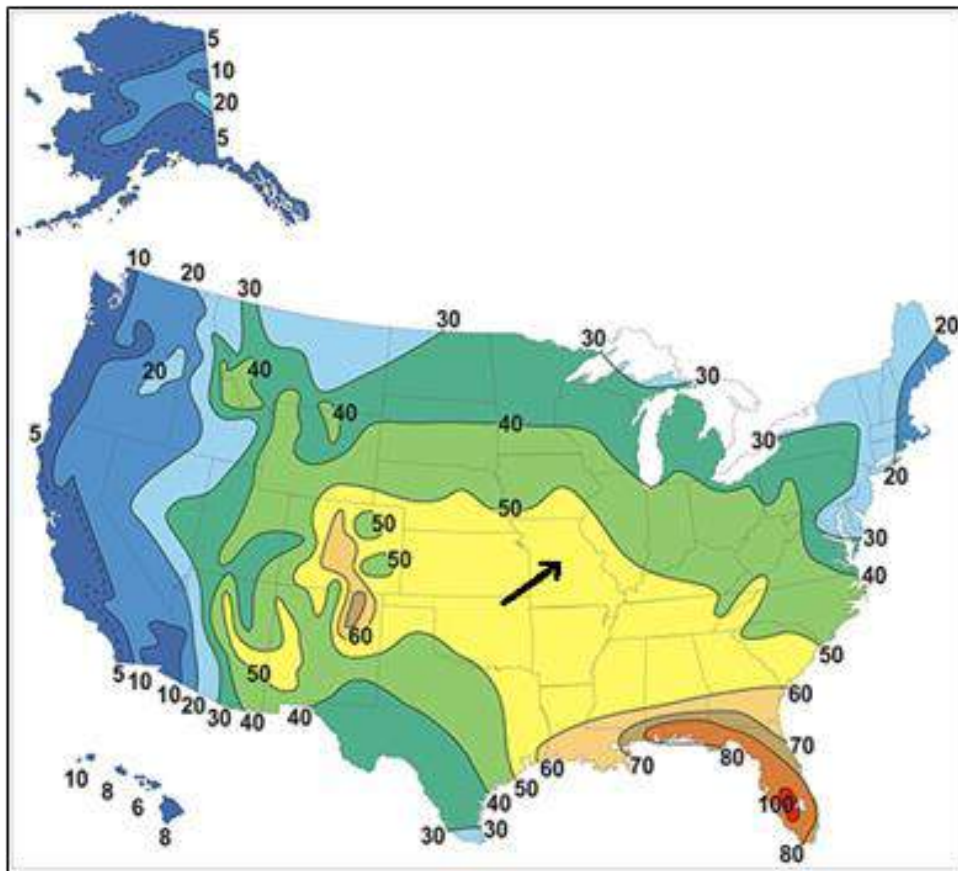


Source: NSSL, http://www.nssl.noaa.gov/users/brooks/public_html/big_hail.gif

National Weather Service data indicates an average 50-60 thunderstorm days per year in Missouri (Figure 3.19).

Map 3.19

Average Number of Thunderstorm Days Annually in U.S.



Source: NOAA

Data from NOAA for the recent 21-year period (2000-2020) indicates 29 thunderstorm wind events in Howard County. There were 5 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 75 percent.

Data from NOAA for the same period indicates 38 reported severe hail events in the planning area. There were 4 years without severe hail events 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 80 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 in the recent 10-year period 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.

NOAA data only indicates damage from one hailstorm event in 2009 costing around \$10,000 in damages, common knowledge would indicate that this is not accurate. 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.

While hailstorms of the magnitude that caused such damage in 2006 do not occur every year in Howard County, hail is a costly hazard for the planning area.

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

Howard Co. Family Support (State of MO Social Services) is in charge of opening shelters and works closely with the EMA; all of the personnel of Howard Co. Family Support (currently eight staff members) are mandated volunteers. The Red Cross from neighboring Boone County assists with sheltering needs.

City of Fayette

The City of Fayette has agreements with both the Fayette High School and Central Methodist University to use their facilities as shelters. The gymnasium at Fayette High School would be used as a shelter; the Phillip Recreation Center at CMU is a designated Red Cross shelter.

City of New Franklin

The school buildings of the New Franklin R-I School District can be used for sheltering; a kitchen is available for sheltering needs. There are also three churches and a community building available in the city for sheltering.

Utility Companies

Utility companies in Howard County have policies regarding tree trimming and brush removal around power lines. Consistent maintenance of trees and brush around utility lines limits the possibility of power outages during a severe winter storm. Maintenance also provides fiscal savings because repairing fallen utility lines and poles is both costly and dangerous.

National Weather Service and Local Media

The Kansas City Office of the National Weather Service at Pleasant Hill coordinates with local jurisdictions and media outlets to disperse information regarding severe winter storm watches and warnings. Early warning allows the public to prepare for a severe storm. Should a storm reach catastrophic proportions and officials need to communicate directly with the public, the Emergency Alert System exists to spread that information.

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.

3.4.9 Severe Winter Weather

Hazard Profile

Hazard Description

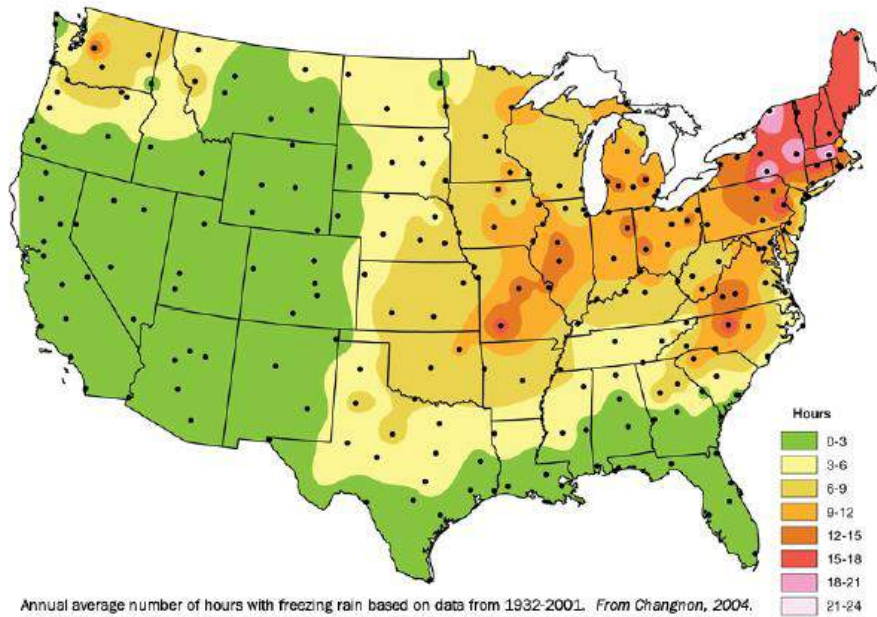
Winter storms in central Missouri contain ice, snow, severe cold, sleet, and wind; each of these associated factors has the potential to disrupt life in the region by making normal activity difficult and/or dangerous. The National Weather Service describes different types of winter storm events as follows:

- 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.

Figure 3.20. 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 3.40	
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 3.41).

Table 3.41: NCEI Howard County Winter Weather Events Summary, 2000-2020

Location	Date	Event Type	Deaths	Injuries	Property Damage	Crop Damage
HOWARD (ZONE)	1/28/2001	Winter Storm	0	0	0	0
HOWARD (ZONE)	2/9/2001	Winter Storm	0	0	0	0
HOWARD (ZONE)	1/25/2004	Winter Storm	0	0	0	0
HOWARD (ZONE)	1/12/2007	Winter Storm	0	0	0	0
HOWARD (ZONE)	1/10/2011	Winter Weather	0	0	0	0
HOWARD (ZONE)	1/19/2011	Winter Storm	0	0	0	0
HOWARD (ZONE)	2/13/2012	Winter Weather	0	0	0	0
HOWARD (ZONE)	2/21/2013	Winter Storm	0	0	0	0
HOWARD (ZONE)	2/25/2013	Winter Storm	0	0	0	0
HOWARD (ZONE)	3/23/2013	Winter Storm	0	0	0	0
HOWARD (ZONE)	12/21/2013	Winter Storm	0	0	0	0
HOWARD (ZONE)	3/1/2014	Winter Storm	0	0	0	0
HOWARD (ZONE)	1/11/2019	Winter Storm	0	0	0	0
HOWARD (ZONE)	12/15/2019	Winter Storm	0	0	0	0

Table 3.42 Crop Insurance Claims Paid in Howard County as a Result of Cold Conditions and Snow 2010-2020

Crop Year	Crop Name	Cause of Loss	Insurance Paid (\$)
2010	Wheat	Cold Wet Weather	105
2010	Wheat	Cold Wet Weather	105
2010	Corn	Cold Wet Weather	1292
2010	Corn	Cold Wet Weather	122
2010	Corn	Cold Wet Weather	1549
2010	Corn	Cold Wet Weather	2844
2010	Soybeans	Cold Wet Weather	4695
2011	Wheat	Cold Wet Weather	573
2011	Corn	Cold Wet Weather	52890
2011	Soybeans	Cold Wet Weather	2895
2011	Soybeans	Cold Wet Weather	1000
2012	Corn	Cold Wet Weather	727
2012	Corn	Cold Wet Weather	2745

2013	Wheat	Cold Wet Weather	3684
2013	Wheat	Cold Wet Weather	256
2013	Wheat	Cold Wet Weather	280
2013	Wheat	Cold Wet Weather	12577
2014	Wheat	Frost	110
2014	Wheat	Cold Wet Weather	1208
2014	Wheat	Cold Wet Weather	1050
2014	Wheat	Cold Wet Weather	1575
2014	Wheat	Cold Wet Weather	1041
2014	Wheat	Cold Wet Weather	258
2014	Soybeans	Cold Wet Weather	20345
2014	Soybeans	Cold Wet Weather	10926
2018	Wheat	Cold Wet Weather	47
2018	Corn	Cold Wet Weather	143
2018	Corn	Cold Wet Weather	87
2018	Soybeans	Cold Wet Weather	232
2019	Sorghum	Freeze	160
2020	Corn	Cold Wet Weather	433
2020	Corn	Cold Wet Weather	433
2020	Corn	Cold Wet Weather	5099
2020	Corn	Cold Wet Weather	433
2020	Sorghum	Frost	2845
Total			134764

Probability of Future Occurrence

The historical data indicates there were 13 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 38%. (Probability calculation: $1 - (13/21) = .38$)

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 2019 ACS estimates over 18% of the population as 65 years and older in Howard 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 Howard 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.

3.4.10 Tornado

Hazard Profile

Description of Hazard

Essentially, tornadoes are a vortex storm with two components of winds. The first is the rotational winds that can measure up to 500 miles per hour, and the second is an uplifting current of great strength. The dynamic strength of both these currents can cause vacuums that can overpressure structures from the inside.

Although tornadoes have been documented in all 50 states, most of them occur in the central United States. The unique geography of the central United States allows for the development of thunderstorms that spawn tornadoes. The jet stream, which is a high-velocity stream of air, determines which area of the central United States will be prone to tornado development. The jet stream normally separates the cold air of the north from the warm air of the south. During the winter, the jet stream flows west to east from Texas to the Carolina coast. As the sun “moves” north, so does the jet stream, which at summer solstice flows from Canada across Lake Superior to Maine. During its move northward in the spring and its recession south during the fall, the jet stream crosses Missouri, causing the large thunderstorms that breed tornadoes.

Tornadoes spawn from the largest thunderstorms. The associated cumulonimbus clouds can reach heights of up to 55,000 feet above ground level and are commonly formed when Gulf air is warmed by solar heating. The moist, warm air is overridden by the dry cool air provided by the jet stream. This cold air presses down on the warm air, preventing it from rising, but only temporarily. Soon, the warm air forces its way through the cool air and the cool air moves downward past the rising warm air. This air movement, along with the deflection of the earth’s surface, can cause the air masses to start rotating. This rotational movement around the location of the breakthrough forms a vortex, or funnel. If the newly created funnel stays in the sky, it is referred to as a funnel cloud. However, if it touches the ground, the funnel officially becomes a tornado.

A typical tornado can be described as a funnel-shaped cloud that is “anchored” to a cloud, usually a cumulonimbus that is also in contact with the earth’s surface. This contact on average lasts 30 minutes and covers an average distance of 15 miles. The width of the tornado (and its path of destruction) is usually about 300 yards. However, tornadoes can stay on the ground for upward of 300 miles and can be up to a mile wide. The National Weather Service, in reviewing tornadoes occurring in Missouri between 1950 and 1996, calculated the mean path length at 2.27 miles and the mean path area at 0.14 square mile.

The average forward speed of a tornado is 30 miles per hour but may vary from nearly stationary to 70 miles per hour. The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. Tornadoes are most likely to occur in the afternoon and evening, but have been known to occur at all hours of the day and night.

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 3.43) 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 3.43 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 3.44 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.

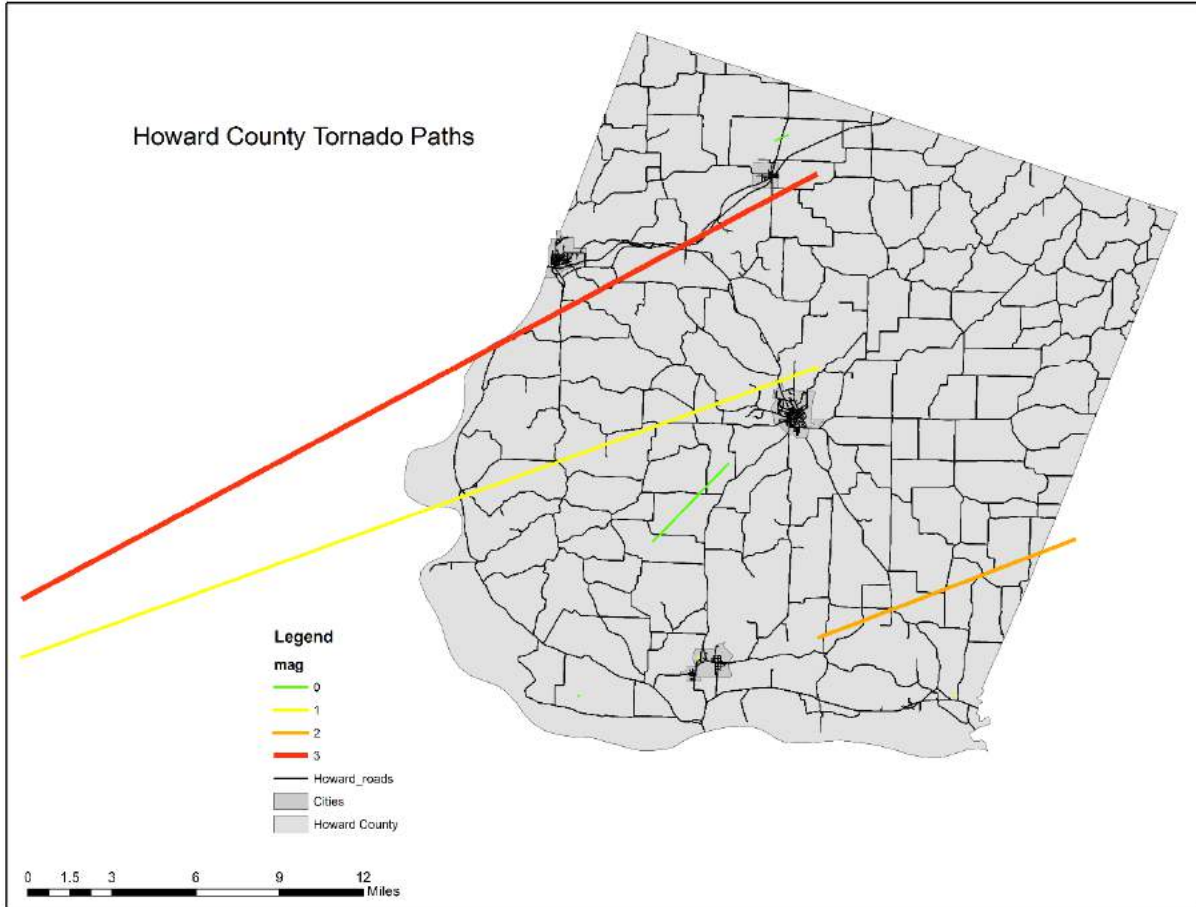
In addition, many historical tornadoes may have been stronger than the data indicates. According to the NOAA website, “Because the only way we can compare all tornadoes is by whatever damage they caused, and EF5/F5 damage is only possible when

tornadoes hit well-built structures, the true ‘violence’ of most historical tornadoes is unknown—especially before the middle to late 20th century.”

Table 3.45 Howard County Tornado Events 1955-2020

Location	Date	Event Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
HOWARD CO.	6/10/1958	Tornado	F0	0	0	30	0
HOWARD CO.	9/27/1959	Tornado	F2	0	0	25000	0
HOWARD CO.	9/27/1959	Tornado	F2	0	0	25000	0
HOWARD CO.	9/27/1959	Tornado	F2	0	0	25000	0
HOWARD CO.	5/23/1966	Tornado	F0	0	0	30	0
HOWARD CO.	4/13/1981	Tornado	F1	0	0	250000	0
HOWARD CO.	5/18/1983	Tornado	F1	0	1	250000	0
FAYETTE	3/12/2006	Tornado	F0	0	0	0	0
GLASGOW	3/12/2006	Tornado	F3	0	0	450000	0
ARMSTRONG	5/22/2019	Tornado	EF0	0	0	0	0
Total				0	1	1025060	0

Map 3.21 Howard 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 7 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 11 percent.

The probabilities of occurrence of the different magnitudes of tornadoes in any given year, based on historical data, have also been calculated (Table 3.46). 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.

Table 3.46

Probability of Future Tornado Events			
EF-Scale	# of years with tornado event (1955-2020)	Probability	Probability Rating
All	7	11%	High
EF0	4	6%	High
EF1	2	3%	Moderate
EF2	3	4.5%	Moderate
EF3	1	1.5%	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 tornados 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 3.22 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 Howard County are Red Cross Certified 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.

3.4.11 WILDFIRE

HAZARD PROFILE

DESCRIPTION OF HAZARD

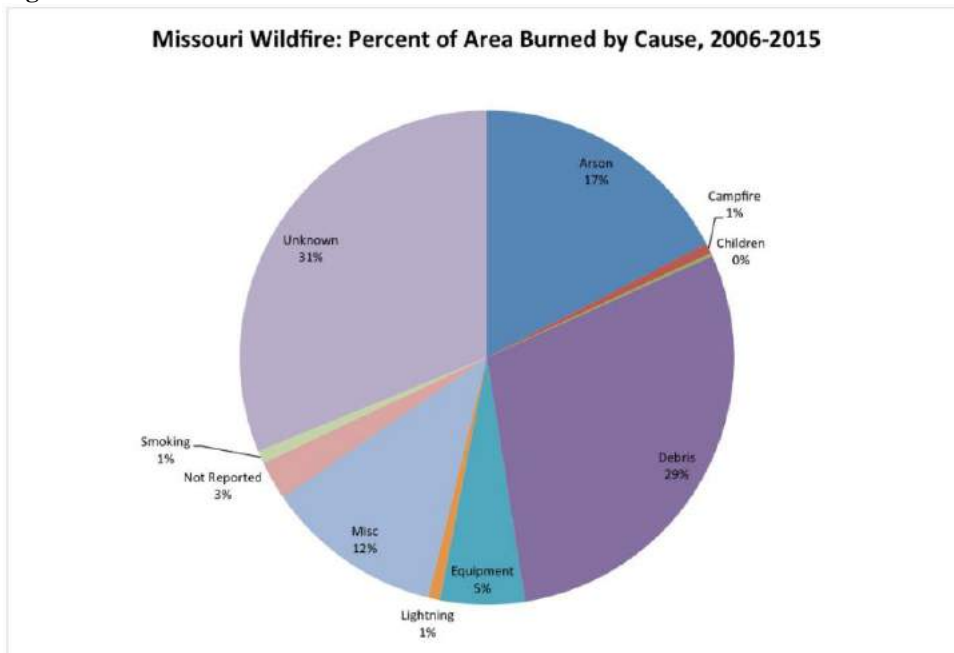
Large and widespread wildfires, such as occur in the western United States, have not been a problem in Howard County in recent history. However, smaller wildfires/natural cover fires occur every year.

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 3.6).

Figure 3.6: Missouri Wildfire Source



Source: Missouri Department of Conservation

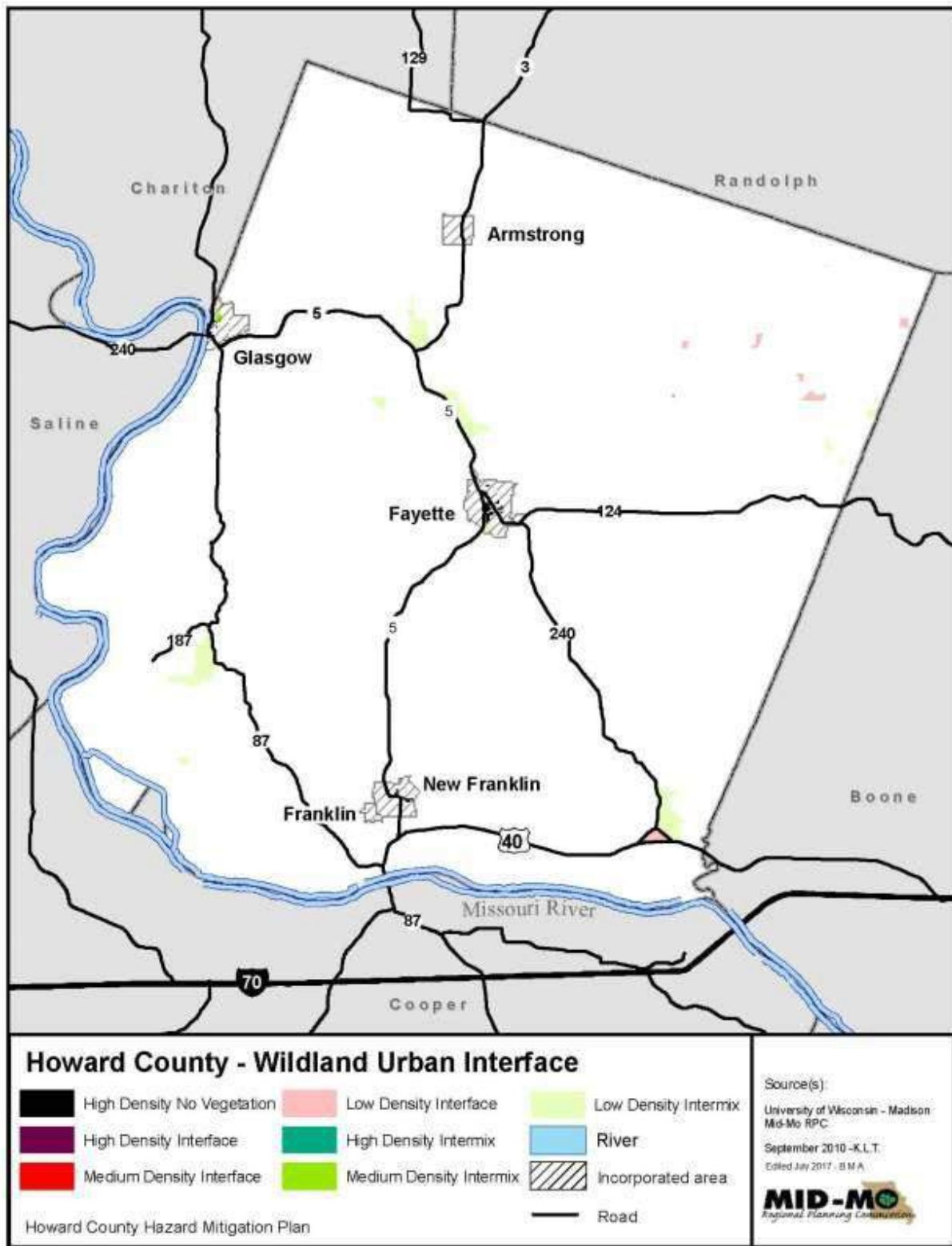
Location

Due to the unpredictability of wildfire, the entire planning area is considered to be at some risk. However, the unincorporated area of Howard County and the Cities of Fayette and New Franklin 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 3.23) does not depict any high-risk areas due to the lack of heavy forested areas and intense farming practices.

Map 3.23 Howard 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 236 wildfire events in Howard County between January 2012 and December 2020.

An inspection of the data for Howard County indicates that the largest reported burnt acreage was 200 acres where a brush pile rekindled and spread to some woods and a field. Within the first two months of 2017, 106 acres in Howard County burned as a result of wildfire. In 2016 alone, there were a total of 7 reported fires, which burned 14 acres. 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.

Members of the Planning Committee assessed the Vulnerability Rating for Wildfire in Howard County (unincorporated), Fayette and New Franklin as high. An important

aspect leading to this rating, which was not taken into consideration in the State Plan, is the all-volunteer makeup of the fire departments and districts in the planning area.

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 Howard 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.

The only incorporated community in the planning area with significant WUI, according to this data, is the City of Glasgow. However, discussion with local fire agency personnel indicates that the areas mapped in Glasgow for WUI no longer present a problem; the areas have been cleared of brush and, in one instance, the area noted is a park with mowed grass. For this reason, the City of Glasgow is not considered to be a geographic location of particular concern for Wildfire.

Fire personnel did note that there are some areas of potential concern for wildfire in the cities of Fayette and New Franklin. There is WUI on the west side of the Fayette and additionally on the northern border of the City of New Franklin.

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 Howard 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 2017.

The four county hazard mitigation goals for the Howard 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.

The 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.

Meeting #3 of the 2022 update, the actions in the plan were reviewed by the planning committee and categorized as follows:

- Completed with a description of the progress.
- Remove-some uncompleted actions were removed from the strategy action plan for various reasons.
- On-going with a description of the progress.

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.

Table 4.1 Action Status Summary

Jurisdiction	Completed Actions	Continuing Actions (ongoing or modify)	Deleted Actions
Howard County	0	2	
Armstrong	0	3	2
Fayette	0	3	13
Glasgow	0	3	11
New Franklin	0	5	6
Fayette R-III	2	1	5
Howard Co. R-II	2	0	6
New Franklin R-I	3	0	4
Central Methodist University	0	2	2

Glasgow Special Road District	N/A	N/A	N/A
Public Water Supply District #1	1	0	5
Howard Co. Regional Water Commission	N/A	N/A	N/A
Howard Co. 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)
Two-Way radios were installed in buses	Glasgow/Fayette/New Franklin school districts
Radios were updated with new frequency	Glasgow/Fayette/New Franklin school districts
NOAA radios in place	New Franklin schools
Encourage cooperative agreements between water districts	PWSD #1 attached to Fayette and new Franklin.
Deleted Action	Deletion Reason
Maintain preparedness plans	Doesn't require funding
Encourage staff to update earthquake training	Already being done
Encourage safe driving	Not hazard related
Create confidential list of people with critical medical devices	Not feasible
Adopt regulations that preserve riparian corridors in developments	Doesn't require funding
Protect critical infrastructure	Not specific
Mitigate the effects of flooding on public infrastructure	Redundant
Remove vegetation and combustible materials around critical infrastructure	Already done by utilities
Ensure that manufactured homes are secured to ground to maximize their longevity	Doesn't require funding
Have plan for cooling center	Doesn't require funding
Ensure reliable warning system regarding high wind situations	Not seen as a need anymore
Encourage developers to build earthquake resistant structures	Doesn't require funding
Adopt model building codes and national engineering standards	Doesn't require funding

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 Howard County Office of Emergency Management is the lead on many actions which mitigate hazards for the entire planning area.

Howard County

Action Worksheet	
Name of Jurisdiction	Howard County
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain management requirements, regulate new construction in the SFHA's, floodplain identification for mapping
Estimated Cost	Less than \$10,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Howard County Floodplain Admin
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	Floodplain Ordinance
Action Status	
Status	KEEP - Ongoing
Report on Progress	ongoing due to meeting NFIP

Action Worksheet	
Name of Jurisdiction:	County of Howard
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms
Problem being Mitigated:	Addressing the problem of different agencies being able to communicate during a disaster
Action or Project	
Applicable Goal Statement:	1
Action/Project Number:	1.1.2
Name of Action or Project:	MOSWIN Radios
Mitigation Category:	Emergency services Communications
Action or Project Description:	Purchasing of MOSWIN Radios for all emergency services in Howard Co.
Estimated Cost:	\$100,00-\$500,000
Benefits:	LF, EMCC
Plan for Implementation	
Responsible Organization/Department:	Commissioners, City Councils, Fire & Ambulance Boards & E.M.A.
Action/Project Priority:	High priority
Timeline for Completion:	by the end of 2023
Potential Fund Sources:	Homeland Security Grants & ARPA Funds
Local Planning Mechanisms to be Used in Implementation, if any:	HMP
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	County of Howard
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado
Problem being Mitigated:	Addressing Chain of Command in all levels of County & City Governments
Action or Project	
Applicable Goal Statement:	2
Action/Project Number:	1.1.3
Name of Action or Project:	COOP Plan
Mitigation Category:	Prevention
Action or Project Description:	We need to have a training class on how to set up Continuity of Government .. and how to get it implemented.
Estimated Cost:	Less than \$10,000.00
Benefits:	LF, EMCC
Plan for Implementation	
Responsible Organization/Department:	County Commission E.M.A.
Action/Project Priority:	High
Timeline for Completion:	December 2022
Potential Fund Sources:	County and Cities General Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	EOP, HMP
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	County of Howard
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme weather
Problem being Mitigated:	We have a lack of available shelters in Armstrong, Glasgow, & New Franklin
Action or Project	
Applicable Goal Statement:	1
Action/Project Number:	1.1.4
Name of Action or Project:	Warm & Cooling
Mitigation Category:	Protection
Action or Project Description:	Ask Red Cross to help establish shelters in Armstrong, Glasgow, & New Franklin. We would also have a need in all of those towns as well as Fayette for shelters with standby power.
Estimated Cost:	\$50,000.00 - \$100,000.00
Benefits:	IC, LF, EMCC
Plan for Implementation	
Responsible Organization/Department:	E.M.A. County Commission, City Councils, Red Cross
Action/Project Priority:	High
Timeline for Completion:	July 2023
Potential Fund Sources:	Local and state grants. Some local general revenue
Local Planning Mechanisms to be Used in Implementation, if any:	EOP
Progress Report	
Action Status:	Keep-ongoing
Report of Progress:	Unavailable funding

Action Worksheet	
Name of Jurisdiction	Howard county
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	power outage to critical infrastructures
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	generator
Action or Project Description	generator is needed to prevent loss of power to critical infrastructure during power outages
Estimated Cost	\$100,000 to \$500,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	County Commission
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	LEOP and HMP
Action Status	
Status	New
Report on Progress	

Armstrong

Action Worksheet	
Name of Jurisdiction	Armstrong
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain management requirements, regulate new construction in the SFHA's, floodplain identification for mapping
Estimated Cost	Less than \$10,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Floodplain Admin
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	KEEP - Ongoing
Report on Progress	ongoing due to meeting NFIP

Action Worksheet	
Name of Jurisdiction	Armstrong
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	flooding due to insufficient culvert drainage
Action or Project	
Applicable Goal Statement	3
Action/Prj. #	2.1.1
Name of Action or Project	culvert updates
Action or Project Description	currently in need of new and replacement culverts to mitigate against flooding against personal and jurisdiction property
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Armstrong
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	LEOP and HMP
Action Status	
Status	KEEP - Modify
Report on Progress	adjusting the verbiage to ensure the needed replacement

Action Worksheet	
Name of Jurisdiction	Armstrong
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	power outage to critical infrastructures
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	generator
Action or Project Description	generator is needed to prevent loss of power to critical infrastructure during power outages
Estimated Cost	\$100,000 to \$500,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Armstrong
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	LEOP and HMP
Action Status	
Status	KEEP - Ongoing
Report on Progress	purchased one generator since the last plan update however the jurisdiction has several critical infrastructures that need to ensure power during power outages.

Fayette

Action Worksheet	
Name of Jurisdiction	Fayette
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain management requirements, regulate new construction in the SFHA's, floodplain identification for mapping
Estimated Cost	Less than \$10,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Flood Admin
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	KEEP - Ongoing
Report on Progress	ongoing due to meeting NFIP

Action Worksheet	
Name of Jurisdiction	Fayette
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	stormwater getting in Sewer System
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	3.1.1
Name of Action or Project	Develop & maintain stormwater policies
Action or Project Description	
Estimated Cost	Over \$1,000,000
Benefits	I/C PD LF EMCC
Plan for Implementation	
Responsible Organization / Department	city council building inspector public works
Action / Project Staplee Score / Priority	
Timeline for Completion	Other
Potential Funding Source	grants
Local Planning Mechanism to be Used	sewer rates & grants
Action Status	
Status	KEEP - Ongoing
Report on Progress	city is currently in middle of 3.2 million upgrade

Action Worksheet	
Name of Jurisdiction	Fayette
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Stormwater
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	2.1.1
Name of Action or Project	Culvert Upgrade
Action or Project Description	Upgrade Culverts for capacity and better stormwater management
Estimated Cost	Over \$1,000,000
Benefits	I/C, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	public works
Action / Project Staplee Score / Priority	
Timeline for Completion	Other
Potential Funding Source	operating budget other grants
Local Planning Mechanism to be Used	operating budget other grants
Action Status	
Status	KEEP - Ongoing
Report on Progress	city is in middle of 3.2 million upgrade of sewer system

Glasgow

Action Worksheet	
Name of Jurisdiction	City of Glasgow
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain management requirements, regulate new construction in the SFHA's, floodplain identification for mapping
Estimated Cost	Less than \$10,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Glasgow, Flood Admin
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	KEEP - Ongoing
Report on Progress	ongoing due to meeting NFIP

Action Worksheet	
Name of Jurisdiction	City of Glasgow
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	outdoor hazard vulnerable to severe thunderstorms and tornadoes
Action or Project	
Applicable Goal Statement	Goal 1
Action/Prj. #	4.1.1
Name of Action or Project	Outdoor Sirens
Action or Project Description	Upgrade and add new early warning weather sirens throughout the jurisdiction.
Estimated Cost	\$100,000 to \$500,000
Benefits	I/C, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fire Chief/City Administration
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	EOP, HMP
Action Status	
Status	Keep-Ongoing
Report on Progress	Not Started

Action Worksheet	
Name of Jurisdiction	City of Glasgow
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Stormwater
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	3.1.2
Name of Action or Project	Drainage Upgrade
Action or Project Description	Upgrade Culverts and ditches for capacity and better stormwater management
Estimated Cost	Over \$1,000,000
Benefits	I/C, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	public works, Glasgow Admin
Action / Project Staplee Score / Priority	
Timeline for Completion	Other
Potential Funding Source	operating budget other grants
Local Planning Mechanism to be Used	operating budget other grants
Action Status	
Status	Keep-Ongoing
Report on Progress	Not Started

Action Worksheet	
Name of Jurisdiction	City of Glasgow
Risk / Vulnerability	
Hazard(s) Addressed	Tornado
Problem Being Mitigated	Lack of appropriate safety structure.
Action or Project	
Applicable Goal Statement	Goal 1
Action/Prj. #	4.1.2
Name of Action or Project	Tornado Safe Room
Action or Project Description	Build Tornado Saferoom
Estimated Cost	Over \$1,000,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Glasgow administration
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
Action Status	
Status	New
Report on Progress	Not Started

Action Worksheet	
Name of Jurisdiction	City of Glasgow
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Water disruption in an emergency event
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	4.1.3
Name of Action or Project	Emergency Secondary Connect
Action or Project Description	Create a secondary emergency connection to an outside water system in case of emergency event
Estimated Cost	\$50,000 to \$100,000
Benefits	I/C, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	City of Glasgow, Administration
Action / Project Staplee Score / Priority	
Timeline for Completion	1 year
Potential Funding Source	Grant opportunities self-funded
Local Planning Mechanism to be Used	HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	City of Glasgow
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	Loss of power to critical infrastructure during severe weather
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	Generator
Action or Project Description	Equip building with Generators for use in power outages to maintain government business
Estimated Cost	\$50,000 to \$100,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Glasgow administration
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	LEOP, HMP, comp plan
Action Status	
Status	Keep-Ongoing
Report on Progress	Not started

New Franklin

Action Worksheet	
Name of Jurisdiction	New Franklin
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Losses from flooding
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.1.1
Name of Action or Project	NFIP Continued Compliance
Action or Project Description	Enforce floodplain management requirements, regulate new construction in the SFHA's, floodplain identification for mapping
Estimated Cost	Less than \$10,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	New Franklin, Flood Admin
Action / Project Staplee Score / Priority	High
Timeline for Completion	Other
Potential Funding Source	Local, State and Federal
Local Planning Mechanism to be Used	Floodplain ordinance
Action Status	
Status	KEEP - Ongoing
Report on Progress	ongoing due to meeting NFIP

Action Worksheet	
Name of Jurisdiction	New Franklin
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Stormwater
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	2.1.1
Name of Action or Project	Culvert Upgrade
Action or Project Description	Upgrade Culverts and ditches for capacity and better stormwater management
Estimated Cost	Over \$1,000,000
Benefits	I/C, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	public works, New Franklin Admin
Action / Project Staplee Score / Priority	
Timeline for Completion	Other
Potential Funding Source	operating budget other grants
Local Planning Mechanism to be Used	operating budget other grants
Action Status	
Status	New
Report on Progress	Not Started

Action Worksheet	
Name of Jurisdiction	New Franklin
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	critical infrastructure flooding
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	5.1.1
Name of Action or Project	relocate city service facilities
Action or Project Description	relocate city service buildings out of currently floodplain. Currently this building gets flooded regularly during flash floods as well as larger flood scale.
Estimated Cost	Over \$1,000,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	New Franklin
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	LEOP and HMP
Action Status	
Status	KEEP - Modify
Report on Progress	adjust the verbiage to ensure relocation of infrastructures

Action Worksheet	
Name of Jurisdiction	New Franklin
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	Loss of power to critical infrastructure during severe weather
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	Generator
Action or Project Description	Equip building with Generators for use in power outages to maintain government business
Estimated Cost	\$50,000 to \$100,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	New Franklin administration
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	LEOP, HMP, comp plan
Action Status	
Status	Keep-Ongoing
Report on Progress	Adjust wording

Action Worksheet	
Name of Jurisdiction	New Franklin
Risk / Vulnerability	
Hazard(s) Addressed	Tornado
Problem Being Mitigated	Lack of appropriate safety structure.
Action or Project	
Applicable Goal Statement	Goal 1
Action/Prj. #	4.1.2
Name of Action or Project	Tornado Safe Room
Action or Project Description	Build Tornado Saferoom
Estimated Cost	Over \$1,000,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	New Franklin administration
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
Action Status	
Status	Keep-Ongoing
Report on Progress	Not Started

Fayette R-III

Action Worksheet	
Name of Jurisdiction	Fayette R-III
Risk / Vulnerability	
Hazard(s) Addressed	Tornado
Problem Being Mitigated	No safe location to go during storms
Action or Project	
Applicable Goal Statement	Goal 1
Action/Prj. #	4.1.2
Name of Action or Project	Safe Room
Action or Project Description	Safe location for students and community members to use during severe storms/tornados
Estimated Cost	Over \$1,000,000
Benefits	IC, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fayette R-III School 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 and Local Planning Mechanism
Action Status	
Status	Keep-Ongoing
Report on Progress	Not Started

Action Worksheet	
Name of Jurisdiction	Fayette R-III
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Loss of essential function during power outage
Action or Project	
Applicable Goal Statement	Goal 2
Action/Prj. #	2.1.2
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	I/C, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fayette R-III school board
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	

Glasgow School District

Action Worksheet	
Name of Jurisdiction	Glasgow School District
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Power outages during severe weather
Action or Project	
Applicable Goal Statement	Goal 1
Action/Prj. #	7.1.1
Name of Action or Project	Alert LED Marquee
Action or Project Description	Equip school with scrolling LED notification boards for hearing impaired students and visitors to the building for broadcasting emergency notifications.
Estimated Cost	\$10,000 to \$50,000
Benefits	I/C, EMCC
Plan for Implementation	
Responsible Organization / Department	Glasgow 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	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Glasgow School District
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	Loss of power to critical infrastructure during severe weather
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	Generator
Action or Project Description	Equip building with Generators for use in power outages to maintain government business
Estimated Cost	\$50,000 to \$100,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Glasgow 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	Facilities Plan
Action Status	
Status	New
Report on Progress	

New Franklin R-I

Action Worksheet	
Name of Jurisdiction	New Franklin R-I
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Power outages during severe weather
Action or Project	
Applicable Goal Statement	Goal 1
Action/Prj. #	7.1.1
Name of Action or Project	Alert LED Marquee
Action or Project Description	Equip school with scrolling LED notification boards for hearing impaired students and visitors to the building for broadcasting emergency notifications.
Estimated Cost	\$10,000 to \$50,000
Benefits	I/C, EMCC
Plan for Implementation	
Responsible Organization / Department	Maintenance, school board
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	New Franklin R-I
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	Loss of power to critical infrastructure during severe weather
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	Generator
Action or Project Description	Equip building with Generators for use in power outages to maintain government business
Estimated Cost	\$50,000 to \$100,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	School Board, admin
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	Facilities Plan
Action Status	
Status	New
Report on Progress	

Central Methodist University

Action Worksheet	
Name of Jurisdiction	Central Methodist
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	Traffic and direction flow on campus during emergencies
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	9.1.1
Name of Action or Project	Electronic signage
Action or Project Description	Purchase of 4 marquee board signs to direct traffic onto and through campus to area with disaster assistance
Estimated Cost	\$10,000 to \$50,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Plant operation and campus safety
Action / Project Staplee Score / Priority	M
Timeline for Completion	2-3 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Central Methodist
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	Loss of power to critical infrastructure during severe weather
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	Generator
Action or Project Description	Equip building with Generators for use in power outages to maintain government business
Estimated Cost	\$50,000 to \$100,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	CMU maintenance
Action / Project Staplee Score / Priority	High
Timeline for Completion	3-5 years
Potential Funding Source	Local, State, Federal
Local Planning Mechanism to be Used	Facilities Plan
Action Status	
Status	Keep-Modify
Report on Progress	Not Started

Action Worksheet	
Name of Jurisdiction	Central Methodist
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	inability to get emergency notification out
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	9.1.2
Name of Action or Project	Emergency Notification App
Action or Project Description	Update and enhance mobile notification alert system to an app that reaches more students and community members with emergency information and preventive info with instant contact to responding agencies.
Estimated Cost	Less than \$10,000
Benefits	IC, EMCC
Plan for Implementation	
Responsible Organization / Department	CMU safety
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
Action Status	
Status	KEEP - Modify
Report on Progress	modifying the verbiage to meet the mitigation need, lack of funding

Action Worksheet	
Name of Jurisdiction	Central Methodist
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Power outages during severe weather
Action or Project	
Applicable Goal Statement	Goal 1
Action/Prj. #	7.1.1
Name of Action or Project	Alert LED Marquee
Action or Project Description	Equip school with scrolling LED notification boards for hearing impaired students and visitors to the building for broadcasting emergency notifications.
Estimated Cost	\$10,000 to \$50,000
Benefits	I/C, EMCC
Plan for Implementation	
Responsible Organization / Department	CMU safety
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	

Glasgow Special Road District

Action Worksheet	
Name of Jurisdiction	Glasgow Special Road District
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Flooding (Riverine and Flash)
Action or Project	
Applicable Goal Statement	4
Action/Prj. #	10.1.1
Name of Action or Project	Environmental Impact Study
Action or Project Description	Watershed and drain water environmental study to identify floodplain weaknesses and redirecting drain off environmental impact.
Estimated Cost	\$50,000 to \$100,000
Benefits	I/C, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	GSRD
Action / Project Staplee Score / Priority	High-40
Timeline for Completion	1 year
Potential Funding Source	Grant opportunities
Local Planning Mechanism to be Used	HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Glasgow Special Road District
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	Flooding (Riverine and Flash)
Action or Project	
Applicable Goal Statement	4
Action/Prj. #	10.1.2
Name of Action or Project	Flooding and drain water mitigation
Action or Project Description	Building up roadbed to above floodplain and redirecting drain water per environmental study.
Estimated Cost	\$100,000 to \$500,000
Benefits	I/C, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	GSRD
Action / Project Staplee Score / Priority	High-31
Timeline for Completion	1 year
Potential Funding Source	Grant opportunities
Local Planning Mechanism to be Used	HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Glasgow Special Road District
Risk / Vulnerability	
Hazard(s) Addressed	Tornadoes
Problem Being Mitigated	No outdoor early warning system
Action or Project	
Applicable Goal Statement	1
Action/Prj. #	4.1.1
Name of Action or Project	Sirens
Action or Project Description	Placing an early warning siren in two locations to warn rural citizens of dangerous conditions.
Estimated Cost	\$10,000 to \$50,000
Benefits	I/C, EMCC
Plan for Implementation	
Responsible Organization / Department	GSRD
Action / Project Staplee Score / Priority	High-30
Timeline for Completion	1 year
Potential Funding Source	Grant opportunities, HMP
Local Planning Mechanism to be Used	HMP
Action Status	
Status	New
Report on Progress	

Public Water Supply District #1

Action Worksheet	
Name of Jurisdiction:	Public Water Supply 1
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado
Problem being Mitigated:	Function issues during a disaster
Action or Project	
Applicable Goal Statement:	2
Action/Project Number:	1.1.3
Name of Action or Project:	COOP Plan
Mitigation Category:	Prevention
Action or Project Description:	We need to have a training class on how to set up Continuity of Government ., and how to get it implemented.
Estimated Cost:	Less than \$10,000.00
Benefits:	LF, EMCC
Plan for Implementation	
Responsible Organization/Department:	Water board/county
Action/Project Priority:	High
Timeline for Completion:	December 2022
Potential Fund Sources:	General Revenue
Local Planning Mechanisms to be Used in Implementation, if any:	EOP, HMP
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction	Public Water Supply 1
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	power outage to critical infrastructures
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	generator
Action or Project Description	generator is needed to prevent loss of power to critical infrastructure during power outages
Estimated Cost	\$100,000 to \$500,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Water board/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	LEOP and HMP
Action Status	
Status	New
Report on Progress	

Howard County Regional Water Commission

Action Worksheet	
Name of Jurisdiction	Howard Co Regional Water Commission
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	Lack of power disruption to critical facilities during outages
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	Generators and Backup power
Action or Project Description	Purchasing and adding generators to water facilities and wells
Estimated Cost	\$100,000 to \$500,000
Benefits	I/C, PD, EMCC
Plan for Implementation	
Responsible Organization / Department	Howard Co Regional Water Commission
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
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Howard Co Regional Water Commission
Risk / Vulnerability	
Hazard(s) Addressed	Flooding (Riverine and Flash)
Problem Being Mitigated	potential loss to well
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	12.1.1
Name of Action or Project	Well
Action or Project Description	we would like to add a 3rd well out of the flood plans so that if the well is lost due to flooding or power outage we have additional well to pull from.
Estimated Cost	\$500,000 to \$1,000,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Howard Co Regional Water Commission
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
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Howard Co Regional Water Commission
Risk / Vulnerability	
Hazard(s) Addressed	Severe Winter Weather
Problem Being Mitigated	overflow of the waste line to lagoon when frozen or ground is saturated
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	12.1.2
Name of Action or Project	lagoon capacity increase
Action or Project Description	we need to increase the lagoon capacity due to ongoing overflows. The lagoon overflows due to the system freezing up or when the grounds are over saturated. When lagoon overflows it runs into the MKT lake and we get violated from DNR and have additional cleaning.
Estimated Cost	\$100,000 to \$500,000
Benefits	PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Howard Co Regional Water Commission
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
Action Status	
Status	New
Report on Progress	

Howard County FPD

Action Worksheet	
Name of Jurisdiction	Howard Co FPD
Risk / Vulnerability	
Hazard(s) Addressed	Wildfire
Problem Being Mitigated	lack of communication when responding to wildfire calls
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	1.1.2
Name of Action or Project	Radios
Action or Project Description	911 and police departments are on Moswin radios and the whole Howard co FPD is currently using older radios that do not connect with Moswin. When responding to wildfire or any other call we cannot communicate after leaving fire station.
Estimated Cost	\$100,000 to \$500,000
Benefits	IC, PD, LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Howard Co 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	EOP, HMP
Action Status	
Status	New
Report on Progress	

Action Worksheet	
Name of Jurisdiction	Howard County FPD
Risk / Vulnerability	
Hazard(s) Addressed	Severe Thunderstorms
Problem Being Mitigated	power outage to critical infrastructures
Action or Project	
Applicable Goal Statement	2
Action/Prj. #	2.1.2
Name of Action or Project	generator
Action or Project Description	generator is needed to prevent loss of power to critical infrastructure during power outages
Estimated Cost	\$100,000 to \$500,000
Benefits	LF, EMCC
Plan for Implementation	
Responsible Organization / Department	Fire 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	LEOP and HMP
Action Status	
Status	New
Report on Progress	purchased one generator since the last plan update however the jurisdiction has several critical infrastructures that need to ensure power during power outages.

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							
4.1.1	Upgrade Warning Sirens	H	1	T, TS	X	X	
1.1.2	MOSWIN 2-way Radios	H	1	All	X		
7.1.1	Alert LED Marquee	H	1	All	X		
9.1.1	Electronic Sign Board	M	1	All	X	X	
9.1.2	Emergency Notification App	H	1	All	X	X	
Structure and Infrastructure Projects							
4.1.2	Build Safe Rooms	H	1	T,TS	X	X	
10.1.2	Infrastructure Flood Mitigation	H	4	FL	X		X
12.1.1	Additional Wells	H	2	FL	X		X
12.1.2	Lagoon Capacity Increase	H	2	FL	X		X
4.1.3	Backup Water Supply	H	2	All	X	X	
Natural Systems Protection							
1.1.1	Enforce NFIP	H	2	FL	X	X	X
2.1.1	Upgrade Culverts	H	3	FL	X	X	X
3.1.1	Update stormwater policies	M	1	FL		X	
10.1.1	Environmental Impact Study	H	4	All	X	X	
Emergency Services							
2.1.2	Backup Generators	H	2	WW, T, TS	X	X	
1.1.4	Warming & Cooling Center	H	1	WW, ET	X	X	

	Education and Outreach						
1.1.3	COOP Plans	H	2	All	X	X	

Chapter 5: PLAN MAINTENANCE PROCESS

- 5.1 Monitoring, Evaluating, and Updating the Plan.....231
 - 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.....233
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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 Howard 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 Howard 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 Howard 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 Howard 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;
- Howard 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 Howard 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
Howard County	County Emergency Operations Plan, Comprehensive Economic Development	Attended transportation meetings about road flooding. Annual budget process. Floodplain	Annual budget process.

	Strategy, Zoning ordinances	ordinances, building codes	
Armstrong	zoning ordinances	Annual Budget Process	Comprehensive plan update, annual budget process
Fayette	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,
Glasgow	Zoning ordinances, Regional Transportation Plan	Attended transportation meetings about road flooding. Annual budget process	Comprehensive plan update, annual budget process
New Franklin	Regional Transportation Plan, zoning ordinances	Annual budget process, zoning ordinances	Annual Budget process, Capital Improvement Process
Fayette R-III	Fayette R-III Planning committee & board of education	Annual Budget process, updated policy, system testing	Safety committee annual budget meeting, building policy updates, staff training
Glasgow School District	Glasgow SD Planning Committee & Board of Education	Annual Budget process, updated policy, system testing	Safety committee annual budget meeting, building policy updates, staff training
New Franklin R-I	New Franklin R-I Planning Committee & Board of Education	Policy updated, staff training, notification system upgrade	Attended 1 meeting. Long-Range Plan update.
Central Methodist University	Planning Committee & Board of Education	Updated policy, notification system upgrade	Emergency management department policies. Budget process.
Glasgow Special Road District	Operations Plan, Ordinances, Policy	Did not participate previously	Annual budget, tax rates, policy update
Public Water Supply District #1	Operation Plan, facilities plan/policy	Did Not Participate	Fees, Operation plan update
Howard Co. FPD	Standard Operating procedures, HMP, EOP	Did Not participate	Procedural Update, EOP, Fire Board, Annual Budget Review
Howard Co. Regional Water Commission	Operation Plan, facilities plan/policy	Did Not Participate	Fees, Operation plan update

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 Howard 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

County of Howard, Missouri RESOLUTION NO. 2022-1

A RESOLUTION OF THE COUNTY OF HOWARD ADOPTING THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the County of Howard recognizes the threat that natural hazards pose to people and property within the County of Howard; and

WHEREAS the County of Howard has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard 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 County of Howard from the impacts of future hazards and disasters; and

WHEREAS the County of Howard recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the County of Howard will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the County of Howard demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE Howard County Commission, in the State of Missouri, THAT:

In accordance with the County of Howard Resolution, the County of Howard adopts the final FEMA-approved *plan*.

ADOPTED by a vote of 3 in favor and 0 against, and 0 abstaining, this 17 day of March, 2022.

By (Sig): [Signature]
Print name: Jeremiah Johameyer

ATTEST
By (Sig): [Signature]
Print name: Shelly R. Howell



APPROVED AS TO FORM:

By (Sig): _____
Print name: _____

City of Armstrong, Armstrong, Missouri RESOLUTION NO.

2022-001

A RESOLUTION OF THE CITY OF ARMSTRONG ADOPTING THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the City of Armstrong recognizes the threat that natural hazards pose to people and property within the City of Armstrong; and

WHEREAS the City of Armstrong has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard 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 Armstrong from the impacts of future hazards and disasters; and

WHEREAS the City of Armstrong recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the City of Armstrong will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the City of Armstrong demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF ARMSTRONG, in the State of Missouri, THAT:

City of Armstrong Regulations
In accordance with ~~(code title for adopting resolutions)~~, the City of Armstrong adopts the final FEMA-approved plan.

ADOPTED by a vote of 3 in favor and 0 against, and _____ abstaining, this 8th day of March, 2022.

By (Sig.): [Signature]
Print name: Harley Owens

ATTEST:
By (Sig.): [Signature]
Print name: Jessica Gregory

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

(City of Fayette), Missouri

RESOLUTION NO. 2022-02

A RESOLUTION OF THE CITY OF FAYETTE ADOPTING THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the City of Fayette recognizes the threat that natural hazards pose to people and property within the City of Fayette; and

WHEREAS the City of Fayette has participated in the preparation of a multi- hazard mitigation plan, hereby known as the Howard 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 Fayette from the impacts of future hazards and disasters; and

WHEREAS the City of Fayette recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the City of Fayette will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the City of Fayette demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE City of Fayette, in the State of Missouri, THAT:
In accordance with Resolution No. 2022-02, the City of Fayette adopts the final FEMA-approved *plan*.

ADOPTED by a vote of ___ in favor and ___ against, and ___ abstaining, this 12 day of April, 2022

By (Sig): [Signature]
Print name: Stacy Darden

ATTEST:
By (Sig.): Tara Kunze City Clerk
Print name: Tara Kunze

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

CITY OF GLASGOW, MISSOURI

Bill # 2022-03-14-3

Ordinance # 3466

AN ORDINANCE APPROVING & ADOPTING HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, The Board of Aldermen of the City of Glasgow, Missouri have recognizes the threat that natural hazards pose to people and property within the City of Glasgow; and

WHEREAS the City of Glasgow has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard County Multi-Jurisdictional Hazard Mitigation Plan, here after 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 Glasgow from the impacts of future hazards and disasters; and

WHEREAS the City of Glasgow recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the City of Glasgow will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the City of Glasgow demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF GLASGOW in the State of Missouri, THAT: The City of Glasgow adopts the final FEMA-*approved plan*. This Ordinance shall be in full force and effect from and after the date of its passage and approval.

READ TWO TIMES, PASSED & APPROVED 14 DAY OF MARCH, 2022.

Attest: 
Andrew Frazier, City Administrator


Larry Neville, MAYOR, PRO TEM

THIS ORDINANCE APPROVED THIS 14 DAY OF MARCH, 2022.

Attest: 
Andrew Frazier, City Administrator


Larry Neville, MAYOR, PRO TEM

RESOLUTION NO. 03142022

A RESOLUTION OF THE CITY OF NEW FRANKLIN, MISSOURI ADOPTING THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the City of New Franklin, Missouri recognizes the threat that natural hazards pose to people and property within the City of New Franklin, Missouri; and

WHEREAS the City of New Franklin, Missouri has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard 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 Franklin, Missouri from the impacts of future hazards and disasters; and

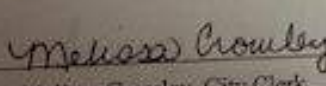
WHEREAS the City of New Franklin, Missouri recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the City of New Franklin, Missouri will endeavor to integrate the *Plan* into the comprehensive planning process and

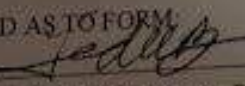
WHEREAS adoption by the City of New Franklin, Missouri demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE City of New Franklin in the State of Missouri, THAT: In accordance with Howard County Mitigation Plan, the City of New Franklin, Missouri adopts the final FEMA-approved plan.

ADOPTED by a vote of 5 in favor and 0 against, and 0 abstaining, this 14th day of March 2022.

By (Sig): 
Print name: Robbey Harvey, Mayor

ATTEST:
By (Sig.): 
Print name: Melissa Crowley, City Clerk

APPROVED AS TO FORM:
By (Sig.): 
Print name: Todd Basleg, Mayor Pro-Tem



Fayette R-III School District

705 Lucky Street, Fayette, MO 65248
660-248-2153, Fax 660-248-3702
www.fayette.k12.mo.us



JILL WISEMAN
Superintendent

MELISSA DUREN
Director of Student Services
Title IX Coordinator

CHERI HUSTER
DES Principal
Phone: 660-248-3800
FAX: 660-248-2318

BRENT DOOLIN
CMS Principal/Asst. Superintendent
Phone: 660-248-3800
Fax: 660-248-2610

PATRICK TRAY
FHS Principal
Phone: 660-248-2124
FAX: 660-248-2120

A RESOLUTION OF THE FAYETTE R-III SCHOOL DISTRICT ADOPTING THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS the Fayette R-III School District recognizes the threat that natural hazards pose to people and property within the Fayette R-III School District; and


WHEREAS the Fayette R-III School District has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard County Multi-Jurisdictional Hazard Mitigation Plan, hereafter referred to as the *Plan*, in accordance with the Disaster Mitigation Act of 2000 and FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS the *Plan* identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Fayette R-III School District from the impacts of future hazards and disasters; the Fayette R-III School District will endeavor to integrate the *Plan* into the comprehensive planning process; and

WHEREAS adoption by the Fayette R-III School District demonstrates their commitment to hazard mitigation;

The Fayette R-III School Board adopts the final FEMA approved plan.

ADOPTED by a vote of 7 in favor and 0 against, and — abstaining, this 16th day of March, 2022.



Skip Vandelicht
Fayette R-III Board of Education President



Trish Elliott
Fayette R-III Board Secretary



Jill Wiseman
Fayette R-III Superintendent

Glasgow School District, Glasgow, MO

A RESOLUTION OF THE GLASGOW SCHOOL DISTRICT ADOPTING THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the Glasgow School District recognizes the threat that natural hazards pose to people and property within the Glasgow School District and

WHEREAS the Glasgow School District has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard 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 Glasgow School District from the impacts of future hazards and disasters; and

WHEREAS the Glasgow School District recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Glasgow School District will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the Glasgow School District demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE GLASGOW SCHOOL DISTRICT, in the State of Missouri, THAT:

In accordance with the Glasgow School Board the Glasgow School District adopts the final FEMA approved plan.

ADOPTED by a vote of 6/0 in favor and 0 against, and 0 abstaining, this 16th day of March, 2022.



Sonya Fuemmeler
Glasgow Superintendent

**New Franklin R-1 School District
New Franklin, MO**

**A RESOLUTION OF THE NEW FRANKLIN R-1 SCHOOL DISTRICT ADOPTING THE
HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN**

WHEREAS the New Franklin R-1 School District recognizes the threat that natural hazards pose to people and property within the New Franklin R-1 School District and

WHEREAS the New Franklin R-1 School District has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard 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 New Franklin R-1 School District from the impacts of future hazards and disasters; and

WHEREAS the New Franklin R-1 School District recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the New Franklin R-1 School District will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the New Franklin R-1 School District demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE NEW FRANKLIN R-1 SCHOOL DISTRICT, in the State of Missouri, THAT:

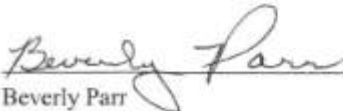
In accordance with the New Franklin R-1 School Board the New Franklin R-1 School District adopts the final FEMA approved plan.

ADOPTED by a vote of 7 in favor and 0 against, and 0 abstaining, this 16th day of March, 2022.



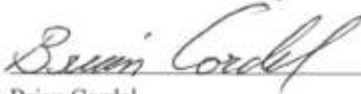
Jeff Chitwood

New Franklin R-1 Board of Education President



Beverly Parr

New Franklin R-1 Secretary to the Board



Brian Cordel

New Franklin R-1 Superintendent

Central Methodist

UNIVERSITY

Plant Operations

411 Central Methodist Square TEL: 660 248 6295
Fayette, Missouri 65248-1198 FAX: 660 248 6291
www.centralmethodist.edu



March 8, 2022

Melissa Stafford
Mid-Mo Regional Planning Commission
206 E. Broadway, PO Box 140
Ashland, MO 65101

Dear Ms. Stafford,

The Howard County Hazard Mitigation Plan is a multi-jurisdictional hazard mitigation plan prepared in accordance with FEMA requirement 44 C.F.R. 201.6.

Central Methodist University has participated in the preparation of and review of the Howard County Hazard Mitigation Plan.

Central Methodist University **adopts the Howard County Hazard Mitigation** plan as this jurisdiction's Hazard Mitigation Plan and resolves to execute the actions in the plan.

Sincerely,

Derry Wiswall
Director of Campus Operations

dw

cc: Don Clear

Howard County Regional Water Commission, Missouri

RESOLUTION NO. 2022-01

A RESOLUTION OF THE HOWARD COUNTY REGIONAL WATER COMMISSION ADOPTING
THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the Howard County Regional Water Commission recognizes the threat that natural hazards pose to people and property within the Howard County Regional Water Commission; and

WHEREAS the Howard County Regional Water Commission has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard 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 Howard County Regional Water Commission from the impacts of future hazards and disasters; and

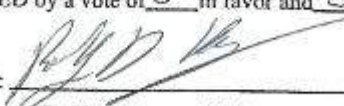
WHEREAS the Howard County Regional Water Commission recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Howard County Regional Water Commission will endeavor to integrate the *Plan* into the comprehensive planning process and

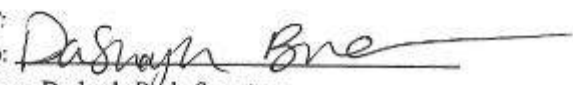
WHEREAS adoption by the Howard County Regional Commission demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

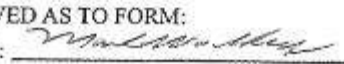
NOW THEREFORE, BE IT RESOLVED BY THE HOWARD COUNTY REGIONAL WATER COMMISSION, in the State of Missouri, THAT:

In accordance with the Howard County Regional Water Commission's rule for adopting resolutions, the Howard County Regional Water Commission adopts the final FEMA-approved *plan*.

ADOPTED by a vote of 3 in favor and 0 against, and 0 abstaining, this 7th day of April, 2022.

By (Sig): 
Print name: Robbey Harvey, Chairman

ATTEST:
By (Sig.): 
Print name: Deshayla Bush, Secretary

APPROVED AS TO FORM:
By (Sig.): 
Print name: Mark Wooldridge, Attorney

MOTION
#04-13-2022-001

for use by Glasgow Special
Road District

PURPOSE: I move that Glasgow Special Road District adopt the Howard County
Hazard Mitigation Plan

MOVED BY: Rick Meyer

SECONDED BY: Jim Strodtman

APPROVED? YES NO TABLED Roll Vote Yes No

MEETING DATE: April 13th, 2022

The undersigned, being the duly elected President of the Glasgow Special Road District, does hereby certify that the foregoing action regarding this Motion was properly approved and adopted by the Board of Glasgow Special Road District at its meeting in

Missouri, on the 13th day of April, 2022

Dated: 4/13/22



Rick Meyer, President

Howard Co Fire Protection District, Missouri RESOLUTION

NO. 2022

A RESOLUTION OF THE Howard Co Fire Protection District ADOPTING THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the Howard Co Fire Protection District recognizes the threat that natural hazards pose to people and property within the Howard Co Fire Protection District; and

WHEREAS the Howard Co Fire Protection District has participated in the preparation of a multi-hazard mitigation plan, hereby known as the Howard 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 Howard Co Fire Protection District from the impacts of future hazards and disasters; and

WHEREAS the Howard Co Fire Protection District recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the Howard Co Fire Protection District will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the Howard Co Fire Protection District demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE HOWARD CO FIRE PROTECTION DISTRICT in the State of Missouri, THAT:

In accordance with Howard Co Fire Protection District, the Howard Co Fire Protection District the final FEMA-approved plan.

ADOPTED by a vote of 3 in favor and 0 against, and 0 abstaining, this 11th day of April, 2022.

By (Sig): Lee Young
Print name: Lee Young

ATTEST:
By (Sig.): Scotty Shiflett
Print name: Scotty Shiflett

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

PWSD #1 HOWARD Co Missouri

RESOLUTION NO. 694
(number here)

A RESOLUTION OF THE PWSD #1 ADOPTING THE HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION *PLAN*

WHEREAS the PWSD #1 recognizes the threat that natural hazards pose to people and property within the PWSD #1 and

WHEREAS the PWSD #1 has participated in the preparation of a multi- hazard mitigation plan, hereby known as the HOWARD 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 PWSD #1 from the impacts of future hazards and disasters; and

WHEREAS the PWSD #1 recognizes that land use policies have a major impact on whether people and property are exposed to natural hazards, the PWSD #1 will endeavor to integrate the *Plan* into the comprehensive planning process and

WHEREAS adoption by the PWSD #1 demonstrates their commitment to hazard mitigation and achieving the goals outlined in the *Plan*

NOW THEREFORE, BE IT RESOLVED BY THE PWSD #1, in the State of Missouri, THAT:

In accordance with (*local rule for adopting resolutions*), the PWSD #1 adopts the final FEMA-approved *plan*.

ADOPTED by a vote of 3 in favor and 0 against, and 1 abstaining, this 2nd day of May, 2022.

By (Sig.): Nichole Wilmsmeyer, clerk
Print name: Nichole Wilmsmeyer

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

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

Appendix B: Sign-In Sheets

Please write drive time by name

HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE KICKOFF MEETING—SIGN-IN SHEET

Project: Howard County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time: January 21, 2022 10:00am - 1:00pm
Facilitator: Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room: Keller Building 600 W Morrison St Fayette MO 65248; Conference room 3

Name	Title	Department/Agency	Email	Phone #	Signature
15 min Bryan Kunze	Co-Director	HoCo EMA	bckunze128@gmail.com	660-728-2241	<i>Bryan Kunze</i>
20 min Mitzel Schmitt	PRES.	HOWARD CO. ELEC DIST #3	Mitschmi,Michelle@midmo.org	660-537-5858	<i>Mitzel Schmitt</i>
30 minutes LISA CALVERT	DIRECTOR	Howard CO 911	Countyofhoward@gmail.com	660-248-2340	<i>LC</i>
30 min Kent Manning	Manager	St Mary School	kmanningSMS@gmail.com	660-388-2255	<i>Kent Manning</i>
12 min Melissa Crowley	City Clerk	City of New Franklin	Cityofnewfranklin@sbcglobal.net	660-848-2288	<i>Melissa Crowley</i>
20 min Brandon Lightfoot	Operations Manager	Howard Electric Cooperative	blightfoot@howardelectric.com	660-745-3311	<i>Brandon Lightfoot</i> 2 min
15 min MARY KUNZE	Fire Dept.	Howard County Fire	KunzeMary@gmail.com	660-672-9996	<i>Mary Kunze</i>
Melissa Stafford	Regional RPC Planner	Mid-MO RPC	melissa.stafford@midmo.rpc.org	573-353-1607	<i>Melissa Stafford</i>

Please write drive time by name




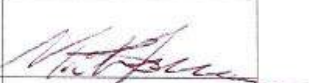



HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE KICKOFF MEETING—SIGN-IN SHEET

Project:	Howard County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time:	January 21, 2022 10:00am - 1:00pm
Facilitator:	Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room:	Keller Building 600 W Morrison St Fayette MO 65248; Conference room 3

Name	Title	Department/Agency	Email	Phone #	Signature
Bill Johnson 16 miles 30 min 32 miles	D. center	Howard County Fayette EMA	wmj4657@yahoo.com	660 888-6520	
Sebastian Solimene	presiding commissioner	Howard county	hoco comm@yahoo.com	660-248 2193	
Tyler Polan 30 mins round trip	Chief of Police	Glasgow Police Dept	Chief@GlasgowMO.org	577 881 2308	
Andrew Frazier 30 mins round trip	City Admin Glasgow	City of Glasgow	admin@Glasgowmo.org	660 188 8785	
Jeff Oswald 12 miles	Howard Co Sheriff	Howard County	Jeff.Oswald@HowardCountySherrif.mo.gov	660 537 0992	
Mike Hagedorn 10 min	Howard Co Road & Bridge	Road & Bridge	HocoRoadBridge@HowardCountyMo.gov	248-2187	
Todd Baslee 30 mins	New Franklin Alderman #3/ Mayor Pro Tem	City of New Franklin	tbaslee@gmail.com	660 882 9901	
Tara Kunze 10 min	Fayette City clerk	City of Fayette	KunzeT@cityoffayettemo.com	660-248-5246	
David Ford 10 min	Fayette Police Chief	→ ←	d.ford@FayetteMoPd.gov	660-248-2241	
Jeff Stockhorst 10 min	Eastern Commissioner	Howard County	hoco comm@yahoo.com	660-248 2193	

HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE KICKOFF MEETING—SIGN-IN SHEET

Project: Howard County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time: January 21, 2022 10:00am - 1:00pm
Facilitator: Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room: Keller Building 600 W Morrison St Fayette MO 65248; Conference room 3





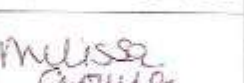


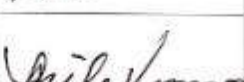
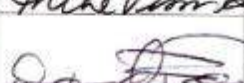

Name	Title	Department/Agency	Email	Phone #	Signature
Sonya Frennema	Supt. ^{30 min}	Glasgow Schools	sfrennema@glasgow.k12.mo.us	660-338-2012 ext 1000	
Jason Wright	^{30 min} GIS Roundtable	Glasgow School Board district	Jason@roundtable.org	660-338-2299	
Brenda Gerlach	Regional Coord.	SEMA	brenda.gerlach@sema.dps.mo.gov	573-644-3728	
Mathew Freese	^{12.5 min} Commissioner	Howard Co		660-728-7769	
GREG LANHAM	^{20 min} CAPTAIN	FAYETTE PD	FPO3@HOTMAIL.COM	660-888-7103	
Don Clew	^{10 min} Sheriff	CMU	dclew@centralmethodist.edu	660-248-6298	
Derry Wiseman	^{10 min} Dir of ops	CMU	dwiseman@centralmethodist.edu		

Hazard Mitigation First Meeting 11-9-2021 10:00am-12:00
noon

	Attendee	Agency	email	Phone #
5 miles	Bryan Kurze	Howard Co. EMA	bkurze@hccom.org	660-728-24
16 miles	Bill John	Ho. Co EMA	wbj4657@yahoo.com	660-898-6
	Melissa Stafford	Mid MO RPE	melissastafford@midmorp.org	573-355-1007
25 miles	Matthew Freese	Commissioner	hccocomm@yahoo.com	
	Jeff Steckhoust	Commissioner	hccocomm@yahoo.com	
24 miles	Jessimiah Johnson	presiding commissioner	"	↑

HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE MEETING #2—SIGN-IN SHEET

Project:	Howard County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time:	February 10, 2022 2:00pm – 5:00pm
Facilitator:	Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room:	Keller Building 600 W Morrison St Fayette MO 65248; Conference room 3

Name	Title	Department/Agency	Email	Phone #	Signature
Bill John ^{14 min}	Director	Fayette Howard EMA	wmj4657@yahoo	660 688 6520	
Bryan Kunze ^{10 min}	Co-Director	Howard Co EMA	bkunze128@gmail	660 728-224	
MARK SCHWAB ^{15 min}	PRES.	Howard LEVEE DIST #3	mschwab@hoburn.com	660 537-5858	
Sherri Beeler ⁴⁰		Howard County 911	sherribeeper911@yahoo	660-612-9283	
Melissa Crowley ^{10 min}	City Clerk	City of N.F.	cityofnewfranklin@gmail.com	660-848-2288	
Mike Hilseduck ¹⁰		Howard County Road & Bridge	hoco@roadbridge.com	573-487-8226	
Andrew Frazier ^{15 min}	City Administrator	City of Glasgow	admin@glasgowmo.org	660 288 7787	
Mike Vroman ³⁰	Assistant Specialist			660-728-2023	
Daniel Ford ^{10 min}	Chief	Fayette PD	dford@fayette-mo.gov	660 248 2241	
Tara Kunze ¹⁰	Fayette City Clerk	Fayette	kunzeta@cityoffayettemo.com	660-218-5610	

HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE MEETING #2—SIGN-IN SHEET

Project: Howard County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time: February 10, 2022 2:00pm – 5:00pm
Facilitator: Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room: Keller Building 600 W Morrison St Fayette MO 65248; Conference room 3

Name	Title	Department/Agency	Email	Phone #	Signature
Jill Wiseman	Supt. ²⁰	Fayette R-III	jwiseman@fayetteschool.org	748-2153	<i>Jill Wiseman</i>
Jason Wright	GIS ²⁰	Wasson Special Road Dist.	Jason@townofwason.com	660-338-4441	<i>Jason Wright</i>
JEFF OSWALD ¹²	Supv. ¹⁵	HOWARD COUNTY			

HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE FIRE DISTRICT MEETING—SIGN-IN SHEET

Project: Howard County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time: February 10, 2022 6:00pm – 8:00pm
Facilitator: Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room: Keller Building 600 W Morrison St Fayette MO 65248; Conference room 3

Name	Title	Department/Agency	Email	Phone #	Signature
Bill John ¹⁵	Director	Fayette Howard EMA	wmj4657@yahoo	660 898 6520	
Lee Young ¹⁰	Director HCFPD	HCFPD	gly2@sbcsglobal.net	660-537-3802	
Scotty Shiflett ¹⁵	President HCFPD	HCFPB	—	660-728-2749	
Rick Newell ³⁰	St. A. 2	HCFPD	—	660-537-5443	
Chris Wilkoff ¹⁰	HCo Chief	HCFPD	chris_wilkoff@hco.com	660-558-1246	
Anthony Martin ³⁰	HCo St. 2	HCFPD	ajmartin1977@gmail.com	660-537-0732	
Ethan Shipp ³⁰	HCo St. 4	HCFPD	—	660-621-4544	
Scott Larson ⁴⁰	Chief AFPD	Armstrong Fire Protection District	slarsonafpd@gun.hco	660-672-4971	
Jerry McCowan ^{HOMIN.}	ASST Chief St 3	HCFPD	—	5738643039	
Nick Mejer ^{10 MIN}	Captain	GFD	Nick Mejer@hco.com	660-728-2455	
GARY Kunze ^{10 min}	Chief St 1	HCFPD	Kunzegary8@gmail.com	660 672 9996	
JAYCE OLENDORFF ⁴⁰	chief	Glasgow Fire Dist	floydma@hotmail.com	573 529 3007	
BRYAN KUNZE	HCo EMA Co-Director	—	bekunze128@gmail.com	660- 728- 2241	

HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE MEETING #3—SIGN-IN SHEET

28th Reschedule due to snow

Project:	Howard County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time:	February 24, 2022 10:00am - 1:00pm <i>2:45pm</i>
Facilitator:	Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room:	Keller Building 600 W Morrison St Fayette MO 65248; Conference room 3

Name	Title	Department/Agency	Email	Phone #	Miles RoundTrip	Signature
<i>Bryan Kurze</i>	<i>10 min</i> Co-Director	HoCo EMA	<i>bekurze128@gmail.com</i>	<i>660 725 2241</i>	<i>6</i>	<i>Bryan Kurze</i>
<i>Maria Schmidt</i>	<i>20 min</i> ITACS	HOCC CELE #3	<i>mschmidt@hoctandc.com</i>	<i>660 537-5555</i>	<i>20</i>	<i>Maria Schmidt</i>
<i>Jeremiah Johnson</i>	President commissioner	Ho Co	<i>hoco.com@yahoo.com</i>	<i>660 248 2193</i>	<i>22</i>	<i>Jeremiah Johnson</i>
<i>Melissa Crowley</i>	City Clerk	city of NF	<i>cityofnewfranklin@shglobal.net</i>	<i>660 548 2338</i>	<i>23</i>	<i>Melissa Crowley</i>
<i>Jeff Stockhorst</i>	commissioner	Ho Co	<i>hoco.com@yahoo.com</i>	<i>660 248 2193</i>	<i>2</i>	<i>Jeff Stockhorst</i>
<i>Mike Hagedorn</i>	Howard County Road & Bridge	Ho Co	<i>HoCoRoad@rogm.com</i>		<i>6</i>	<i>Mike Hagedorn</i>
<i>Todd Baslee</i>	alderman	City of New Franklin	<i>twbaslee@gmail.com</i>	<i>660 888 4901</i>	<i>20</i>	<i>Todd Baslee</i>
<i>Pon Clew</i>	CMU Sokly	CMU	<i>dclew@centralmichigan.edu</i>	<i>660 214 6244</i>	<i>5</i>	<i>Pon Clew</i>
<i>Brian Cordel</i>	Superintendent	New Franklin RI	<i>bcordel@nfranklinri.com</i>	<i>660 840-2141</i>	<i>20</i>	<i>Brian Cordel</i>
<i>Will Jil</i>	Director	HOWARD Fayette EMA	<i>wmj465@yahoo.com</i>	<i>660 888 6520</i>	<i>16</i>	<i>Will Jil</i>

**HOWARD COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE
MEETING #3—SIGN-IN SHEET**

28 Reschedule due to snow

Project:	Howard County, Missouri Multi-jurisdictional Hazard Mitigation Plan Update	Meeting Date/Time:	February 24, 2022 10:00am - 1:00pm - <i>2:45pm</i>
Facilitator:	Melissa Stafford, Regional Planner & Procurement Officer Mid-Missouri Regional Planning Commission	Place/Room:	Keller Building 600 W Morrison St Fayette MO 65248; Conference room 3

Name	Title	Department/Agency	Email	Phone #	Miles RoundTrip	Signature
<i>Jayva Fumelle</i>	<i>Superintendent</i>	<i>Glasgow School District</i>	<i>JFumelle@glasgow.k12.mo.us</i>	<i>660-338-2012</i>	<i>30</i>	<i>Jayva Fumelle</i>
<i>Liz Wiseman</i>	<i>Supt</i>	<i>Fayette R-III</i>			<i>25</i>	<i>Liz Wiseman</i>
<i>Andrew Frazier</i>	<i>City Administrator</i>	<i>City of Glasgow</i>	<i>admin@glasgow.mo.gov</i>	<i>660 388 7783</i>	<i>30</i>	<i>Andrew Frazier</i>
<i>Jason</i>	<i>GIS</i>	<i>Glasgow Special Road District</i>	<i>jason@glasgowrd.com</i>	<i>660 337 9991</i>	<i>30</i>	<i>Jason</i>
<i>Nichole Wilmsmeyer</i>	<i>Clerk</i>	<i>Howard Co CPWSD #1</i>	<i>cpwsd1.hoco@gmail.com</i>	<i>660-848-2108</i>	<i>20</i>	<i>Nichole Wilmsmeyer</i>
<i>Rebecca J Kurtz</i>	<i>City Council Member</i>	<i>City of Armstrong</i>	<i>rebkurtz1981@yahoo.com</i>	<i>660-888-0204</i>	<i>20</i>	<i>Rebecca J Kurtz</i>
<i>Brenda G.</i>		<i>SEMA</i>			<i>80</i>	<i>Brenda G.</i>
<i>Melissa Stafford</i>	<i>Regional Planner</i>	<i>Mid Mo RPC</i>		<i>573-353-1001</i>	<i>80</i>	<i>Melissa Stafford</i>

Howard Co HMP all Jurisdictions

extra meeting

Date	meeting type in person/phone	City/School	Person meeting with
1/31/2022	person	New Franklin	Melissa Crowley
4/11/2022	person	Howard Regional Water Commission	Jessee Howell
4/12/2022	person	Howard Co. Fire	Chris Wilhout

Appendix C

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County: Howard County _____

Jurisdiction: Howard Co. E.M.A. _____

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: Bryan Kunze _____

Phone: 660-728-2241 _____

Email: bckunze128@gmail.com _____

Date: January 3, 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	n/a
Builder's Plan	n/a
Capital Improvement Plan	n/a
City Emergency Operations Plan	n/a
County Emergency Operations Plan	Yes
Local Recovery Plan	n/a
County Recovery Plan	n/a
City Mitigation Plan	n/a
County Mitigation Plan	Yes in progress
Debris Management Plan	n/a
Economic Development Plan	n/a
Transportation Plan	Regional-2016
Land-use Plan	n/a
Flood Mitigation Assistance (FMA) Plan	Yes
Watershed Plan	Yes
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	No
Building Code	No

Floodplain Ordinance	Yes
Subdivision Ordinance	No
Tree Trimming Ordinance	No
Nuisance Ordinance	No
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	No
Codes Building Site/Design	No
Hazard Awareness Program	Yes
NFIP Community Rating System (CRS) program	No
Firewise Community Certification	Yes
Building Code Effectiveness Grading (BCEGs)	Yes
ISO Fire Rating	Yes

Capabilities	Status Including Date of Document or Policy
Economic Development Program	Yes
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	No
Staff/Department	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	Yes in the assessors office

Engineer	No
Development Planner	No
Public Works Official	Yes
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes
Emergency Response Team	Yes
Hazardous Materials Expert	No
Local Emergency Planning Committee	Yes
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	Yes
County Economic Development Commission	Yes
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	Yes
Salvation Army	No
Veterans Groups	Yes
Local Environmental Organization	No
Homeowner Associations	Yes
Neighborhood Associations	Yes
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes Optimist, Lions

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	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	n/a
Withhold spending in hazard prone areas	yes

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

3 County Commissioners

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

Fire safety programs in the schools every year. Different types of weather awareness in the local papers.

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.

Structures around the water treatment plants

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.

Difficulty of getting warnings to them and no good shelter for extended stays.

5. How many outdoor warning sirens are in your community? 5

How are they activated (indicate responsible department/personnel)?

Howard Co. 911 Dispatch

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

Rave Alert systems, Facebook

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.

2- new Dollar General stores, Remodel of Stedman Hall of Science at C.M.U. In the process of demolition of west side of the Fayette square for a new retail and dormitory space 6.5 million dollar project, new water treatment facilities.

9. Describe development trends and expected growth areas. Is any new development expected to occur in the 100-year floodplain? Is any new development expected to occur in any other known hazard areas? If possible, please provide a map indicating potential/planned growth areas. West side of the Fayette square.

No known development in the floodplain 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.

West side of Fayette square new retail space and dormitory rooms for C.M.U., Monnig Industries is expanding in Glasgow, Spice Factory has expanded on Golden Dr. in Fayette. New sewer and natural gas lines are being laid in Fayette.

11. Please list major employers in your jurisdiction with an estimated number of employees.

Central Methodist University, Monnig Industry, Pacific Lumber Co. Braun Homes for disabled individuals about 65 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.

Bryan Kunze and Bill John Committee meetings were not planned

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

Western District Commissioner Matt Freese is in charge of floodplain management.

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						
6 fire stations						
1 sheriff's office and jail.2- police depts.						
1-ambulance station						
911 center and E.O.C.	600 west Morrison fayette					
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)						
Levees along the Missouri River						
Power Substations						
Golden Living in Glasgow, Fayette Caring Center, the Lodge, Asbury Heights, Many Daycare facilities						
Courthouse and 4 city halls						
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						

Bridges over Missouri River in Glasgow & Boonville, railroad, Panhandle eastern Gas pipeline, Spire Gas, Ameren, Evergy, 4-ATT offices, 2 water treatment plants, sewer treatment plants						
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Economic Assets (Major Employers, etc)

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
	0	0	10	8	3	1	6	5		4	2	3	0	3	4	3	2	1	4	5	0	10	4	73

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	Howard Co.
Type of event	Flooding 2019,2021 COVID 2020
Nature and magnitude of event	Presidential Declarations for all 3
Location	Howard Co.
Date of event	2019,2020,2021
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	yes
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For Small Local Governments

County: Howard Co _____

Jurisdiction: Armstrong _____

Return by: February 22, 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: Jessica Gregory _____

Phone: _____

Email: cityofarmstrong@yahoo.com _____

Date: 2/18/22 _____

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		
Comprehensive or Land-Use Plan	Yes NO	Date:
Capital Improvement Plan	NA	Date:
Transportation Plan / Highway Department	NA	Date:
Emergency Operations Plan	Yes NO	Date:
Local Recovery Plan	Yes NO	Date:
Debris Management Plan	NA	Date:
Firewise or other fire mitigation plan	Yes NO	Date:
Economic Development Plan	Yes Yes NO	Date:
Policies/Ordinance		
Zoning Ordinance	NA	
Building Code	NA	Version:
Floodplain Ordinance	NA	Date:
Drainage/Stormwater Ordinance	NA	
Site Plan Review Requirements	NA	
Historic Preservation Ordinance	NA	

Element	Yes, No, N/A	Comments and/or Weblink	
Program			
National Flood Insurance Program (NFIP)	Yes		
NFIP Community Rating System (CRS) program	No	If so, what is your current level rating?	
National Weather Service (NWS) Storm Ready Certification	No		
Firewise Community Certification	No		
Building Code Effectiveness Grading (BCEGs)	NA		
ISO Fire Rating	Rating:		
Public Education or information programs (i.e., responsible water use, fire safety, household preparedness, or environmental education)	NA		
Mutual Aid Agreements	NA		
Studies/Reports/Maps			
Critical Facilities Inventory	No		
Vulnerable Population Inventory	No		
Staff/Department		Full Time or Part Time?	
Building Code Official / Building Inspector	No		
Engineer			
Development Planner			
NFIP Floodplain Administrator			
Mapping Specialist (GIS)			
Public Works Official			
Emergency Management Coordinator			
Local Emergency Planning Committee			
Sanitation Department			
Highway/Transportation Department			
Economic Development Department			
Housing Department			
Historic Preservation			

Element	Yes, No, N/A	Comments and/or Weblink
Non-Governmental Organizations (NGOs)	Is there a local chapter? Yes or No	
American Red Cross	NO	
Salvation Army		
Veterans Groups		
Local Environmental Organization		
Homeowner Associations		
Neighborhood Associations		
Chamber of Commerce		
Community Organizations (Lions, Kiwanis, etc.)		
Financial Resources	Is your jurisdiction able to? Yes or No	
Apply for Community Development Block Grants	Yes	
Fund projects thru Capital Improvements funding	No	
Authority to levy taxes for specific purposes	NO	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development	Yes	
Incur debt through general obligation bonds	No	
Incur debt through special tax bonds	No	
Incur debt through private activities	Yes	
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
Comprehensive or Land-Use Plan	
Capital Improvement Plan	
Transportation Plan / Highway Department	
Emergency Operations Plan	
Local Recovery Plan	
Debris Management Plan	
Firewise or other fire mitigation plan	
Economic Development Plan	

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

Mayor/City Council

2. 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 - (Demo grant)
↳ Ask Lincoln

3. 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

4. How many outdoor warning sirens are in your community?

↓
How are they activated (indicate responsible department/personnel)?

Harley/Mayor or Fire dep.

5. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

NO

6. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

NO

Please provide address locations:

7. Identify residential, commercial and industrial development in your jurisdiction since last plan update.

NO

8. 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

9. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

no

10. Please list major employers in your jurisdiction with an estimated number of employees.

NO/NA

11. 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?

12. 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
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

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. 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 hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
<i>See Attached</i>						

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, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools—they will be reported by the school districts)						
<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.

Economic Assets (Major Employers, etc)

Asset	Address	Product/ Service	Value (if known)	Number of Employees	Hazards

HISTORIC HAZARD EVENTS

Please fill out the sheet on the next page for each significant hazard event that affected **Your Jurisdiction**. **Make as many copies as necessary to record all events** and complete 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.

Jurisdiction	
Type of event	
Nature and magnitude of event	
Location	
Date of event	
Injuries	
Deaths	
Property damage	
Infrastructure damage	
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	
Source of information	
Comments	

ASSESSMENT OF PREVIOUSLY PROPOSED ACTIONS

Jurisdiction: _____

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		

Walker-Winter Insurance
122 S Main Street
PO Box 511
Fayette, MO 65248
800-516-3322

January 11, 2022

City of Armstrong
PO Box 129
Armstrong, MO 65230

RE: Commercial Package policy #CP0003051
Effective 1/1/2022 to 1/1/2023

Dear Jessica,

Enclosed you will find your renewal policy. Please look this policy over and make sure the information is correct. If anything needs to be changed, please contact us immediately.

Please read your policies and become aware of the coverages afforded by them. Also remember that we are here to answer any questions you may have regarding coverages.

Thank you for choosing Walker-Winter Insurance for your insurance needs. We appreciate your business!

Sincerely,



Ruth Roll

Walker-Winter Insurance

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We do not disclose any non-public personal or financial information about you, unless permitted or required by law or with your consent.

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Safetysurance is a revolutionary Risk Management Platform containing a searchable library of resources, including:

- Safety Brochures
- Safety Talks and Meeting Topics
- Safety Resources and Solution Providers
- Live Streaming Safety Training Videos
- Safety Posters and Checklists
- Industry News and Regulatory Updates
- Safety Plans and Programs

(Options available in Spanish)

As a valued Policyholder, Agent Partner, or Employee, Safetysurance is available to you – FREE of charge.

1. It's easy – just go to www.safetysurance.com
2. Register by using your:
 - Policy # – If you are a policyholder
 - Agent ID # (Which is your Federal ID #) – If you are an agent
 - Employee email address – If you are an AmeriTrust employee
3. Then, login using your newly created Login Name and Password

Features

Trending News

- Keep up with industry trends, changes, and activity. News feeds are aggregated and updated weekly from a variety of industry resources.

Safety Highlights

- Focus on current safety issues within your industry. Topics include current industry loss trends, seasonal concerns, and other related items.

Best Practices

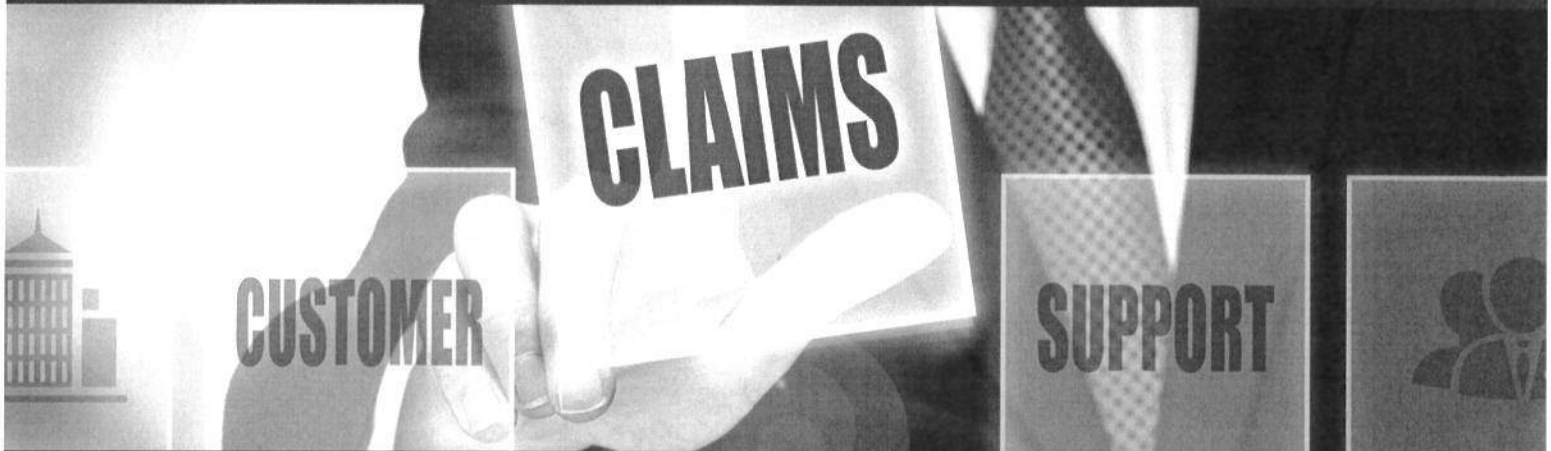
- Helps to identify key industry loss characteristics and quickly provides safety resources to apply best practices.

Reference Links

- Easily access Federal, State, and other regulatory links in the aggregated resource links library.

Loss Control REC Resources

- Easily access resources to comply with Loss Control Recommendations.



We offer **THREE** convenient ways to report a claim

This policy serviced by Meadowbrook, Inc., a Member of AmeriTrust Group, Inc.

1) Report Claim by Phone

Report claim by phone to our Service Center at (800) 825-9489

2) Report by Email

Send claim information to: newclaim@ameritrustgroup.com

3) Report Claim by Fax

Fax claim report to (855) 603-8409

PREMIUM INSTALLMENT NOTICE

Policy Number: CP0003051

Named Insured:
City of Armstrong

Agent:
Missouri Rural Services Corp.

INSTALLMENT PERIOD

The period covered by this installment payment provision is from 01/01/2022 to 01/01/2023 beginning and ending at 12:01 AM standard time at the address of the insured.

PREMIUM SUMMARY

The premium is due on the following dates:

<u>Date</u>	<u>Amount</u>
01/01/2022	\$1,831.20
04/01/2022	\$915.60
07/01/2022	\$915.60
10/01/2022	\$915.60

Important: This policy may be subject to premium adjustment as set forth in its provisions, terms and conditions.

Issue Date: 01/01/2022

STAR INSURANCE COMPANY

RENEWAL CERTIFICATE

POLICY NUMBER: CP0003051

RENEWAL OF: CP0003051

PRODUCER: Missouri Rural Services Corp.

NAMED INSURED and MAILING ADDRESS :

City of Armstrong
P.O. Box 129
Armstrong, MO 65230

RENEWAL POLICY PERIOD FROM: 01/01/2022 TO: 01/01/2023

(12:01 A.M. Standard Time at your mailing address shown above)

IN RETURN FOR THE PAYMENT OF THE PREMIUM, AND SUBJECT TO ALL OF THE TERMS OF THE EXPIRING POLICY, WE AGREE WITH YOU TO EXTEND THE INSURANCE AS STATED IN THIS CERTIFICATE:

THE RENEWAL CERTIFICATE CONSISTS OF THE FOLLOWING COVERAGE PARTS
AS INDICATED. PREMIUM MAY BE SUBJECT TO ADJUSTMENT.

	PREMIUM
COMMERCIAL GENERAL LIABILITY COVERAGE PART	\$1,350.00
COMMERCIAL PROPERTY COVERAGE PART	\$1,034.00
PUBLIC OFFICIALS ERRORS & OMISSIONS COVERAGE PART	\$737.00
EMPLOYMENT-RELATED PRACTICES LIABILITY COVERAGE PART	\$1,441.00
TERRORISM - CERTIFIED ACTS (GENERAL LIABILITY)	\$10.00
TERRORISM - CERTIFIED ACTS (PROFESSIONAL LIABILITY)	\$0.00
TERRORISM - CERTIFIED ACTS (PROPERTY)	\$6.00
TOTAL:	\$4,578.00

- In effect as of the original inception date of the policy (No change).
 As amended by revised schedule(s) attached.
 As amended by endorsements issued prior to the effective date of this extension.
 As amended by endorsement(s): **See attached Schedule of Forms and Endorsements**

AMENDED :

COUNTERSIGNED: _____

BY: Lori Adams
(Authorized Representative)

DATE: _____

LISTING OF FORMS AND ENDORSEMENTS FORMING A PART OF THIS POLICY

POLICY NUMBER: CP0003051

<u>NUMBER</u>	<u>TITLE</u>
COMMON	
20 15 ML (06-98)	Common Policy Declarations
01 25 IL (06-94)	Renewal Certificate - Star Insurance Company
IL 00 17 (11-98)	Common Policy Conditions
05 89 GL (11-16)	Missouri Municipal Amendatory Endorsement
05 90 GL (07-03)	Electromagnetic Radiation Exclusion Endorsement
13 44 ML (06-96)	Deductible Waiver Endorsement
16 98 IL (11-17)	Missouri Changes - Cancellation and Nonrenewal
47 50 IL (03-16)	Punitive Damages Exclusion
IL 00 03 (09-08)	Calculation Of Premium
IL 00 21 (09-08)	Nuclear Energy Liability Exclusion Endorsement (Broad Form)
IL 00 34 (01-15)	Missouri - Disclosure Of Premium And Estimated Premium For Certified Acts Of Terrorism Coverage (Pursuant To Terrorism Risk Insurance Act)
IL 01 01 (11-13)	Missouri Changes
IL 01 05 (10-08)	Missouri Changes - Pollution
IL 02 74 (02-13)	Missouri Changes - Cancellation And Nonrenewal
IL 09 35 (07-02)	Exclusion Of Certain Computer-Related Losses
IL 09 52 (01-15)	Cap on Losses from Certified Acts of Terrorism
IL 09 90 (12-20)	Missouri - Disclosure Pursuant to Terrorism Risk Insurance Act
57 87 GL (08-16)	Declarations - Cyber Liability Insurance
57 88 GL (08-16)	Cyber Liability Insurance Coverage Form (Claims Made)
57 89 GL (04-14)	Nuclear Incident Exclusion Endorsement
58 15 GL (06-14)	Missouri Changes
PROPERTY	
39 57 CP (10-00)	Commercial Property Coverage Part Declarations Page
CP 00 90 (07-88)	Commercial Property Conditions
44 40 CP (10-06)	Equipment Breakdown Coverage
44 41 CP (10-06)	Commercial Property Coverage Part Equipment Breakdown Coverage Schedule
21 99 CP (MO) (12-15)	Property Special Broadening Endorsement - Missouri
60 41 CP (04-19)	Amendatory Endorsement - Property Not Covered Virtual Currency
CP 00 10 (10-12)	Building And Personal Property Coverage Form
CP 01 28 (07-00)	Missouri - Calculation of Additional Premium
CP 01 40 (07-06)	Exclusion Of Loss Due To Virus Or Bacteria
CP 10 30 (09-17)	Causes of Loss - Special Form
CP 10 75 (12-20)	Cyber Incident Exclusion

LISTING OF FORMS AND ENDORSEMENTS FORMING A PART OF THIS POLICY

POLICY NUMBER: CP0003051

<u>NUMBER</u>	<u>TITLE</u>
GENERAL LIABILITY	
20 14 GL (05-01)	Commercial General Liability Declarations
CG 00 01 (04-13)	Commercial General Liability Coverage Form
05 92 GL (05-02)	Amendment Of Exclusions
05 93 GL (01-15)	Additional Exclusions
05 94 GL (12-05)	Emergency Medical Services - Deductible Liability Insurance
05 95 GL (05-02)	Governmental Subdivisions - Additional Changes
13 42 CL (06-96)	Non-Owned Watercraft Endorsement
32 34 GL (09-97)	Exclusion - Asbestos
34 44 GL (03-99)	Employee Benefits Liability Coverage
47 72 GL (10-08)	Cemetery Professional Liability
58 39 GL (01-15)	Exclusion Amendment - Pollution
CG 01 34 (08-03)	Missouri Changes - Pollution Exclusion
CG 21 01 (12-19)	Exclusion - Athletic Or Sports Participants
CG 21 06 (05-14)	Exclusion - Access Or Disclosure Of Confidential Or Personal Information And Data-Related Liability - With Limited Bodily Injury Exception
CG 21 09 (06-15)	Exclusion - Unmanned Aircraft
CG 21 32x (05-09)	Communicable Disease Exclusion
CG 21 47 (12-07)	Employment-Related Practices Exclusion
CG 21 49 (09-99)	Total Pollution Exclusion Endorsement
CG 21 52 (04-13)	Exclusion - Financial Services
CG 21 67 (12-04)	Fungi or Bacteria Exclusion
CG 21 71 (01-15)	Exclusion Of Other Acts Of Terrorism Committed Outside The United States; Cap on Losses From Certified Acts of Terrorism
CG 21 76 (01-15)	Exclusion of Punitive Damages Related to a Certified Act of Terrorism
CG 21 96 (03-05)	Silica Or Silica-Related Dust Exclusion
CG 22 40 (01-96)	Exclusion - Medical Payments To Children - Day Care Centers
CG 22 44 (04-13)	Exclusion - Services Furnished By Health Care Providers
CG 22 52 (10-93)	Exclusion - Medical Payments Coverage (Inmates, Patients or Prisoners)
CG 22 56 (07-98)	Exclusion - Injury To Volunteer Firefighters
CG 22 58 (11-85)	Exclusion - Described Hazards (Carnivals, Circuses And Fairs)
CG 22 92 (12-07)	Snow Plow Operations Coverage
CG 24 09 (07-98)	Governmental Subdivisions
CG 26 25 (04-05)	Missouri Changes - Guaranty Association
CG 26 43 (12-04)	Missouri Changes - Binding Arbitration
CG 26 50 (04-13)	Missouri Changes - Medical Payments

LISTING OF FORMS AND ENDORSEMENTS FORMING A PART OF THIS POLICY

POLICY NUMBER: CP0003051

<u>NUMBER</u>	<u>TITLE</u>
PROFESSIONAL LIABILITY	
01 47 GL (11-93)	Public Officials Errors & Omissions Coverage Part Declarations
02 58 GL (01-17)	Public Officials Errors & Omissions Coverage Part
11 75 GL (06-95)	Criminal Action Defense Endorsement
13 45 CL (01-99)	Injunctive Relief Endorsement
33 97 PL (05-98)	Nuclear Energy Exclusion
33 98 PL (06-00)	Pollution Exclusion
33 99 PL (05-98)	Utility Authority/Department Coverage
34 00 PL (05-98)	Asbestos Exclusion
41 58 PL (01-15)	Cap on Losses From Certified Acts of Terrorism
44 29 PL (10-04)	Employment - Related Practices Liability Coverage Part Declarations
44 30 PL (10-08)	Employment - Related Practices Liability Coverage Form - Missouri
57 52 PL (09-13)	Tax Assessment Exclusion Endorsement

THIS ENDORSEMENT IS ATTACHED TO AND MADE PART OF YOUR POLICY IN RESPONSE TO THE DISCLOSURE REQUIREMENTS OF THE TERRORISM RISK INSURANCE ACT. THIS ENDORSEMENT DOES NOT GRANT ANY COVERAGE OR CHANGE THE TERMS AND CONDITIONS OF ANY COVERAGE UNDER THE POLICY.

MISSOURI – DISCLOSURE OF PREMIUM AND ESTIMATED PREMIUM FOR CERTIFIED ACTS OF TERRORISM COVERAGE (PURSUANT TO TERRORISM RISK INSURANCE ACT)

SCHEDULE

SCHEDULE – PART I

Terrorism Premium (Certified Acts)

(A) Premium through end of year (12/31/ 2022) \$ 16

(B) Estimated Premium beyond the date specified above \$ 0

(Refer to Paragraph D. in this endorsement.)

This premium is the total Certified Acts premium attributable to the following Coverage Part(s), Coverage Form(s) and/or Policy(ies):

Certified Acts - General Liability

Certified Acts - Property

Additional information, if any, concerning the terrorism premium:

SCHEDULE – PART II

Federal share of terrorism losses 80 % Year: 20 22

(Refer to Paragraph B. in this endorsement.)

Federal share of terrorism losses 80 % Year: 20 23

(Refer to Paragraph B. in this endorsement.)

NOTE: The premium above is for certain losses resulting from certified acts of terrorism as covered pursuant to coverage provisions, limitations and exclusions in this policy. You should read the definition in your policy carefully, but generally speaking, "certified" acts of terrorism are acts that exceed \$5 million in aggregate losses to the insurance industry and which are subsequently declared by the U.S. Secretary of the Treasury as a certified terrorist act under the Terrorism Risk Insurance Act. Some losses resulting from certified acts of terrorism are not covered. Read your policy and endorsements carefully.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. Disclosure Of Premium

In accordance with the federal Terrorism Risk Insurance Act, we are required to provide you with a notice disclosing the portion of your premium, if any, attributable to coverage for terrorist acts certified under that Act. The portion of your premium attributable to such coverage is shown in the Schedule of this endorsement or in the policy Declarations.

B. Disclosure Of Federal Participation In Payment Of Terrorism Losses

The United States Government, Department of the Treasury, will pay a share of terrorism losses insured under the federal program. The federal share equals a percentage (as shown in Part II of the Schedule of this endorsement or in the policy Declarations) of that portion of the amount of such insured losses that exceeds the applicable insurer retention. However, if aggregate insured losses attributable to terrorist acts certified under the Terrorism Risk Insurance Act exceed \$100 billion in a calendar year, the Treasury shall not make any payment for any portion of the amount of such losses that exceeds \$100 billion.

C. Cap On Insurer Participation In Payment Of Terrorism Losses

If aggregate insured losses attributable to terrorist acts certified under the Terrorism Risk Insurance Act exceed \$100 billion in a calendar year and we have met our insurer deductible under the Terrorism Risk Insurance Act, we shall not be liable for the payment of any portion of the amount of such losses that exceeds \$100 billion, and in such case insured losses up to that amount are subject to pro rata allocation in accordance with procedures established by the Secretary of the Treasury.

D. Possibility Of Additional Or Return Premium

The premium for certified acts of terrorism coverage is calculated based in part on the federal participation in payment of terrorism losses as set forth in the Terrorism Risk Insurance Act. The federal program established by the Act is scheduled to terminate at the end of the year specified in Part I of the Schedule of this endorsement, unless extended by the federal government. If the federal program terminates or if the level or terms of federal participation change, the estimated premium shown in (B) in Part I of the Schedule may not be appropriate.

If this policy contains a Conditional Exclusion, continuation of coverage for certified acts of terrorism, or termination of such coverage, will be determined upon disposition of the federal program, subject to the terms and conditions of the Conditional Exclusion. If this policy does not contain a Conditional Exclusion, coverage for certified acts of terrorism will continue. In either case, when disposition of the federal program is determined, we will recalculate the premium shown in (B) in Part I of the Schedule and will charge additional premium or refund excess premium, if indicated.

If we notify you of an additional premium charge, the additional premium will be due as specified in such notice.

THIS ENDORSEMENT IS ATTACHED TO AND MADE PART OF YOUR POLICY IN RESPONSE TO THE DISCLOSURE REQUIREMENTS OF THE TERRORISM RISK INSURANCE ACT. THIS ENDORSEMENT DOES NOT GRANT ANY COVERAGE OR CHANGE THE TERMS AND CONDITIONS OF ANY COVERAGE UNDER THE POLICY.

MISSOURI – DISCLOSURE PURSUANT TO TERRORISM RISK INSURANCE ACT

SCHEDULE

SCHEDULE – PART I	
Terrorism Premium (Certified Acts)	\$16.00
This premium is the total Certified Acts premium attributable to the following Coverage Part(s), Coverage Form(s) and/or Policy(ies):	
Certified Acts - General Liability	\$10.00
Certified Acts - Professional Liability	Included
Certified Acts - Property	\$6.00
Additional information, if any, concerning the terrorism premium:	
SCHEDULE – PART II	
Federal share of terrorism losses <u>80</u> %	
(Refer to Paragraph B. in this endorsement.)	
NOTE: The premium above is for certain losses resulting from certified acts of terrorism as covered pursuant to coverage provisions, limitations and exclusions in this policy. You should read the definition in your policy carefully, but generally speaking, "certified" acts of terrorism are acts that exceed \$5 million in aggregate losses to the insurance industry and which are subsequently declared by the U.S. Secretary of the Treasury as a certified terrorist act under the Terrorism Risk Insurance Act. Some losses resulting from certified acts of terrorism are not covered. Read your policy and endorsements carefully.	
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. Disclosure Of Premium

In accordance with the federal Terrorism Risk Insurance Act, we are required to provide you with a notice disclosing the portion of your premium, if any, attributable to coverage for terrorist acts certified under the Terrorism Risk Insurance Act. The portion of your premium attributable to such coverage is shown in the Schedule of this endorsement or in the policy Declarations.

B. Disclosure Of Federal Participation In Payment Of Terrorism Losses

The United States Government, Department of the Treasury, will pay a share of terrorism losses insured under the federal program. The federal share equals a percentage (as shown in Part II of the Schedule of this endorsement or in the policy Declarations) of that portion of the amount of such insured losses that exceeds the applicable insurer retention. However, if aggregate insured losses attributable to terrorist acts certified under the Terrorism Risk Insurance Act exceed \$100 billion in a calendar year, the Treasury shall not make any payment for any portion of the amount of such losses that exceeds \$100 billion.

C. Cap On Insurer Participation In Payment Of Terrorism Losses

If aggregate insured losses attributable to terrorist acts certified under the Terrorism Risk Insurance Act exceed \$100 billion in a calendar year and we have met our insurer deductible under the Terrorism Risk Insurance Act, we shall not be liable for the payment of any portion of the amount of such losses that exceeds \$100 billion, and in such case insured losses up to that amount are subject to pro rata allocation in accordance with procedures established by the Secretary of the Treasury.

COMMERCIAL PROPERTY COVERAGE PART DECLARATIONS PAGE

POLICY NO. CP0003051

"X" If Supplemental
Declarations Is Attached

NAMED INSURED

EFFECTIVE DATE 01/01/2022

City of Armstrong

DESCRIPTION OF PREMISES

Prem. No.	Bldg. No.	Location, Construction And Occupancy
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See Description of Premises Schedule

COVERAGES PROVIDED Insurance At The Described Premises Applies Only For Coverages For Which A Limit Of Insurance Is Shown

Prem. No.	Bldg. No.	Coverage	Limit Of Insurance	Covered Causes Of Loss	Coinsurance*
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See Coverages Provided Schedule

OPTIONAL COVERAGES *If Extra Expense Coverage, Limits On Loss Payment
Applicable Only When Entries Are Made In The Schedule Below

Prem. No.	Bldg. No.	Agreed Value			Replacement Cost (X)		
		Expiration Date	Cov.	Amount	Building	Pers. Prop.	Including Stock

See Optional Coverages Schedule

Inflation Guard (%)	*Monthly Limit Of Indemnity	Maximum Period Of Indemnity	*Extended Period Of Indemnity
Bldg. No. Pers. Prop.			

MORTGAGEHOLDERS

Prem. No.	Bldg. No.	Mortgageholder Name And Mailing Address
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DEDUCTIBLE

\$1,000

Exceptions:

FORMS APPLICABLE

To All Coverages:

To Specific Premises/Coverages:

Prem. No.	Bldg. No.	Coverages	Form Number
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See attached Forms Schedule.

DESCRIPTION OF PREMISES

Prem. No.	Bldg. No.	Location, Construction And Occupancy
001	001	Warning Siren 106 South Central Howard Armstrong, MO 65230 Non-Combustible
005	001	New City Hall 101 S. Central Howard Armstrong, MO 65230 Frame

COVERAGES PROVIDED Insurance At The Described Premises Applies Only For Coverages For Which A Limit Of Insurance Is Shown

Prem. No.	Bldg. No.	Coverage	Limit Of Insurance	Covered Causes Of Loss	Coinsurance*
001	001	Building	\$6,500	Special Form Including Theft	80%
005	001	Building	\$185,000	Special Form Including Theft	100%
		Personal Property of Insured	\$5,000	Special Form Including Theft	80%

OPTIONAL COVERAGES Applicable Only When Entries Are Made In The Schedule Below

Prem. Bldg.

No. No.

005 001 Building
 Replacement Cost

Personal Property of Insured
 Replacement Cost

FORMS APPLICABLE

To All Coverages:

44 40 CP (10-06)
44 41 CPx (10-06)

To Specific Premises/Coverages:

Prem. Bldg. Coverages
No. No.

Form Number

001	001	Building	CP 00 10 (10-12)
			CP 10 30 (09-17)
		All Coverages	21 99 CP (MO) (12-15)
			39 57 CP (10-00)
			60 41 CP (04-19)
			CP 00 90 (07-88)
			CP 01 28 (07-00)
			CP 01 40 (07-06)
			CP 10 75 (12-20)
003	001		21 99 CP (MO) (12-15)
			39 57 CP (10-00)
			60 41 CP (04-19)
			CP 00 90 (07-88)
			CP 01 28 (07-00)
			CP 01 40 (07-06)
			CP 10 75 (12-20)
004	001		21 99 CP (MO) (12-15)
			39 57 CP (10-00)
			60 41 CP (04-19)
			CP 00 90 (07-88)
			CP 01 28 (07-00)
			CP 01 40 (07-06)
			CP 10 75 (12-20)
005	001	Building	CP 00 10 (10-12)
			CP 10 30 (09-17)
		Personal Property of Insured	CP 00 10 (10-12)
			CP 10 30 (09-17)
		All Coverages	21 99 CP (MO) (12-15)
			39 57 CP (10-00)
			60 41 CP (04-19)
			CP 00 90 (07-88)
			CP 01 28 (07-00)
			CP 01 40 (07-06)
			CP 10 75 (12-20)

COMMERCIAL PROPERTY COVERAGE PART EQUIPMENT BREAKDOWN COVERAGE SCHEDULE

Equipment Breakdown is subject to the Limits of Insurance shown in the Commercial Property Coverage Part Declarations except as specifically shown below.

These coverages apply to all locations covered on the policy, unless otherwise specified.

Coverages	Limits

Equipment Breakdown Limit	\$196,500
Business Income	Follows property forms & schedules
Extra Expense	Follows property forms & schedules
Expediting Expenses	\$100,000
Hazardous Substances	\$100,000
Spoilage	\$100,000
Data Restoration	\$100,000
Service Interruption	Follows property forms & schedules

Deductibles

Combined, All Coverages	Same as property. See Schedule
Direct Coverages	\$
Indirect Coverages	\$
	or _____ hrs.
	or _____ times ADV
Perishable Goods	\$
	or _____ % of loss,
	\$ minimum

Other Conditions

COMMERCIAL GENERAL LIABILITY DECLARATIONS

Policy No. CP0003051

LIMITS OF INSURANCE

General Aggregate Limit (Other Than Products-Completed Operations)	\$4,000,000	
Products-Completed Operations Aggregate Limit	\$4,000,000	
Personal and Advertising Injury Limit	\$2,000,000	Any One Person/Org.
Each Occurrence Limit	\$2,000,000	
Damage To Premises Rented To You Limit	\$100,000	Any One Premises
Medical Expense Limit	\$5,000	Any One Person

RETROACTIVE DATE (CG 00 02 only)

This Insurance does not apply to "bodily injury", "property damage" or "personal and advertising injury" which occurs before the applicable Retroactive Date shown here:

(Enter Date applicable Retroactive Date applies)

BUSINESS DESCRIPTION AND LOCATION OF PREMISES

Type of Business: Individual Joint Venture Partnership Limited Liability Company
 Organization, including a Corporation, (but not including a Partnership, Joint Venture or Limited Liability Company)

Business Description: CITY

Location of All Premises You Own, Rent or Occupy:

001-001 Warning Siren
 106 South Central
 Howard
 Armstrong, MO 65230

CLASSIFICATION AND PREMIUM

Loc. No	Classification	Code No	Prem Base	Rate		Advance Premium	
				Pr. Ops	Prd/ C.O.	Pr. Ops	Prd/ C.O.
001-001	Streets - Cities Products-completed operations are subject to the General Aggregate Limit TERRITORY: 503	48727 a	5 Mile	29.071	Incl.	\$145	Incl.
	Governmental Subdivision - Not State or Federal-Municipalities- Population under 2,500 Products-completed operations are subject to the General Aggregate Limit TERRITORY: 503	44100	51,542 Total Operating Expenses	16.570	Incl.	\$854	Incl.
004-001							
Premium shown is payable: At inception:				Endorsement(s) Premium		\$84	
Each anniversary:				State Tax or Other			
				Total Policy Premium		\$1,245	
				Total Advance Premium		\$1,245	

Audit Period (if applicable): Annually Semi-annually Quarterly Monthly

FORMS AND ENDORSEMENTS ATTACHED:

Forms and Endorsements applying to this Coverage Part and made part of this policy at time of issue:

See Listing of Forms and Endorsements

THESE DECLARATIONS, TOGETHER WITH THE COMMON POLICY DECLARATIONS AND COVERAGE FORM(S) AND ANY ENDORSEMENT(S) COMPLETE THE ABOVE NUMBERED POLICY.

CLASSIFICATION AND PREMIUM

LOC NO.	CLASSIFICATION	CODE NO.	PREMIUM BASE	RATE		ADVANCE PREMIUM	
				Prem/Ops	Prod/Comp Ops	Prem/Ops	Prod/Comp Ops
004-001	Lakes / Reservoirs - less than 10 acres Products-completed operations are subject to the General Aggregate Limit TERRITORY: 503	45524 a	1 Lake	152.038	Incl.	\$152	Incl.
	Employee Benefits Liability	92100				\$84	

ALL PREMISES YOU OWN, RENT OR OCCUPY

LOC NO.	ADDRESS OF ALL PREMISES YOU OWN, RENT OR OCCUPY
004-001	City Lake S27 & 28, T52N, R16W Howard Armstrong, MO 65230

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

EMPLOYEE BENEFITS LIABILITY COVERAGE

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by the endorsement.

The provisions of this endorsement apply only to the Employee Benefits Liability coverage described below.

SCHEDULE

LIMITS OF INSURANCE

Each Claim Limit	\$2,000,000
Aggregate Limit	\$4,000,000
Deductible Each Claim	\$1,000

INSURING AGREEMENT

We will pay under this endorsement those sums that the insured becomes legally obligated to pay as damages because of a claim brought by any "employee", former "employee", or their beneficiaries or legal representatives in connection with any negligent act, error, omission or breach of duty of the insured or any other person for whose acts the insured is legally liable, in the "Administration" of your "Employee Benefits Program."

This insurance applies only to negligent acts, errors, or omissions that:

- a. Occur during the policy period; and
- b. Take place in the "coverage territory".

We have the right and duty to defend any "suit" seeking those damages. But:

- a. The amount we will pay for damages is limited as described in the Limits Of Insurance in the above Schedule; and
- b. We may at our discretion, investigate any report of a negligent act, error or omission and settle any claim or "suit" that may result; and
- c. Our right and duty to defend ends when we have used up the applicable Limits Of Insurance shown in the Schedule in the payment of judgments or settlements.

EXCLUSIONS

This insurance does not apply:

- a. To any dishonest, fraudulent, criminal or malicious act, or to libel, slander, discrimination or humiliation committed by any insured;
- b. To any "bodily injury", "personal injury", "advertising injury" or "property damage";
- c. To any claim for failure of performance of contract by any insured;
- d. Failure to comply with mandatory provisions of laws concerning workers' compensation, Social Security, disability benefits or unemployment compensation law, or any similar law;
- e. To any failure of any investment shares to perform as represented by any insured;
- f. To any advice given to any person to participate or not to participate in any plan included in the "Employee Benefits Program;"
- g. To any claim arising out of an insufficiency of funds to meet any obligation under any plan included in the "Employee Benefits Program;"

- h. To any claim based upon any persons failure or error in handling, settling, or paying a claim when coverage or benefit exists in an "Employee Benefits Program;"
- i. To any actual or alleged error or omission or breach of duty, committed or alleged to have been committed by any insured, in the discharge of fiduciary duties, obligations or responsibilities imposed by the Federal Employee Retirement Income Security Act of 1974 or Title X of the Consolidated Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272) or Section 9319 of the Omnibus Budget Reconciliation Act of 1986 (Public Law 99-509) or any amendments to these Acts;
- j. If, as of the effective date of this endorsement, the insured had knowledge or could reasonably foresee any circumstances which might result in a claim;
- k. To any fines, penalties or taxes.

SUPPLEMENTARY PAYMENTS

The SUPPLEMENTARY PAYMENTS – COVERAGES A AND B is extended to apply to Employee Benefits Liability Coverage.

WHO IS AN INSURED

Paragraph 2. under SECTION II – WHO IS AN INSURED is replaced by the following:

- 2. The following is also an insured:
 - a. Your "employees", other than either your "executive officers" (if you are an organization other than a partnership, joint venture or limited liability company) or your managers (if you are a limited liability company), but only for acts within the scope of their employment by you while performing duties related to the "administration" of your "Employee Benefits Programs".
 - b. Your legal representative if you die, but only with respect to duties as such. That representative will have all your rights and duties under this Coverage Form.

Paragraph 4. under SECTION II – WHO IS AN INSURED is amended to add the following:

- 4. d. The Employee Benefits Coverage provided in this endorsement does not apply to any negligent act, error or omission that was committed before you acquired or formed the organization.

LIMITS OF INSURANCE

The Limits of Insurance shown in the Schedule of this endorsement and the rules below, fix the most we will pay regardless of the number of:

- a. Insureds;
- b. Claims made or "suits" brought;
- c. Persons or organizations making claims or bringing "suits";
- d. Acts, errors or omissions which result in loss; or
- e. Plans included in your "Employee Benefits Program".

The Each Claim Limit is the most we will pay for damages arising out of any one claim. However, we will pay no more than would have been payable under the "Employee Benefits Program" had no error been made.

The Aggregate Limit is the most we will pay for the sum of all damages under this endorsement.

The Limits of Insurance apply separately to each consecutive annual period and to any remaining period of less than 12 months starting with the beginning of the policy period shown in the Declarations, unless the policy period is extended after issuance for an additional period of less than 12 months. In that case, the additional period will be deemed part of the last preceding period for purposes of determining the Limits of Insurance.

DEDUCTIBLE

The Deductible, if shown in the Schedule, applies to each claim covered by this endorsement. We may pay part or all of the deductible amount in settlement of any claim or "suit." If we do, you agree to promptly reimburse us for the deductible amount we pay.

Our obligation to pay damages on behalf of the insured applies only to the amount of damages in excess of the deductible amount stated in the Schedule. The Limits of Insurance applicable will not be reduced by the amount of this deductible.

Claims resulting from the same negligent act(s), error(s) or omissions(s) of one or more of the Insureds are a single claim, and only one deductible applies.

CONDITIONS

SECTION IV - COMMERCIAL GENERAL LIABILITY CONDITIONS is amended as follows:

Paragraph **2.a.** Duties In The Event Of Occurrence, Offense, Claim Or Suit, is replaced by the following:

2. a. You must see to it that we are notified as soon as practicable of an act, error or omission which may result in a claim. Notice should include:

- (1) A description of the act, error or omission and when it occurred; and
- (2) The names and addresses of any "employees" who may suffer damages as a result of the act, error or omission.

Paragraph **4.** Other Insurance is amended to also apply to Employee Benefits Liability Coverage. The following is added to the Other Insurance section:

4. d. If an Employee Benefits Liability loss covered under this endorsement is also covered in whole or in part under any other policy issued to the **Insured** prior to the inception date of this policy, our Limit of Insurance as stated in the Schedule shall be reduced by any amounts due the Insured on account of any loss under such prior insurance.

Subject to the above paragraph and to all other terms and conditions of this policy, in the event that damages arising out of a claim covered under this endorsement is continuing at the time of termination of this coverage or policy, we will continue to protect the insured for liability in respect of such claim for damages without payment of additional premium.

ADDITIONAL DEFINITIONS

The following DEFINITIONS apply to this endorsement:

"Administration" means any of the following acts that you do or authorize a person to do:

- a. Counseling "employees" on the "Employee Benefits Program";
- b. Interpreting your "Employee Benefits Program";
- c. Handling records for your "Employee Benefits Program"; or
- d. Effecting enrollment, termination or cancellation of "employees" under your "Employee Benefits Program."

"Employee Benefits Program" means:

- a. group life, accident, health insurance, retirement or pension plans; providing that no one other than an employee may subscribe to such insurance or plans;
- b. profit sharing plans provided they are equally available to all eligible full time "employees";
- c. "employee" stock subscription plans, providing they are equally available to all eligible full-time "employees";
- d. "employee" travel, vacation, or savings plans;
- e. workers' compensation insurance;
- f. salary continuance plans, unemployment insurance, social security and disability benefits insurance;
- g. or any similar plan.



A member of Meadowbrook® Insurance Group

HOME OFFICE:
 11880 College Blvd., Suite 500
 Overland Park, KS 66210
 (800) 351 -1411

DECLARATIONS – CYBER LIABILITY INSURANCE

POLICY NUMBER: CP0003051

PRODUCER: Missouri Rural Services Corp.

NOTICE: THIS COVERAGE PART CONTAINS NAMED COVERAGES I THROUGH IX. NAMED COVERAGES I, II, III AND IX ARE PROVIDED ON A CLAIMS-MADE AND REPORTED BASIS, MEANING THAT CLAIMS MUST FIRST BE MADE DURING THE POLICY PERIOD OR ANY EXTENDED REPORTING PERIOD, IF APPLICABLE, AND REPORTED TO SAVERS PROPERTY & CASUALTY INSURANCE COMPANY NO LATER THAN SIXTY (60) DAYS AFTER THE CLAIM IS MADE. NAMED COVERAGES IV, V, VI, VII AND VIII PROVIDE CERTAIN FIRST PARTY COVERAGES. ALL CLAIMS ARE SUBJECT TO THE APPLICABLE LIMITS OF LIABILITY. PLEASE NOTE THAT THE LIMITS OF LIABILITY FOR NAMED COVERAGES I, II, III AND IX INCLUDE CLAIM EXPENSES. PLEASE REVIEW THE COVERAGE AFFORDED UNDER THIS COVERAGE PART CAREFULLY.

ITEM 1. NAMED COVERAGES:

- I. Multimedia Liability
- II. Security and Privacy Liability
- III. Privacy Regulatory Defense and Penalties
- IV. Privacy Breach Response Costs, Notification Expenses, and Breach Support and Credit Monitoring Expenses
- V. Network Asset Protection
- VI. Cyber Extortion
- VII. Cyber Terrorism
- VIII. BrandGuard
- IX. PCI DSS Assessment

ITEM 2. LIMITS OF LIABILITY

A. Limits of Liability for Named Coverages:

	Each Claim	Aggregate
I. Multimedia Liability	\$100,000	\$100,000
II. Security and Privacy Liability	\$100,000	\$100,000
III. Privacy Regulatory Defense and Penalties	\$100,000	\$100,000
IV. Privacy Breach Response Costs, Notification Expenses, and Breach Support and Credit Monitoring Expenses	\$100,000	\$100,000
V. Network Asset Protection	\$100,000	\$100,000
VI. Cyber Extortion	\$100,000	\$100,000
VII. Cyber Terrorism	\$100,000	\$100,000
VIII. BrandGuard	\$100,000	\$100,000
IX. PCI DSS Assessment	\$100,000	\$100,000

B. Maximum Policy Aggregate Limit of Liability

\$100,000

ITEM 3. COINSURANCE, RETENTION AND WAITING PERIOD:

I.	Multimedia Liability	None
II.	Security and Privacy Liability	None
III.	Privacy Regulatory Defense and Penalties	None
IV.	Privacy Breach Response Costs, Notification Expenses, and Breach Support and Credit Monitoring Expenses	None
V.	Network Asset Protection	
	Loss of Digital Assets	None
	Special Expenses	10% Coinsurance
	Non-Physical Business Interruption and Extra Expense	8 hour Waiting Period
VI.	Cyber Extortion	None
VII.	Cyber Terrorism	8 hour Waiting Period
VIII.	BrandGuard	
	Waiting Period:	2 weeks
	Period of Indemnity:	180 days
IX.	PCI DSS Assessment	None

ITEM 4. Retroactive Date: 01/01/2015

ITEM 5. Premium: \$115

ITEM 6. In the event you wish to make a claim under this insurance, please notify:

Meadowbrook Service Center
Phone 1-800-825-9489
Fax 1-800-832-8793
Email newclaim@meadowbrook.com

Meadowbrook Claims Services, 11880 College Blvd., Suite 500, Overland Park, KS 66210-2035

THESE DECLARATIONS, TOGETHER WITH THE COMMON POLICY DECLARATIONS AND COVERAGE FORM(S) AND ANY ENDORSEMENT(S) COMPLETE THE ABOVE NUMBERED POLICY.

PUBLIC OFFICIALS ERRORS & OMISSIONS COVERAGE PART DECLARATIONS

Renewal of Number: New

Policy Number: CP0003051

Named Insured: City of Armstrong
P.O. Box 129
Armstrong, MO 65230

Effective Date: 01/01/2022 at 12:01 A.M. Standard Time

Expiration Date: 01/01/2023

Business Description: CITY

LIMITS OF LIABILITY AND DEDUCTIBLE

Each Wrongful Act Limit	\$2,000,000
Aggregate Limit	\$2,000,000
Deductible	\$1,000

RETROACTIVE DATE

Public Officials Errors & Omissions Coverage does not apply to a "Wrongful Act" which occurs before the Retroactive Date shown here: 01/01/1994

PREMIUM

Incl.

FORMS AND ENDORSEMENTS applying to this Coverage Part and made part of this policy at time of issue:

See Attached Listing of Forms and Endorsements

NOTICE: THIS COVERAGE IS A CLAIMS-MADE FORM. EXCEPT TO SUCH EXTENT AS MAY OTHERWISE BE PROVIDED HEREIN, THIS PUBLIC OFFICIALS ERRORS & OMISSIONS LIABILITY COVERAGE IS LIMITED TO LIABILITY FOR ONLY THOSE CLAIMS THAT ARE FIRST MADE AGAINST THE INSURED AND REPORTED TO THE COMPANY IN WRITING DURING THE POLICY PERIOD. ALL CLAIMS EXPENSE SHALL BE INCLUDED IN THE LIMITS OF LIABILITY AND SHALL NOT BE IN ADDITION TO THE LIMITS OF LIABILITY. PLEASE REVIEW THE POLICY CAREFULLY AND DISCUSS THIS COVERAGE WITH YOUR INSURANCE AGENT OR BROKER.

THESE DECLARATIONS ARE PART OF THE POLICY DECLARATIONS CONTAINING THE NAME OF THE INSURED AND THE POLICY PERIOD.

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UTILITY AUTHORITY/DEPARTMENT COVERAGE

This endorsement modifies insurance under the following:

**PUBLIC OFFICIALS LIABILITY COVERAGE PART
DIRECTORS AND OFFICERS LIABILITY COVERAGE PART**

This insurance includes coverage for the Insured's

- Gas Utility
- Electric Utility
- Other as described below

Water Utility

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

CAP ON LOSSES FROM CERTIFIED ACTS OF TERRORISM

POLICY NUMBER: CP0003051

NAMED INSURED: City of Armstrong
P.O. Box 129
Armstrong, MO 65230

This endorsement modifies insurance provided under the following:

**DIRECTORS & OFFICERS ERRORS AND OMISSIONS COVERAGE PART – 0257 GL
PUBLIC OFFICIALS ERRORS AND OMISSIONS COVERAGE PART – 0258 GL**

- A.** If aggregate insured losses attributable to terrorist acts certified under the federal Terrorism Risk Insurance Act exceed \$100 billion in a calendar year) and we have met our insurer deductible under the Terrorism Risk Insurance Act, we shall not be liable for the payment of any portion of the amount of such losses that exceeds \$100 billion, and in such case insured losses up to that amount are subject to pro rata allocation in accordance with procedures established by the Secretary of the Treasury.

"Certified act of terrorism" means an act that is certified by the Secretary of the Treasury, in accordance with the provisions of the federal Terrorism Risk Insurance Act, to be an act of terrorism pursuant to such Act. The criteria contained in the Terrorism Risk Insurance Act for a "certified act of terrorism" include the following:

1. The act resulted in insured losses in excess of \$5 million in the aggregate, attributable to all types of insurance subject to the Terrorism Risk Insurance Act; and
2. The act is a violent act or an act that is dangerous to human life, property or infrastructure and is committed by an individual or individuals as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the United States Government by coercion.

- B.** The terms and limitations of any terrorism exclusion, or the inapplicability or omission of a terrorism exclusion, do not serve to create coverage for injury or damage that is otherwise excluded under this Coverage Part.

All other terms, conditions, definitions and exclusions remain the same.

EMPLOYMENT-RELATED PRACTICES LIABILITY COVERAGE PART DECLARATIONS

Renewal of Number: New
 Policy Number: CP0003051
 Named Insured: City of Armstrong
 Address: P.O. Box 129
 Armstrong, MO 65230

Policy Period: From: 01/01/2022 To: 01/01/2023 at 12:01 A.M. Standard Time

Business Description: CITY

LIMITS OF LIABILITY AND DEDUCTIBLE	
Limit of Insurance	\$2,000,000/\$2,000,000
Deductible	\$5,000

RETROACTIVE DATE
This insurance does not apply to "Injury" if the offense out of which the "Injury" arose commences before the Retroactive Date shown here: 01/01/1994

CLASSIFICATION AND PREMIUM				
CLASSIFICATION	CODE NO.	PREMIUM BASE	RATE	ADVANCE PREMIUM
				Incl.

	State Tax or Other (if applicable)	\$
	Total Premium	\$ Incl.
Total Premium is Payable at:	Inception:	\$
	Each Anniversary:	\$

FORMS AND ENDORSEMENTS applying to this Coverage Part and made part of this policy at time of issue:
See Attached Listing of Forms and Endorsements

NOTICE: THIS COVERAGE IS A CLAIMS-MADE FORM. EXCEPT TO SUCH EXTENT AS MAY OTHERWISE BE PROVIDED HEREIN, THIS EMPLOYMENT-RELATED PRACTICES LIABILITY COVERAGE IS LIMITED TO LIABILITY FOR ONLY THOSE CLAIMS THAT ARE FIRST MADE AGAINST THE INSURED AND REPORTED TO THE COMPANY IN WRITING DURING THE POLICY PERIOD. ALL CLAIMS EXPENSE SHALL BE INCLUDED IN THE LIMITS OF LIABILITY AND SHALL NOT BE IN ADDITION TO THE LIMITS OF LIABILITY. PLEASE REVIEW THE POLICY CAREFULLY AND DISCUSS THIS COVERAGE WITH YOUR INSURANCE AGENT OR BROKER.



Missouri Rural Services Corp.

1913 Southridge Drive, P.O. Box 104268 Jefferson City, MO 65110-4268 Telephone (800) 726-9304
FAX (573) 634-4789

City of Armstrong
CP-CA0003051

The Missouri Insurance Department requires that we notify you of the schedule credits and/or debits that are applicable to your policy. The credits and/or debits applied to your policy are as follows:

Coverages: General Liability

Credit and/or debit: 10% debit

Reason: Management & Risk Characteristics

Sincerely,

Lori Adams

Lori Adams

la

Enc.

STAR INSURANCE COMPANY

11880 College Blvd.
Overland Park, KS 66210-1224

BUSINESS AUTO DECLARATIONS

POLICY NUMBER: CA0003051

COMMERCIAL AUTO
CA DS 03 11 20

ITEM ONE

Company Name: STAR INSURANCE COMPANY 11880 College Blvd. Suite 500, KS 66210-1224 (800) 351-1411	
Producer Name Missouri Rural Services Corp. 1913 Southridge Drive P.O. Box 104268 Jefferson City, MO 65110-4268	0000540
Named Insured: City of Armstrong	
Mailing Address: P.O. Box 129 Armstrong, MO 65230	
Policy Period	
From: 01/01/2022	
To: 01/01/2023	At 12:01 AM Standard Time at your mailing address shown above
Previous Policy Number: CA0003051	

Form Of Business:	<input type="checkbox"/> Corporation	<input type="checkbox"/> Limited Liability Company (LLC)	<input type="checkbox"/> Individual
	<input type="checkbox"/> Partnership	<input checked="" type="checkbox"/> Other: CITY	

In return for the payment of the premium, and subject to all the terms of this Policy, we agree with you to provide the insurance as stated in this Policy.

Premium Shown Is Payable At Inception: \$1,301.00
Audit Period (if applicable): <input type="checkbox"/> Annually <input type="checkbox"/> Semiannually <input type="checkbox"/> Quarterly <input type="checkbox"/> Monthly

Endorsements Attached To This Policy
IL 00 17 – Common Policy Conditions (IL 01 46 in Washington)
IL 00 21 – Broad Form Nuclear Exclusion (not applicable in New York) (IL 01 98 in Washington)
See Schedule of Forms and Endorsements.

ITEM ONE (Cont'd)

Countersignature Of Authorized Representative	
Name:	Lori Adams
Title:	
Signature:	
Date:	01/01/2022

Note

Officers' facsimile signatures may be inserted here, on the Policy cover or elsewhere at the company's option.

ITEM TWO

Schedule Of Coverages And Covered Autos

This Policy provides only those coverages where a charge is shown in the premium column below. Each of these coverages will apply only to those "autos" shown as covered "autos". **"Autos" are shown as covered "autos" for a particular coverage by the entry of one or more of the symbols from the Covered Autos section of the Business Auto Coverage Form next to the name of the coverage.**

Coverages	Covered Autos	Limit Or Deductible	Premium
Covered Autos Liability	1	\$2,000,000	\$1,047
Personal Injury Protection (Or Equivalent No-fault Coverage)		Separately Stated In Each Personal Injury Protection Endorsement Minus Deductible	
Added Personal Injury Protection (Or Equivalent Added No-fault Coverage)		Separately Stated In Each Added Personal Injury Protection Endorsement	
Property Protection Insurance (Michigan Only)		Separately Stated In The Property Protection Insurance Endorsement Minus Deductible For Each Accident	
Auto Medical Payments		Each Insured	
Medical Expense And Income Loss Benefits (Virginia Only)		Separately Stated In The Medical Expense And Income Loss Benefits Endorsement	
Uninsured Motorists	2	\$50,000	\$14
Underinsured Motorists (When Not Included In Uninsured Motorists Coverage)	2	\$50,000	\$2

ITEM TWO

Schedule Of Coverages And Covered Autos (Cont'd)

Coverages	Covered Autos	Limit Or Deductible	Premium
Physical Damage Comprehensive Coverage	7	<p style="text-align: right;">Deductible</p> <p>For Each Covered Auto For Loss Caused By Theft Or Mischief Or Vandalism (A maximum deductible may also apply. Refer to Coverage Form for details.)</p> <p style="text-align: center;">OR</p> <p style="text-align: center;">\$500 Deductible</p> <p>For All Perils For Each Covered Auto (A maximum deductible may also apply. Refer to Coverage Form for details.)</p> <p>See Item Four for Hired or Borrowed Autos.</p>	\$119
Physical Damage Specified Causes Of Loss Coverage		<p style="text-align: right;">Deductible</p> <p>For Each Covered Auto For Loss Caused By Theft Or Mischief Or Vandalism (A maximum deductible may also apply. Refer to Coverage Form for details.)</p> <p style="text-align: center;">OR</p> <p style="text-align: right;">Deductible</p> <p>For All Perils For Each Covered Auto (A maximum deductible may also apply. Refer to Coverage Form for details.)</p> <p>See Item Four for Hired or Borrowed Autos.</p>	
Physical Damage Collision Coverage	7	<p style="text-align: center;">\$500 Deductible</p> <p>For Each Covered Auto See Item Four for Hired or Borrowed Autos.</p>	\$119

ITEM TWO

Schedule Of Coverages And Covered Autos (Cont'd)

Physical Damage Towing And Labor		For Each Disablement Of A Private Passenger Auto, Light Or Medium Truck	
Premium For Endorsements			
Estimated Total Premium*			\$1,301.00
*This Policy may be subject to final audit.			

ITEM THREE

Schedule Of Covered Autos You Own

Covered Auto Number: 1						
Town And State Where The Covered Auto Will Be Principally Garaged: Armstrong, MO						
Covered Auto Description						
Year: 1965	Model: Dump Truck			Trade Name: Ford		
Body Type:				Serial Number(s):		
Vehicle Identification Number (VIN): F50CK771H84						
Classification						
Original Cost New	Radius Of Operation	Business Use s=service r=retail c=commercial	Size GVWR, GCW Or Vehicle Seating Capacity	Age Group	Secondary Rating Classification	Code
	Up to 50 miles	s	Heavy Truck 20,001 to 45,000 lbs GVWR	Z	All other	31199
Except For Towing And Labor, All Physical Damage Loss Is Payable To You And The Loss Payee Named Below According To Their Interests In The Auto At The Time Of The Loss:						

ITEM THREE

Schedule Of Covered Autos You Own (Cont'd)

Coverages – Premiums, Limits And Deductibles (Absence of a deductible or limit entry in any column below means that the limit or deductible entry in the corresponding Item Two column applies instead.)		
Coverages	Limit Or Deductible	Premium
Covered Autos Liability	\$2,000,000	\$494
Personal Injury Protection	Stated In Each Personal Injury Protection Endorsement Minus Deductible	
Added Personal Injury Protection	Stated In Each Added Personal Injury Protection Endorsement	
Property Protection Insurance (Michigan Only)	Stated In The Property Protection Insurance Endorsement Minus Deductible	
Auto Medical Payments	 Each Insured	
Medical Expense And Income Loss Benefits (Virginia Only)	Stated In The Medical Expense And Income Loss Benefits Endorsement For Each Person	
Uninsured Motorist		
Underinsured Motorist		
Comprehensive	Deductible For Loss Caused By Theft Or Mischief Or Vandalism (A maximum deductible may also apply. Refer to Coverage Form for details.) OR Deductible For All Perils (A maximum deductible may also apply. Refer to Coverage Form for details.)	
Specified Causes Of Loss	Deductible For Loss Caused By Theft Or Mischief Or Vandalism (A maximum deductible may also apply. Refer to Coverage Form for details.) OR Deductible For All Perils (A maximum deductible may also apply. Refer to Coverage Form for details.)	
Collision	 Deductible	
Towing And Labor	Per Disablement	

ITEM THREE

Schedule Of Covered Autos You Own

Covered Auto Number: 2						
Town And State Where The Covered Auto Will Be Principally Garaged: Armstrong, MO						
Covered Auto Description						
Year: 2001		Model: Ram		Trade Name: Dodge		
Body Type:				Serial Number(s):		
Vehicle Identification Number (VIN): 3B7MF36591M284893						
Classification						
Original Cost New	Radius Of Operation	Business Use s=service r=retail c=commercial	Size GVWR, GCW Or Vehicle Seating Capacity	Age Group	Secondary Rating Classification	Code
\$13,000	Up to 50 miles	S	Light Truck 10,000 lbs GVWR or less	R	All other	01199
Except For Towing And Labor, All Physical Damage Loss Is Payable To You And The Loss Payee Named Below According To Their Interests In The Auto At The Time Of The Loss:						

ITEM THREE

Schedule Of Covered Autos You Own (Cont'd)

Coverages – Premiums, Limits And Deductibles (Absence of a deductible or limit entry in any column below means that the limit or deductible entry in the corresponding Item Two column applies instead.)		
Coverages	Limit Or Deductible	Premium
Covered Autos Liability	\$2,000,000	\$494
Personal Injury Protection	Stated In Each Personal Injury Protection Endorsement Minus Deductible	
Added Personal Injury Protection	Stated In Each Added Personal Injury Protection Endorsement	
Property Protection Insurance (Michigan Only)	Stated In The Property Protection Insurance Endorsement Minus Deductible	
Auto Medical Payments	 Each Insured	
Medical Expense And Income Loss Benefits (Virginia Only)	Stated In The Medical Expense And Income Loss Benefits Endorsement For Each Person	
Uninsured Motorist		
Underinsured Motorist		
Comprehensive	 Deductible For Loss Caused By Theft Or Mischief Or Vandalism (A maximum deductible may also apply. Refer to Coverage Form for details.) OR \$500 Deductible For All Perils (A maximum deductible may also apply. Refer to Coverage Form for details.)	\$119
Specified Causes Of Loss	 Deductible For Loss Caused By Theft Or Mischief Or Vandalism (A maximum deductible may also apply. Refer to Coverage Form for details.) OR Deductible For All Perils (A maximum deductible may also apply. Refer to Coverage Form for details.)	
Collision	\$500 Deductible	\$119
Towing And Labor	 Per Disablement	

ITEM THREE

Schedule Of Covered Autos You Own (Cont'd)

Total Premiums	
Covered Autos Liability	\$988
Personal Injury Protection	
Added Personal Injury Protection	
Property Protection Insurance (Michigan Only)	
Auto Medical Payments	
Medical Expense And Income Loss Benefits (Virginia Only)	
Uninsured Motorist	
Underinsured Motorist	
Comprehensive	\$119
Specified Causes Of Loss	
Collision	\$119
Towing And Labor	

ITEM FOUR

Schedule Of Hired Or Borrowed Covered Auto Coverage And Premiums

Covered Autos Liability Coverage – Cost Of Hire Rating Basis For Autos Used In Your Motor Carrier Operations (Other Than Mobile Or Farm Equipment)		
Covered Autos Liability Coverage	Estimated Annual Cost Of Hire For All States	Premium
Primary Coverage		
Excess Coverage		
Total Hired Auto Premium		\$
<p>For "autos" used in your motor carrier operations, cost of hire means:</p> <ol style="list-style-type: none"> 1. The total dollar amount of costs you incurred for the hire of automobiles (includes "trailers" and semitrailers) and, if not included therein, 2. The total remunerations of all operators and drivers' helpers, of hired automobiles, whether hired with a driver by lessor or an "employee" of the lessee, or any other third party, and 3. The total dollar amount of any other costs (e.g., repair, maintenance, fuel, etc.) directly associated with operating the hired automobiles, whether such costs are absorbed by the "insured", paid to the lessor or owner, or paid to others. 		

ITEM FOUR

Schedule Of Hired Or Borrowed Covered Auto Coverage And Premiums (Cont'd)

Covered Autos Liability Coverage – Cost Of Hire Rating Basis For Autos NOT Used In Your Motor Carrier Operations (Other Than Mobile Or Farm Equipment)			
Covered Autos Liability Coverage	State	Estimated Annual Cost Of Hire For Each State	Premium
Primary Coverage			
Excess Coverage	MO	If Any	\$0
Total Hired Auto Premium			

For "autos" NOT used in your motor carrier operations, cost of hire means the total amount you incur for the hire of "autos" you don't own (not including "autos" you borrow or rent from your partners or "employees" or their family members). Cost of hire does not include charges for services performed by motor carriers of property or passengers.

Physical Damage Coverages – Cost Of Hire Rating Basis For All Autos (Other Than Mobile Or Farm Equipment)				
Coverage	State	Deductible	Estimated Annual Cost Of Hire For Each State (Excluding Autos Hired With A Driver)	Premium
Comprehensive		<p style="text-align: center;">Deductible</p> <p>For Each Covered Auto For Loss Caused By Theft Or Mischief Or Vandalism</p> <p>(A maximum deductible may also apply. Refer to Coverage Form for details.)</p>		
Specified Causes Of Loss		<p style="text-align: center;">Deductible</p> <p>For Each Covered Auto For Loss Caused By Theft Or Mischief Or Vandalism</p> <p>(A maximum deductible may also apply. Refer to Coverage Form for details.)</p>		
Collision		<p style="text-align: center;">Deductible</p> <p>For Each Covered Auto</p>		
Total Hired Auto Premium				

For Physical Damage Coverages, cost of hire means the total amount you incur for the hire of "autos" you don't own (not including "autos" you borrow or rent from your partners or "employees" or their family members). Cost of hire does not include charges for any "auto" that is leased, hired, rented or borrowed with a driver.

ITEM FOUR

Schedule Of Hired Or Borrowed Covered Auto Coverage And Premiums (Cont'd)

Cost Of Hire Rating Basis For Mobile Or Farm Equipment – Other Than Physical Damage Coverages					
Coverage	State	Estimated Annual Cost Of Hire For Each State		Premium	
		Mobile Equipment	Farm Equipment	Mobile Equipment	Farm Equipment
Covered Autos Liability – Primary Coverage					
Covered Autos Liability – Excess Coverage					
Personal Injury Protection					
Medical Expense Benefits (Virginia Only)	VA				
Income Loss Benefits (Virginia Only)	VA				
Auto Medical Payments					
Total Hired Auto Premiums					
Cost of hire means the total amount you incur for the hire of "autos" you don't own (not including "autos" you borrow or rent from your partners or "employees" or their family members). Cost of hire does not include charges for services performed by motor carriers of property or passengers.					

ITEM FOUR

Schedule Of Hired Or Borrowed Covered Auto Coverage And Premiums (Cont'd)

Cost Of Hire Rating Basis For Mobile Or Farm Equipment – Physical Damage Coverages						
Coverage	State	Deductible	Estimated Annual Cost Of Hire For Each State (Excluding Autos Hired With A Driver)		Premium	
			Mobile Equipment	Farm Equipment	Mobile Equipment	Farm Equipment
Comprehensive		Deductible For Each Covered Auto For Loss Caused By Theft Or Mischief Or Vandalism (A maximum deductible may also apply. Refer to Coverage Form for details.)				
Specified Causes Of Loss		Deductible For Each Covered Auto For Loss Caused By Theft Or Mischief Or Vandalism (A maximum deductible may also apply. Refer to Coverage Form for details.)				
Collision		Deductible For Each Covered Auto				
Total Hired Auto Premiums						
For Physical Damage Coverages, cost of hire means the total amount you incur for the hire of "autos" you don't own (not including "autos" you borrow or rent from your partners or "employees" or their family members). Cost of hire does not include charges for any auto that is leased, hired, rented or borrowed with a driver.						

ITEM FOUR

Schedule Of Hired Or Borrowed Covered Auto Coverage And Premiums (Cont'd)

Rental Period Rating Basis For Mobile Or Farm Equipment					
Coverage	Town And State Where The Job Site Is Located	Estimated Number Of Days Equipment Will Be Rented		Premium	
		Mobile Equipment	Farm Equipment	Mobile Equipment	Farm Equipment
Covered Autos Liability – Primary Coverage					
Covered Autos Liability – Excess Coverage					
Personal Injury Protection					
Medical Expense Benefits (Virginia Only)					
Income Loss Benefits (Virginia Only)					
Auto Medical Payments					
Total Hired Auto Premiums					

ITEM FIVE

Schedule For Non-ownership Covered Autos Liability

Named Insured's Business	Rating Basis	Number	Premium
Other Than Auto Service Operations, Partnerships Or LLCs	Number Of Employees	Included	Included
	Number Of Volunteers	Included	Included
Auto Service Operations	Number Of Employees Whose Principal Duty Involves The Operation Of Autos		
	Number Of Volunteers		
	Number Of Partners (Active And Inactive) Or LLC Members		
Partnerships Or LLCs	Number Of Employees		
	Number Of Volunteers		
	Number Of Partners (Active And Inactive) Or LLC Members		
Total Non-ownership Covered Autos Liability Premium			\$59

ITEM SIX

Schedule For Gross Receipts Or Mileage Basis

Address Of Business Headquarters Location:	
Type Of Risk (Check one):	<input type="checkbox"/> Public Autos <input type="checkbox"/> Leasing Or Rental Concerns
Rating Basis (Check one):	<input type="checkbox"/> Gross Receipts (Per \$100) <input type="checkbox"/> Mileage (Per Mile)
Estimated Yearly (Gross Receipts Or Mileage):	

Premiums	
Covered Autos Liability	
Personal Injury Protection	
Added Personal Injury Protection	
Property Protection Insurance (Michigan Only)	
Auto Medical Payments	
Medical Expense And Income Loss Benefits (Virginia Only)	
Comprehensive	
Specified Causes Of Loss	
Collision	
Towing And Labor	

When used as a premium basis:

FOR PUBLIC AUTOS

Gross receipts means the total amount earned by the named insured for transporting passengers, mail and merchandise.

Gross receipts does not include:

1. Amounts paid to air, sea or land carriers operating under their own permits.
2. Advertising revenue.
3. Taxes collected as a separate item and paid directly to the government.
4. C.O.D. collections for cost of mail or merchandise including collection fees.

Mileage means the total live and dead mileage of all revenue producing "autos" during the policy period.

FOR RENTAL OR LEASING CONCERNS

Gross receipts means the total amount earned by the named insured for the leasing or renting of "autos" to others without drivers.

Mileage means the total live and dead mileage of all "autos" you leased or rented to others without drivers.

SCHEDULE OF FORMS AND ENDORSEMENTS

POLICY NUMBER: CA0003051	EFFECTIVE DATE: 01/01/2022
------------------------------------	--------------------------------------

<u>NUMBER</u>	<u>TITLE</u>
CA DS 03 (11-20)	Business Auto Declarations
CA 00 01 (11-20)	Business Auto Coverage Form
05 89 GL (11-16)	Missouri Municipal Amendatory Endorsement
13 44 ML (06-96)	Deductible Waiver Endorsement
43 03 CA (08-13)	Commercial Auto Enhancement Endorsement
CA 00 22 (02-99)	Changes In Commercial Auto Coverage Forms
CA 01 65 (07-16)	Missouri Changes
CA 01 66 (10-13)	Missouri Changes - Pollution Exclusion
CA 02 19 (01-16)	Missouri Changes - Cancellation and Nonrenewal
CA 20 18 (10-13)	Professional Services Not Covered
CA 20 30 (10-13)	Emergency Vehicles - Volunteer Firefighters' and Workers' Injuries Excluded
CA 21 04 (10-13)	Missouri Uninsured Motorists Coverage
CA 23 84 (10-13)	Exclusion of Terrorism
CA 31 04 (02-18)	Missouri Underinsured Motorists Coverage
CA 99 15 (12-93)	Governmental Bodies Amendatory Endorsement
IL 00 17 (11-98)	Common Policy Conditions
IL 00 21 (09-08)	Nuclear Energy Liability Exclusion Endorsement (Broad Form)

PREMIUM INSTALLMENT NOTICE

Policy Number: CA0003051

Named Insured:
City of Armstrong

Agent:
Missouri Rural Services Corp.

INSTALLMENT PERIOD

The period covered by this installment payment provision is from 01/01/2022 to 01/01/2023 beginning and ending at 12:01 AM standard time at the address of the insured.

PREMIUM SUMMARY

The premium is due on the following dates:

<u>Date</u>	<u>Amount</u>
01/01/2022	\$520.40
04/01/2022	\$260.20
07/01/2022	\$260.20
10/01/2022	\$260.20

Important: This policy may be subject to premium adjustment as set forth in its provisions, terms and conditions.

Issue Date: 01/01/2022

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County: Howard County _____

Jurisdiction: The City of Fayette _____

Return by: Tara Kunze _____

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: Tara Kunze Fayette City Clerk _____

Phone: 660-248-5246 _____

Email: kunzet@cityoffayettemo.com _____

Date: January 26, 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	Y
Builder's Plan	Ordinance
Capital Improvement Plan	N/A
City Emergency Operations Plan	Y
County Emergency Operations Plan	N/A
Local Recovery Plan	Y
County Recovery Plan	N/A
City Mitigation Plan	Y
County Mitigation Plan	Y
Debris Management Plan	Y
Economic Development Plan	Y
Transportation Plan	Regional-2016
Land-use Plan	Y
Flood Mitigation Assistance (FMA) Plan	Y
Watershed Plan	Y
Firewise or other fire mitigation plan	Y
School Mitigation Plan	Y
Critical Facilities Plan (Mitigation/Response/Recovery)	
Policies/Ordinance	
Zoning Ordinance	Y
Building Code	Y

Floodplain Ordinance	Y
Subdivision Ordinance	N/A
Tree Trimming Ordinance	N
Nuisance Ordinance	Y
Stormwater Ordinance	Y
Drainage Ordinance	Y
Site Plan Review Requirements	Y
Historic Preservation Ordinance	Y
Landscape Ordinance	Y
Seismic Construction Ordinance	Y
Program	
Zoning/Land Use Restrictions	Y
Codes Building Site/Design	Y
Hazard Awareness Program	Y
National Flood Insurance Program (NFIP)	Y
NFIP Community Rating System (CRS) program	N/A
National Weather Service (NWS) Storm Ready	N
Firewise Community Certification	Y
Building Code Effectiveness Grading (BCEGs)	N/A
ISO Fire Rating	Y

Capabilities	Status Including Date of Document or Policy
Economic Development Program	Y
Land Use Program	Y
Public Education/Awareness	Y
Property Acquisition	N
Planning/Zoning Boards	Y
Stream Maintenance Program	N
Tree Trimming Program	Y
Engineering Studies for Streams (Local/County/Regional)	N
Mutual Aid Agreements	Y
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	N
Hazard Analysis/Risk Assessment (County)	N/A
Flood Insurance Maps	Y
FEMA Flood Insurance Study (Detailed)	N
Evacuation Route Map	Y
Critical Facilities Inventory	N
Vulnerable Population Inventory	N
Land Use Map	Y
Staff/Department	
Building Code Official	Y
Building Inspector	Y
Mapping Specialist (GIS)	With County
Engineer	Y
Development Planner	Y

Public Works Official	Y
Emergency Management Director	Y
NFIP Floodplain Administrator	Y
Emergency Response Team	Y
Hazardous Materials Expert	N
Local Emergency Planning Committee	Y
County Emergency Management Commission	Y
Sanitation Department	Contract with
Transportation Department	Y
Economic Development Department	Y
Housing Department	N
Historic Preservation	Y
Non-Governmental Organizations (NGOs)	
American Red Cross	Y
Salvation Army	Y
Veterans Groups	Y
Local Environmental Organization	Y
Homeowner Associations	N
Neighborhood Associations	N
Chamber of Commerce	N
Community Organizations (Lions, Kiwanis, etc.	Y

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

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)
Mayor, City Council

(1) Mayor
(6) Board of Alderman

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.
 - Fayette Fire Department holds fire safety day at the local Fayette school district.
 - Random public service announcements in local newspaper and social newspaper.

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.
 - The City of Fayette is currently working under a FEMA Grant for the D.C. Rogers Wing Wall damage from flooding.

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.
 - None at this time

5. How many outdoor warning sirens are in your community?
 - (3) outdoor warning sirens

How are they activated (indicate responsible department/personnel)?

- Activated by 911 dispatchers

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.
 - Rave Alert sends out announcements via text, email and landlines

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?
 - None at this time

Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update.
 - Apartment units on East Davis Street
 - New residents on Cooper Watts Ave, Walnut, Clark, Givens, Mulberry, Wayland Street.
 - Demolition on West side of square, new construction to begin second week of Feb 2022.
 - New Allied Health building at CMU on Mulberry Street.
 - Church Street Sidewalk Project started 2021 and completed 2022
 - Sewer Improvement Project started 2021 and scheduled to be completed 2022
 - Miller Pipeline project started 2021 and scheduled to be completed 2022

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.
 - CMU retail and residential currently being constructed

11. Please list major employers in your jurisdiction with an estimated number of employees.
 - CMU (35) plus
 - Addison Labs (15)
 - M.E.M Food (Spice Factory) (10)
 - MFA (5)
 - City of Fayette (25)
 - County of Howard (24)
 - Fayette R-3 School District (35)
 - Braun Home (Special Residential Care Facilities) (65)

- Aspire Living (Nursing Home) (15)

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.

- Bryan Kunze
- William John
- Bryan and William are emergency management directors at various times discussions occurred with various agencies about possible projects.

13. Describe your jurisdiction’s participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

- Danny Dougherty

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
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
City Hall	117 South Main, Fayette	N/A	530,489.00	40, 000.00	N/A	EQ,ST, SWW, T
Public Works Building	602 S. Church St., Fayette	N/A	426,964.00	110,000.00	N/A	EQ,ST, SWW, T
Fayette Fire Station	West Morrison St., Fayette					EQ,ST, SWW, T
High Potential Loss Facilities such as power plants, dams/levees, military installations, hazardous materials sites, shelters, day care centers, nursing homes, main government buildings (Do not include schools)						
3 municipal lakes						All Natural Hazards
Waste Water Plant	170 Hwy 240 South, Fayette		30,000.00			EQ, ST, SWW,T, RF
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
<ul style="list-style-type: none"> - CMU (35) plus - Addison Labs (15) - M.E.M Food (Spice Factory) (10) - MFA (5) - City of Fayette (25) - County of Howard (24) - Fayette R-3 School District (35) - Braun Home (Special Residential Care Facilities) (65) 					

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
Fayette			4	3	1	1	1	2	1	3	2	2	0	1	3	1	1	0	1	3	0	1	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	Fayette
Type of event	Sever Weather
Nature and magnitude of event	Flood
Location	D.C. Roger Lake
Date of event	June 24-July 2, 2021
Injuries	0
Deaths	0
Property damage	Wing Wall damage to overflow area
Infrastructure damage	400.000.00
Crop damage	0
Business/economic impacts	0
Road/school/other closures	0
Other damage	0
Insured losses	0
Federal/state disaster relief funding	400.000.00 applied for.
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County:Howard County _____

Jurisdiction:City of Glasgow _____

Return by:1/28/22 _____

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:Andrew Frazier, City Administrator _____

Phone:660-888-7787 _____

Email: admin@glasgowmo.org _____

Date:1/28/22 _____

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	
Local Recovery Plan	
County Recovery Plan	
City Mitigation Plan	Res. No. 17-10 ; Adopting Howard County Hazard 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	500.030 The BOCA National Fire Prevention Code, 1996 Edition.
School Mitigation Plan	(see school district plan)
Critical Facilities Plan (Mitigation/Response/Recovery)	
Policies/Ordinance	
Zoning Ordinance	405.020 - 030 Zoning Map/regulations. 1993

Building Code	500.010 The BOCA National Building Code, 1996 Edition.
Floodplain Ordinance	
Subdivision Ordinance	400.120 Subdivision Regulations. 1993
Tree Trimming Ordinance	§ 395.010 Owner Responsible For Maintaining Clear Vision Clearance On Lots Alongside Intersecting Streets, Etc. 1993
Nuisance Ordinance	205.230 Violations Deemed A Nuisance. 1993
Stormwater Ordinance	410.060 Streets. 1993
Drainage Ordinance	230.310 Rules And Regulations. 1993
Site Plan Review Requirements	
Historic Preservation Ordinance	
Landscape Ordinance	
Seismic Construction Ordinance	§ 500.130 Earthquake And Seismic Design Requirements. 1993
Program	
Zoning/Land Use Restrictions	
Codes Building Site/Design	
Hazard Awareness Program	
National Flood Insurance Program (NFIP)	
NFIP Community Rating System (CRS) program	
National Weather Service (NWS) StormReady	
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	
Stream Maintenance Program	
Tree Trimming Program	
Engineering Studies for Streams (Local/County/Regional)	Anderson Engineering currently employed by the city
Mutual Aid Agreements	Yes 225.100
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	Chief Polson
Building Inspector	Chief Polson
Mapping Specialist (GIS)	
Engineer	Anderson Engineering
Development Planner	
Public Works Official	Andrew Frazier
Emergency Management Director	Chief Polson
NFIP Floodplain Administrator	Vacant
Emergency Response Team	Glasgow Police & Fire
Hazardous Materials Expert	Chief Polson
Local Emergency Planning Committee	
County Emergency Management Commission	Yes, Howard County
Sanitation Department	
Transportation Department	
Economic Development Department	Infrastructure & Economic Development Committee
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	Yes, President Lydia Wagy
Community Organizations (Lions, Kiwanis, etc.)	Lions Club, Knights of Columbus

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	GO Bond
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/City council: 1 mayor 6 council 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?

3

How are they activated (indicate responsible department/personnel)?

Howard County Central Dispatch

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

RAVE Alert

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

No

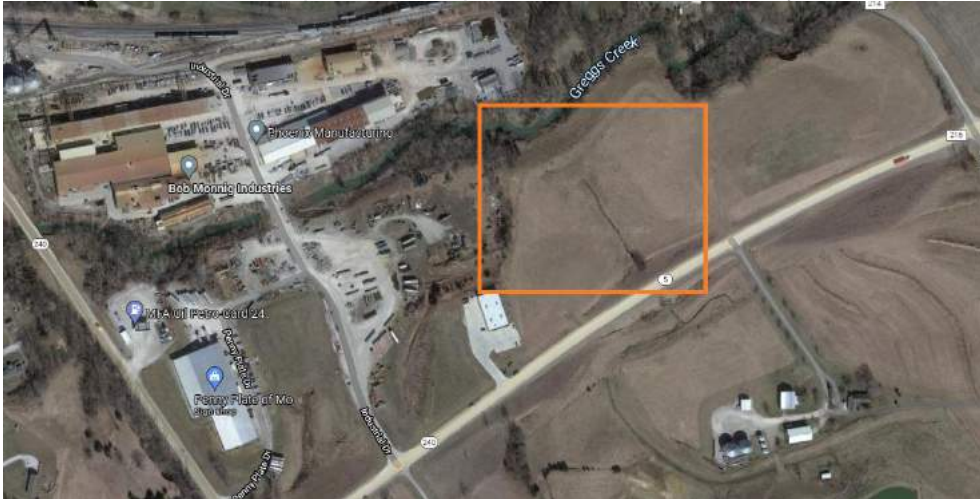
Please provide address locations:

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

Bear Creek subdivision is building homes

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.

Monnig Industries is expected to expand within the next few years



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.

We currently have hired an engineering firm to generate a report on infrastructure deficiencies.

11. Please list major employers in your jurisdiction with an estimated number of employees.

Monnig Industries – 75 employees

Phoenix – 30 employees

Penny Plate – 50 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.
NA

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

We are. Our previous Floodplain Administrator is no longer employed so we are preparing to fill this role. Once role is filled we will be in compliant.

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						
Wells	N of town off HWY 5	NA	\$350,101	0	2	T, ST,SWW
City Hall	100 Market St	2750	\$504,509	\$52,167	4	T, ST,SWW
Sewage Lift Station	Stump Island	NA	\$42,893	0	2	T, ST,SWW
Sewage Lift Station	Kuemmel Park	NA	\$42,893	0	2	T, ST,SWW
Boone Medical Clinic	108 Market St	UNK	UNK	UNK	5	T, ST,SWW
Police station	102 Market St	1375	\$198,090	\$57,963	3	T, ST,SWW
Lagoons	South end Stump Island Dr	NA	UNK	UNK	NA	T, ST,SWW
<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)						
Glasgow Fire District	610 2 nd St	UNK	UNK	UNK	10	T, ST,SWW
Glasgow Gardens Nursing Home	100 Audsley Dr	UNK	UNK	UNK	30	T, ST,SWW
<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						
HWY 240 Bridge	NA	UNK	UNK	UNK	UNK	T, ST,SWW

Railroad	NA	UNK	UNK	UNK	UNK	T, ST,SWW
HWY 5	NA	UNK	UNK	UNK	UNK	T, ST,SWW

Economic Assets (Major Employers, etc)

Asset	Address	Product/Service	Value (if known)	Number of Employees	Hazards
Monnig Industries	400 Industrial Dr	Galvanizing		75	T, ST,SWW, RF
Phoenix	500 Industrial Dr	Industrial equipment Fabrication		30	T, ST,SWW, RF
Penny Plate	601 Penny Plate Dr	Aluminum Pie tins		50	T, ST,SWW, RF
MFA	402 10 th ST	Natural gas		60	T, ST,SWW, RF

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
	0	0	4	1	0	1	1	1	0	0	1	1	0	0	1	1	1	1	2	2	2	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	City of Glasgow
Type of event	Flooding
Nature and magnitude of event	
Location	Bear Creek, Schnell Road
Date of event	June 24 th , 2021
Injuries	0
Deaths	0
Property damage	Yes, LWC washout
Infrastructure damage	Yes, Sewer line destroyed
Crop damage	No
Business/economic impacts	Yes, Monnig Industry flooded
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	Yes DR 4612 and DR 4451
Source of information	

**Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Local Governments**

County: Howard County

Jurisdiction: City of New Franklin

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: Melissa Crowley

Phone: 660-848-2288

Email: cityofnewfranklin@sbcglobal.net

Date: 1-31-2022

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	n/a
Builder's Plan	n/a
Capital Improvement Plan	n/a
City Emergency Operations Plan	n/a
County Emergency Operations Plan	Yes
Local Recovery Plan	n/a
County Recovery Plan	n/a
City Mitigation Plan	n/a
County Mitigation Plan	Yes
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	Yes
Building Code	Yes

Floodplain Ordinance	Yes, 2-06-2017
Subdivision Ordinance	Yes
Tree Trimming Ordinance	Yes
Nuisance Ordinance	Yes
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Seismic Construction Ordinance	No
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	Yes
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	Yes
ISO Fire Rating	Yes

Capabilities	Status Including Date of Document or Policy
Economic Development Program	No
Land Use Program	Yes
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	Yes
FEMA Flood Insurance Study (Detailed)	Yes
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	No
Engineer	No

No	
Public Works Official	Yes
Emergency Management Director	Yes
NFIP Floodplain Administrator	yes
Emergency Response Team	yes
Hazardous Materials Expert	No
Local Emergency Planning Committee	Yes
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	Yes

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	Yes <i>11-2017</i>
Authority to levy taxes for a specific purpose	no
Fees for water, sewer, gas, or electric services	Yes
impact fees for new development	No
Ability to incur debt through general obligation bonds	Yes <i>7-2016</i>
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	Yes <i>8-2018 7-2019</i>
Withhold spending in hazard prone areas	No

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

Mayor=1

City council=6

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.

no

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.

no

5. How many outdoor warning sirens are in your community?

2

How are they activated (indicate responsible department/personnel)?

Activated through 911 center

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

Yes, textcaster

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

New Franklin School/yes

Please provide address locations:

412 West Broadway

8. List residential, commercial and industrial development in your jurisdiction since last plan update.

no

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.

no

11. Please list major employers in your jurisdiction with an estimated number of employees.

New Franklin School 60

Jennings Premium Meats 20

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.

No

All new turnover in city government

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

Yes. We have a Floodplain Ordinance approved by SEMA.

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
Essential Facilities such as hospitals and other medical facilities, police and fire stations, Emergency Operations Centers						
Police Station	134 E Broadway	1130	57,102	15,000	38	Eq/st/swww/t
New Franklin City Hall	130 E Broadway	1100	49,700	15,000	37	Eq/st/swww/t
New Franklin Meeting/Storage Bldg	132 E Broadway	1000	49,700	5,000	33	Eq/st/swww/t
Community Bldg/Concession	308 N Union		149,000	8,000		Eq/st/swww/t
City Shop	385 S Union	3600	57,200	11,600	120	Eq/st/swww/t/rf/lf
Irrigation Pump Station	East 5 Highway		396,000	0		Eq/st/swww/t/rf/lf
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)						
Police station	134 E Broadway	1130	57,102	15,000	38	Eq/st/swww/t
New Franklin City Hall	130 E Broadway	1100	49,700	15,000	37	Eq/st/swww/t
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						
City lagoon	S. Union to Hwy 5North					Rf/lf/eq/st/swww/t

Economic Assets (Major Employers, etc)

Asset	Address	Product/ Service	Value (if known)	Number of Employees	Hazards
New Franklin Schools	412 W Broadway	School	n/a	Approx. 60	St/sww/t
Jennings Premium Meats	125 E Broadway	Meat producer	n/a	Appros. 20	St/sww/t

Add number of each facility within jurisdiction

Jurisdiction	Alport 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	Water Chemical Facility	Wastewater Facility	TOTAL
	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	1	1	0	0	1	8

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 New Franklin
Type of event	RF
Nature and magnitude of event	
Location	South Union/South Missouri/South Howard
Date of event	June 2019
Injuries	No
Deaths	No
Property damage	Yes
Infrastructure damage	Yes
Crop damage	Not in city limits
Business/economic impacts	Yes
Road/school/other closures	Closed Hwy.5 South, Closed Hwy. P & US 40
Other damage	Yes
Insured losses	
Federal/state disaster relief funding	Yes
Source of information	
Comments	

Jurisdiction	City of New Franklin
Type of event	RF
Nature and magnitude of event	
Location	South Union
Date of event	7-2021
Injuries	0
Deaths	0
Property damage	Minor
Infrastructure damage	Minor
Crop damage	
Business/economic impacts	Yes
Road/school/other closures	Yes
Other damage	
Insured losses	
Federal/state disaster relief funding	No
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Howard Co

School District /
Educational Institution Name:

Return by: January 20, 2021

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: Jill Wiseman

Phone: 660-248-2153

Email: jwiseman@fayetteschool.org

Date: January 31, 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		In progress
<u>School Emergency Plan</u> Shelter in place protocols Evacuation protocols	YES	10/2015	
Weapons Policy	YES	2/2001	JFCJ- Board Policy

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	3 building principals, 1 Maintenance/Facilities Dir.	
Emergency Manager	NO		
Grant Writer	YES	Superintendent	
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	limited
Local funds	Y	
General obligation bonds	Y	if necessary, bond can be put on ballot

Special tax bonds	N	
Private activities/donations	N	
State and federal funds	Y	limited

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe.
All buildings are equipped with overhead PA systems. All classrooms are equipped with phones. The PA system has the capability to page all other phones across all facilities. Walkie talkies are also available to all administrators/offices and for use at recess.
2. Does your school buildings' have NOAA Weather Radios?
The district does not have NOAA Weather Radios.
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.
The district conducts 3 tornado drills, 2 fire drills, 2 earthquake drills and 2 intruder drills each year. District staff participate in active shooter/intruder training annually. Exterior glass doorways were recently covered with shatter-proof film.
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?
We have designated safe areas, but these have not undergone FEMA standards evaluations.
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.
During the 2013-14 school year work was completed to construct a new Central Office building. A new preschool wing was constructed which adjoins the new Daly-Clark office which was also completed in 2013-14 school year. The Daly-Clark kitchen was also remodeled at this time. A new bus barn and storage facility was constructed in the 2016-17 school year. The ag building entrance and restrooms were remodeled in the 2017-18 school year.
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?
Our facilities committee is currently reviewing district needs. We are considering updates/remodels of the Clark Middle School wing, Ag building, and football field press box/restrooms/concession stand/bleachers.
8. What percentage is your projected enrollment expected to increase or decrease in the next five years?
The projected enrollment is expected to remain steady for the next five years.
9. Do you have your own campus police? Please explain your police department or who you rely on for security needs.
No. The district relies on the Fayette Police Department and Howard County Sheriff's office to meet security needs.

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
Fayette High School	510 N. Cleveland	61,079	\$12,309,295	\$2,864,313		EQ, LSS, ST, SWW, T, RF
Daly/Clark Elementary/Middle	704 Lucky Street	66,879	\$12,504,930	\$3,111,503		EQ, LSS, ST, SWW, T, RF
Vo-Ag Building and Greenhouse	510 N. Cleveland	6,300	\$1,034,245	\$244,378		EQ, LSS, ST, SWW, T, RF

Maintenance/Transportation Building	700 Lucky Street	11,880	\$1,137,981	\$475,089		EQ, LSS, ST, SWW, T
Storage Shed	700 Lucky Street	1,800	\$270,681	\$92,558		EQ, LSS, ST, SWW, T
Home Ec/Industrial Arts Building	510 N. Cleveland	4,795	\$936,170	\$231,120		EQ, LSS, ST, SWW, T
Central Office	705 Lucky Street	2,224	\$651,906	\$118,248		EQ, LSS, ST, SWW, T
Press Box/Concession building at FB field	403 Lucky Street	180	\$106,362	\$0		EQ, LSS, ST, SWW, T
Press Box/Concession building at SB field	Spring Street	180	\$55,079	\$28,925		EQ, LSS, ST, SWW, T
FB field entrance	510 N. Cleveland	600	\$49,317	\$0		EQ, LSS, ST, SWW, T

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	Fire
Nature and magnitude of event	Damage to main high school classrooms, offices, library, cafeteria and commons
Location	Fayette High School
Date of event	December 29, 2000
Injuries	0
Deaths	0
Property damage	yes
Infrastructure damage	yes
Crop damage	no
Business/economic impacts	no
Road/school/other closures	yes
Other damage	
Insured losses	yes
Federal/state disaster relief funding	no
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	Flash flooding
Nature and magnitude of event	Damage to classrooms and offices
Location	Daly/Clark building
Date of event	Multiple occurrences, June 2021 was most recent event
Injuries	no
Deaths	no
Property damage	yes
Infrastructure damage	no
Crop damage	no
Business/economic impacts	no
Road/school/other closures	yes
Other damage	no
Insured losses	yes
Federal/state disaster relief funding	no
Source of information	
Comments	

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Howard Co

School District /
Educational Institution Name:

Return by: January 20, 2021

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: *Sanya Frenneler, Glasgow School District*

Phone: *660-338-2012*

Email: *sfrenneler@glasgow.k12.mo.us*

Date: *1.10.2022*

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	2015	We will be updating this plan Summer 2020
Weapons Policy	Yes	May, 2013	

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 H & B	
Emergency Manager	No		
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	N	
Local funds	Y	
General obligation bonds	N	
Special tax bonds	Y	
Private activities/donations	Y	
State and federal funds	N	

1. The Glasgow School District has an overhead PA system. This system is capable of paging inside the building and also on the elementary playground area. In addition, the District has telephones in all classrooms and offices. This system also has the capability to page all other phones across all facilities.
2. The Glasgow School District does not have NOAA Weather Radios.
3. The Glasgow School District provides annual training and drills for storm, fire, earthquake and intruder events.
4. None
5. The Glasgow School District does have designated safe areas but these areas were constructed many years ago and have not undergone FEMA standards evaluations.
6. The Glasgow School District added a new softball/baseball complex with a concession stand/bathroom/press box area. No other renovations or additions have been made.
7. No current plans are in place.
8. The projected enrollment at the Glasgow School District is expected to remain steady in the next five years with no major increases or decreases in enrollment expected.
9. The Glasgow School District relies on the Glasgow Police Department and the Howard County Sheriff's Department for our security needs.

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
Glasgow Elementary	860 Randolph, Glasgow					EQ, LSS, ST, SWW, T
Glasgow Jr H/HS	860 Randolph, Glasgow					EQ, LSS, ST, SWW, T
Monroe Community Track	10 th Street, Glasgow					EQ, LSS, ST, SWW, T
John Donaldson Field	10 th Street, Glasgow					EQ, LSS, ST, SWW, T

Multi-Jurisdictional Hazard Mitigation Plan

Data Collection Questionnaire

For School Districts and Educational Institutions

County: Howard Co

School District /
Educational Institution Name:

Return by: January 20, 2021

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: *Brian Cordel, New Franklin R-1 Superintendent*
Phone: *(660) 848-2141*
Email: *bcordel@nfranklin.k12.mo.us*
Date: *Jan. 10, 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

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Planning Elements	Yes/No	Date of Latest Version	Comments
Master Plan			
Capital Improvement Plan	N/A		
<u>School Emergency Plan</u>			
Shelter in place protocols	Yes	July, 2021	
Evacuation protocols			
Weapons Policy	Yes		

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	Superintendent	
Emergency Manager	"	"	
Grant Writer	"	"	
Public Information Officer	"	"	

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		
Local funds	?	
General obligation bonds		
Special tax bonds		
Private activities/donations		
State and federal funds		

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe. *Yes*
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. *No ongoing projects*
4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. *—*
5. Do any of your buildings have designated tornado shelters or "saferooms"? If so, are they constructed in accordance with FEMA standards? *Yes & 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. *Addition of new gym in 2017.*
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? *Not at this time.*
8. What percentage is your projected enrollment expected to increase or decrease in the next five years? *Unknown - probably decrease approx. 2% in next 5 years*
9. Do you have your own campus police? Please explain your police department or who you rely on for security needs. *No*

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
<i>On separate sheet</i>	<i>from MSK insurance</i>		<i>document</i>			

NEW FRANKLIN R-1 SCHOOL DISTRICT

<u>Building</u>	<u>Square Footage</u>	<u>Property Value</u>	<u>Content Value</u>	<u>Total Insured Value</u>	<u># of Employees</u>	<u>Floors</u>
Main School K-12	86268.00	\$14,316,205	\$2,784,837	\$17,101,043	72	2.00
Athletic Field Restrms	400.00	\$25,586	\$2,040	\$27,627	0	1.00
Marque sign	0.00	\$41,247	\$0	\$41,248	0	0.00
Maintenance Shop - Metal bu	2400.00	\$41,399	\$79,566	\$120,966	0	1.00
Bus Shed	2000.00	\$29,670	\$0	\$29,671	0	1.00
Gym	16000.00	\$3,308,781	\$31,826	\$3,340,608	0	1.00

<u>Building</u>	<u>Earthquake Zone</u>	<u>Year Built</u>	<u>Construction Type</u>	<u>Fire Alarm</u>	<u>Sprinklers</u>	<u>Flood Category</u>
Main School K-12	5	1941	Steel Frame (Maso	TRUE	FALSE	CX
Athletic Field Restrms	5	1999	Reinforced Concre	FALSE	TRUE	CX
Marque sign	5	2021	Frame	FALSE	FALSE	CX
Maintenance Shop - Metal bu	5	1995	Reinforced Concre	FALSE	FALSE	
Bus Shed	5	2014	Not Applicable	FALSE	FALSE	
Gym	5	2017	Steel Frame (Maso	TRUE	FALSE	

4

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.

No events

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: Howard Co

School District /

Educational Institution Name: Central Methodist University

Return by: January 12, 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: Donald Clear

Phone: 660-248-6892

Email: Dclear@centralmethodist.edu

Date: 31 Jan 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

Additional Capabilities Questions

1. Are your buildings equipped with a public address (PA) system or other emergency alert system? Please describe.
 - **YES Main campus PA is not in use buildings, PA in Student union and Steadman are operational.**
2. Does your school buildings' have NOAA Weather Radios?
 - **No, our alert system monitors NOAA and issues any weather alert sent out by 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.
 - **Drills Active shooter, Fire, Severe weather.**
 - **RA ,RHD orientation safety training**
 - **Ongoing web-based staff training**
 - **Ongoing Guard training**
 - **Updated Camera monitoring program**
 - **Safety awareness week**
 - **Maintaining/ updating safety marking on parking lots, sidewalk, and stairs**
4. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities.
 - **Adding needed cameras**
 - **Adding an alert app**
 - **Retaining key personnel on RAVE alert system.**
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.
 - **Clingenpeel full remodel completed '22**
 - **Assembly Hall full remodel completed '21**
 - **Stedman Hal full remodel completed '19**
 - **Throgmorton new construction completed '15**
 - **Linn Church full remodel completed '14**
 - **Classic Hall full remodel completed '12**
 - **Rec Center New construction '12**
 - **Library full remodel completed '12**

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
HP North	411 Central Methodist Square	36,492	\$ 8,016,920.00		1642	SWW,ST,ET,T,
HP South	411 Central Methodist Square	45,618				SWW,ST,ET,T,
Givens	411 Central Methodist Square	8,000	\$ 681,950.00		102	SWW,ST,ET,T,
Brannock	411 Central Methodist Square	22,000	\$ 3,597,520.00		220	SWW,ST,ET,T,
*Hoit	411 Central Methodist Square	80,624	\$ 11,640,720.00		1612	SWW,ST,ET,T,

Pres House			6,500	\$	651,700.00		325	SWW.ST,ET,I,
Rec Center	411 Central Methodist Square		28,100	\$	3,753,900.00		562	SWW.ST,ET,I,
OAF	411 Central Methodist Square		4,144	\$	521,640.00		NA	SWW.ST,ET,I,
Mabee Weight Fac	411 Central Methodist Square		7,540	\$	1,834,830.00		150	SWW.ST,ET,I,
Classic	411 Central Methodist Square		20,475	\$	7,653,630.00		409	SWW.ST,ET,I,
Allied Health	411 Central Methodist Square		25,000				500	SWW.ST,ET,I,
Soccer House	407 Mulberry		1300	11230			25	SWW.ST,ET,I,
Basketball house	315 Mulberry		1300	74860			25	SWW.ST,ET,I,
White GA house	111 Reynolds		1300	6000			25	SWW.ST,ET,I,
Brown GA house	305 Mulberry		1300	12493			24	SWW.ST,ET,I,
Colman House	502 Linn		4122	270000			92	SWW.ST,ET,I,
Me Graw House	506 Linn		3190	202500			63	SWW.ST,ET,I,

Multi-Jurisdictional Hazard Mitigation Plan Data Collection Questionnaire For Local Governments

County: Howard County _____

Jurisdiction: Glasgow Special Road 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. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Jason Wright

Phone: 660-338-9991

Email: jason@rjwair.org

Date: 2/2/22

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	None
Builder's Plan	None
Capital Improvement Plan	None
City Emergency Operations Plan	None
County Emergency Operations Plan	None
Local Recovery Plan	None
County Recovery Plan	None
City Mitigation Plan	None
County Mitigation Plan	None
Debris Management Plan	None
Economic Development Plan	None
Transportation Plan	Regional-2016
Land-use Plan	None
Flood Mitigation Assistance (FMA) Plan	None
Watershed Plan	None
Firewise or other fire mitigation plan	None
School Mitigation Plan	None
Critical Facilities Plan (Mitigation/Response/Recovery)	None
Policies/Ordinance	
Zoning Ordinance	None
Building Code	None

Floodplain Ordinance	None
Subdivision Ordinance	None
Tree Trimming Ordinance	None
Nuisance Ordinance	None
Stormwater Ordinance	None
Drainage Ordinance	None
Site Plan Review Requirements	None
Historic Preservation Ordinance	None
Landscape Ordinance	None
Seismic Construction Ordinance	None
Program	
Zoning/Land Use Restrictions	None
Codes Building Site/Design	None
Hazard Awareness Program	None
National Flood Insurance Program (NFIP)	None
NFIP Community Rating System (CRS) program	None
National Weather Service (NWS) Storm Ready	None
Firewise Community Certification	None
Building Code Effectiveness Grading (BCEGs)	None
ISO Fire Rating	None

Capabilities	Status Including Date of Document or Policy
Economic Development Program	None
Land Use Program	None
Public Education/Awareness	None
Property Acquisition	None
Planning/Zoning Boards	None
Stream Maintenance Program	None
Tree Trimming Program	None
Engineering Studies for Streams (Local/County/Regional)	None
Mutual Aid Agreements	None
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	None
Hazard Analysis/Risk Assessment (County)	None
Flood Insurance Maps	None
FEMA Flood Insurance Study (Detailed)	None
Evacuation Route Map	None
Critical Facilities Inventory	None
Vulnerable Population Inventory	None
Land Use Map	None
Staff/Department	
Building Code Official	Rick Meyer
Building Inspector	None
Mapping Specialist (GIS)	Jason Wright
Engineer	None
Development Planner	Jeff Schaefer

Public Works Official	Jeff Schaefer
Emergency Management Director	Rick Meyer
NFIP Floodplain Administrator	None
Emergency Response Team	Jeff Schaefer
Hazardous Materials Expert	None
Local Emergency Planning Committee	None
County Emergency Management Commission	Brian Kunze
Sanitation Department	None
Transportation Department	None
Economic Development Department	None
Housing Department	None
Historic Preservation	None
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	None
Fund projects through Capital Improvements funding	None
Authority to levy taxes for a specific purpose	County
Fees for water, sewer, gas, or electric services	None
impact fees for new development	None
Ability to incur debt through general obligation bonds	None
Ability to incur debt through special tax bonds	None
Ability to incur debt through private activities	None
Withhold spending in hazard prone areas	None

Additional Questions

1. How is your government structure organized? (Commission, Mayor/City Council, how many members)

Commission, 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.

None

3. List any other past or ongoing projects or programs designed to reduce disaster losses, these may include projects to protect critical facilities. Be sure to include pending or approved projects submitted for FEMA mitigation grants.

2021 Declared Flood Disaster

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.

None

5. How many outdoor warning sirens are in your community?

None

How are they activated (indicate responsible department/personnel)?

N/A

6. Does your community utilize any other warning systems such as Cable Override, Reverse 911, etc? If so, please describe.

None

7. Does your community have designated public tornado shelters/saferooms? If so, are they constructed in accordance with FEMA standards?

Please provide address locations:

None

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.

No major development expected within our district that we know of.

10. Are any new facilities or infrastructure planned for construction during the next five years? If so, please provide facility name and purpose along with proposed locations, if known.

No new facility plans at this time.

11. Please list major employers in your jurisdiction with an estimated number of employees.

No major individual employers within our district.

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.

The Glasgow Special Road District does not have a Mitigation Planning Committee and was not present during the prior plan as it was conducted by the county.

13. Describe your jurisdiction's participation in the NFIP. Include information about how compliance with the NFIP is enforced locally.

Has had no prior participation with NFIP

VULNERABILITY ASSESSMENT

The purpose of this worksheet is to assess the vulnerable buildings, populations, critical facilities, infrastructure, and other important assets in your community by using the best available data to complete the table. Use the table on the next page to compile a detailed inventory of specific assets at risk including critical facilities and infrastructure; natural, cultural, and historical assets; and economic assets. In the natural hazard column of the asset inventory table, indicate (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						
Bridge	County Road 239	640	N/A	N/A	N/A	RF
<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)						
<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						

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	Glasgow Special Road District
Type of event	Flood
Nature and magnitude of event	Extreme
Location	Entire District
Date of event	06/2022
Injuries	
Deaths	
Property damage	
Infrastructure damage	\$145,000 Approximately
Crop damage	
Business/economic impacts	
Road/school/other closures	
Other damage	
Insured losses	
Federal/state disaster relief funding	Ongoing
Source of information	
Comments	Currently in process with Fema/Sema project for this event.

Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Special Districts

County: Howard County _____

Special District Name: Howard Co Fire Protection District _____

Return by: _____

Please complete this data collection questionnaire as accurately and completely as possible as this information will appear in the mitigation plan. A data collection questionnaire must be completed for each "jurisdiction" that wishes to be included in the plan. According to FEMA's definition a jurisdiction is any local government, including counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations. Any of these entities as well as publicly funded colleges and universities that do not participate in the planning process **will not** be eligible applicants for FEMA mitigation funding programs. Please note: School Districts and other Educational Institutions should complete the Data Collection Questionnaire indicated "For School Districts and Educational Institutions".

Prepared by: Chris Wilhoit _____

Phone: 660-888-1248 _____

Email: chris_wilhoit08@hotmail.com _____

Date: 4-11-2022 _____

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. 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	Yes	
Continuity of Operations Plan	NO	
Community Wildfire Protection Plan	NO	
Other:		
Policies		
Programs		
Cross-Connection Program		
Hydrant Flushing Program		
Public Education/Awareness	Yes	
Tree Trimming Program		
Mutual Aid Agreements	Yes	Glasgow and Armstrong
Other:		

Element	Yes, No, N/A	Comments and/or Weblink
Studies/Reports/Maps		
Evacuation Route Map		
Critical Facilities Inventory		
Staff/Department		Full Time or Part Time?
Volunteer – 45 in whole district		
Chris Wilhoit		Part time
Gary Kunze		Part time
Duayne Drane		Part time
Gerry McCowan		Part time
Ethan Ship		Part time
Scotty Shiffrit		Part time
Lee Young		Part time
Sandy Boulden		Part time
Financial Resources		Is your jurisdiction able to? Yes or No
Fund projects thru Capital Improvements funding		
Fees for water, sewer, gas, or electric services		Yes
Incur debt through general obligation bonds		
Incur debt through special tax bonds		
Incur debt through private activities		Yes
Withhold spending in hazard prone areas		NO

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated 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 board members and secretary and 4 Chiefs

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

Fire safety public education – Fire prevention week

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.

NO

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?

NONE

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
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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						
Howard Co FPD Station 1	301 W Morrison Fayette, MO 65248		\$1,123,469			WF, T, SWW, ST, EQ,
Howard Co FPD Station 2	3859 Hwy 5 New Franklin MO 65247		\$743,703			WF, T, SWW, ST, EQ,
Howard Co FPD Station 3	2760 N Rt A Fayette MO 65248		\$520,290			WF, T, SWW, ST, EQ,

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)						
Radio Antenna Station	100 John Meyer St Fayette MO 65248		\$56,243			WF, T, SWW, ST, EQ,
Tower / Antenna Station	201 St Rt P Fayette MO 65248		\$52,644			WF, T, SWW, ST, EQ,
<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.**

Multi-Jurisdictional Hazard Mitigation Plan
Data Collection Questionnaire
For Special Districts

County: Howard Co

Jurisdiction: PWSD1

Return by: Nichole Wilmsmeyer

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: Nichole Wilmsmeyer

Phone: 660-848-2108

Email: cpwsd1.hoco@gmail.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:	
Emergency Operations Plan	Date:	
Continuity of Operations Plan	Date:	
Community Wildfire Protection Plan	Date:	
Other:		
Policies		
Programs		
Cross-Connection Program		
Hydrant Flushing Program		
Public Education/Awareness		
Tree Trimming Program		
Mutual Aid Agreements		
Other:		

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 stations
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

Additional Questions

1. How is your Special District structure organized? (Board of Directors, Commission, how many members)

5 Board Members, elected

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. 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?

Studies/Reports/Maps		
Evacuation Route Map		
Critical Facilities Inventory		
Staff/Department		Full Time or Part Time?
Robbey Harvey	Operator	Full
Nichole Wilmsmeier	Clerk	Full
Krystal Breshears	Operator Asst.	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 No
Incur debt through private activities		Yes
Withhold spending in hazard prone areas		No

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated 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	

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						
Standpipe	Franklin, MO		41,000			
Booster Station	Clarks Chapel, Franklin		119,100			
Office Storage	209 Crews, Franklin, MO		26,000			
Standpipe	County Rd. 303, Franklin, MO		114,400			
Booster Station	Co Rd. 306, Franklin, MO		46,800			
Office Storage	209 Crews, Franklin, MO		239,300			
Standpipe	Route P, Fayette, MO		161,200			
Standpipe	Co Rd. 316, Franklin, MO		405,100			

ASSESSMENT OF PREVIOUSLY PROPOSED ACTIONS

Jurisdiction: Howard Co. Consolidated PWSID No.1

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	No Progress		
11.5		✓	✓		✓

Add Coop Plan

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	
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 Special Districts

County: Howard _____

Special District Name: Howard Co Regional Water Commission _____

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: Jesse Howell _____

Phone: 660-728-9945 _____

Email: jhowell@peopleservice.com _____

Date: 4-11-2022 _____

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. 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: 2019 Yes	
Continuity of Operations Plan	Date:	
Community Wildfire Protection Plan	Date:	
Other: Risk and resilience Assessment & Emergency Response Plan	June 21, 2021	Sent in to EPA on 6-21-2021
Standard Operating procedure	2019 Yes	
Policies		
Programs		
Cross-Connection Program		
Hydrant Flushing Program	Once year	Documented on diamond maps
Public Education/Awareness		
Tree Trimming Program		
Mutual Aid Agreements		
Other: Valve exercising	Once year	Documented on diamond maps

Element	Yes, No, N/A	Comments and/or Weblink
Studies/Reports/Maps		
Evacuation Route Map	Posted in each door	Facility evacuation maps
Critical Facilities Inventory	Yes	Documents on diamond maps
Staff/Department		Full Time or Part Time?
Ben Meyer		Full Time
Jesse Howell		Full Time
Position Open		Part Time
Financial Resources		Is your jurisdiction able to? Yes or No
Fund projects thru Capital Improvements funding		
Fees for water, sewer, gas, or electric services		Water – yes
Incur debt through general obligation bonds		Yes
Incur debt through special tax bonds		
Incur debt through private activities		
Withhold spending in hazard prone areas		

For plan updates, the plan maintenance process outlined in your previous plan requires all participating jurisdictions to incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate. A key element of effective implementation of mitigation is for the mitigation plan to be incorporated 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	
Insurance Services Organization	ISO rating - 7 rating

Additional Questions

1. How is your Special District structure organized? (Board of Directors, Commission, how many members)

3 member Commission one from each entity

2. List any past or ongoing public education or information programs, such as for responsible water use, fire safety, household preparedness, or environmental education.

NO

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?

Robin Triplet – she is no longer employed with the city who assisted with the Water Commission's participation in the previous plan. After she left no one new of processes or procedures to keep up with the 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
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						

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) T, EQ, WF, ST						
Water Treatment Facility	165 County Rd 350 New Franklin MO 65274	17,600 sq ft	\$8,371,242	\$2,000,000	2	T, EQ, WF, ST
Water Tower – 500,000 gallon	481 County Rd 303 Fayette MO 65248		\$1,597,859			T, EQ, WF, SF
Well 1	125 County Rd 345 Franklin MO 65274		\$311,847			T, EQ, WF, SF
Well 2	125 County Rd 345 Franklin MO 65274		\$311,847			T, EQ, WF, SF
Consolidated water supply connection #1 – master meter station	165 County Rd 350 New Franklin MO 65274	50 sq ft	\$250,000			T, EQ, WF, SF
Consolidated Water supply Connection #2 – master meter station	481 County Rd 303 Fayette MO 65248	50 sq ft	\$250,000			T, EQ, WF, SF
New Franklin Connection – master meter station	3859 Hwy 5 New Franklin, MO 65274	50 sq ft	\$250,000			T, EQ, WF, SF
Fayette Connection – master meter station	104 Walter St Fayette, MO 65274	50 sq ft	\$250,000			T, EQ, WF, SF
<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	Howard Co Regional Water Commission
Type of event	Severe Winter Weather
Nature and magnitude of event	
Location	165 County Rd 350 New Franklin MO
Date of event	January – February 2021
Injuries	NONE
Deaths	NONE
Property damage	
Infrastructure damage	Backwash and blowdown Lagoons
Crop damage	NONE
Business/economic impacts	Environmental impact
Road/school/other closures	NONE
Other damage	
Insured losses	
Federal/state disaster relief funding	NONE
Source of information	
Comments	<p>Due to freezing of lagoon the arms could not be lifted and created an overflow with lime that ran into the MKT Lake.</p> <p>DNR violation and additional treatment were required. If the lagoon was larger capacity we would not have these issues.</p>

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	
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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#	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		