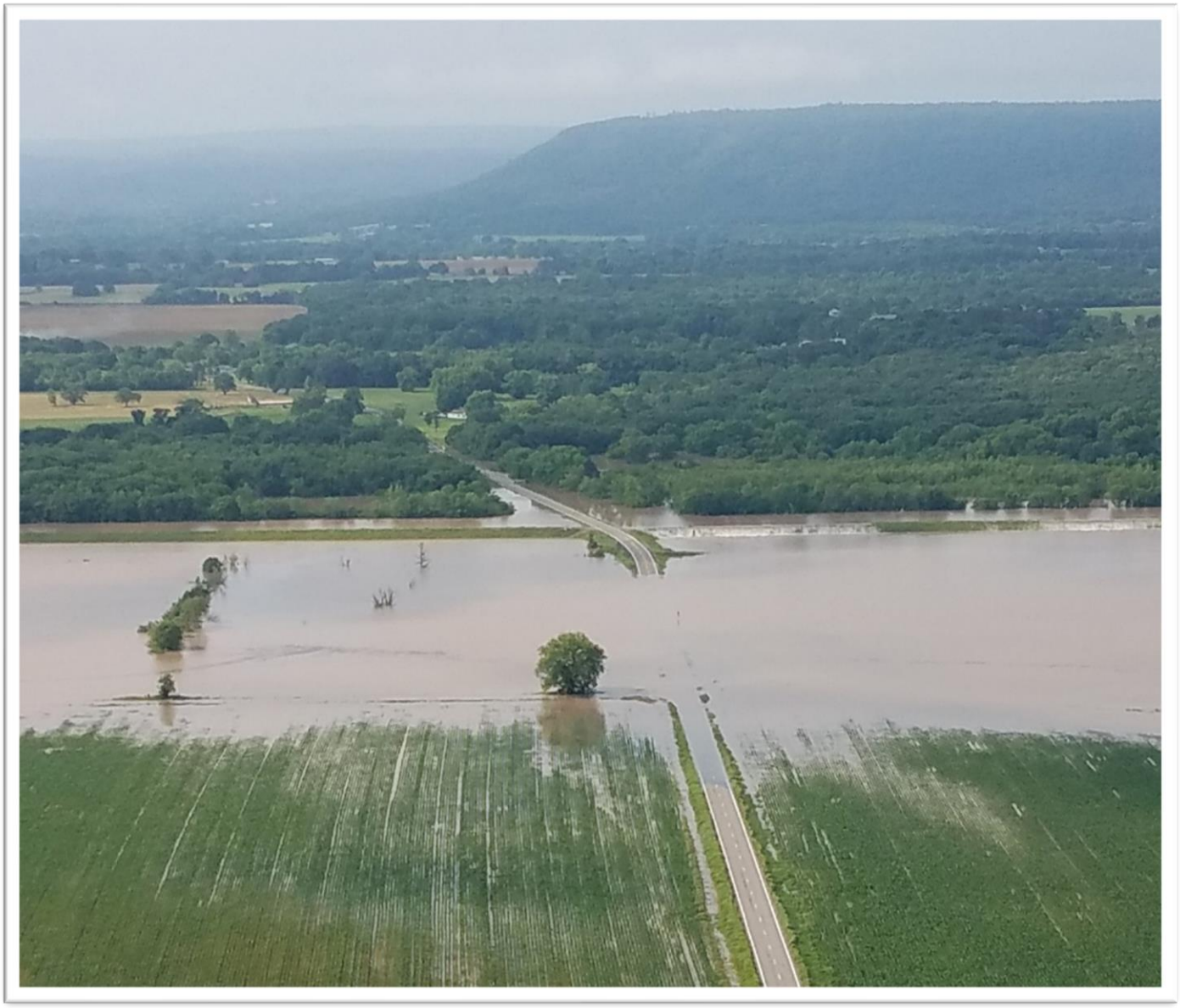
Hazard Mitigation Plan



Logan County, Arkansas

2022

County Line School District • Booneville School District • Paris School District • Magazine School District Scranton School District • Caulksville • Ratcliff • Morrison Bluff • Paris Blue Mountain • Magazine • Booneville • Subiaco • Scranton

Hazard Mitigation Plan

Logan County, Arkansas

2022

Prepared for:

Logan County

In collaboration with:

County Line School District, Booneville School District, Paris School District, Magazine School District, Scranton School District, Caulksville, Ratcliff, Morrison Bluff, Paris, Blue Mountain, Magazine, Booneville, Subiaco, and Scranton

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Cover image: Logan County Emergency Management Office

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Section 1 Prerequisites

1 GENERAL DESCRIPTION

Hazard Mitigation Plans (HMPs) form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The planning process is as important as the HMP itself.
It creates a framework for risk-based decision making to reduce damages to lives, property, and the economy from future disasters. Hazard mitigation is defined as a sustained action taken to reduce or eliminate long-term risk to people and their property from hazards.

The following definitions of Hazard Mitigation Planning are provided by FEMA:

***HAZARD MITIGATION** – Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.*

***PLANNING** – The act or process of making or carrying out plans; specifically, the establishment of goals, policies, and procedures for a social or economic unit.*

***PREPAREDNESS** – Actions that strengthen the capability of government, citizens, and communities to respond to disasters.*

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation to improve this planning process. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous Mitigation Planning Section (409) and replacing it with a new Mitigation Planning Section (322).
This new section emphasizes the need for State, Tribal, and local entities to closely coordinate mitigation planning and implementation efforts. The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, this Act establishes a pre-disaster hazard mitigation program and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP). It also requires that communities have a Federal Emergency Management Agency (FEMA) approved HMP in order to receive Stafford Act assistance, excluding assistance provided pursuant to emergency provisions.

The overall goal of the update is to minimize or eliminate long-term risks to human life and property from known hazards by identifying and implementing cost effective mitigation actions. The purpose of the update is twofold: to protect people and structures, and to minimize the costs of disaster response and recovery. Through this update process, the County and its partners seek to:

- Provide a comprehensive update to the 2015 HMP;
- Minimize disruption to Logan County and its participating municipalities, school districts, and the business community following a disaster;
- Streamline disaster recovery by articulating actions to be taken before a disaster strikes to reduce or eliminate future damage;
- Demonstrate a firm local commitment to hazard mitigation principles;
- Provide a framework and coordination to encourage all levels of government and public and private organizations to undertake mitigation to minimize potential disasters and to employ mitigation in the recovery following disasters;
- Improve data collection, use, and sharing;
- Facilitate sound development throughout Logan County to reduce or eliminate hazard risk;
- Enhance public awareness and understanding of hazard mitigation;

- Identify and pursue grant opportunities to fund hazard mitigation actions and projects;
- Serve as a basis for future funding that may become available through grant and technical assistance programs offered by the State or Federal government. The Plan Update will enable the county and its partners to take advantage of rapidly developing mitigation grant opportunities as they arise; and
- Ensure that Logan County and its partners maintain its eligibility for the full range of future Federal disaster relief.

The 2022 HMP update assessed the ongoing natural and man-made hazard mitigation activities in Logan County, to evaluate additional mitigation actions and projects, and to outline a strategy for better implementation of mitigation actions and projects over the next five years. Formal adoption and implementation of the HMP will provide many benefits to Logan County, its residents, and the business community. By identifying potential hazard risks and associated hazard mitigation actions in advance of a disaster, Logan County and participating jurisdictions will be in a more advantageous position to obtain pre- and post-disaster funding. Hazard Mitigation Assistance grants such as, HMGP, Building Resilient Infrastructure and Communities (BRIC), Flood Mitigation Assistance (FMA) program, each require the jurisdiction applying for the grant to have an adopted HMP. In addition, the HMP can provide local governments participating in the National Flood Insurance Program (NFIP) an opportunity to reduce NFIP premium by voluntarily participating in the Community Rating System (CRS) program. Premiums can be reduced up to 45%. Through actively maintaining and updating the HMP, Logan County and participating jurisdictions will reduce their vulnerability to hazards in the future and better allocate resources for hazard mitigation projects.

Logan County's HMP is divided into five sections with additional appendices:

- *Section 1 – Prerequisites* includes the purpose of the HMP, memorandum of understanding, authorities, and community description.
- *Section 2 – Plan Process/Plan Maintenance* describes the process of how each element in the HMP was addressed and updated to meet FEMA requirements and the methods used to allow the public and neighboring communities an opportunity to comment and participate in the development of the HMP.
  In addition, it describes the method for monitoring, evaluating, and updating the HMP within a five-year cycle and provides the process by which Logan County will incorporate the HMP into other planning mechanisms and continue to encourage public involvement.
- *Section 3 – Risk Assessment* identifies all natural and man-made hazards affecting the County and municipalities, reviews the historical occurrence of each hazard, measures the potential probability and magnitude of occurrence, and identifies vulnerabilities within each jurisdiction.
- *Section 4 – Mitigation Strategy* serves as a long-term blueprint to reduce hazard losses. This section includes a description of Logan County's Hazard Mitigation Goals to mitigate long-term vulnerabilities to the identified hazards, prioritizes a comprehensive range of Hazard Mitigation Actions, and addresses each jurisdiction's participation in the NFIP, CRS, and the status of Digital Flood Insurance Rate Map (D-FIRM) adoption.
- *Section 5 – References* provides a list of all source citations referenced throughout the document.

Jurisdictional adoption resolutions will be provided in **Appendix I**. Public Advertisements, Meeting Sign-In Sheets, Meeting Agendas, and Meeting Minutes are provided in **Appendix II**. A screenshot of the Logan County Emergency Management website is in **Appendix III**. The Annual Progress Report Form is in **Appendix IV**. The Glossary is provided in **Appendix V**.

2 ADOPTION PROCESS

Responsibilities

This is a multi-jurisdictional HMP, with a planning area that includes all of unincorporated Logan County and nine municipalities within the County including the City of Booneville, City of Magazine, City of Paris, City of Ratliff, City of Scranton, Town of Blue Mountain, Town of Caulksville, Town of Morrison Bluff, and Town of Subiaco. The Booneville School District, County Line School District, Paris School District, Magazine School District, and Scranton School District also participated in the HMP planning process and will independently adopt the HMP.

Table 1.1 includes the primary representative from each participating jurisdiction. All jurisdictions participated in the HMP's development by adding information to the risk assessment, selecting hazard mitigation actions, and identifying appropriate mechanisms for implementing the plan. They or their representative participated in Hazard Mitigation Planning Team (HMPT) meetings, interviews, and/or conference calls. Additionally, all jurisdiction representatives and citizens had an opportunity to review the Draft HMP before its submittal to Arkansas Department of Emergency Management (ADEM) and FEMA.

Jurisdiction	Name of Primary Representative	Title	Participation Classification Since 2006 HMP
Logan County	Ray Gack	County Judge	Continuing Participant
Logan County	Tobi Miller	OEM Director	Continuing Participant
City of Booneville	Edgar Baker	Mayor	Continuing Participant
City of Magazine	Josh Scott	Mayor	Continuing Participant
City of Paris	Daniel Rogers	Mayor	Continuing Participant
City of Ratcliff	Roger Hughley	Mayor	Continuing Participant
City of Scranton	David Corbitt	Mayor	Continuing Participant
Town of Blue Mountain	Juanita Grainer	Mayor	Continuing Participant
Town of Caulksville	Scott Lee	Mayor	Continuing Participant
Town of Morrison Bluff	Charlotte Siebenmorgen,	Mayor	Continuing Participant
Town of Subiaco	Bobby Sewell	Mayor	Continuing Participant
Booneville School District	Mark Clemmons	Curriculum Coordinator	Continuing Participant
County Line School District	Taylor Gattis	Superintendent	Continuing Participant
Paris School District	Jim Loyd	Superintendent	Continuing Participant
Magazine School District	Beth Shumate	Superintendent	Continuing Participant
Scranton School District	Toby Cook	Superintendent	Continuing Participant

Table 1.1 List of Jurisdiction Representatives

Adoption Resolution

Upon Approval Pending Adoption status from ADEM and FEMA, Logan County will provide another opportunity for public comment prior to local adoption. Once adopted, the following draft resolution will be replaced with final signed and adopted resolutions for each participating jurisdiction. Adopted resolutions will be located in **Appendix I.** The final adopted resolutions for each participating jurisdiction will be sent to ADEM and FEMA to receive Final Approval Status. It is our understanding that both FEMA and State reviewers are in agreement with this sequence of events.

RESOLUTION NO. 2023 - 01

BE IT RESOLVED BY THE QUORUM COURT OF THE COUNTY OF LOGAN, STATE OF ARKANSAS A RESOLUTION ENTITLED:

"A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR LOGAN COUNTY"

WHEREAS, certain areas of Logan County, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Logan County, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE Logan County, AR:

That Logan County, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 13th day of February 2023.

COUNTY & PROBATE COURT LOGAN COUNTY ARKANSAS

APPROVED:

Hon. Ray Gack, County Judge

Approved Date: 2/14/2023

ATTEST:

Peggy Fitzjurls, County Clerk

Attest Date: 2/14/23

FILED FOR RECORD

FEB 14 2023

PEGGY FITZJURLS
County and Probate Clerk
Logan County, AR

Sponsor: JP Sparks

3 COMMUNITY DESCRIPTION

Logan County's rich history reflects significant eras in American history. Although Logan County was not created until 1871, the area that is now Logan County has had a significant impact on the development of western Arkansas dating from territorial days. Some of the oldest settlements in western Arkansas were located in what is now Logan County. During territorial days and throughout the century, Roseville, a busy port on the Arkansas River played a vital role in river transportation of goods and passengers. Settled around 1830, Booneville was the only trading center between Fort Smith and Dardanelle. Logan County has been primarily an agricultural area with small farms growing crops of cotton and corn, raising beef cattle and producing. Other resources that have contributed to its economy are timber, coal, and natural gas. During the latter part of the 1900s, tourism began to play an important role in the economy when Mount Magazine State Park and other facilities were developed.

Physiography Climate, and Geology

Topography

Situated in western Arkansas, Logan County covers a land area of 732 square miles and is bounded by Franklin County, Sebastian County and Scott County to the west, Yell County to the east, and Johnson County and the Arkansas River to the north. The county lies within the southwest quadrant of the Interior Highlands and boasts a wide variety of geographic features.

Physiographic regions include the Arkansas River and the River Valley along the northern boundary, the Ouachita Mountains along the southern border of the county, and Mt. Magazine State Park and Ozark National Forest comprising a significant portion of the county's central area. Timber covers the hills and rich deposits of natural gas and sand and gravel are found throughout the River Valley. Vegetables, fruits, and soybeans are grown on its fertile, Valley farmland, and the prairie regions have good grazing lands.

Land Area

Logan County is one of the largest counties in Arkansas in terms of land area. It consists of 708.1 square miles of land and 23 square miles of water. Within the county there are 9 cities and towns ranging in size from 4.6 square miles (Paris) to the smallest jurisdiction, Scranton, at 0.5 square mile. As displayed in **Table 1.2**

Land Area, the average land area of the cities and towns in Logan County approximately 1.8 square miles. The unincorporated county accounts for 97.5% of land area in the county. While the land area of the cities and towns is extremely small, in terms of population, constitute a very small not only in land area, in terms of population more than 43% of the county's residents live in cities and towns.

Table 1.2 Land Area

Jurisdiction	Total Area		2020 Population
	Land (sq. mi)	Water (sq. mi)	
Town of Blue Mountain	1.1	-0-	149
City of Booneville	3.9	-0-	3,809
Town of Caulksville	1.3	-0-	154
City of Magazine	1.8	-0-	740
Town of Morrison Bluff	1.3	-0-	78
City of Paris	4.6	0.3	3,176
City of Ratcliff	1.8	-0-	167
City of Scranton	0.5	-0-	245
Town of Subiaco	1.9	-0-	401
Unincorporated County	691.5	22.7	12,212
TOTAL COUNTY	708.1	23	21,131

Source: US Census, 2021

Population and Demographics

Between 2010 and 2020 the county population declined from 22,352 to 21,131. Since 2010 Logan County population has experienced a minor decrease. According to the U.S. Census, between 2010 and 2020, the population saw a minor decline, -5.5% to 21,131

Section 2 Planning Process and Plan Maintenance

1 DESCRIPTION OF PLANNING PROCESS

In 2020, Logan County was awarded an HMGP grant to update Logan County's 2015 HMP as mandated every five years. The HMGP funds were used to reimburse 75% of the hazard mitigation planning costs. The remaining 25 were paid by Logan County.

The HMP was reviewed over a period of 18 months and in order to seek adoption and approval by the end of December 2021.

The rational planning method was used by the HMPT to update the HMP. First, the HMPT focused on obtaining the resources needed for successful mitigation planning. This included identifying and organizing interested members of the community and technical expertise. Next, the HMPT identified all hazards with the potential to impact community assets in the County and each participating jurisdiction. After identifying hazard risks and impacts, the HMPT developed a mitigation strategy to minimize the impacts of hazard events.
The Hazard Mitigation Actions are prioritized based on the action's effectiveness in reducing moderate and severe-risk hazards and the preferences of the community. Finally, each jurisdiction implements the HMP through daily government operations and by selecting funding for larger projects. The HMP will be reviewed annually to track progress in meeting the County's Hazard Mitigation Goals. Refer to **Figure 1** for a flowchart of the FEMA's hazard mitigation planning process used by the HMPT.

Figure 1. The Hazard Mitigation Planning Process.

2 HMPT INVOLVEMENT, ROLES, AND PARTICIPATION

The Logan County Hazard Mitigation Plan is multi-jurisdictional in scope with a planning area that includes all of unincorporated Logan County and nine municipalities within the County including the Town of Blue Mountain, City of Booneville, Town of Caulksville, City of Magazine, City of Paris, Town of Morrison Bluff, City of Ratcliff, City of Scranton, and Town of Subiaco. This plan also includes the five school districts located in Logan County including the Booneville School District, County Line School District, Magazine School District, Paris School District, and Scranton School District. In addition, the Logan County Emergency Management Director invited volunteer fire districts, South Logan County Chamber of Commerce, Paris Area Chamber of Commerce, Logan County Health District, North Logan Mercy Hospital and Booneville Community Hospital. A typical letter of invitation is found in Appendix II. All fifteen jurisdictions listed participated in the planning process from its inception. The planning team members have participated in meetings. In addition, some planning team members were contacted through other means other than meetings such as personal interviews, phone calls and mailing of information. Announcements of the second and third public meetings were posted several weeks prior to the upcoming HMP meetings on the Logan County Emergency Management website (www.logancountyoem.org). Some jurisdictions had difficulty in making all the meetings due to conflicts such as other jobs, mayors only working part time, sickness, and other scheduled obligations. Agendas and sign-in sheets are provided in **Appendix II**.

Table 2.1 provides a list of individuals who serve on the HMPT.

Table 2.1 Logan County HMPT Members.

Name	Title	Organization	Jurisdiction	Phone #
Ray Gack	Judge	Logan County	Logan County	479-963-3601
Natosha Hammonds	Asst to Judge	Logan County	Logan County	479-963-3601
Tobi Miller	Director	Office of Emergency Management	Logan County	479-963-3218
Tobi Miller	Rural Fire Chief Coordinator	Office of Emergency Management	Logan County	479-963-3218
Juanita Granier	Mayor	Blue Mountain	Blue Mountain	479-947-2210
Edgar Baker	Mayor	Booneville	Booneville	479-675-3811
Ben Villarreal	Police Chief	Booneville Police Dept	Booneville	479-675-3508
Scott Lee	Mayor	Caulksville	Caulksville	479-635-2481
Stanley McConnell	Mayor	Magazine	Magazine	479-969-8555
Daniel Rogers	Mayor	Paris	Paris	479-963-2450
John Wells	Fire Chief	Fire Department	Paris	479-963-3233
Charlotte Siebenmorgen	Mayor	Morrison Bluff	Morrison Bluff	479-938-2299
Roger Hughey	Mayor	Ratcliff	Ratcliff	479-635-2323
David Corbitt	Mayor	Scranton	Scranton	479-938-7768
Bobby Sewell	Mayor	Subiaco	Subiaco	479-934-4306
Taylor Gattis	Superintendent	County Line	County Line Schools	479-635-2222
Jim Loyd	Superintendent	Paris School	Paris School District	844-963-3243
Beth Shumate	Superintendent	Magazine School	Magazine School	479-969-2566
Toby Cook	Superintendent	Scranton School	Scranton School	479-938-7564
Tonya Fletcher	Ex. Director	Paris Chamber of	North Logan County	479-963-2244
Paula Beaty	Director	Public Health Unit	Logan County	479-883-7385

The primary role of the HMPT during the planning process was to attend all planning meetings, and be available to provide information to the emergency management office for inclusion in the HMP. In addition, the HMP was to be reviewed by each HMPT member before its submittal to ADEM and FEMA. The HMPT members listed in **Table 2.1** each contributed to the following tasks during the planning process:

- Developing a mission statement for the HMP;
- Encouraging the public's involvement in the planning process;
- Identifying all hazards that have impacted or may impact the community;
- Reviewing the revision of the profiles of all identified hazard events by the project consultant;
- Assisting the consultant in updating the critical facilities list and vulnerability assessment;
- Assisting the consultant in estimating potential losses to community assets;
- Revising and evaluating Hazard Mitigation Goals and Actions;
- Providing input on updating the implementation strategy;
- Providing input on updating the plan maintenance strategy for the next five-year cycle; and
- Reviewing all section drafts and the Final Draft HMP.

HMP Update Meetings

The 2022 HMP planning process began with the Kick-off Meeting held on December 15, 2020, at 10:00 a.m. on an online Zoom meeting. Interested parties and the public were invited to attend through advertisements on the website and through email. The meeting was chaired by Ray Gack, Judge - Logan County OEM, and assisted by the Arkansas Division of Emergency Management. The purpose of the Kick-off Meeting was to explain that since Logan County had a consultant rewrite the last update in 2014 that the OEM office would be updating the plan with the help of the planning team. The planning team was updated on the planning process, schedule, and grant opportunities. Also, the Director of the Logan County Emergency Management Office lead a discussion. The communities were given tools sent to them by email to help them with update guidance along with a copy of the current HMP.

The HMPT has held a total of five public meetings during the HMP update process. Due to COVID-19 limitations on in-person meetings, all public meetings were held online using ZOOM. A screenshot of the website is found in **Appendix III**. Meetings were advertised as open to the public via the Logan County OEM website and the HMPT was encouraged to invite additional stakeholders. As indicated earlier, all meeting were held over Zoom. All meetings facilitated input for developing the Plan Process and Plan Maintenance, Risk Assessment, and Mitigation Strategy chapters of the HMP. During each meeting, the HMPT and the public were given time to discuss, review, provide input and evaluate each section of the HMP. Any HMPT members who not able to attend meetings were provided meeting materials via email or the Logan County OEM website. They were encouraged to submit comments via email or phone calls to the OEM office.

The final meeting was held January at the OEM Classroom for any changes. An invitation letter was mailed and emailed to all participating Communities and posted on social media.

Community Interviews

Personal and phone interviews were an essential method for collecting relevant information for the HMP update. Interviews with knowledgeable community members from each participating jurisdiction were conducted by the HMPT. Inventory institutional capacity of each jurisdiction and school district, identify community assets, describe community vulnerabilities, and establish appropriate mitigation strategies and implementation methods. There were multiple community interviews conducted during the planning process to ensure that each participating jurisdiction contributed and provided input into the HMP.

3 PUBLIC INVOLVEMENT PROCESS

Public participation is a key component to the HMP planning process. Public participation offers the members of the community a chance to voice their ideas, interests, and opinions, which ultimately increases the community acceptance and compatibility with community needs. To accomplish this end, the HMPT developed a public participation process consisting of the following three components:

1. Ensure the HMPT is comprised of knowledgeable individuals that are representative of Logan County and all participating jurisdictions;
2. Conduct multiple public meetings to identify common concerns and ideas regarding hazard mitigation and discuss specific goals and actions of the HMP (see **Appendix II**); and
3. Announce all public meetings via the Logan County Emergency Management website. (**Appendix III**).

The Draft 2022 HMP was noted on the Logan County Office of Emergency Management Facebook

page, and on the Logan County hazard mitigation website, www. logancountyoem.org, for two weeks prior to submitting the Final HMP to ADEM and FEMA for preliminary approval. This was done to increase public outreach to the members of the community who were unable to attend the public meetings. During the drafting period there were no public responses to the mitigation plan update.
Another opportunity for the public to review the plan will be provided after Approval Pending Adoption status has been received from ADEM and FEMA and prior to local adoption of the HMP.

Stakeholders were involved in the HMPT to ensure all interests in the county are represented. The medical community, faith-based organizations, American Red Cross, financial community, and major employers (**Table 3.4**) were invited to participate in HMP updates. This is especially important in a rural county with a population of 21,131 people. Success of implementation is especially dependent on collaboration because resources are limited. It will take a broad range of stakeholders to join together to make Logan County resilient to future disaster events.

4 REVIEW AND INCORPORATION OF PLANS, STUDIES, REPORTS, AND OTHER INFORMATION

DMA 2000 requires a review of and incorporation into, if appropriate, existing plans, studies, reports, and technical information. For the 2022 HMP, these elements are referred to as capabilities and their review and incorporation as capability identification. The capability identification provides the scope for what Hazard Mitigation Actions can be implemented. It identifies the specific capabilities of Logan County and each participating jurisdiction which may assist in the implementation of the identified Hazard Mitigation Actions. The capability identification, therefore, canvasses all aspects of County/participating jurisdiction's departments that relate both directly and indirectly to hazard mitigation activity.

The ability of a community to develop an effective HMP depends upon its capability to implement policies and programs. FEMA publication 386 describes a capability assessment and outlines the following types of capabilities: 1) Legal and Regulatory; 2) Administrative and Technical; and 3) Political and Fiscal.

Legal and regulatory capabilities refer to the laws, regulations, authorities, and policies that govern current and potential mitigation actions. Administrative and technical capabilities refer to a jurisdiction's staff and technical resources, as well as completed plans and studies, directly or indirectly, relating to mitigation of natural hazards. Technical capabilities also include the existing electronic and systemic resources. Political and fiscal capabilities refer to the level of support from elected officials for pursuing mitigation and the financial resources available to achieve the identified mitigation strategies. There are multiple planning mechanisms that will be used when implementing the 2022 HMP. The process by which Logan County will use these planning mechanisms to implement the mitigation strategy will be discussed later in this section.

Existing plans, studies, reports, and technical information relevant to mitigation planning were collected, reviewed, and incorporated into the HMP by the HMPT. This information was used to identify existing, planned, and potential mitigation initiatives designed to reduce Logan County's vulnerability to natural hazards. The following list of plans, studies, reports, and documents were reviewed and incorporated into the HMP update:

- 2020 U.S Census
- Federal Emergency Management Agency, Community Status Book Report – Arkansas 2020

- Arkansas Department of Natural Resources, Dam Safety and & Floodplain Management Section
- Arkansas Forestry Commission – wildfire information
- 2018 State of Arkansas Hazard Mitigation Plan;
- Wikipedia – Historic Places http://en.wikipedia.org/wiki/National_Register_of_Historic_Places_listings_in_Logan_County,_Arkansas;
- Logan County Emergency Operations Plan;
- Logan County LEPC All Hazards Plan;
- Flood Insurance Study, Logan County Arkansas;
- City of Paris Building Code;
- City of Paris Zoning Ordinance;
- City of Booneville Building Code;
- City of Booneville Zoning Ordinance;
- City of Booneville Subdivision Regulations;
- City of Magazine Zoning Ordinance;
- City of Magazine Building Code;
- City of Booneville Subdivision Regulations;

5 SECTION REVISIONS DURING THE HMP UPDATE

The update of the HMP meets the FEMA requirements to be incorporated and ensure greater multi-jurisdictional coordination for mitigation planning efforts. All maps and data have been updated with current and accurate information.

6 HMP MAINTENANCE REQUIREMENTS

The HMP is a living document that may need to be amended as new funding becomes available or changes in community priorities arise. In accordance with Section 201.6(c)(4), the HMP's maintenance procedures will ensure that the HMP remains relevant to these changes. *Section 2 – Planning Process and Plan Maintenance* includes:

- The methods and schedules for monitoring, evaluating, and updating the HMP within a 5-year cycle;
- The identification and incorporation of the HMP into existing planning mechanisms; and
- The process for continuing public participation in the HMP implementation and maintenance.

7 MONITORING, EVALUATING AND UPDATING THE HMP

Logan County's method and schedule for monitoring, evaluating, and updating the HMP over the next five years provides a structure for encouraging collaboration, transferring information, and fostering innovation among the jurisdictional representatives, the HMPT, school boards, non-profit organizations (e.g., Paris Chamber of Commerce, Booneville Development Board), Logan County Public Health Unit, and the public. The Logan County Office of Emergency Management (OEM) Director has primary responsibility not only for monitoring progress, but

to promote implementation of the Action Plan. This subsection describes the schedules and criteria that will be used to monitor, evaluate, and update the HMP over the next five-year cycle.

HMP Monitoring

The lead responsibility for monitoring the HMP is with the County OEM Director. The Director maintains informal interaction with all jurisdictions keeping aware of any change of condition such as hazard mitigation projects completed, new need resulting from a disaster event, or change in town or city staff involved in hazard mitigation. The Director will maintain a filing system to document such changes.

A current roster of contacts with cities, towns, and school districts will be updated annually. Also, the Director will maintain files that document weather events, an analysis of each event and whether a new project or initiative is warranted. If new information becomes available such as a dam evaluation, assessment potential of landslides, the reports and data will be filed and utilized in the next HMP Update. Annually monitoring meetings of the HMPT will be held annually where the year in review will be discussed. Subsequent to the meeting the Director will generate an Annual Progress Report Form (see **Appendix IV**) and present it to the Quorum Jury that not only identifies the status of the HMP projects, but new information that might lead to new hazard mitigation projects or initiatives. It will also be available for all cities, towns, and school districts. Completed Annual Progress Reports will be added to **Appendix IV** and the Annual Progress Report Form will be uploaded and posted on the Logan County OEM website. Space will be available for the public comment. The OEM Director will check weekly to see if any new comments have been posted.

HMP Evaluation

The HMPT Chairman has the option to reconvene the HMPT if it is deemed necessary to evaluate the entire HMP. The following criteria will be used by the HMPT Chairman to determine if an evaluation meeting is needed:

- Are there any changes in the HMP requirements for funding programs and grants?
- Is there little progress on implementing the Hazard Mitigation Actions?
- Does the review of the Annual Progress Reports indicate that any changes to the HMP are necessary?
- Have any identified or unidentified hazard risk levels changed or need to be added?
- Does the Hazard Mitigation Action Prioritization List need to be changed?
- Has a disaster event occurred in the county that warrants modifying the HMP?
- Are there any major changes within the HMPT membership?

The evaluation process should review each major section of the HMP. An evaluation of *Section 3 -- Risk Assessment* should address the following items:

- **Hazard Identification** – Are new hazards affecting the community? Has a disaster occurred?
- **Profile Hazard Events** – Are additional maps or new hazard studies available? Have chances of future events changed? Has future development in the community been

checked for its effect on hazard risk?

- **Asset Inventory** – Do community assets need to be updated? Are there any new high-risk population groups? Is future land development accounted for in the inventories?
- **Loss Estimate** – Do we need to update loss estimation methods?
- **Repetitive Loss Properties** – Has the status of Repetitive Loss (RL) or Severe Repetitive Loss Properties (SRL) changed? (Presently there are no RL or SRL properties in the county.)

An evaluation of *Section 4 – Mitigation Strategy* should address the following items:

- **Hazard Mitigation Goals** – Do any new Hazard Mitigation Goals need to be added? Are the Hazard Mitigation Goals Relevant?
- **Benchmark for Progress** – Has there been any progress on meeting the Hazard Mitigation Goals or implementing the Hazard Mitigation Actions?

- **Hazard Mitigation Actions** – Do any new Hazard Mitigation Actions need to be added? Do the Hazard Mitigation Actions need to be reprioritized?

An evaluation of *Section 2* should address the following items:

- **HMP Integration** – Has the HMP been integrated into the identified planning mechanism? Are there problems with integrating the HMP into planning mechanisms?
- **Continuing Public Participation** – Has the public had ample time to participate in the planning process? Do we need additional public meetings? Does the public have access to review changes to the HMP?

HMP Update

The HMPT will meet two years in advance of the five-year deadline to determine if the update process will be administered with local staff or a consultant. In the event that a consultant is required to update the HMP, the Logan County OEM Director will advertise the opening, based on federal and state procurement rules regarding funding. To meet FEMA's five-year update deadline, the HMP update process must begin no later than one year before the HMP's expiration date. The HMP update process will utilize the most up-to-date methods and requirements provided by ADEM and FEMA to stay within compliance. The HMPT Chairman will manage the HMP update process to ensure timely completion before the out of compliance date.

8 INCORPORATING THE HMP INTO EXISTING PLANNING-RELATED MECHANISMS

Planning Mechanism Identification

Each jurisdictional representative will be responsible for ensuring that the HMP is incorporated into their respective planning activities. Refer below for jurisdictional planning mechanisms identified by the HMPT for incorporation into the HMP:

- **Unincorporated Logan County**
  - Floodplain Management Ordinances
  - Logan County Emergency Operations Plan
  - Local Emergency Planning Committee

- **City of Booneville**
  - Zoning Ordinance
  - Subdivision Regulation
  - Building Permits
  - Floodplain Management Regulations
- **City of Magazine**
  - Building Codes
  - Zoning Regulations
  - Floodplain Management Regulation
- **Magazine School District**
  - Facility Maintenance Plan
  - School Critical Incident Management Plan
- **City of Paris**
  - Zoning Ordinance
  - Subdivision Regulations
  - Floodplain Management Ordinance
  - Building Code
- **Paris School District**
  - Facility Maintenance Plan
  - School Critical Incident Management Plan
- **County Line School District**
  - Facility Maintenance Plan
  - Critical Incident Management Plan
- **Scranton**
  - No planning-related mechanisms exist
- **Scranton School District**
  - Facility Maintenance Plan
  - School Critical Incident Management Plan
- **Subiaco**
  - Floodplain Management Regulation

For all jurisdictions that have no building code, development in those communities is required to meet the state building code. Compliance is voluntary; therefore, one assumes that the financial institutions require any construction they fund, be done in compliance with the state building code.

Incorporation Process

After each participating jurisdiction officially adopts the HMP, the identified planning mechanisms will incorporate the HMP in accordance with appropriate State laws for local government planning. Each City will incorporate the HMP into their jurisdiction by adopting the plan through their City Council. School Districts will adopt the HMP into their jurisdiction by adopting the plan through the School Boards approval. Logan County Government will adopt the HMP into their jurisdiction by adopting the plan with the approval of the Quorum Court.

HMP Integration Steps

Each jurisdictional representative will encourage its respective jurisdiction's officials to integrate appropriate sections of the HMP into the identified planning mechanisms through Quorum Courts, governmental meetings, and the amendment process of the given planning mechanism. Jurisdictional representatives will also conduct annual reviews to determine how well the HMP is being integrated into each of its planning mechanisms and report on this progress at the annual HMP monitoring meeting referred to in section planning mechanism identification.

Besides Booneville, Paris and Magazine, most of the smaller cities and towns in Logan County have one possible two staff and it is highly unlikely that they will be adding staff, especially in light of static population growth. However, it is important that the three larger cities, take time to provide opportunities for their building inspectors and planning officials to be more aware of new techniques, building materials, and enhancements in messaging in an effort to make their communities less vulnerable to disaster events.

Jurisdictional representatives can also attend their respective budgeting meetings to encourage elected officials to allocate local monies for implementing mitigation actions. If possible, elected officials should develop a local hazard mitigation action fund to implement hazard mitigation actions and ensure local match funds are available for acquiring grants.

Statutes Regulating HMP Incorporation into Planning Mechanisms

State of Arkansas Planning Statues included in Title 14, Chapter 56, Sections 401-425, Arkansas Code Annotated (A.C.A.), authorize planning in Arkansas including "Adoption of plans, ordinances, and regulations" (§14-56-422, A.C.A.) and "Change in plans, etc." (§14-56-423, A.C.A.) for cities. These statutes must be followed when the HMP is incorporated into city plans and ordinances. A list of State Statutes relevant to mitigation integration follows:

- City Planning (§14-56-401 *et seq.*)
- Regulations to control the development of land (§14-56-417)
- Municipal Zoning (§14-56-416)
- Zoning Regulations (§14-56-301 *et seq*)
- Zoning Board of Adjustments (§1*4-17-2*09)
- Flood Loss Prevention (§14-268-*104*)
- Community Redevelopment Financing (§14-168-201 *et seq.*)

Current Elements of the HMP that have been Incorporated

Currently, the HMP has been incorporated into floodplain ordinances for Logan County and the Cities of Booneville, Magazine, Paris, and Subiaco. The floodplain ordinances use the floodplain vulnerability maps for determining areas where development should be restricted or built above the base flood elevation.

No local government in Logan County participates in the Community Rating System program. If they did participate, each jurisdiction could gain additional points for receiving insurance premium discounts to local homeowners for flood insurance. Local governments could incorporate the HMP into a Community Rating System Participation Program in the following ways:

- To maintain better base maps;
- To prepare, adopt, implement, and update a comprehensive flood hazard mitigation plan using standard planning process;

- Acquire and/or relocate flood-prone buildings so that they are out of the floodplain;
- Protect existing floodplain development by flood proofing, elevation, or minor structural projects;
- To keep flood and property data on computer records.

9 CONTINUED PUBLIC INVOLVEMENT

Logan County is dedicated to continuing public involvement and education during all evaluations and updates of the HMP. HMPT meetings will be posted on the Logan County OEM website, advertised on public notice boards, in all main municipal buildings, the Logan County OEM Facebook page, and the local newspapers, Booneville Democrat and Paris Express. Public members who would like to participate in the planning process of the HMP will be invited to attend HMPT meetings and be given an opportunity to express their concerns and ideas. The Logan County OEM Director will be responsible for keeping track of public comments concerning the HMP. All public comments will be reviewed and incorporated in the HMP as seen appropriate by the Logan County OEM Director. All HMP updates will be made available to the public for review on the Logan County OEM Website and in hard copy at the jurisdictional libraries for two weeks prior to adoption. A final copy of the adopted HMP will be archived at the Logan County OEM and will be made available for public download from the Logan County OEM website.

Section 3 Risk Assessment

1 RISK ASSESSMENT PROCESS

The purpose of *Section 3 – Risk Assessment* is to determine the potential impacts of hazards to the people, economy, and built and natural environments of the community. Impacts are the consequences or effects of the hazard on the community and its assets. The type and severity of impacts are based on the extent of the hazard and the vulnerability of the asset, as well as a community's capabilities to mitigate, prepare for, respond to, and recover from events.

During the Kickoff Meeting, the HMPT discussed which hazards threaten each participating jurisdiction. The hazards were divided into two classifications, natural and man-made. Natural hazards are defined as hazard events that occur naturally in the environment. Man-made hazards are defined as hazard events resulting from elements of human intent, negligence, or failure of a man-made system.

HMPT reviewed the results of the Risk Assessment and prioritized all hazards creating a Jurisdictional Hazard Prioritization List which identified which hazards would present the greatest risk to the Logan County Planning Area. Hazards prioritized as **Moderate Risk** or **Severe Risk** are profiled in **Subsections 4** and **5**. **Low Risk** hazards were not discussed since they posed minimal or no risk to the community and its assets. For each hazard that has been profiled, relative to its characteristics, historical occurrences, community vulnerabilities, estimated impact on vulnerable community assets, and variances in jurisdictional exposure.

Subsection 6 reviews and analyzes future development trends that may change the community's vulnerability to hazard events. Development trends were provided through community interviews with local officials from the various communities throughout the county. Finally, **Subsection 7** documents the status of National Flood Insurance Program (NFIP) participation of each jurisdiction.

Risk Assessment Source Information

The hazard profiles are based on existing technical analyses from primary and secondary governmental and private sources. All source documentation can be found in *Section 5 – References*. Sources include:

The State of Arkansas's 2018 Hazard Mitigation Plan;
FEMA database of Presidential Major Disaster Declarations;
National Flood Insurance Program (NFIP) flood data;
National Climatic Data Center (NCDC);
National Oceanic and Atmospheric Administration (NOAA);
National Weather Service;
U.S. Census Bureau, 2020;
Arkansas Forestry Commission;
Arkansas Soil Conservation Service;
U.S. Geological Survey (USGS);
Arkansas Natural Resource Commission; Dam Safety & Floodplain Management;
Arkansas Geological Survey; Geohazards & Environmental Geology;
U.S. Army Corp of Engineers (USACE);
Logan County Property Appraiser;
Local Newspapers – Booneville Democrat and Paris Express;
HMPT member expertise;
Interviews with local citizens, as well as County and participating jurisdictions' officials;
Logan County Emergency Management;
Logan County Rural Fire Coordinator;
Logan County School Districts;
Booneville Water Department;
Paris Fire Department;
Paris Street and Sanitation Department;

2 COMMUNITY ASSET IDENTIFICATION

Assets can be grouped generally into four categories: people, economy, built environment, and natural environment. All assets may be adversely affected by hazards, some more than others. Key is identifying specific vulnerable assets in the community.

Structural Asset Inventory

Residential and Commercial Structures

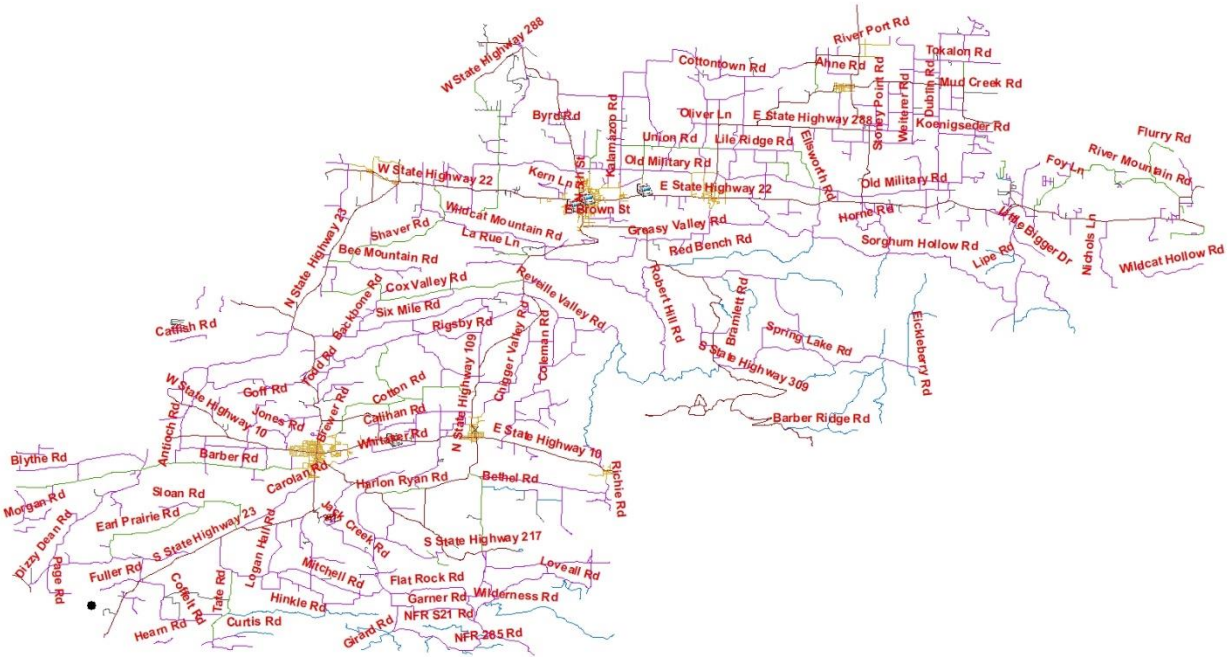
The Logan County Assessor's Office estimates that total replacement value of all structures, residential and commercial in the Logan County Planning Area Asset Inventory is estimated to be approximately $167,382,050.

Critical Facilities

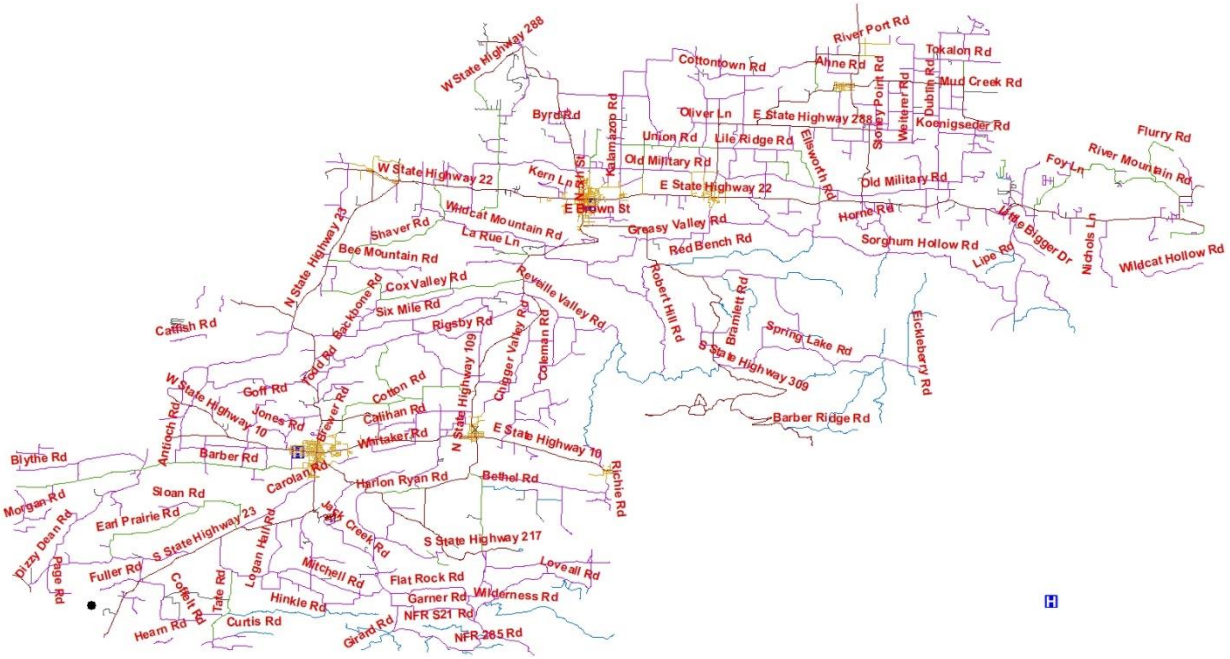
During a hazard event, damage to critical facilities and disruption to the services they provide can make emergency response and recovery efforts extremely difficult. The HMPT compiled the following critical facilities in Logan County which are displayed **Critical Facilities** (EMS) (Hospitals). **(**Fire Stations**) (**Long Term Facilities**)- (**County Buildings**) (**City Halls**)**

The inventory of facilities is a product of the Logan County 911 Office

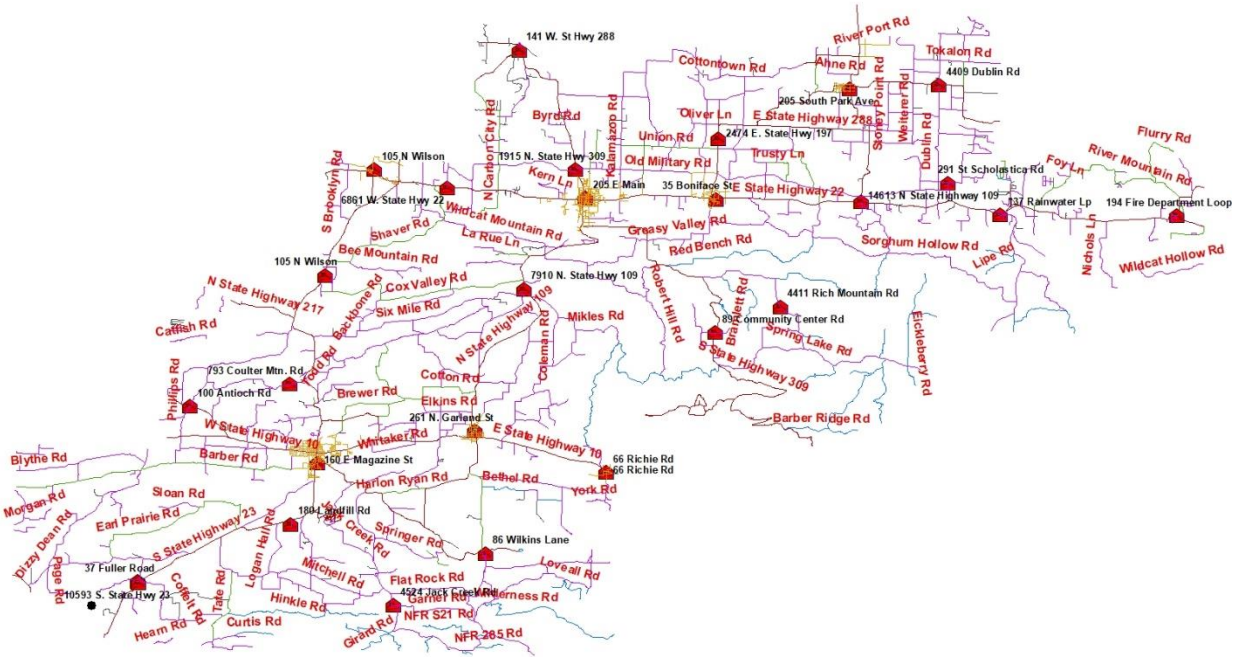
EMS



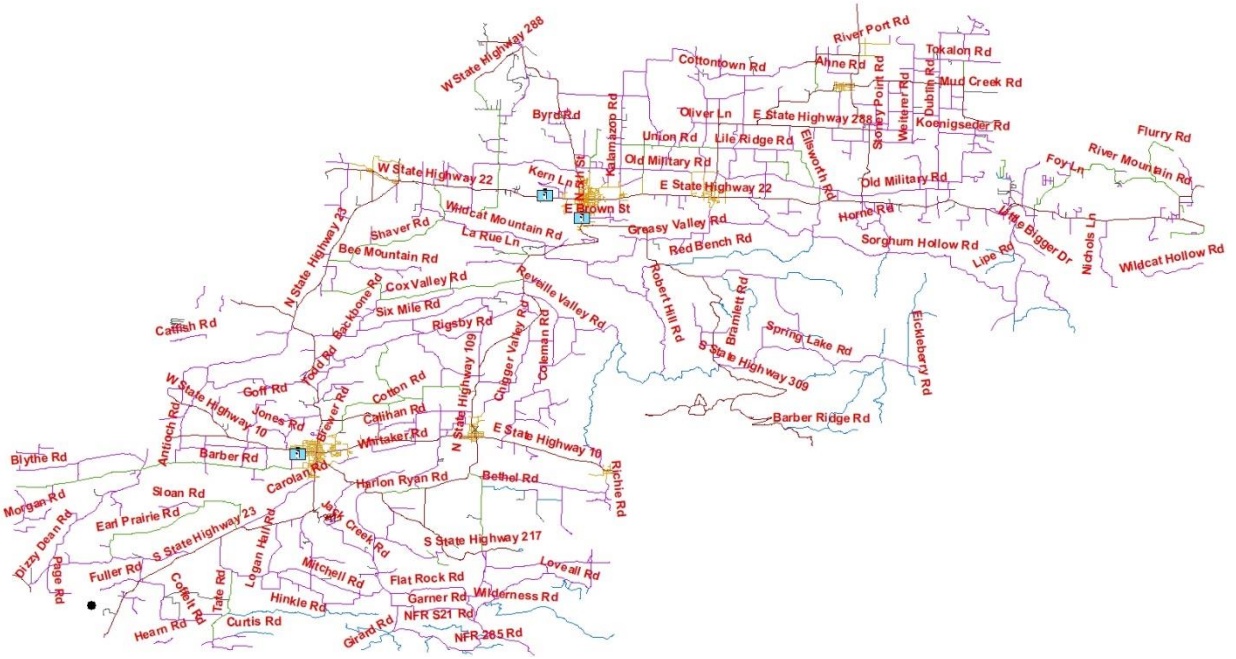
Hospitals



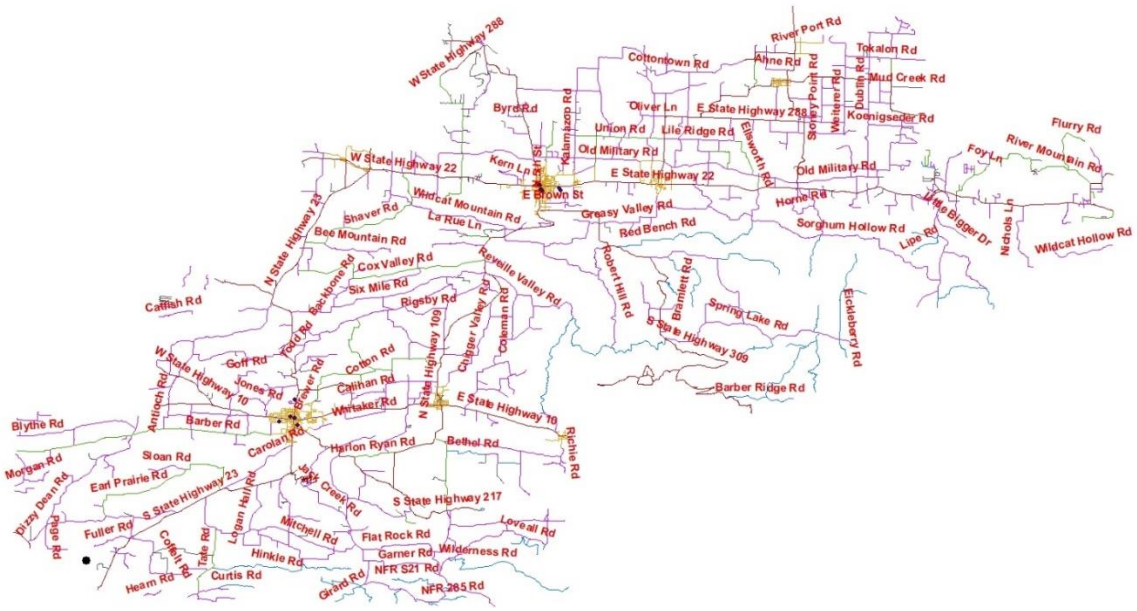
Fire Stations



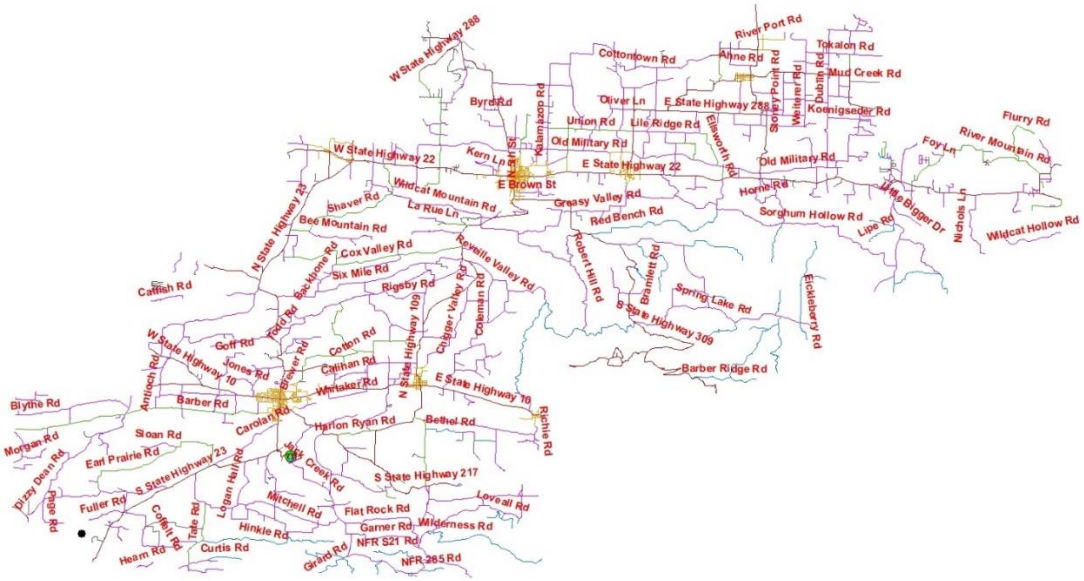
Long Term Facilities



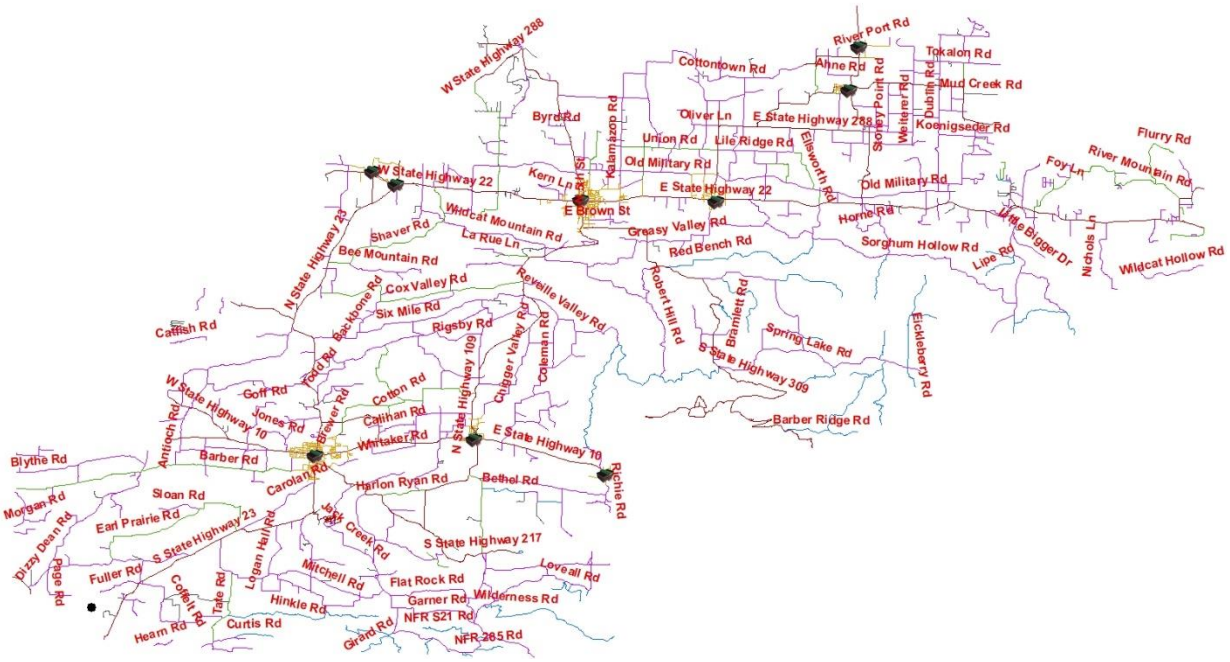
County Buildings



BHDC (Booneville Human Development Center)



City Halls



Law Enforcement

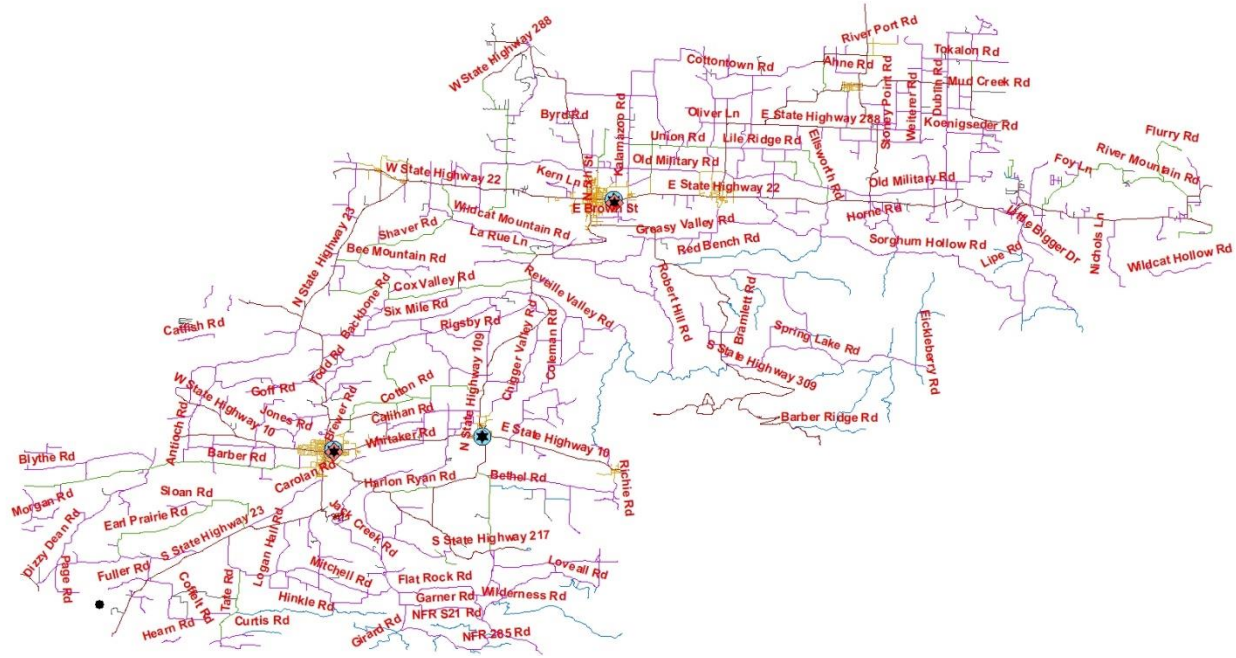


Table 3.1 Critical Facility Inventory.

Critical Facility Classification	Number of Locations and Segments
Emergency Response Facilities	3
Medical Facilities	2
Fire Stations	17
Health & Rehabilitation Centers	3
Municipal Offices and Courthouses	9
Law Enforcement	5
Total	**39**

Source: Logan County 911 Office, 2021.

School Facilities

There are five school districts in Logan County. They include Booneville, Paris, Magazine, Scranton, and County Line. Enrollment varies significantly with Paris having the largest enrollment (1,500), followed by Booneville having the second largest1 1,160. The other three school districts have substantially lower enrollments, Scranton – 412, Magazine – 510, and County Line Schools – 650. The total structural value of the schools in Logan County as of 2021 is $147,453,625.58, **Table 3.1** With this level of investment in schools, it is important that they be involved in making their facilities as disaster-resistant as possible, even more important to make the facilities safe for students, faculty and support staff. All school campuses are comprised of permanent structures with only Scranton using a doublewide portable for computer labs. In interviews with each superintendent, the schools are located on high ground safe from most hazards. All schools have crisis management plans which describe their operational procedures during tornadoes, thunderstorms, and earthquakes. In addition, during snow events, the school superintendents in the Logan School District informally communicate with each other daily or on as needed basis to discuss whether schools should be closed or open. Although Logan County has a low probability for earthquakes, all schools participate annually in earthquake drills as mandated by the State Department of Education. Based on topography of all schools, the school facilities are situated in open areas that are not susceptible to wildfire.

Table 3.2 Value of Structural Assets by School District

School Districts	Structural Asset Value
Booneville School District	62,727,544
County Line School District	21,000,000
Paris School District	30,000,000
Magazine School District	22,768,335.58
Scranton School District	10,957,746
School District Structural Value	**$ 147,453,625.58**

Source: 2021 Survey sent to School Districts from Logan County OEM

In addition to natural hazards several schools have expressed concern over the issue of school shootings. Fortunately, there have been no incidents in any school in Logan County. This type of incident is addressed in all school districts' Emergency Operations Plans (EOP), and Continuity of Operations Plans (COOP). Some schools have campus drainage issues that need to be addressed to prevent flooding of facilities.

Vulnerable Population Identification

According to the 2020 U.S. Census, Logan County Planning Area has a population of 21,131. There are nine incorporated jurisdictions; however, there are only two municipalities with significant concentrations of population, the City of Booneville (3,009) and the City of Paris (3,176). Out of the total population, the HMPT identified populations over the age of 75 to 1,687 countywide;

Economy

Based on historical data, the Logan County local economy has remained more or less relatively stable since 2021. Nearly 70.4% of those employed work in one of four industry types, Ag, mining, construction; manufacturing, wholesale retail, and educational services. Not surprisingly, 29.6% of those employed work in the educational field. There are more than 1,200 people who are employed in manufacturing.

Table 3.3 Employment by industry

Industry Type	Number
Agriculture, Mining Construction	749
Manufacturing	1,274
Wholesale/Retail	924
Educational services	1,235
Total Employment	**4,182**

Source: Arkansas Economic Development Commission, 2020. http://www.arkansassiteselection.com/aedc/

Table 3.4 Major private employers

Major Employers	Products/Services	Employees
Cloyes Gear & Products	Automotive Gears & Timing Chains	39
Booneville BHDC	Human Development	253
Rockline Industries	Wet-wipe products	400
Stark Mfg., LLC	Aluminum, Copper Bending Parts	350
Big River Roller Manufacturing	Industrial Rollers	22
American Axel & Manufacturing	Automobile driveline and drivetrain components	385
Tyson Foods River Valley by Products	Rendering Plant	245
Total		1,694

Source: Arkansas Economic Contact with companies and Tier II Reports

Tyson River Valley by Products

Tyson Foods, Incorporated – River Valley Ingredients operates a rendering plant in Scranton, Arkansas. Operations at the rendering plant consist of a poultry feather process, poultry blood process, poultry by-product process #1, poultry by-product process #2, poultry emulsified secondary protein nutrients process (ESPN), and palatant poultry or pork by-product/broth process.

Big River Roller Manufacturing

Big River Roller Manufacturing is an industrial roll manufacture. We build rolls for manufacturing facilities and will also repair/rebuild rolls include putting rubber covers. Some customers include paper mills, plastic plants, roofing manufactures, tissue plants, food packaging plants, and corrugated box plants.

American Axle & Manufacturing, Inc

American Axle & Manufacturing, Inc. (AAM), headquartered in Detroit, Michigan, is a manufacturer of automobile driveline and drivetrain components and systems. Our products include Driveline, Casting, Metal Forming and Powertrain. The Subiaco location are part of the metal forming unit, where we make timing chains, gears, and sprockets for leading car manufacturers and the automotive aftermarket.

Cloyes Gear & Products

Cloyes manufactures and supplies automotive timing drive systems and components for both the OEM's and the Automotive Aftermarket. Cloves is the largest timing gear and sprocket supplier to General Motors, Fiat Chrysler, Ford and Nissan, we are well positioned to handle the industry trend toward shifting the design, testing and validation of systems to the supplier. The company also provides a complete line of replacement timing and drive systems and components through the aftermarket distribution network.

Booneville Human Development Center

The Booneville Human Development Center has a licensed capacity of 138 beds. As of May 2021, Booneville HDC serves 120 adults with developmental disabilities. Eighty-eight percent of the residents are also diagnosed with mental illness. The residents at the HDC range from 20-73 years of age. Booneville HDC is assisting residents develop new skills and improve established skills while they continue to be involved in the local community. Various on-campus work programs and training projects include a rug weaving program, paper recycling, and custodial/food service training opportunities.

Rockline Industries

Rockline Industries in Booneville is a worldwide company that creates and produces a wide variety of consumer products. Its primary product line is wet wipes which come in all variety of uses, sizes, quantities and packages. They can be used to clean grocery carts or kitchen counters or for personal use such as removing make up or cleaning hands. They also offer a full line of consumer and commercial coffee filters and baking cups. The local plant manufacturers wet wipe products and employs 400 employees.

Stark Manufacturing LLC

Stark Manufacturing is located in Paris. The company was founded in 1976 and has become a major manufacturer of fabricated aluminum, steel, and copper tube and tube assemblies. The Paris plant manufactures the parts while the machined resources division is located in Russellville. The company is major supplier to the air climate control industry as well as many other industries.

Natural Environment

The area of the Logan County is 732 square miles or 468,480 acres. The county is somewhat mountainous, but the greater portion of its area is bottomlands and hills. Logan County has a land mass of 708 acres and 24 acres of water. Logan County holds a wealth of natural and scenic beauty including the highest point in Arkansas, Mt. Magazine, which is 2,753 feet high. It rises from the Ozark-St Francis National Forest where, on a clear day, you can see a distance of 40 miles.

Part of the Ouachita National Forest extends into the southern part of Logan County, making it one of only two counties in the state to include two national forests. Mount Magazine State Park is established on top of Mount Magazine with a 60 room Lodge which overlooks the Petit Jean River valley and Blue Mountain Lake. Camping, hiking, picnicking, swimming, and many recreational activities are plentiful.

The Magazine Mountain forms the dividing ridge, or watershed, between the Arkansas and Petit Jean Rivers.

Forming a major portion of its northern boundary is the Arkansas River. It provides more than 42 miles of river frontage, and the advantage of a navigable stream for small vessels year-round, and for larger vessels from six to nine months in the year. The tributaries of this river include Short Mountain, Cane, Shoal, Delaware, and some smaller creeks. Short Mountain Creek rises from springs on Magazine Mountain. It feeds into the Paris Reservoir which serves as the City's potable water source and ultimately empties into the Arkansas River. Cane Creek rises in the northeast part of the county and empties into the Arkansas River near Dardanelle. Shoal Creek is formed from springs on Magazine Mountain, and finally empties into the Arkansas River in the Lake Dardanelle area. Delaware Creek drains the eastern portion of the county, and empties into the Arkansas River near the northeast corner of the county. The Petit Jean River enters the county about four miles north of its southwest corner, and flows easterly through the southern tier of townships. Its principal tributary is Sugar Creek, which flows into it from the south.

3 RISK ASSESSMENT SUMMARY

Hazard Identification

Hazard Identification, the process of identifying hazards that threaten a given area, is the first step in the risk assessment process. Logan County identified several natural hazards that, because they pose possible risks to residents, warranted a complete profile in this hazard mitigation plan. These hazards were identified through an extensive process that utilized input from Planning Team members, research of newspapers and other historical records, review of existing plans and reports, discussions with hazard experts, Internet research, the State Mitigation Plan, the FEMA 1997 publication "Multi Hazard – Identification and Risk Assessment", and information provided by FEMA and ADEM.

Presidential Major Disaster Declarations

Another way to identify priority hazards for a community, particularly those hazards with relatively short recurrence intervals, is to examine past Federal Major Disaster Declarations. Since 1990, Logan County has been included as part of seven federally declared major disasters. The type of disaster incidents varied. Most were either caused by severe storms with high winds and heavy rains or were severe winter storms. In 1976 a disaster declaration was due to significant drought conditions. A list of the Presidential Declared Disasters and Emergency Declaration occurring in Logan County since 1990 is presented in **Table 3.5**. Also included in the table are the smaller, non-Federally declared disasters identified EM versus DR are much more frequent and are not reflected here but are presented later in the plan. A *Presidential Disaster Declaration* puts into motion long-term federal recovery programs, some of which are matched by state programs and designed to help disaster victims, businesses and public entities. The key word is long-term. The *Emergency Declaration* is more limited in scope and without the long-term federal recovery programs of a Presidential Disaster Declaration. Generally, federal assistance and funding are provided to meet a specific emergency need or to help prevent a major disaster from occurring.

Table 3.5. Presidential and Emergency Disaster Declarations in Logan County

Designation	Date Declared	Incident Type
FEMA- 4226-DR	6/26/15	Severe Storms, straight line winds, Flooding
FEMA- 4441-DR	6/08/19	Severe Storms and Flooding
FEMA-4518-DR	4/3/20	Arkansas Covid-19 Pandemic

Source: http://www.fema.gov/disasters

Jurisdictional Hazard Prioritization List

Based upon the different types of research described above, the list of natural hazards that affect Logan County and its residents include tornado, severe winter storm, severe thunderstorm, high wind, wildfire, severe hailstorm, drought, flood, dam failure and earthquake. (Table **3.7)**

Logan County and participating jurisdictions have chosen to remove landslides from this risk assessment due to lack of pervious occurrences and no studies or data to indicate a potential for hazard in these communities.

Table 3.6 Hazards identified in Logan County

Hazard	How Identified	Why Identified
Tornado	Review of past disaster declarations Review of NCDC Severe Storms Database National Weather Service input and data Public input	Logan County experiences a tornado event nearly every year. Tornadoes have caused extensive damage to property and pose a serious threat.
Severe Winter Storm	Review of past disaster declarations Review of NCDC Severe Storms Database National Weather Service Input and data Public input	Logan County is affected by severe winter storms every few years. Severe ice storms have caused wide-spread damage and disrupt emergency services.
Hailstorm	Review of NCDC Severe Storms Database National Weather Service Input and data Public input	Logan County is affected by hailstorms almost every year. Hailstorms cause damage to property and crops in the county.
Flood	Review of past disaster declarations Review of FIRM's Input from County floodplain manager Public Input	Logan County is affected by flooding every year. Floods have caused damage to property and farm crops in the past.
Severe Thunderstorm	Review of NCDC Severe Storms Database National Weather Service input and data Public input	Logan County is affected by severe storms every year that bring heavy rains, hail, lightning, and high winds. Severe thunderstorms have caused damage to structures and particularly electrical and communications equipment.
Wildfire	Arkansas Forestry Commission statistics and input USDA Forest Service Fire, fuel, and WUI mapping Public input	Logan County experiences wildfires every year. Wildfires cause damage to farmlands and structures in the county.
Drought	National Weather Service Data NOAA Paleoclimatology Data	A past emergency declaration in the State for drought. State Hazard Mitigation Plan
Earthquake	Research by the United State Geological Survey (USGS) Modified Mercalli Scale and pga.	This event is very unlikely in Logan County but not impossible. The county is in an area of .05 to.10 pga.
Dam Failure	Information from local governments and State Soil & Water Resources Commission regarding locations and conditions of dams	Potential for failures exist, although close inspections minimize risk of failures.
Levees Failure	U.S. Army Corp of Engineers Little Rock District maps, project descriptions were reviewed and reviewed past disaster declarations	During the 2019 flood the levees at McClean Bottoms broke causing significant crop damage

4 NATURAL HAZARDS

Tornado Profile

A tornado is a rapidly rotating vortex or funnel of air extending from a cumulonimbus cloud to the ground. It is usually spawned by a thunderstorm and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. Often, vortices remain suspended in the atmosphere as funnel clouds. When the lower tip of a vortex touches the ground, it becomes a tornado and a force of destruction. Logan County and all participating jurisdictions typically experience F0-F2 tornadoes. Refer to Table 3.8. Enhanced Fujita (EF) Scale for description of magnitude rating.

The National Weather Service reports that the average lead time for a tornado is about 13 minutes. Tornadoes have been known to change paths very rapidly, thus limiting the time in which to take shelter. Tornadoes may not be visible on the ground due to low light in evening hours, blowing dust, or driving rain and hail. Therefore, there is very little, or no, warning of when a specific tornado may be on the ground.

The path width of a single tornado is generally less than 0.6 mile, although some damage path widths are in excess of one mile. The path length of a single tornado can range from a few hundred yards to over 200 miles. The average tornado in North America moves from southwest to northeast, but tornadoes have been known to move in any direction. The average forward speed of a tornado is 30 mph, but may vary from nearly stationary to greater than 70 mph. The lifespan of a tornado is rarely longer than 30 minutes.

This higher elevation region may force warm moist air from the low-lying Gulf Coastal Plain and Mississippi Alluvial Plain to the southeast upwards assisting in tornado initiation, and then guide the storms along the base of the northeast-trending highlands front. As described in the 2013 Arkansas Hazard Mitigation Plan, Arkansas is in the center of tornado activity. The Plan states that “it appears that all of Arkansas is highly susceptible to tornadoes.”

Table 3.7. Enhanced Fujita (EF) Scale

Intensity Level	Wind Speed		Relative Frequency	Potential Damage	
	mph	km/h			
EF0	65 to 85	105 to 137	53.5%	Minor damage: 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 to 110	138 to 178	31.6%	Moderate damage: Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.	
EF2	111 to 135	179 to 218	10.7%	Considerable damage: Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.	
EF3	136 to 165	219 to 266	3.4%	Severe damage: Entire stories 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 to 200	267 to 322	0.7%	Devastating damage: Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.	
EF5	>200	>322	<0.1%	Extreme damage: Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (300 ft.); steel reinforced concrete structure badly damaged; high-rise buildings suffer significant structural deformation.	

Note: Images are for visual reference only and do not represent exact damage of tornado with specific EF level.

Previous Occurrences

Since 1952, 27 tornado events have affected Logan County with enough magnitude to be recorded into the National Climatic Data Center (NCDC) database. These events occurred at various locations in the unincorporated county; although, a few were within a mile or two of some of the participating jurisdictions (i.e., Booneville, Paris, Ratcliff). No tornado event resulted in a federal disaster declaration. Only 5 events resulted in recorded injuries or death, which for the 5 events totaled 12 injuries and 1 death. 19 of the 27 events resulted in documented personal property damage totaling $2,268,000. The following provides date and damage information for each event. Source: National Climatic Data Center, January 2021

Probability of Future Tornadoes

Between 2015 and 2021, there have been 4 tornado events that have caused damages within the Logan County Planning Area. Extrapolating from historical data, the HMPT estimated that there is a recurrence interval for tornadoes of 2.7 years or an annual occurrence probability of 37%. Further cities/towns constituting less than one percent of the land area in the county, the probability of tornadoes occurring in one of the participating jurisdictions is negligible. Based on historical data, the HMPT concluded that they expect tornadoes can occur on an occasional basis anywhere in any jurisdiction in Logan County.

Magnitude/Severity of Tornadoes

Of the 4 tornadoes that have struck Logan County 3 of the tornadoes were an F0 and the 4th was an F2. This equates to a wind speed ranging from 40-157 mph. F2 tornado damage can result in roofs torn off well-constructed homes and shifting of foundations of frame homes. Historically F2 tornadoes have caused around $250,000. However, the Intergovernmental Panel on Climate Change is projecting that the intensity of future hazards will increase as temperature worldwide continues to increase; therefore, the potential severity of damage would increase significantly. For planning purposes, the HMPT expects that damage from future tornadoes to range from $200,000 but less than one million dollars. It is expected that in the future, the intensity of tornadoes will range between F2 and F3 with winds ranging from 113 to an upper limit of 260 miles per hour.

Vulnerability Assessment

All structures in Logan County and the participating jurisdictions are vulnerable to tornadoes. The most vulnerable to tornadoes are wood structures and manufactured homes. There are 2,082 mobile homes scattered, primarily in the rural areas of the county. Both types of structures, especially manufactured homes, are particularly vulnerable to damage by high winds and tornados. Such structures are found in every jurisdiction in the county and throughout the county's unincorporated, rural areas. Thus, the potential effects of tornado events on structures, particularly housing, are not unique to any particular jurisdiction.

Also vulnerable to strong winds which historically have been associated with severe thunderstorms, are above-ground utilities, such as electrical power systems (e.g., power generation facility, above ground transmission lines and substations) and communication structures (e.g., radio towers, cell phone towers). Most transportation systems (highways, railways) are not susceptible to damage by high winds or tornados. Exceptions include airports, river ports, and bus facilities, but only small, non-commercial airports are present in the county. Nearly all critical facilities in the planning area are vulnerable to tornados. Many of these facilities shelter vulnerable populations (e.g., retirement homes, schools, and child care centers), HAZMAT locations, water and wastewater treatment facilities, and historic properties. Because they are essential to responding to a tornado and other disasters, the vulnerability of emergency response and medical facilities to tornado hazards must be a priority for disaster mitigation planning and mitigation measures.

The listing of critical facilities (**Table 3.1**) shows that some of the most unique and potentially important – specifically those relating to emergency and medical response – are located in the county's two largest cities of Paris and Booneville. Other critical facilities, such as fire and police stations, are found in several locations throughout the unincorporated county as well as in a number of the smaller municipalities. All school districts have safe rooms for students and faculty. In Paris, there is no safe room at either the elementary or high school campuses, but a safe room exists at the middle school campus which the public has access to during time of need.

Most critical facilities in the county are constructed of concrete and steel – such as the hospitals, emergency operations centers, and schools – and thus are less susceptible than wood structures to wind damage. All, however are vulnerable to serious damage, depending on the force, path and other characteristics of tornado events.

Estimated Impact on Vulnerable Community Assets

The Logan County Planning Area has recorded 4 tornadoes since 2015, of which 3 were F0; 1 was recorded as an F2; These numbers indicate that the Logan County Planning Area will experience 1 tornado about every 2.7 years. The county and jurisdictions will continue to see damages ranging from light to severe, such as damaged chimneys, broken tree branches, shallow-rooted trees toppled to roofs with some walls torn from structures, some small buildings destroyed, non-reinforced masonry buildings destroyed, and several trees uprooted in the forest. While there have been tornadoes in Logan County, according to the various school officials from the five school districts, no school facility has experienced damage due to a tornado.

Severe Winter Storm Profile

Severe winter storms, which may include heavy snowfall, ice storms, winter storms, and/or strong winds, affect many states in the continental United States. Areas where such weather is uncommon, such as Arkansas, are typically disrupted more severely by severe winter storms than are regions that experience this weather more frequently. In addition, winter storms may spawn other hazards such as flooding, severe thunderstorms, tornadoes and extreme winds, or may hamper recovery efforts. Logan County and all participating jurisdictions experience winter storms.

Geographic Area Affected by Severe Winter Storms

All participating jurisdictions of Logan County are equally susceptible to severe winter storm events.

Logan County has been affected by ice storms; however, ice storms have been more common in parts of south and central Arkansas. Winter storm events have been most common in the north central and central parts of Arkansas with Logan County also being greatly affected by a wide array of winter storms.

Previous Severe Winter Storm Occurrences

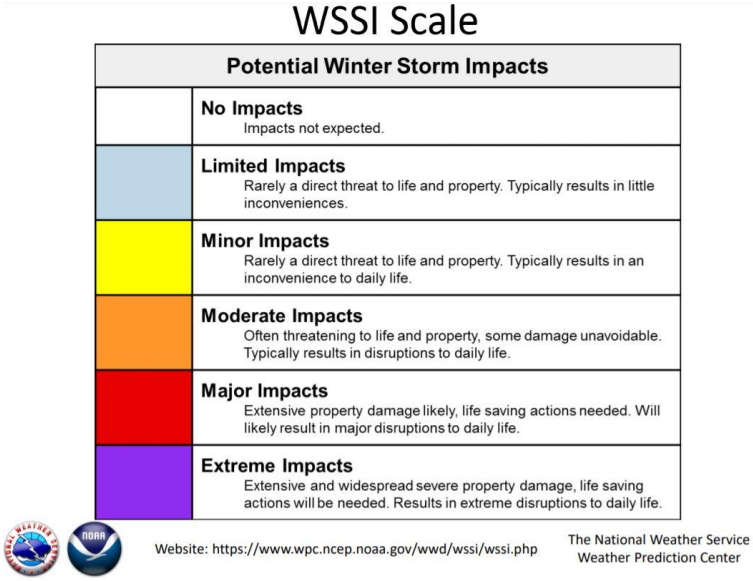
Since 2015 Logan County experienced heavy snow and extreme cold in 2020. Winter Temperatures dipped below zero and utility companies planned gas and electric outages due to the strain on the infrastructure grids. They have experienced 15 winter weather events. Ice storms such as the ice storm of 2000 cause disruption of electric service for two to three weeks.

Probability of Future Severe Winter Weather Events

Logan County and all participating jurisdictions can experience any type of winter weather. The location of Logan County provides unpredictable amounts of snow and ice. All jurisdictions in Logan County has a 100% chance of being impacted by a winter storm event in any given year.

Magnitude/Severity of Severe Winter Storm Hazards

Winter Storms:

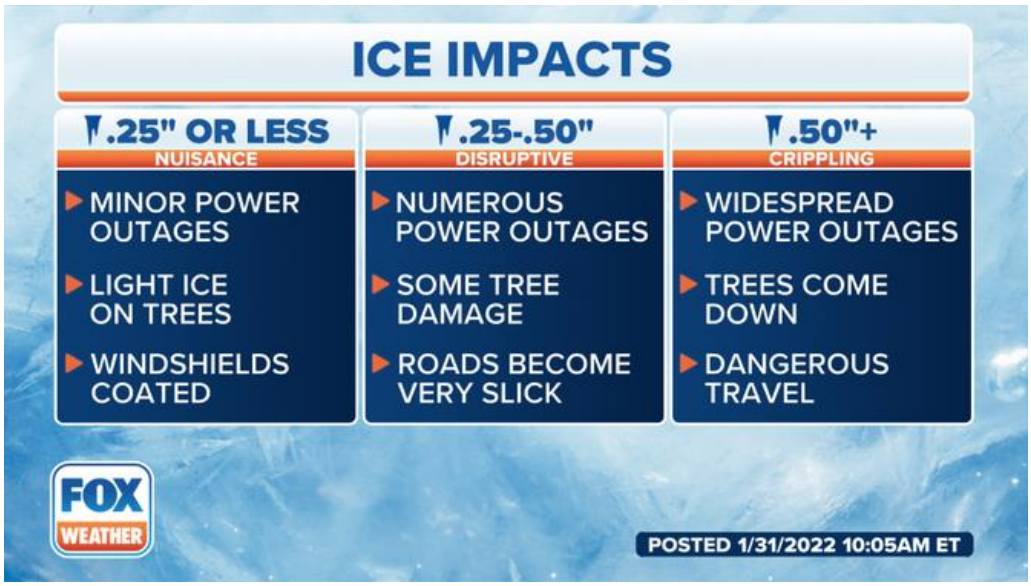


The planning area can experience any part of the WSSI scale, but typically experience limited to moderate impacts.

Snow:

All participating jurisdictions typically receive between 2-3 inches of snow but can receive upwards of 12 inches in a given snowfall event. Snow can fall and accumulate anywhere from 0 to 1" per hour. Any amount of snowfall accumulation on roads can cause disruption to daily life.

Ice:



According to National Climatic Data Center (NCDC) and National Weather Service Data, ice storm accumulations for the planning area range from one-tenth of one inch to one-half of an inch. However, the planning area typically experiences .25" or less during an ice event.

Only one severe winter storm event, the December 2000 Severe Winter Storm (FEMA 1354-DR), has resulted in a Presidential Disaster Declaration in Logan County. When severe winter storm events do occur (the worse typically associated with ice), they are usually wide-spread over the area and impede the movement of vehicles – limiting regular movement of traffic, causing accidents and limiting responsiveness of emergency services – and can down power and communications lines and seriously damage some structures, thus creating potentially critical conditions for the entire area.

Vulnerability Assessment

The occurrence of severe winter storms can have a substantial impact on Logan County's buildings, utility systems, transportation systems, and agriculture. Heavy accumulations of ice or snow commonly result in collapse of structural damage to buildings. The damage may be caused directly by the excessive weight of the ice/snow accumulation, or by ice-laden trees or branches falling on structures. Homes, business, as well as weaker nonresidential structures are most vulnerable to this type of structural damage. The abundant wood structures and manufactured houses in the planning area are much more vulnerable than steel, concrete, or masonry structures. Experiences from past storms indicate that poultry houses are particularly vulnerable. Heavy accumulations of ice from ice storms or heavy snow can also bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days or weeks while utility companies work to repair the damage. Power and communications disruptions are common consequences of ice storms and heavy snow in Logan County. Winter storms are sometimes accompanied by strong winds. These winds can knock down trees, utility poles, and power lines.

According to the U.S Census, 56% of structures in Logan County were built prior to 1979. It was until 1979 that the state adopted it first Arkansas Energy Code of Energy Conservation in New Building Construction. Therefore, many of the structures were built without concern to energy conservation, which makes many homes built prior to 1979 susceptible to cold air infiltration during the winter and may qualify for the Arkansas Weatherization Program and/or the Weatherization Assistance Program. The latter is to assist low-income persons (particularly the elderly, persons with disabilities, families with children, high residential energy users, and households with a high energy burden).

Logan County's transportation systems are also vulnerable to severe winter storms. Although the storms rarely result in hazardous structural damage, accumulations of ice and snow may cause extreme hazards to motorists.

All school districts are impacted by roadway icing as it impacts the school districts bus transportation system as well as the risk to teachers and staff at all schools in the county. Snow loads on school roofs has not been a problem since the county does not receive extensive storm accumulation; however, if at the time any of the school districts re-roof any of their structures, they need to assess the need, evaluate the need, and reconfigure the design of roof(s) so as to eliminate a potential roof collapse from heavy snow loads.

When severe winter storms occur, they usually affect the entire county. Even when portions may not be hit as bad as others, when major road networks are affected, it can affect travel flow and the availability of essential services throughout the county. This means that emergency service vehicles, such as fire, police, and ambulance, could be delayed in responding to emergency situations. State and local highway departments are sensitive to this issue and do their best to clear critical roads when ice storms do occur.

Estimated Impact on Vulnerable Community Assets

Severe winter storm events vary in severity and the type of associated hazards that are produced. According to the NCDC and NWS Data, typical snow accumulations in the Logan County Planning Area during winter storm events that produce heavy snow have ranges from 1 to 8 inches. Typical ice storm accumulations from severe winter storm events range from one half of an inch to one inch. The heaviest ice accumulation recorded in the Logan County Planning Area was approximately 2 inches once in December 2000 and a second time in December 2012.

Flood Hazard Profile

Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto the adjacent floodplain, causing land that is normally dry to be inundated. Flooding is a natural process of overbank flow. Floods may result from many causes. Most floods are caused by heavy rainfall from storms or thunderstorms that generate excessive runoff. A riverine flood is a flood caused by precipitation, runoff or snowmelt over a relatively large watershed causing flooding over wide areas and cresting in over 8 hours. A flash flood is a flood caused by heavy precipitation or snowmelt over a limited watershed (typically less than 50 square miles), crests in eight hours or less, and generally occurs in hilly terrain. Riverine floods have relatively low velocity, cover a large area of land, and take longer to recede, whereas flash floods have a higher velocity and may recede quickly. A flash flood can also occur when extreme amounts of precipitation fall on any terrain if the precipitation accumulates more rapidly than the terrain can allow runoff.

Flash floods generally pose more safety risks than riverine floods because of the rapid onset, the high velocity of water, the potential for channel scour, and the debris load. Debris carried by floods can damage or destroy structures in their path. In addition, more than one flood crest may result from a series of fast-moving storms. Sudden destruction of structures and the washout of access routes may result in the loss of life. Flash floods can occur in the planning area when 8 to 10 inches of rain falls within a 1-to-3-hour period.

Flood damage is proportional to the volume and the velocity of the water. Floods are extremely dangerous because they destroy through inundation and soaking, as well as the incredible force of moving water. High volumes of water can move heavy objects and undermine roads and bridges. Floods often occur without local precipitation as a result of precipitation upstream. Although rural flooding is dangerous to fewer people and may be less costly than urban flooding, it can cause great damage to agricultural operations. Flooding can also facilitate other hazards such as landslides, or cause other hazards such as material hazard events.

A floodplain is the normally dry, flat area of land adjoining the channel of a stream, watercourse, or other water body such as a lake or reservoir that is susceptible to inundation by flood water and stream-borne sediments. Floodplains can be managed to mitigate against damage from floodwaters. The floodplain is for overflow of floodwaters, and zoning regulations commonly prohibit development in this area. The floodway is the channel of a watercourse and those portions of the adjoining floodplain providing the passage of the 100-year flood stage waters. The floodway fringe is the portion of the floodplain where complete development will cause significant rise (typically one-foot) in 100-year floodplain. Flood stage is water elevation at which damage to personal property is significant. Damage from flooding depends on the amount of cultural development. Locally heavy precipitation may produce flooding in areas other than delineated floodplains or along recognized drainage channels. If local conditions cannot accommodate intense precipitation through a combination of infiltration and surface runoff, water may accumulate and cause flooding problems.

Despite the hazards, scenic floodplains commonly are highly populated. Development occurs on floodplains because there are no topographic constraints on construction (no hills), they contain fertile alluvial soil and abundant water supply, and they provide access to transportation, commerce, energy, and wastewater disposal. Floodplains are too large an area to leave undeveloped, unawareness of flood hazards and of floodplain extent, this typically leads to unsound development on floodplain land.

In addition to floodplains, floods occur in low areas where drainage is poor. Impermeable soils and flat terrain are susceptible to flooding when rainfall rates exceed the ability of the soil to carry water away. High groundwater levels may also cause flooding problems even where there is no surface flooding. Basements are susceptible to flooding from high groundwater levels. Seasonally high groundwater is common in many areas of Arkansas, while in other areas groundwater is high only after long periods of above average precipitation. Sheet flow flooding can occur in the planning are when there is 2 to 3 inches of rain in a one-to-two-hour time frame, and/or when a rain event lasts for several hours. Inundation amounts on the planning area can range from as little as ½" to up to 12", depending on the severity and time frame of the rain event. The planning area typically experiences ½" to 3".

Floodplains offer many benefits to communities. Floodplains act as natural flood-storage areas, decreasing the destructive force of floodwaters downstream. Biological activity, chemical processes, and filtration of floodwaters on floodplains can reduce flood-generated pollution from agricultural and urban runoff and sewage overflow. Floodplain vegetation reduces soil erosion, reduces velocity of floodwaters, traps floodwater sediment increasing soil fertility, and reduces sediment load downstream. High sediment load reduces biological activity and aesthetic and recreational value. Floodplain vegetation also shades streams reducing water temperature and providing habitat for organisms promoting biodiversity and productivity. Floodplains preserve and recharge groundwater supplies, and provide opportunities for recreation, outdoor education, and scientific study. Urban expansion may encourage development in floodplains that would otherwise be reserved for these benefits.

Geographic Area Affected by Flooding

All participating jurisdictions are subject to flooding. The Hazard Mitigation Planning Team has reviewed Logan County's Flood Insurance Rate Maps (FIRMs) and worked with the county Floodplain Administrator to compile a profile of the flooding hazard in the county. Research on flooding history in the county included newspaper accounts of major floods, data collected by the National Climatic Data Center and the National Flood Insurance Program, and the National Weather Service.

A variety of factors affect the type and severity of flooding within Logan County, including topography, geology, urban development, and infrastructure. Serious flooding in the mountainous areas is unusual because streams tend to be faster flowing and floodwaters drain quickly. Also, the mountainous areas of the county are generally less populated and flooding that does occur is not as likely to threaten property or lives. Most of the county's flooding and drainage problems are found in the less hilly, Arkansas River Valley. However, Logan County is subject to flash flooding several times during the year. When rainfall is intense, which often accompanies large thunderstorms, it may result in water flowing rapidly from higher elevations into valleys, collecting in, and sometimes overtopping the valley streams. Over the years the Logan Conservation District has constructed a series of watershed impoundment areas that slow down the stream flood thus reducing damage to the surrounding land. The areas with dams are quite shallow and are not made to hold back water like a reservoir like the Paris Reservoir. They serve to slow stream flow, retain it temporarily, and release the waters slowly. Dam failure flooding is an extremely remote possibility.

Floods are common along the Arkansas River corridor, which forms the northern boundary of the county. However, this flooding is typically not caused by river overflows but by upstream discharges to the river

through the flat terrain in the northern portions of the county where discharges are sometimes inhibited by high river waters in the Arkansas River. These areas exhibit low relief and typically have flat, broad floodplains. The areas adjoining and near the Arkansas River in the county can be typically characterized as having wide, flat floodplains, large amounts of wetlands, and mainly farmland and sparsely populated.

Previous Flood Occurrences

Between 1996 and 2020 there were, 27 flood events that have affected Logan County with enough severity to be recorded into the National Climatic Data Center (NCDC) database. Since 2006, an additional 13 events have been reported. No associated deaths or injuries for the 27 flood events. Flooding does, however, cause occasional damage to some roads and bridges and can temporarily impede traffic flow, including the movement of emergency vehicles, particularly in the rural areas of the county. Five Presidential Declarations have been issued for flooding in Logan County, 1990, 2002, 2008, 2009, 2019. The following **Table 3.5** provides date and damage information for each event. Though not all events make the NCDC database, additional information from local sources relating to flooding in the county, further indicates that flooding events are not a severe or widespread threat to county residents and structures.

During the Arkansas River flood of 2019 there was great economic impact to the McLean Bottoms area. Croplands were destroyed and had to be replanted. Farmers we able to remove farm equipment before the flood reached Logan County. Any home behind the levee system was classified as destroyed and were not built back. The levee system failed in three areas, which contributed to the destruction of croplands. The economic impact was at least million dollars.

Table 3.8 Flood events in Logan County. Source: National Climatic Data Center, January 2021

Location	Date	Type	Description of Damage	Deaths	Injuries	Property Damage	Crop Damage
Arkansas River	5/26/2019	River Flooding	Widespread flooding along the Arkansas River due to large volumes of water released from upstream in Oklahoma. The forced release caused a wave of water to flow down the Arkansas River causing property damage and levee destruction along the way. Two sections of the Mclean Bottom Levee and one section of Six Mile Levee at 5th Street were broken. The pump station for the levee system was submerged causing the pumps to fail. Many county roads were damaged and sixteen homes were destroyed by flooding. The flooding persisted for at least a week. The McClean bottoms were under water for at least two months.	0	0	$621,180 Individual $559,443.59 Public	6 million
Paris Muni Airport	6/5/2019	Flash Flood	Airport Industrial Dr. was closed due to the high water from flash flooding.	0	0	0.00K	0.00K
Ione	6/23/2019	Flash Flood	Water was over several roads near the town of Ione.	0	0	0.00K	0.00K
Booneville	5/22/2020	Flash Flood	Several Roads were flooded in Booneville	0	0	0.00K	0.00K
Booneville	9/1/2020	Flash Flood	Many county roads were underwater near the Petit Jean River.	0	0	0.00K	0.00K
	Totals					**15,606M**	**0.00K**

Probability of Future Flood Events

The probability of occurrence is expressed as the percent chance that a flood of a specific magnitude will occur in any given year. **(Table 3.9)** summarizes the associated chance of occurrence for each type of flood the county may experience. Reference section seven for NIFP flood maps (Page 73 – 78).

Table 3.9 Flood probability of occurrence

Flood Return Intervals	Chance of Occurrence in Any Given Year
10-Year	10%
50-Year	2%
100-Year	1%
500-Year	0.2%

Logan County has experienced 29 flooding events over the period of the last 24 years. It is likely the county will experience one flooding event (specifically, flash flood) each year. However, flood events causing high levels of threats to property, critical facilities and people's lives are less frequent. Compared to other areas of the country, the county has only a moderate incidence of flooding and flood damage. The chances of the county experiencing loss of life or serious property damage, either in terms of absolute dollar amount or relative to other areas of the country, due to flood events would be less likely.

The NCDC listing of flood events found in **(Table 3.8)** indicates that damage from floods is limited to washed-out and water-covered county roads and damage to county road bridges due to flash floods brought on by heavy and prolonged rains and that, further, recorded flooding of occupied structures is rare. Though local records substantiate that few residential and business structures in the county have received flood damage, local records do show that flooding poses threats to critical, public works facilities. Specifically, these are occasional inundation of roads making them impassable by motorists and emergency service vehicles and possible threats to city water and sewer facilities. For that reason, the probability of future flooding events that would result in the disruption of critical services.

Magnitude/Severity of the Flood Hazard

There have been 5 federal disaster declarations for Logan County that has been due to flooding, 1990, 2002, 2008, 2009, 2019. Logan County has experienced 29 flooding events over the period of the last 24 years. There are no repetitive flood properties in Logan County listed on FEMA's Repetitive Flood Loss List. In general, damages to structures caused by flooding in recent years have not been widespread but specific to particular locations in the county. The real cost from the flooding events is the damage to roads and bridges. Of the 29 flood events, the 2008 March flood and 2019 May flood caused significant damage. Also, the reported cumulative response and recovery costs, as reported by the NCDC database, are well below that for other disaster events affecting the county. Reference section seven for NFIP flood maps (Page 73 – 78)

Vulnerability Assessment

The NCDC listing of flood events (**Table 3.8**) indicates that damage from floods is limited to washed-out and water-covered county roads and damage to county road bridges due to flash floods brought on by heavy and prolonged rains and that, further, recorded flooding of occupied structures is rare. Local records substantiate that very few residential and business structures in the county have received flood damage, though some roads and bridges are occasionally inundated, making them impassable by motorists and emergency service vehicles until flood waters recede, which is usually within a matter of a

few days. Jurisdictions in the county report numerous flooding problems associated with ditches, culverts and bridges, caused by occasional heavy rains and the inability of drainage ways to carry off surface water.

The City of Paris also reports that occasionally due to heavy rains flooding of its municipal wastewater and water treatment plants occurs, caused by raising water of creeks and drainage channels adjoining these facilities. Such flooding has on a few occasions required that these critical facilities be shut down until floodwaters receded. Though damages to the facilities were minor, disruption of these vital services, even for short times, is serious.

The City of Paris' municipal wastewater treatment plant has been flooded in the past due to heavy rains. It is located within the floodplain of Short Mountain Creek. The flooding required that this critical facility be shut down until the floodwaters receded. The most recent event was in 2003 and caused several hundreds of thousands of dollars in damages, but more serious, the vital services provided by this facility were disrupted, disabling the city's ability to treat and discharge its wastewater.

In Booneville, Booneville Creek has flooded beyond its banks. In 2009 and 2010 Booneville experienced flooding, primarily roads and bridges. However, Marcelle Phillips Park and Veterans Park, located on the Booneville Creek sustained damage as well. Thus, if it were not for the March 2008 flash flood, potential impact of flood hazards on structures is minimal. In terms of community-owned structures the greatest impact is on the roads and bridges and some facilities like parks and the wastewater treatment plant in Paris.

Booneville Elementary and County Line School are located in areas vulnerable to flooding. Several flood mitigations projects have been completed to mitigate flooding. All other schools within Logan County are outside flood risk areas.

Although all jurisdictions are susceptible to flash flooding based solely on the nature of flash floods themselves, the cities of Paris and Booneville are more vulnerable due to the amount of development and infrastructure associated with their higher populations. The remaining cities and town (Blue Mountain, Caulksville, Magazine, Morrison Bluff, Ratcliff, Scranton, and Subiaco) are all much smaller, less than 1,000 in population each and cover a much smaller area in terms of square miles meaning less streets, bridges, and other infrastructure vulnerable to flash flooding.

Most of the other unincorporated areas that have experienced flooding are located in South Logan County.

Estimated Impact on Community Assets

Historically, roads and bridges were the primary community assets that have been impacted by flooding. However, in a few instances homes were damaged. If loss estimation resulting from flooding is based on the data in **(Table 3.8)**, the annual loss estimation based on NCDC flood data from 1996-2020 is displayed in **(Table 3.10)** below.

Table 3.10 Flooding structural loss estimation for the Logan County Planning Area.

Community Assets	Replacement Value	Estimated Annual Damage	Method of Calculation
Residential	$247,381,169	$744,813	Historical Extrapolation
Commercial	$17,678,730	$53,487	Historical Extrapolation
Total	**$265,059,899**	**$798,300**	

Jurisdictional Risk

While flooding occurs throughout the county, Booneville and Paris, the two major urban centers in Logan County, have experienced more damage from flooding than the other cities and towns. The Booneville Creek has flooded its banks damaging several parks adjacent to the creek. In Paris, Short Mountain Creek flows from the Paris Reservoir north through the west side of Paris. When Short Mountain Creek floods some residential neighborhoods and commercial areas experience damage. The Cloyes Gear Company has been damaged from time to time during periods of flooding. However, besides the two municipalities of Paris and Booneville, flooding has generally occurred in the unincorporated county generally in areas along Six Mile Creek, Short Mountain Creek, and Cane Creek. The HMPT has determined the risk level for all jurisdictions in Logan County is **Low Risk**, with the exception of Booneville, Paris and the unincorporated county, which the HMPT determined the level of risk to be **Medium**.

Earthquake Profile

An earthquake is the shaking or vibration of the earth caused by the sudden release of energy, usually as a result of rupture and movement of rocks along a fault. The rupture and slippage processes generate seismic waves that radiate from the fault surface in all directions. If the energy of the seismic waves is strong enough, people and structures along the earth's surface will be affected. The *focus* of an earthquake is the point within the earth where the initial rupture of the rock occurs and where the seismic waves are first released. The *epicenter* of an earthquake is the point on the ground surface directly above the focus.

Table 3.11. Abbreviated damage description of the twelve levels of Modified Mercalli magnitude and intensity

Intensity	Shaking	Damage Description
I	Not Felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken; cracked plaster in a few places; unstable objects overturned. Disturbances of trees, poles, and other objects sometimes noticed. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster and damage chimneys. Damage slight.
VII	Very Strong	Everybody runs outdoors. Damage negligible in buildings 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.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned.
IX	Violent	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	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent

Source: U.S, Geological Survey. Earthquake Hazards Program, 2020.

Geographic Area Affected by

Earthquakes
All jurisdictions in Logan County are equally susceptible to experiencing an earthquake.

Previous Earthquake Occurrences

There have been no earthquake occurrences recorded for the county.

Probability of Future Earthquake Events

Based on geological studies and reports, and on historical records, it is less than 1% that an earthquake will occur in or near the county and the county should not expect any damages from an earthquake in the region.

Magnitude/Severity of the Earthquake Hazard

. According to the Arkansas Geological Survey, the most significant earthquake might be a Class VI.

Vulnerability Assessment

There has been no data documenting an earthquake in Logan County. According to the Arkansas Geological Survey, the most significant earthquake might be a Class VI. The characteristics of a Class VI earthquake would be the movement of heavy furniture and fallen plaster. Some heavy furniture would move as well as; a few instances plaster ceiling might collapse in one or more schools. Schools certainly would be at risk should a significant earthquake occur. Annually school districts must conduct earthquake drills. There is a need to evaluate all schools and determine the structural integrity of all school facilities.

Estimated Impact on Vulnerable Community Assets

With no information there is a data deficiency to accurately predict the impact on community assets in Logan County. The Arkansas Geological Survey, has stated that the most significant earthquake that might occur in Logan County would be a Class VI which according to the Modified Mercalli Index would have minimal effect on community assets. As described in **Table 3.12**, it would be felt by all participating jurisdictions.

Wildfire Profile

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. Wildfire behavior is based on three primary factors: fuel, topography, and weather. The type, and amount of fuel, as well as its burning qualities and level of moisture affect wildfire potential and behavior. The continuity of fuels, expressed in both horizontal and vertical components is also a factor, in that it expresses the pattern of vegetative growth and open areas. Topography is important because it affects the movement of air (and thus the fire) over the ground surface. The slope and shape of terrain can change the rate of speed at which the fire travels. Weather affects the probability of wildfire and has a significant effect on its behavior. Temperature, humidity, and wind (both short and long term) affect the severity and duration of wildfires.

Geographic Area Affected by Wildfires

he NCDC does maintain wildfire information. According to the county emergency management coordinator and chiefs of the county's rural fire districts, wildfires can occur at various locations throughout in the county. While wildfires are likely, they are more or less geographically limited to rural and urban fringe areas located in the southeastern section of the county which is mostly unincorporated. The only populated areas are the City of Magazine (792 people), and Town of Blue Mountain (91 people). The total land area for the two jurisdictions is 2.8 square miles which constitutes 03% of the total county land area.

The cities of Booneville, Paris, Ratcliff and Scranton, as well as the towns of Caulksville, Morrison Bluff, and Subiaco are far less susceptible to wildfires.

It was also reported by the emergency management coordinator that though the threat of wildfire exists throughout the county, the extent and severity of resultant damages relates mostly to the response capabilities of the rural fire districts.

Previous Wildfire Occurrences

Between 2015 and 2020 there were a total of 85 fires in Logan County averaging nearly 14 fires per year (Arkansas Forestry Commission). As a result of the fires, 795 acres were burned or an average of 132.5 acres burned annually.

Probability of Future Wildfire Events

Logan County is susceptible to wild fires in any jurisdiction. Wildfires are a regular occurrence, particularly in the rural areas of the county during certain times of the year, most are grass and brush fires and fortunately have not caused serious or severe damage. Though wildfires, if not brought under control, have the potential to cause serious damage, current fire-fighting capacities make it unlikely that seriously damaging wildfires will occur in the county. There is a 4% probability of wildfire hazard to all jurisdictions in Logan County.

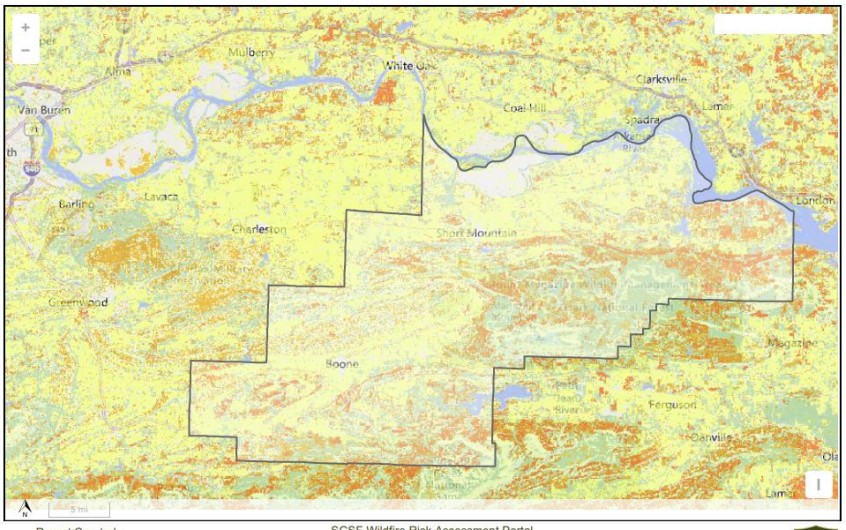
Vulnerability Assessment

With the right conditions, wildfire is a potential threat in many areas of Logan County. Fire behavior is affected by three main factors: weather, topography, and fuels. A fire cannot maintain itself it is starved for oxygen, fire, and fuel. Typical wildland fuels in Arkansas include, grasses, shrubs, and trees. These types of fuel can change over time. According to the Southwrap Fire Risk Model that the Arkansas Forestry Commission uses, fire risk in Logan County is very low. That is not to say during periods of drought and extreme heat that the probability of fire risk won't be elevated, it can be. The two areas with the highest risk include the City of Magazine, 7 miles east of Booneville, and the Town of Blue Mountain which is 12 miles east of Booneville and is adjacent to the eastern boundary of Logan County as well as the unincorporated areas of Logan County that surround these two communities. Both communities are situated on Highway 10. The cities of Booneville, Paris, Ratcliff, and Scranton, as well as the towns of Caulksville, Morrison Bluff, and Subiaco are far less susceptible to wildfires.

In addition, since vegetation grows, what may be a low risk one year can become a higher risk for wildfire in future years if proper fuels management practices are not implemented. Techniques such as prescribed burns and tree thinning have been used as methods to reduce fire risk. According to the school officials at each school district (Booneville, Paris, Scranton, and Magazine), all school facilities are

situated in open areas. Schools can still be at risk if they are located within 1½ miles of a wildfire with sustained winds. Only one of the four aforementioned school districts, Magazine School District, is located within what has been determined to be the area of highest risk, the southeastern section of the county along the Highway 10 corridor that includes the cities of Magazine and Blue Mountain. Blue Mountain is served by the Magazine School District, but there are no school facilities in Blue Mountain. Magazine School District has facilities on both sides of Highway 10 in Magazine. Magazine Elementary School, located on the north side of Highway 10, serves pre-k through grade 6. J.D. Leftwich High School, located on the south side of Highway 10, serves grades 7-12.

Logan County, AR



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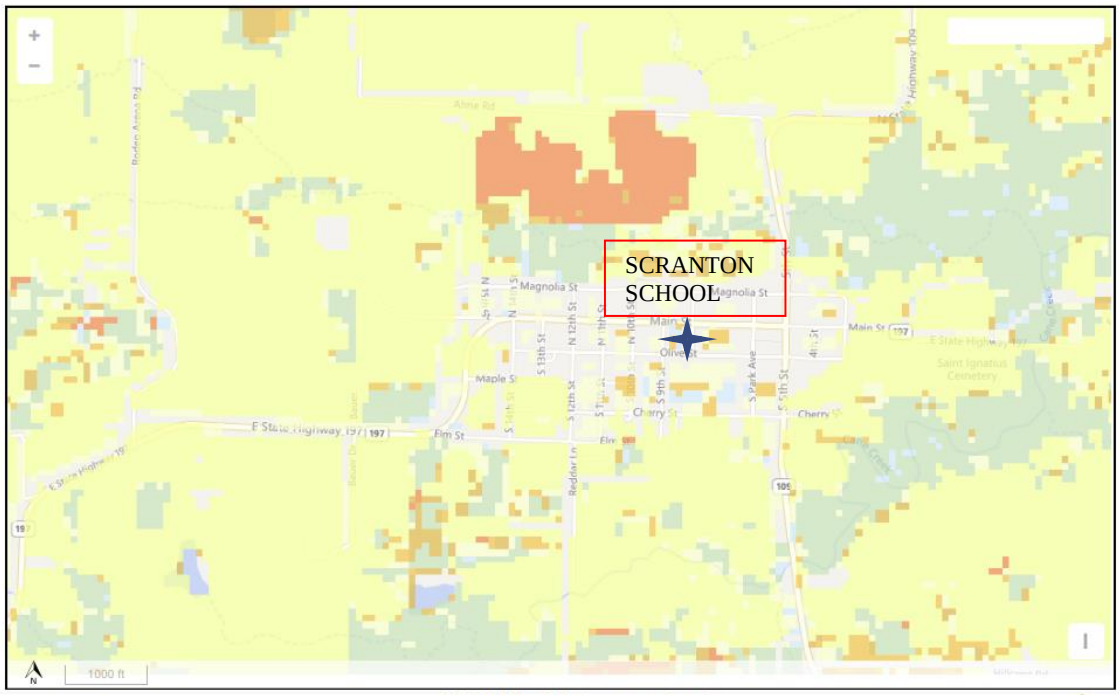
SGSF Wildfire Risk Assessment Portal
https://www.southernwildfirerisk.com

Characteristic Fire Intensity Scale

- No Data
- 1 - Lowest Intensity
- 1.5
- 2 - Low
- 2.5
- 3 - Moderate
- 3.5
- 4 - High
- 4.5
- 5 - Highest Intensity

Scranton, AR



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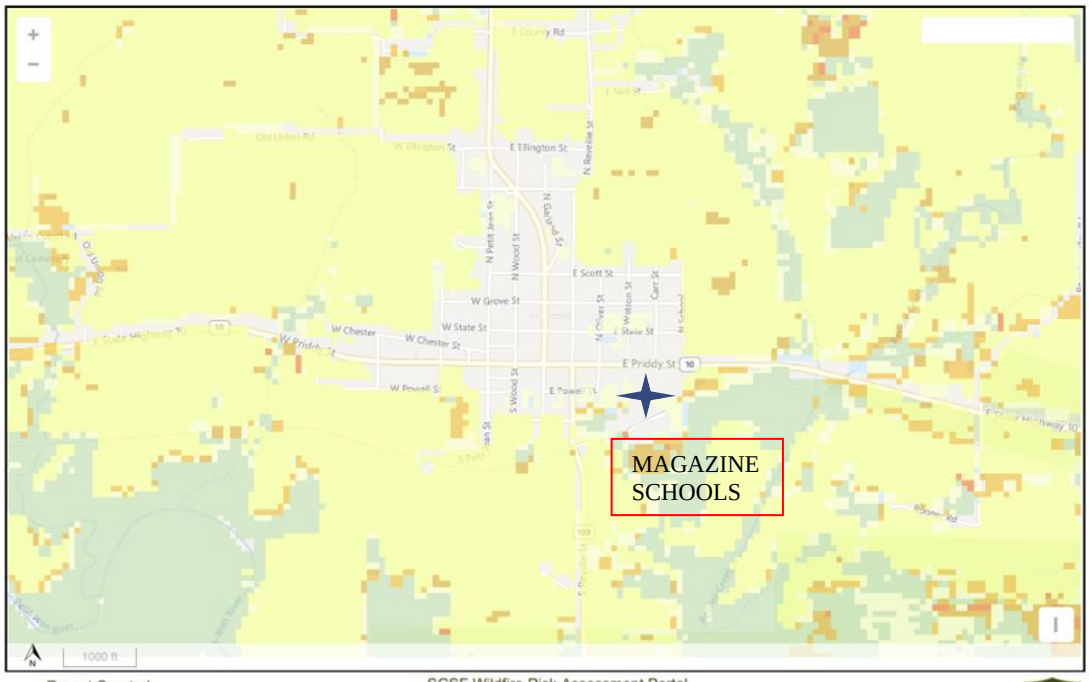
Magazine, AR



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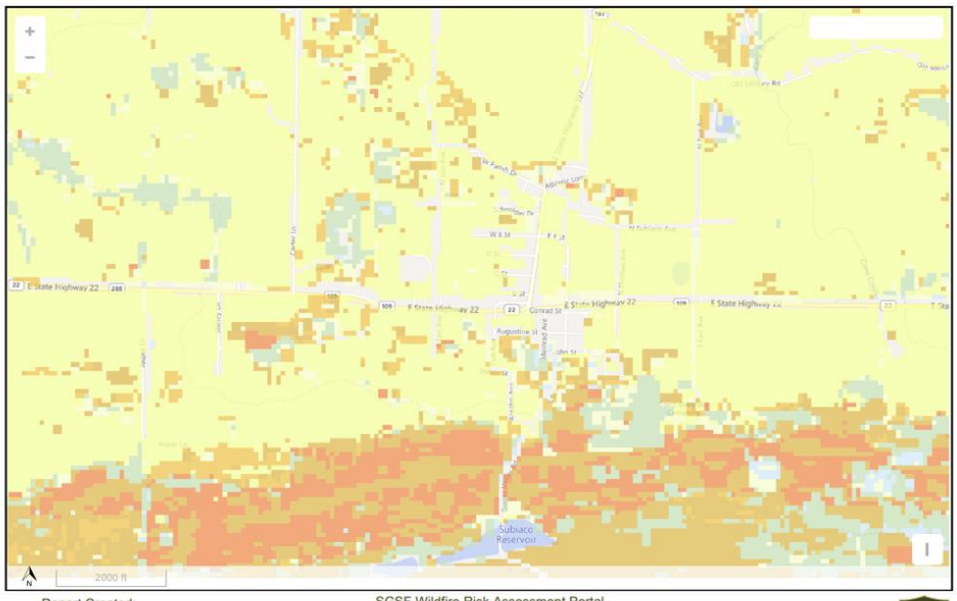
Subiaco, AR



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Ratcliff, AR

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SGSF Wildfire Risk Assessment Portal
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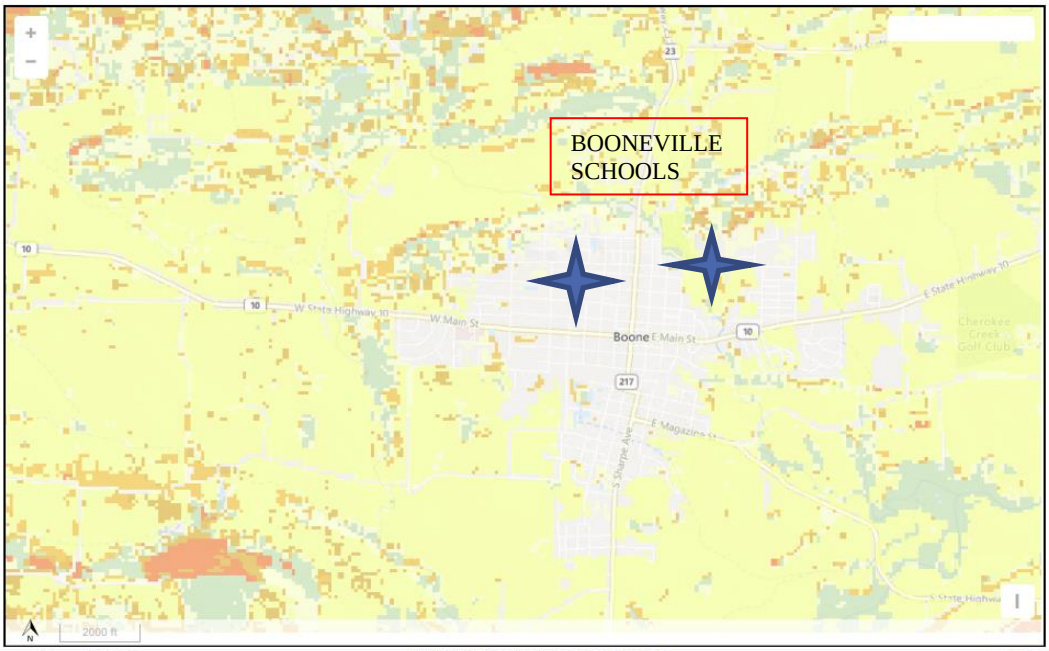
Booneville, AR



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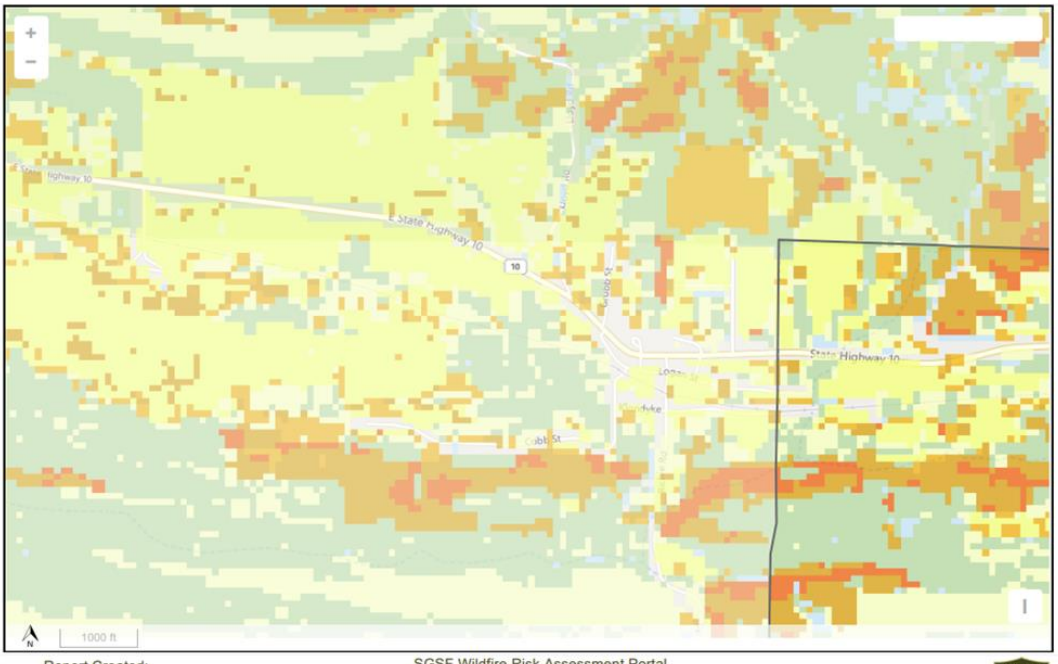
Blue Mountain, AR



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SGSF Wildfire Risk Assessment Portal
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Caulksville, AR

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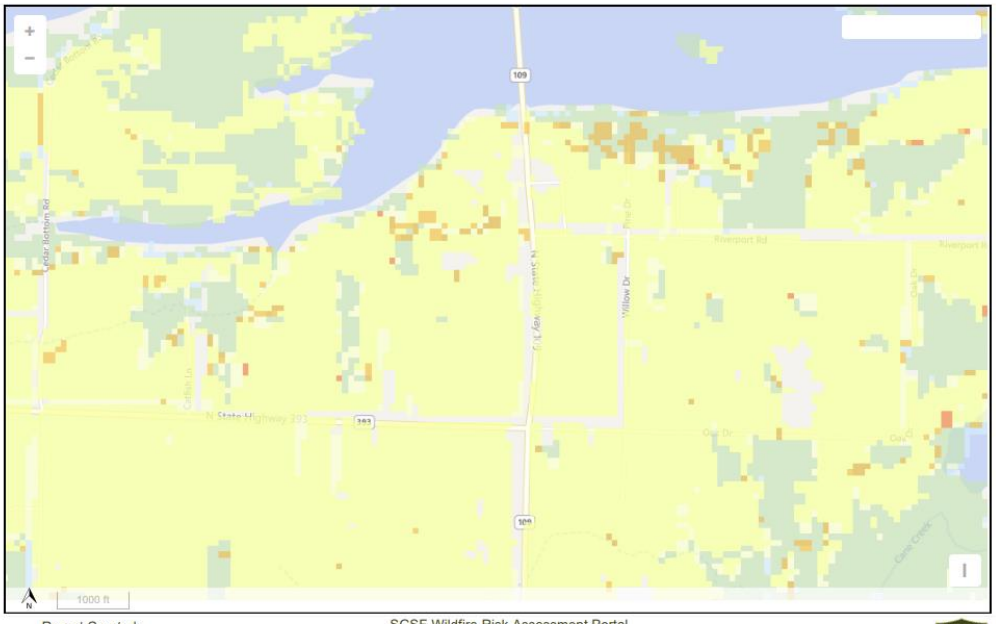
SGSF Wildfire Risk Assessment Portal
https://www.southernwildfirerisk.com

Morrison Bluff, AR



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SGSF Wildfire Risk Assessment Portal
https://www.southernwildfirerisk.com

Estimated Impact on Vulnerable Community Assets

With the exception of homes and fire stations in rural areas, there are few community assets at risk from wildfire. Most publicly-owned community assets such as schools, and government facilities (e.g., city halls, county courthouses, water, and waste water plants), are situated in urban centers around the county where wildfire risk is non-existent. However, there are a few facilities (i.e., rural fire stations) located in unincorporated areas susceptible to wildfire. They include Driggs situated on SR 109, Corley Mountain just off SR 309 and Sugar Grove, south of Booneville located on SR 217. Magazine School District is located within what has been determined to be the area of highest risk, the southeastern section of the county along the Highway 10 corridor that includes the cities of Magazine and Blue Mountain. Blue Mountain is served by the Magazine School District, but there are no school facilities in Blue Mountain. Magazine School District has facilities on both sides of Highway 10 in Magazine. Magazine Elementary School, located on the north side of Highway 10, serves pre-k through grade 6. J.D. Leftwich High School, located on the south side of Highway 10, serves grades 7-12.

While the wildfire risk is medium, some municipalities and counties prepare wildfire mitigation plans as a way to become resilient to wildfire.

Drought Profile

Drought is a normal, recurrent feature of climate. In the most general sense, drought originates from a deficiency of precipitation over an extended period of time, resulting in a water shortage for some activity, group, or environmental sector

In 1965, W.C. Palmer developed an index to measure the departure of the moisture supply (Palmer, 1965). Palmer based his index on the supply-and-demand concept of the water balance equation, taking into account more than just the precipitation deficit at specific locations. The objective of the Palmer Drought Severity Index (PDSI), as this index is now called, was to provide measurements of moisture conditions that were standardized so that comparisons using the index could be made between locations and between months (Palmer 1965).

The Palmer Index is most effective in determining long term drought—a matter of several months–and is not as good with short-term forecasts (a matter of weeks). It uses a 0 as normal, and drought is shown in terms of minus numbers; for example, minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought (**Table 3.12**). The advantage of the Palmer Index is that it is standardized to local climate, so it can be applied to any part of the country to demonstrate relative drought or rainfall conditions.

Table 3.12 Palmer Drought Severity Index (PDSI)

Palmer Classifications	
4.0 or more	Extremely wet
3.0 to 3.99	Very wet
2.0 to 2.99	Moderately wet
1.0 to 1.99	Slightly wet
0.5 to 0.99	Incipient wet spell
0.49 to -0.49	Near normal
-0.5 to -0.99	Incipient dry spell
-1.0 to -1.99	Mild drought
-2.0 to -2.99	Moderate drought
-3.0 to -3.99	Severe drought

-4.0 or less	Extreme drought

Scientists don't know how to predict drought a month or more in advance for most locations. Predicting drought depends on the ability to forecast two fundamental meteorological surface parameters, precipitation, and temperature. See (**Figure 2)**, Drought Severity Index below. From the historical record we know that climate is inherently variable. We also know that anomalies of precipitation and temperature may last from several months to several decades. How long they last depend on air–sea interactions, soil moisture and land surface processes, topography, internal dynamics, and the accumulated influence of dynamically unstable synoptic weather systems at the global scale.

			Ranges				
Category	Description	Possible Impacts	Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective 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 to 30	21 to 30	-0.5 to -0.7	21 to 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 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	• Crop or pasture losses likely • Water shortages common • Water restrictions imposed	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 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 to 2	0 to 2	-2.0 or less	0 to 2

Figure 2 Drought severity classification. (Source: U.S. Drought Monitor, 2021).

Geographic Area Affected by Drought

Logan County and all participating jurisdictions are equally likely to experience drought.

Previous Drought Occurrences

While droughts occur only occasionally, they can be extremely severe. In a survey by the Arkansas Economic Development Commission, 15% of Logan County economy is based on agriculture. In late 2017 Logan County experienced a very severe drought. (**Table 3.13)** was created drawing upon the NCDC data base and shows historical occurrences of drought in Logan County. (Table 3.13) Drought events – The Logan County Planning Area (2015 – 2020).

Location	Date	Magnitude	Property Damage	Agriculture Damage
Logan County	11/07/2017	0	$0	$0
Total			**$0**	**$0**

Table 3.13 Source: National Climatic Data Center, January 2021.

2017: Dry conditions have persisted over much of Arkansas during the last three months (September, October, November). Much of the state was running less than 50 percent of normal rainfall for the month, and for the fall season (September 1 – November 30). November 2017, and the fall of 2017 are the driest on record in several localities across the state. This dry period has resulted in the development of severe drought conditions across the state. As of November 30th, there was a high wildfire danger across all of Arkansas due to dry vegetation and soil moisture conditions across the state. Streamflow along area tributaries were below normal at most sites, but was especially low in the southern and western portions of the state. The impacts of drought on agriculture are difficult to measure at this time of year when the vegetation is normally dormant. If drought conditions persist into the spring and growing season, economic impacts will likely be steep. November 2017 was the driest November on the record at the following stations: North Little Rock, Little Rock Air Force Base and Monticello. Fall of 2017 was the driest on record for the following locations: Pine Bluff, North Little Rock, Russellville, Little Rock Air Force Base, Calico Rock 2 WSW, Mount Ida and Monticello.

Probability of Future Drought Events

Since 1930, there have been eight recorded significant droughts in Logan County. The county has also been identified by the PDSI and by data from the Geological Survey and U.S. Army Corps of Engineers to be within a region of the country that is highly prone to drought conditions. For this reason, it is 1 % likely the area will occasionally experience droughts

Magnitude/Severity of Drought Hazards

Severe droughts periodically affect Arkansas and participating jurisdictions in the county, causing crop damage and elevating the potential for wildfires, with drought periods having occurred on average every seven years since 1950. Effects are generally limited to agriculture losses, the inconveniences of water rationing and, as mentioned, elevation of the potential for wildfires. In terms of the effects of droughts on municipal water supplies, a particularly critical issue, the area's water impoundments are designed and managed with 100-year drought conditions in mind. However, the Arkansas 2018 Hazard Mitigation Plan contained USDA Risk Management Agency Drought Data, 2012-2017. According to the analysis, the estimated crop exposure in Logan County would be $187,983,000 Thus, the potential yearly loss would be $195,303 with 0.104% loss per year. Based on historical drought events, one can expect drought events would fall into the D1 drought severity classification.

Vulnerability Assessment

The entire Logan County Planning Area can be affected by drought events. The HMPT concluded that structures are not vulnerable to drought events. The primary community assets that are vulnerable to drought are water supply and agriculture. The two major water assets include the Paris Reservoir, and Booneville City Lake which is seven miles west of Booneville.

In Logan County, Booneville and Paris provide potable water to all the incorporated municipalities and towns in the county. In the rural areas, people depend upon individual wells. Neither city has any water conservation policy that restricts water usage during periods of drought. While both favor the use of water saving features in homes and businesses, they do not require such fixtures or have any type of public educational program.

Besides the populace that is dependent on water, so is the agricultural community. There are approximately 197,652 acres of farmland held in 969 farms in Logan County as well as 195,843 acres of timber that are vulnerable to drought Livestock and poultry are the agricultural industries in Logan County

Estimated Impact on Vulnerable Community Assets

The severity of a drought event will affect the impacts to the community's assets and population. Expected drought impacts include crop and pasture losses, widespread agricultural water shortages, and burning restrictions.

Drought loss estimates were calculated by utilizing United States Department of Agriculture (USDA) data from the *2018 Arkansas Hazard Mitigation Plan* issued by the USDA Risk Management Agency. **Table 3.14** describes crop exposure for drought, as well as the crop loss yearly average from 2012-2017

(Table 3.14) Drought crop USDA Risk Management Agency Drought Data analysis, 2012-2017.

County	USDA Estimated Crop Exposure)	USDA Crop Loss Yearly Average	Percent Crop Loss per Year
Logan County	$187,983,000	$195,303	0.104%

Source: Arkansas Hazard Mitigation Plan, 2018.

Thunderstorm Profile

A thunderstorm is characterized by the presence of lightning and its resulting thunder. Cumulonimbus is the cloud type associated with a thunderstorm. Thunderstorms are usually accompanied by strong winds, heavy rain, and hail or sometimes no precipitation at all. Thunderstorms may line up in a series of rain bands known as a squall line. Strong or severe thunderstorms may rotate and are known as super cells.

Thunderstorms result from the rapid upward movement of warm, moist air such as thermals rising off a warm field or where two fronts collide, forcing air upward. As the warm, moist air moves upward, it cools, condenses, and forms a cumulus cloud. If cumulonimbus clouds reach an approximate height of 6 miles, as the rising air reaches its dew point causing water droplets and ice to form and begin falling the long distance through the clouds towards the Earth's surface. As the droplets fall, they collide with other droplets and become larger. The falling droplets create a downdraft of air that spreads out at the Earth's surface and causes strong winds associated with thunderstorms.

Thunderstorms can be accompanied by strong winds, heavy rain, and hail.

Thunderstorms can generally form and develop in any geographic location, perhaps most frequently within areas located at mid-latitude when warm moist air collides with cooler air. Thunderstorms are responsible for the development and formation of many thunderstorms phenomena that can pose numerous hazards to populations and landscapes. Damages that result from thunderstorms are mainly inflicted by downburst winds, large hailstones, and flash flooding caused by heavy precipitation. Stronger thunderstorm cells are capable of producing tornadoes and waterspouts. Dry thunderstorms with no precipitation can cause wildfires from cloud-to-ground lightning that accompanies them.

The National Weather Service classifies a thunderstorm as severe if it contains hail of three-quarter inches or larger or wind gusts of 58 mph or higher. The Beaufort Wind Scale (**Table 3.15**) classifies wind damage by wind speed in knots and provides descriptions of the type of effects those speeds would inflict. Hail develops in most mid-latitude thunderstorms, often melting before reaching the ground. Severe hail is officially defined as being 1 inch or more in diameter. Even sub-severe hail may damage crops (which can be destroyed even by very small, wind-driven hail). Extremely severe hailstones can total cars, ruin roofs, break windows, kill animals, and seriously hurt or kill humans.

a. Table 3.15 Beaufort wind scale.

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects on Land
0	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Dust, leaves, and loose paper lifted; small tree branches move
5	17-21	Fresh Breeze	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Twigs breaking off trees, generally impedes progress
9	41-47	Strong Gale	Slight structural damage occurs; slate blows off roofs
10	48-55	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	E
12	64+	Hurricane	A

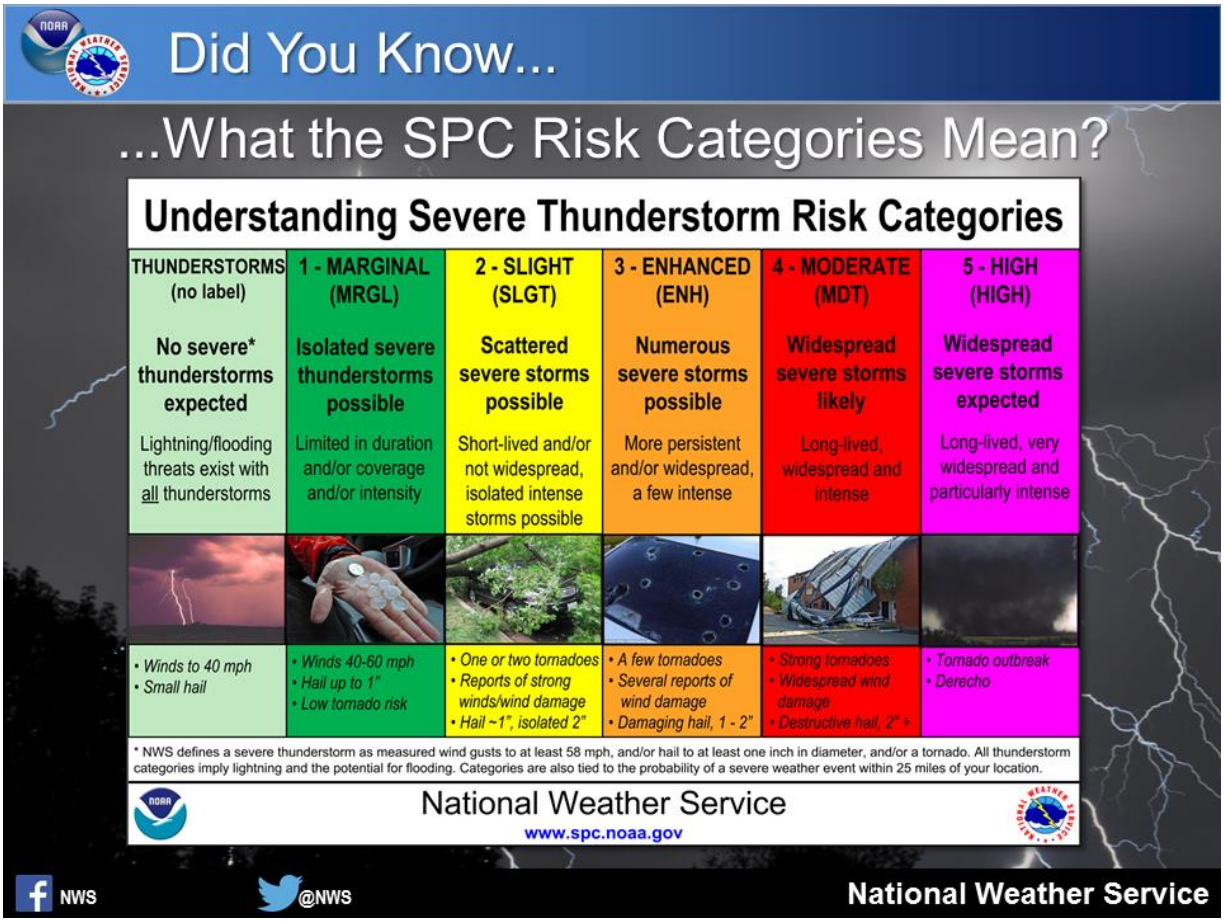
Source: www.spc.noaa.gov

Geographic Area Affected by Thunderstorms

All areas within Logan County are equally likely to experience a severe thunderstorm event.

Previous Thunderstorm Occurrences

All participating jurisdictions have been affected by thunderstorms yearly. Typically, all participating jurisdictions fall in the 2 or 3 severe thunderstorm risk categories defined by the National Weather Service. Based on data from the NCDC, since 2015 there have been 46 thunderstorms. Of the 46 storms, 11 would be classified as severe (winds in excess of 58 miles/hour). The database for the county does not report any severe thunderstorms; however, events are listed for hail, lightning, and thunderstorm winds. Thunderstorms are a very common occurrence for Logan County, according to county officials and Planning Team members familiar with knowledge about natural disasters in the area. Negative impacts can include lightening, which can cause wildfires and structure fires and damage electrical equipment, and strong wind (covered in this report as "High Wind"). The cost of property damage in the county that is caused by thunderstorms, specifically lightning, is not well documented, though sparse records indicate it is tens of thousands of dollars annually and an estimated one million dollars or more since 1950. Fortunately, there have been a few injuries due to lightening.



b. Table 3.16. Severe thunderstorm events – The Logan County Planning Area (2015-2020).

Location	Date	Magnitude in Knots (kts)	Property Damage
Delaware	05/25/2015	55	0.00K
Caulksville	07/14/2016	52	0.00K
Paris	07/14/2016	56	0.00K
Booneville	07/14/2016	52	0.00K
Magazine	07/14/2016	52	0.00K

Location	Date	Magnitude in Knots (kts)	Property Damage
Roseville	03/24/2017	43	0.20K
Subiaco	04/21/2017	52	0.00K
Wilkins	08/18/2017	52	0.00K
Wilkins	08/18/2017	52	0.00K
Midway	08/18/2017	52	0.00K
Booneville	10/22/2017	52	0.00K
Caulksville	10/22/2017	52	0.00K
Hamilton Mine	10/22/2017	61	0.00K
Subiaco	10/22/2017	52	0.00K
Driggs	02/24/2018	52	0.00K
Booneville	04/13/2018	52	0.00K
Caulksville	05/03/2018	50	0.00K
Caulksville	06/24/2018	55	0.00K
Caulksville	06/24/2018	52	0.00K
Paris Muni Arpt	08/07/2018	52	0.00K
Subiaco	11/30/2018	52	0.00K
New Blaine	12/01/2018	61	0.00K
Paris Muni Arpt	03/09/2019	78	300.00K
Paris	03/09/2019	52	0.00K
Subiaco	03/09/2019	52	0.00K
Scranton	05/01/2019	70	50.00K
Paris	05/18/2019	70	0.00K
Paris	05/18/2019	52	0.00K
Paris	05/18/2019	52	0.00K
Wilkins	05/18/2019	52	0.00K
Kalamazoo	05/18/2019	52	0.00K
Kalamazoo	05/18/2019	52	0.00K
Scranton	05/18/2019	52	0.00K
Blue Mtn	05/21/2019	52	0.00K
Scranton	05/21/2019	52	0.00K
Magazine	06/23/2019	61	0.00K
Subiaco	06/23/2019	61	0.00K
Paris	08/07/2019	61	0.00K
Subiaco	10/21/2019	70	20.00K
New Blaine	10/21/2019	52	5.00K
Paris	01/10/2020	52	0.00K
Midway	01/10/2020	61	0.00K
Midway	01/10/2020	61	20.00K
Brownsville	04/12/2020	52	0.00K
Paris	04/28/2020	52	0.00K
Booneville	08/14/2020	52	0.00K
Total			**$445.20K**

Source: National Climatic Data Center, January 2021

Probability of Future Thunderstorm Events

Data from a study by Changnon, published in 1988, place western Arkansas in about the middle, compared to other areas of the country, in terms of the average number of thunder storms events per year (70 to 80) and in terms of average duration of the events (100 to 120 minutes). Also, data from a 1984 study by MacGorman places the areal extent and severity of lightning hazard based on annual lightning strike density at between 14 to 16 flashes per square kilometer, which is high compared to most other areas of the country. The county's history of thunderstorm events also indicates that the probability is high for the county to have several thunderstorm events yearly. Thus, the probability of thunderstorm events in the county is 100% annually.

Magnitude/Severity of Thunderstorms

As documented in the NCDC Storm Events data base, thunderstorm events in Logan County since 2015 have caused over $445,000 During this period of time.

Vulnerability Assessment

The entire Logan County Planning Area can be affected by thunderstorm events. Such storms are accompanied by high wind, lightning, and heavy downpours of rain. Based on NCDC data, since 2015, Logan County has experienced on average thunderstorm events per year. The County and jurisdictions will continue to see damages ranging from light to severe such as chimneys that are damaged, tree branches are broken, shallow-rooted trees are toppled to roofs and some walls are torn from structures, some small buildings are destroyed, and many trees in forest are uprooted.

Wooden structures and manufactured homes have been identified as structures more vulnerable to damage from thunderstorm events because they are less able to sustain high wind speeds. Most structures in Logan County are wood structures. Approximately 5.9% are mobile homes, which are extremely vulnerable to sustained high winds. This is a substantial portion of the aging housing stock is wood making them vulnerable to damages from thunderstorm events.

Utilities most vulnerable to thunderstorm winds include electrical power (e.g., power generation facility, above ground transmission lines, and substations) and communication structures (e.g., radio towers, cell phone towers). Most transportation systems (highways, railways) are not highly vulnerable to thunderstorm events. Exceptions include airport, port, and bus facilities.

Nearly all critical facilities in the Logan County Planning Area are vulnerable to severe thunderstorm events especially those involving vulnerable populations (e.g., retirement homes, schools, and childcare centers) as well as HAZMAT sites, water and wastewater treatment facilities, and historic properties. Because they are essential to responding to thunderstorm events, emergency response, and medical facilities are highly vulnerable to this hazard.

Hailstorms Profile

Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and subsequent cooling of the air mass. Frozen droplets gradually accumulate into ice crystals until they fall as precipitation that is round or irregularly shaped masses of ice greater than 0.75 inches in diameter. The more times a hailstone is tossed up and down through the cloud, the larger one can expect the hailstone to be. The size of hailstones is a direct result of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength

of the updraft is a byproduct of heating on the Earth's surface. Higher temperature gradients above the Earth's surface result in increased suspension time and hailstone size. The largest hailstone ever measured in the United States fell at Coffeyville, Kansas, on September 3, 1970. It weighed 1.67 pounds and measured 17.5 inches in circumference.

Hailstorms can vary greatly in terms of size, location, intensity, and duration. In 1986 Jonathan Webb of Oxford, England introduced as a means of categorizing hailstorms known as the Torro Hailstorm Intensity Scale (**Table 3.17**).

c. Table 3.17. Torro Hailstorm Intensity Scale

Intensity Category		Typical Hail Diameter (in)[1]	Description	Probable Kinetic Energy (J-m)[2]	Typical Damage Impacts
H0	Hard Hail	Up to 0.33	Pea	0-20	No damage
H1	Potentially Damaging	0.33 – 0.60	Mothball	>20	Slight general damage to plants, crops
H2	Significant	0.60 – 0.80	Marble, grape	>100	Significant damage to fruit, crops, vegetation
H3	Severe	0.80 – 1.2	Walnut	>300	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	1.2 – 1.6	Squash ball	>500	Widespread glass damage, vehicle bodywork damage
H5	Destructive	1.6 – 2.0	Golf ball	>800	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	2.0 – 2.4	Hen's egg		Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	2.4 – 3.0	Tennis ball		Severe roof damage, risk of serious injuries
H8	Destructive	3.0 – 3.5	Softball		(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	3.5 – 4.0	Grapefruit		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>4.0	Melon		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

[1] in - inches
[2] Approximate range (typical maximum size in bold), since other factors (e.g. number and density of hailstones, hail fall speed, and surface wind speeds) affect severity.
Source: The Tornado and Storm Research Organization, 2021.

Geographic Area Affected by Hailstorms

Hailstorms associated with severe thunderstorms are frequent occurrences throughout Logan County. It is assumed that the entire county is uniformly exposed to hailstorms.

Previous Hailstorms Occurrences

(Table 3.18) shows details of hail events that have occurred in Logan County from Jan 2015 – Dec 2021

Between 2015 and 2021 there have been 15 hail events. However, as documented in (**Table 3.18)**, there can be multiple hail events on the same day occurring at different locations

Also, based on the NCDC historical data, hail events in Logan County have been more prevalent in the spring with April and May experiencing the highest frequency of events.

d. Table 3.18. Hail events – Logan County Planning Area (2015–2021)

Location	Date	Time	Magnitude (size in inches)	Property Damage (in millions)	Crop Damage (in millions)
Magazine	04/19/2015	15:55	1.00 in.	0.00K	0.00K
Mt. Magazine	04/19/2015	15:20	1.75 in.	0.00K	0.00K
Caulksville	04/26/2017	08:10	2.50 in.	0.00K	0.00K
Caulksville	04/26/2017	08:15	1.00 in.	0.00K	0.00K
Driggs	04/26/2017	08:20	0.88 in.	0.00K	0.00K
Caulksville	05/1/2017	14:20	1.25 in	0.00K	0.00K
Magazine	05/11/2017	14:24	2.75 in.	0.00K	0.00K
Paris	06/08/2018	16:58	1.00 in.	0.00K	0.00K
Caulksville	06/24/2018	06:26	1.00 in.	0.00K	0.00K
Paris	08/07/2019	15:33	0.75 in.	0.00K	0.00K
Magazine	04/22/2020	14:48	1.00 in.	0.00K	0.00K
Delaware	05/27/2020	14:35	0.75 in.	0.00K	0.00K
Dublin	03/17/2021	03:00	1.75 in.	0.00K	0.00K
Kalamazoo	04/09/2021	12:37	1.00 in.	0.00K	0.00K
Paris	05/07/2021	18:10	0.88 in.	0.00K	0.00K
			Totals:	**0.00K**	**0.00K**

Source: National Climatic Data Center, January 2021

Probability of Future Hailstorms Events

It is highly likely that the county will experience hailstorms in the future. It is located within an area of the country that on average has 2 to 3 hailstorms per year.

Magnitude/Severity of Hailstorms

Though the NCDC database has only one reported listing of property and crop damage, it is known locally that damage is often associated with hailstorms in the area. However, the damage is rarely serious, usually amounting to dented vehicle bodies that require body-work and repainting, damaged roof shingles that might require replacement, and damaged crops that can result in reduced production and sometimes total loss. Damage is also localized and not widespread. There has never been a loss of life or known, serious injury due to a hailstorm in the county. Based on historical data, generally the magnitude of a hailstorm in Logan County in terms of the Torro Intensity Scale will range from Significant to Severe, H2 to H3.

Vulnerability Assessment

While there have been 67 hailstorm events in Logan County since 1996, the actual number of days of hailstorm events has been 52. As mentioned earlier, it is not unusual for multiple hailstorm events to occur on one day. While rare there have been two events where hail the size of tennis balls (2.75 in.) was experienced. One occurred in New Blaine on April 24, 2004 during thunderstorm with 50 knot winds. A second occurrence took place in Corley on April 24, 2011. This hailstorm event was tied to a slow-moving cold front. Flash flooding occurred which resulted in widespread flooding. Dented cars and smashed windshields resulted from the storms. Over the years, fortunately, no structural loss occurred as a result of the hailstorms.

Estimated Impact on Vulnerable Community Assets

While there have been many hailstorms since 1969, according to the records of the NCDC, only one incident occurred where structural damage was reported.

5 MAN-MADE HAZARDS

Dam Failure Profile

Dams are defined as "any barrier, including one for flood detention, designed to impound liquid volumes" (Title 7, Arkansas Administrative Rules Governing Design and Operations of Dams (Title 7), Section 705.3, (2013). A dam failure is the collapse, breach or other failure resulting in downstream flooding. According to the Dam Safety Performance Report for the State of Arkansas, "Dams are a critical part of the nation's infrastructure, providing vital benefits such as flood protection, water supply, hydropower, irrigation, and recreation. Yet thousands of U.S. dams have the potential to fail with tragic consequences. Our nation's dams are aging and deteriorating while downstream populations are increasing; this situation demands greater attention to and investment in measures that reduce risks to public safety and economic assets."

Dams provide a range of economic, environmental, and social benefits, including recreation, flood control, water supply, hydroelectric power, waste management, river navigation, and wildlife habitat. In Logan County dams generally fulfill recreation, flood control, and water storage purposes. The ones serving recreational purposes support activities such as, boating, skiing, camping, picnic areas, and boat launch facilities. Some provide flood control. They prevent loss of life and property caused by flooding. Flood control dams impound floodwaters and then either release the under control to the river below the dam or store or divert the water for other uses. Other dams create reservoirs that supply water for many uses, including industrial, municipal, and agricultural. In Logan County, the Paris Reservoir and Booneville Lake serve as the water sources for the Paris Water Department and Booneville Water Department, respectively. The Paris Water Department provides potable water for most areas in the north part of the county, while Booneville Water Department serves a similar function for south county.

The three most common reasons for dam failure are 1) internal erosion of the piping system compromises the safety of the dam, 2) poor maintenance and overtopping of the dam, which causes erosion of the structure, and 3) structural damage caused by other hazard, slope instability, faulty construction, or poor maintenance. The consequences of a dam failure event can be catastrophic. In the past 30 years, there have been over 135 fatalities and more than $2.6 billion in property damage in the United States from dam failures.

Dam risk and impact potential is Title 7, Sections 705.3 and 705.4. Section 705.3 Size Classification Criteria states, "[Dam] size classification is based on the more stringent of two categories, either height of dam or maximum storage, and shall be in accordance with (**Table 3.19**) of this section."

e. Table 3.19 Dam size classification.

Dam Size	Maximum Storage (Acre-Feet)	Height (Feet)
Small	50 - 1,000	25 – 40
Intermediate	1,000 - 50,000	40 – 100
Large	Over 50,000	Over 100

Source: AR Title 7 Section 705.3.

AR Title 7, Section 705.4. Hazard Classification Criteria states, "Hazard classification shall be based on the more stringent of either potential loss of human life or economic loss in accordance with (**Table 3.20**) of this section. If doubt exists concerning classification, the more hazardous category must be selected. In addition, the hazard classification does not indicate the physical condition of the dam."

f. Table 3.20. Dam hazard classification criteria.

Hazard Level	Loss of Human Life*	Economic Loss
Low	No	Minimal (No significant structures; pastures, woodland, or largely undeveloped land); less than $100,000.
Significant	No	Appreciable (Significant structures, industrial, or commercial development, or cropland); $100,000 to $500,000.
High	Yes	Excessive (Extensive public, industrial, commercial, or agricultural development); over $500,000.

*Note: Loss of human life is based upon presence of habitable structures. (Source: AR Title 7, Section 705.4).

There are 24 dams within the Logan County Planning Area. Of these 24 dams, 5 are classified as high hazard dams, 10 are classified as significant hazard dams, and 9 are classified as low hazard dams (**Table 3.21**).

g. Table 3.21. Dams within Logan County Planning Area by hazard classification.

Dam	River Stream	Jurisdiction	Height (ft)	Volume (acre ft)	Hazard Classification
Sixmile Creek WID Site 08	Little Creek	Ratcliff	0	0	Significant
Subiaco Dam (Upper)	East Fork Hegwood Creek	Subiaco	27	5	Significant
Subiaco Dam (Lower)	East Fork Hegwood Creek	Subiaco	35.2	30	Significant
Hewitt Lake Dam	Sixmile Creek- TR	Caulksville	0	0	Significant
Watson Lake Dam	Dry Fork Creek	Caulksville	0	0	Low
Paris Dam	Short Mountain Creek	Paris	55.3	171	High
Sixmile Creek WID Site 02	Shaver Creek	Caulksville	54.4	25	High
Sixmile Creek WID Site 03	Dry Fork	Caulksville	61.4	13	Significant
Sixmile Creek WID Site 04	Caney Creek	Caulksville	49.7	44	Low
Sixmile Creek WID Site 06	Sixmile Creek	Caulksville	38.9	37	Significant
Sixmile Creek WID Site 05	Little Caney Creek	Caulksville	52.9	12	Low
Cove Lake Dam	Cove Creek	Paris	0	0	Low
Sixmile Creek WID Site 11	Rattlesnake Creek-TR	Caulksville	0	7.5	Significant
Sixmile Creek WID Site 12	Rattlesnake Creek	Caulksville	33.5	20	Significant
Sixmile Creek WID Site 10	Rocky Creek	Chismville	44	14	Significant
Sixmile Creek WID Site 09	Little Six Mile	Chismville	34	60	Low
Sixmile Creek WID Site 07	Six Mile Creek	Caulksville	0	0	Significant

Dam	River Stream	Jurisdiction	Height (ft)	Volume (acre ft)	Hazard Classification
Booneville Reservoir Dam	Booneville Creek	Booneville	45	16	Low
Auxiliary Dam No. 2	Petit Jean River-TR	Magazine	32.5	18	High
Auxiliary Dam No. 1	Petit Jean River-TR	Magazine	34.2	21	High
Tritt Lake Dam	Mud Branch	None	0	0	Low
Hope Lake Dam	Chigger Creek-TR	Magazine	65	14	Low
Boy Scouts Lake Dam	Fletcher Creek	None	39	110	Low
Upper Petit Jean WID Site 9	Washburn Creek	Barber	75	315	High

WID – Watershed Improvement District

All high hazard class dams that are permitted by the State of Arkansas are required to have an Emergency Action Plan (EAP). EAPs provide a blueprint for responding to dam failure events and can be acquired through the dam's owner or the ANRC. According to the Dam Safety & Floodplain Management Section Hydrologic Engineer, the State's dam safety database, there are currently five high hazard dams that require permits from the ANRC. The criteria exempting dams from having to have construction and operational permits is set out in AR Title 7 Section 701.4. All High Hazard dams have EAPs. Although voluntary, the state requests that all the dams be reviewed each year to ensure the safety of the structures and individuals in the downstream area.

Structures vulnerable to dam-failure floods are those within and often beyond floodplains downstream from dams. In addition to the familiar water damage structures suffer during riverine or flash floods, the rapid rise of water, likely higher flood elevation, and potentially high-water velocity associated with dam-failure floods present additional problems for structures in the inundation zone. A dam breach analysis will need to be performed by an engineer to determine exactly which areas are vulnerable for each dam failure event.

The State Hydrologic Engineer cited on several inspections over the past several years that the Paris Reservoir is in need of maintenance. The reservoir is especially important because it serves as the potable water source for Paris and surrounding communities. The reservoir holds 171-acre feet of water. However, from a safety perspective, being located upstream from Paris a breach of the dam could result in catastrophic flooding in Paris. Damage would be extensive. The Paris wastewater plant, Logan County EMS Station 1, the National Guard Armory, an OG&E Electric sub-station, at least 80 homes and 5 major employers of Paris are located in the defined inundation zone for Paris Reservoir Dam. In all previous inspection reports they state, "debris is present in the upstream face and requires removal. There is under brush, trees and vegetation on both slopes as well.

Paris Dam is currently categorized as "high" hazard classification according to the Arkansas Natural Resource Commission (ANRC). Dams assigned the high hazard potential classification are those where failure will probably cause loss of human life. Based on the ANRC Safety Inspection and file review, the overall condition is determined to be Conditionally Satisfactory. The inspection indicated symptoms of structural distress which, if conditions worsen, could lead to the failure of the dam. Monitoring, inspection and maintenance must be performed as a requirement for continued full storage in the reservoir or storage at a reduced level. The primary reasons for the condition determination were abundance of large trees on dam that could lead to seepage and dam failure, depressions on the downstream slope that cannot be properly assessed due to vegetation, and missing rip-rap on the upstream slope.

Geographic Area Affected by Dam Failure

As identified in (**Table 3.21)**, areas affected by the dams are downstream from the dam. Therefore, damage is limited to areas inundated. In Logan County, unlike other counties has a number of dams built

in watershed management areas by the Natural Resources Conservation Service built for the purpose of slowing down runoff from the creeks discharging into the Arkansas River; therefore, the volume of water held back is not significant. As described above the dam having the most significant concern is the Paris Reservoir, although it as well as all other dams in Logan County have never had a breach.

Table 3.22 Dam vulnerability.

County	# Of ANRC Low Hazard Dams	# ANRC Of Significant Hazard Dams	# Of ANRC High Hazard Dams	Total
Logan County	6	6	5	17
County	**# Of Federal Low Hazard Dams**	**# Of Federal Significant Hazard Dams**	**# Of Federal High Hazard Dams**	**Total**
Logan County	1	0	0	1

Source: Arkansas Hazard Mitigation Plan, 2018

Previous Severe Dam Failure Occurrences

There has been one dam failure during occurrence recorded in the county.

Table 3.23 Dam failure

Dam Name	ANRC Hazard Class	County	Incident Type	Failure	Incident Date	Deaths
Paris Dam	High	Logan	Inflow Flood-Hydrologic Event	Yes	1939	None Reported

Source: Arkansas Hazard Mitigation Plan, 2018, 4.6.3 Previous Occurrences

Probability of Future Dam Failure

All sizable dams in the county were professionally designed, are maintained by responsible public entities, and are permitted and regularly inspected by the state. Less than 1 % chance of failure in any given year.

Magnitude/Severity of Dam Failure

There is history of dam failure flood events in Logan County; the probability of future dam failure events resulting in loss of life or serious damage is unlikely. However, with that said, it is important that those individuals and agencies that have responsibility for maintaining these facilities especially those classified as High Hazard dams need to take steps that ensure the safe condition of the facility. As described earlier, if the Paris Reservoir did have a breach, it would be catastrophic to those living downstream in Paris. According to the Paris Reservoir Dam Emergency Action Plan the inundation map includes 80 address points. The potential for loss of life and devastating economic impact is high in the event of instantaneous failure.

Vulnerability Assessment

According to the new 2018 Arkansas Hazard Mitigation Plan the State described Facilities located within five miles of significant and high hazard dams were determined to be most vulnerable to potential dam failures as they would be within potential failure inundation zones. The following table indicates the number of state-owned facilities and bridges, by county, within five miles of a significant or high hazard dam, and the value of those facilities. Assuming an amount of damage to each facility is not possible due to the tremendous number of variables involved in a potential failure event.

State-Owned Facilities and Bridges Within Five Miles of Significant or High Hazard Dams

Table 3.24.

County	State-Owned Facilities	Value	State-Owned Critical Facilities	**Value**	State-Owned Bridges
Logan	3	$65,308,841	3	$65,308,841	50

Arkansas Hazard Mitigation Plan, 2018

Structures vulnerable to dam-failure floods are those within and often beyond floodplains downstream from dams. In addition to the familiar water damage structures suffer during riverine or flash floods, the rapid rise of water, likely higher flood elevation, and potentially high-water velocity associated with dam-failure floods present additional problems for structures in the inundation zone. A dam breach analysis will need to be performed by an engineering to determine exactly which areas are vulnerable for each dam failure event.

As the State Hazard Mitigation Plan states, “GIS analysis of populations and development of in dam inundation areas would provide the most accurate results in terms of estimates of potential loss in unlikely event of failure. However, GIS-based inundation maps for state-regulated and federal dams are not readily available to determine loss estimates based on inundation areas thus a data deficiency that needs to be corrected. As inundation maps are developed for significant and high hazard dams, local hazard mitigation plans should work to develop potential loss estimates for dam failure events.”

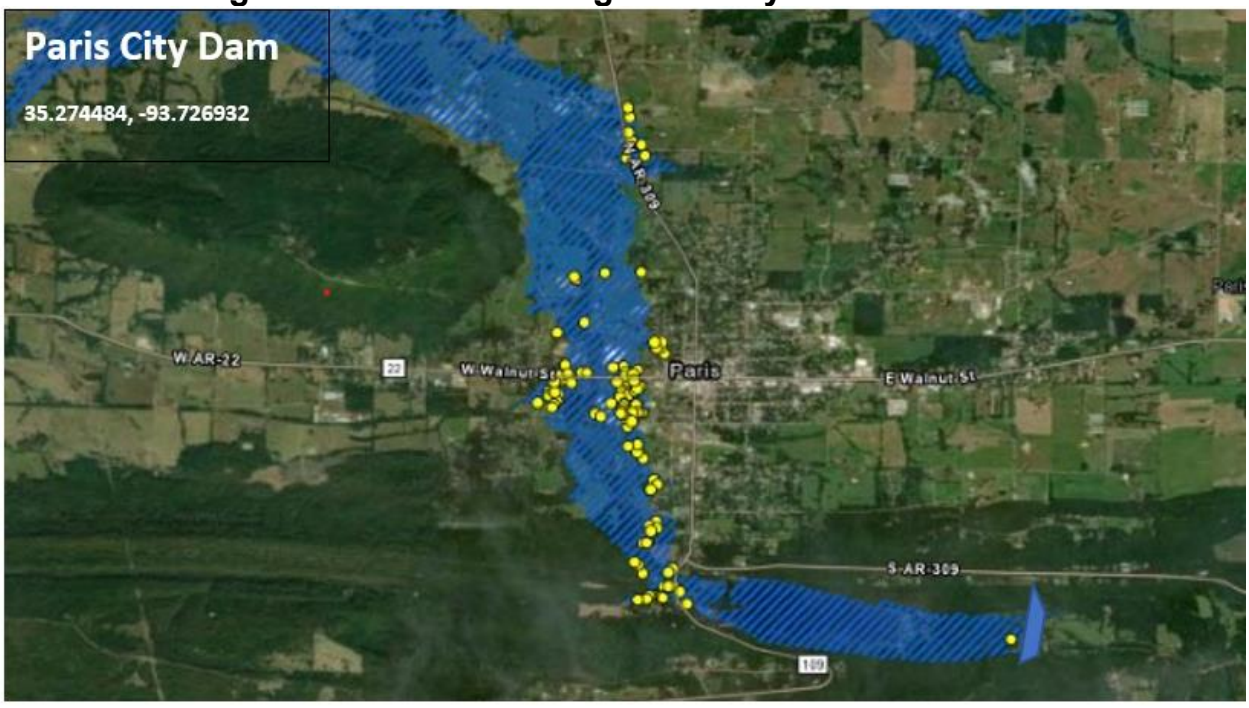
Estimated Impact on Vulnerable Community Assets

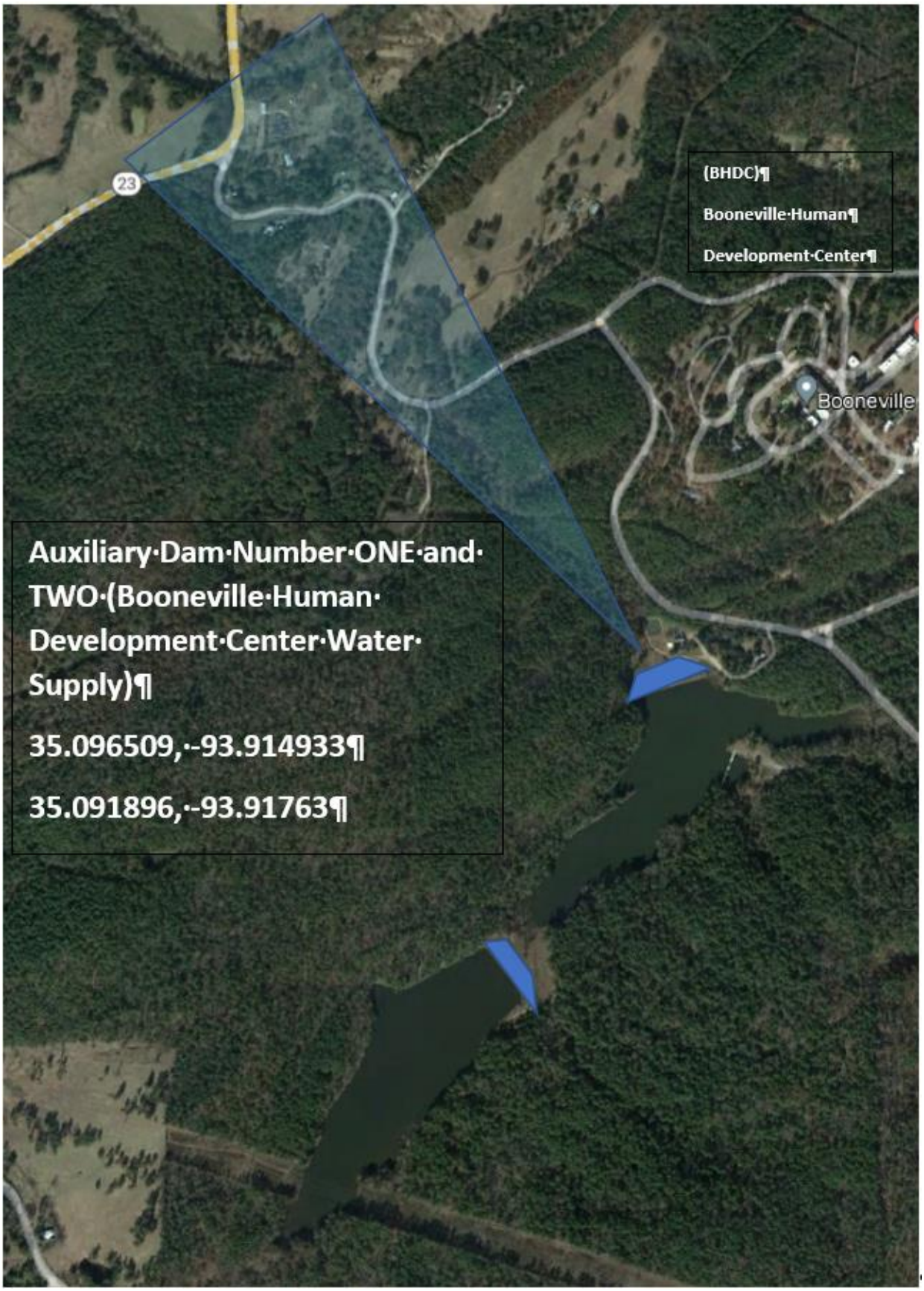
In most instances, damage to community assets would be minimal; however, a break in the Paris Reservoir dam, could impact not only homes, but two major employers, Cloyes Gear & Products and Stark Mfg, LLC. This would be devastating to the local economy. Roads would definitely be severely damaged in the inundation zone. The most critical road facility would be the bridge crossings on State Highway 22 and State Highway 109 South. If these bridges are destroyed it would impact travel since these highways are essential transportation routes. Critical infrastructure would be destroyed in this event such as the waste water facility, the drinking water supply and electric substation. The extent of flooding is there are 51 structures in the downstream inundation area with the depth ranging from 5 feet to 17 feet deep according to the Paris Lake Dam Emergency Action Plan.

The extent of flooding downstream of Auxiliary Dam Number One and Two at BHDC water supply occurs when the water elevations exceed the mean sea level of 534.90 feet according to the Emergency action Plan. There are eight structures that would be impacted by the breach of this dam. The depth of flooding is undetermined according to the emergency action plan.

Six Mile Creek Water Shed #2 is a high hazard dam that if breached could threaten 8 structures according to the Emergency Action Plan. The extent of flooding is not determined by the emergency action plan but the dam will breach when water levels exceed 543 ft above mean sea level as indicated in the following diagram for this dam.

Location of High Hazard Dams in Logan County




(BHDC)¶
Booneville·Human¶
Development·Center¶
Booneville
23
Auxiliary·Dam·Number·ONE·and·TWO·(Booneville·Human·Development·Center·Water·Supply)¶
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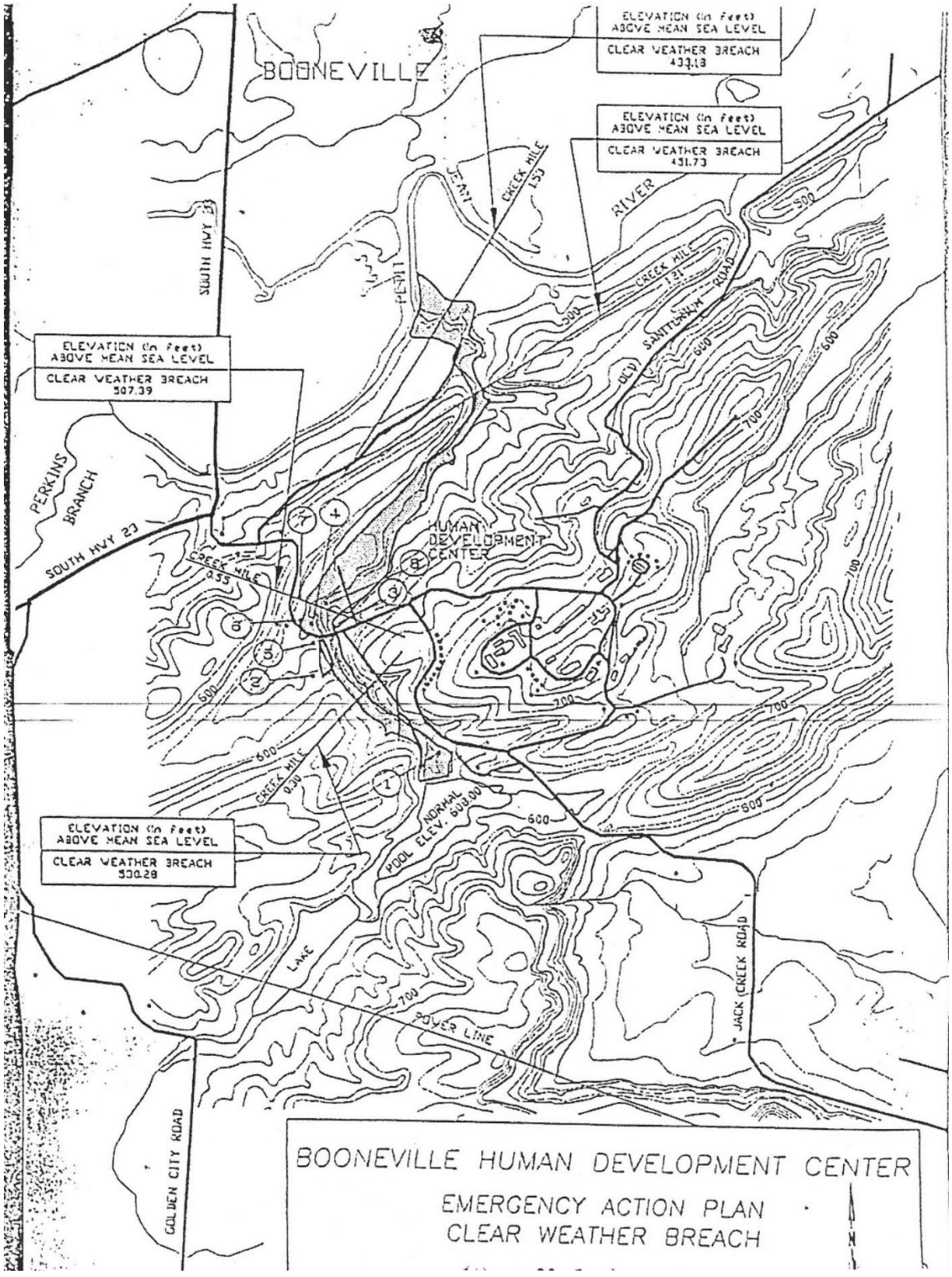
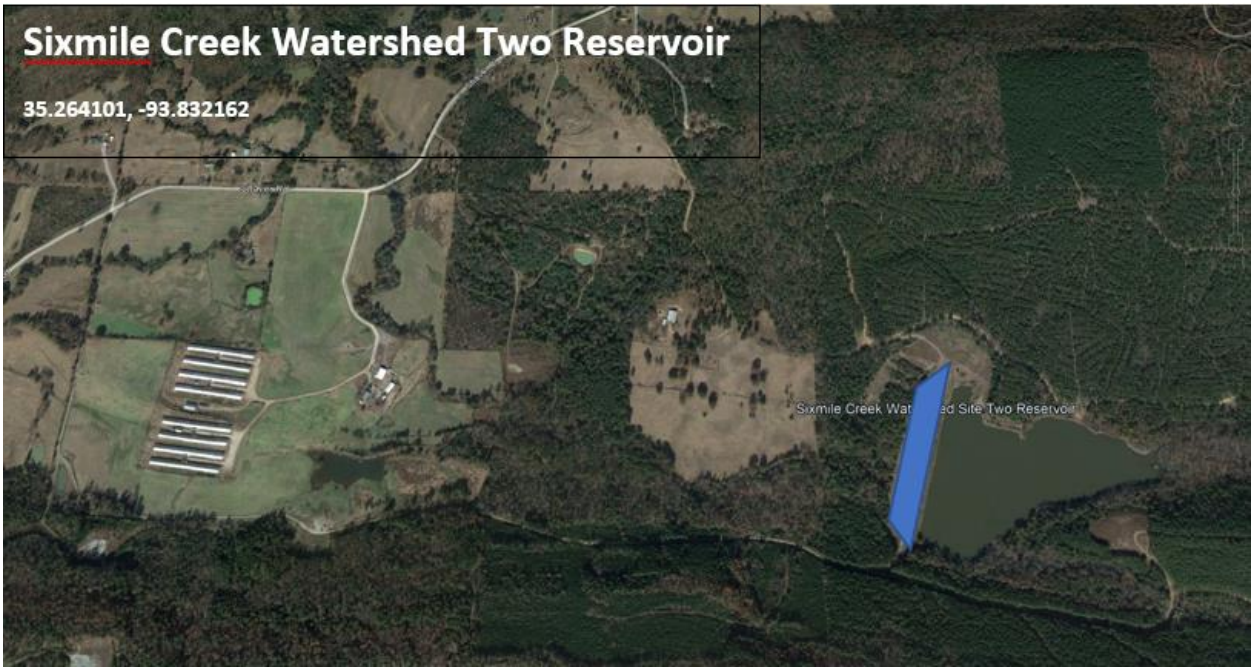
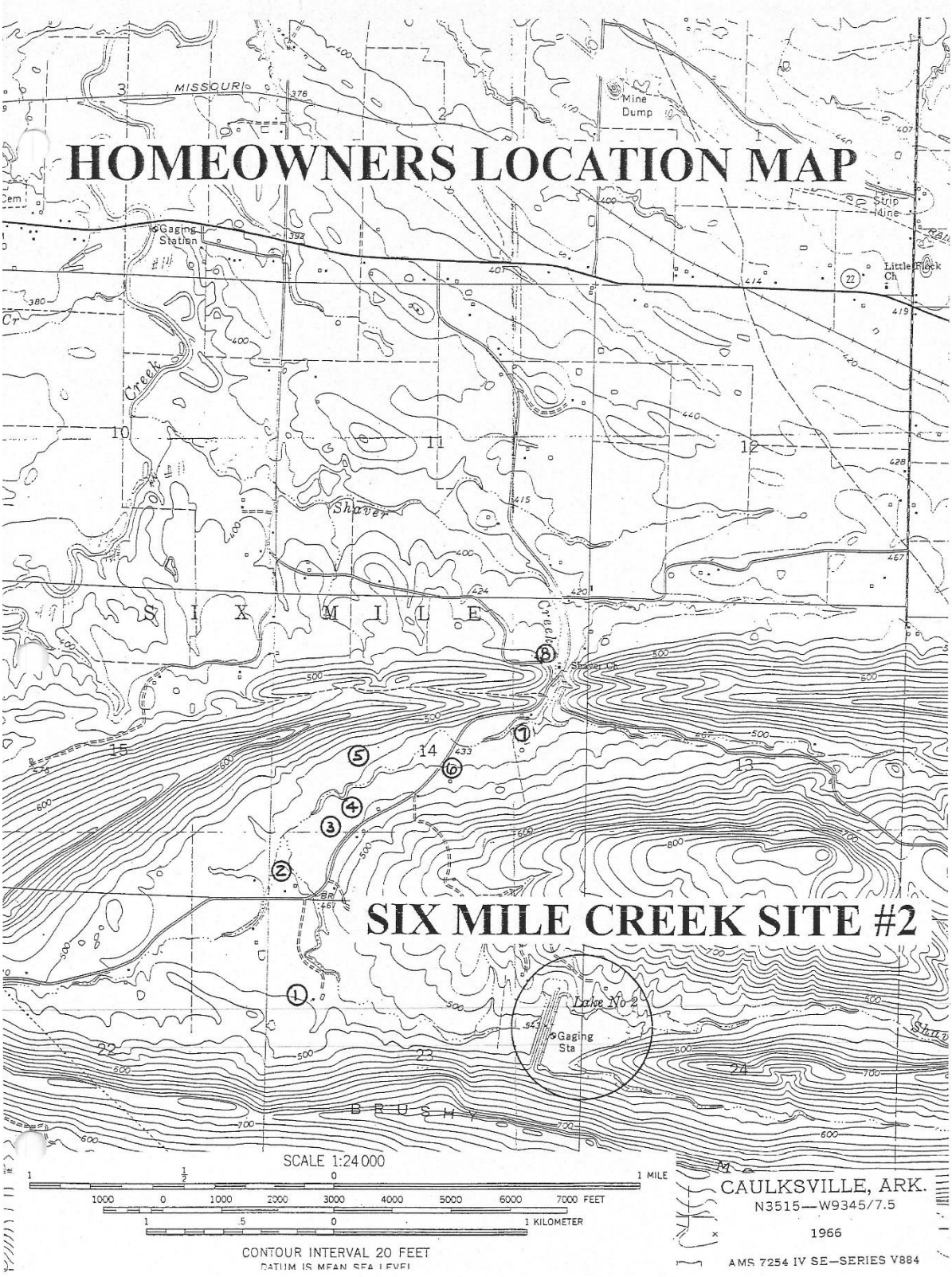
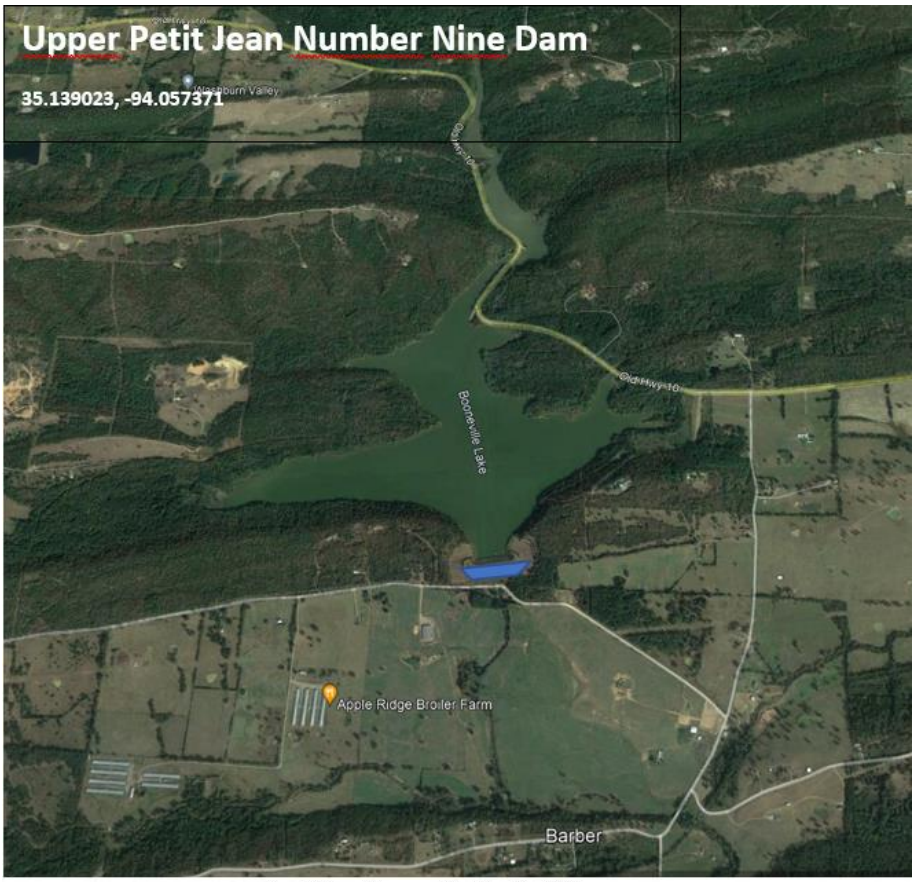
35.091896,·-93.91763¶


BOONEVILLE
ELEVATION (in Feet) ABOVE MEAN SEA LEVEL
CLEAR WEATHER BREACH 433.18
ELEVATION (in Feet) ABOVE MEAN SEA LEVEL
CLEAR WEATHER BREACH 431.73
ELEVATION (in Feet) ABOVE MEAN SEA LEVEL
CLEAR WEATHER BREACH 507.39
ELEVATION (in Feet) ABOVE MEAN SEA LEVEL
CLEAR WEATHER BREACH 500.28
SOUTH HWY 23
PERRY
JEAN
CREEK MILE 1.53
RIVER
CREEK MILE 1.31
SANITARIUM ROAD
PERKINS BRANCH
SOUTH HWY 23
HUMAN DEVELOPMENT CENTER
CREEK MILE 0.55
CREEK MILE 0.30
NORMAL POOL ELEV. 608.00
LAKE
POWER LINE
JACK CREEK ROAD
GOLDEN CITY ROAD
500
600
700
BOONEVILLE HUMAN DEVELOPMENT CENTER
EMERGENCY ACTION PLAN
CLEAR WEATHER BREACH
N

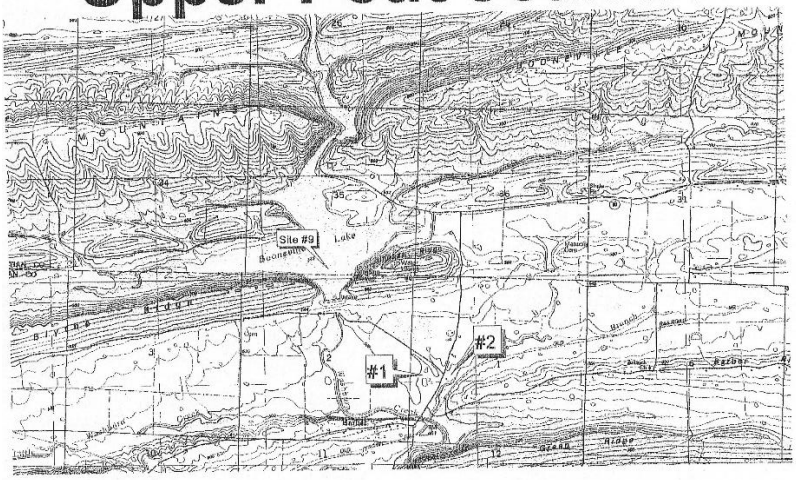

Sixmile Creek Watershed Two Reservoir
35.264101, -93.832162


HOMEOWNERS LOCATION MAP
SIX MILE CREEK SITE #2
MISSOURI
Mine Dump
Strip Mine
Gaging Station
Little Flock Ch
Shaver
Creek
S I X M I L E
Shaver Ch
Lake No 2
Gaging Sta
B R U S H Y
SCALE 1:24 000
1 MILE
7000 FEET
1 KILOMETER
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
CAULKSVILLE, ARK.
N3515—W9345/7.5
1966
AMS 7254 IV SE—SERIES V884



TOPO MAP

Upper Petit Jean #9



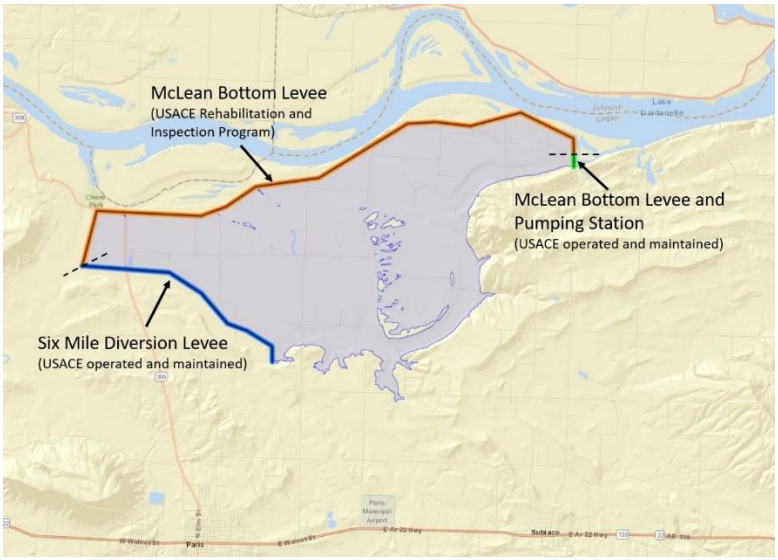
5000 0 5000 10000 Feet

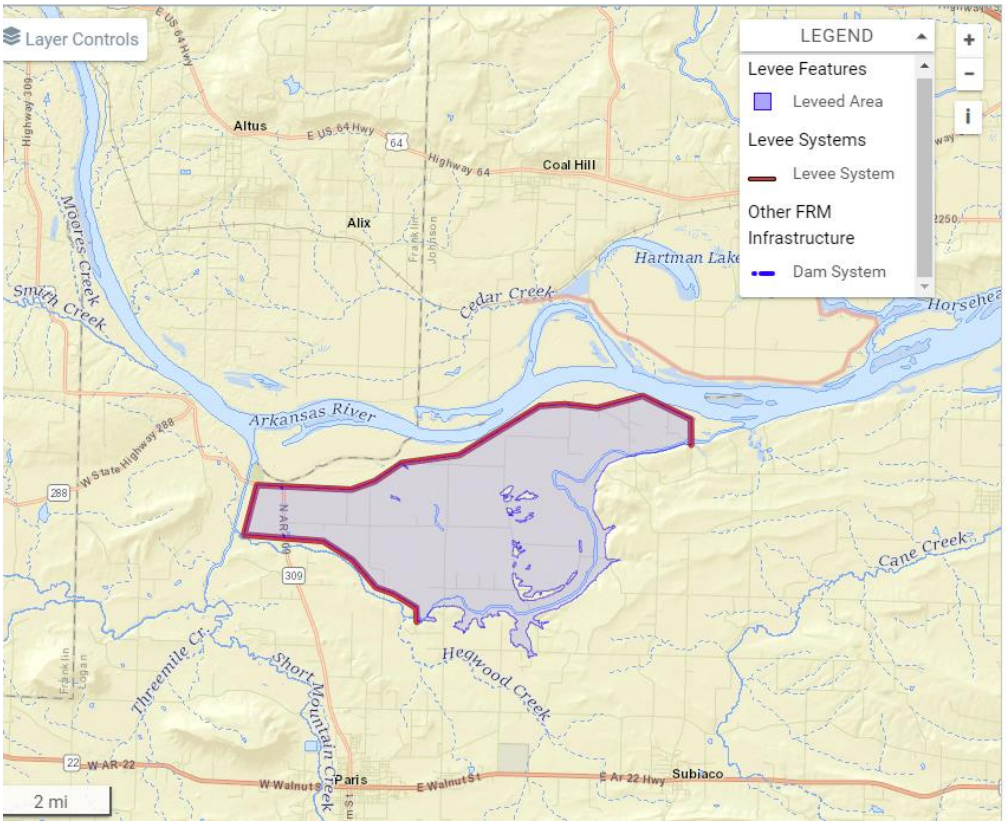
Levee Failure

Levees are defined as an earth embankment, floodwall, or structure along a water course whose purpose is flood damage reduction or water conveyance. Along the Arkansas Upper Arkansas River is a levee system built to protect the crop lands of McLean Bottom. The levee system is made of a series of three sections: Six Mile Diversion Levee, McLean Bottom Leve and the Pumping Station. The failure this levee system will lead to crop loss and have a drastic economic impact to the area. The levee system overview follows in the next section. The extent of a levee failure is determined by the intensity of flooding. Failure of a levee during a 1% annual chance flood will inundate the 100-year floodplain previously protected by the levee. Please see the maps listed on pages 73-78 for inundation.

McLean Bottom Levee Map

The McLean Bottom Levee System primarily serves as flood damage reduction for approximately 12,600 acres of highly productive agricultural land situated between the Arkansas River and Six Mile Creek, near Paris, AR. Failure of the earthen embankment or pumping station during a flood event would result in crop damages and economic loss from crops. There are no homes located within the inundation area. The inundation area is only within the area of the McLean Bottoms and the extent of flooding would be as deep as 15 feet or determined by how high the Arkansas River rises.





Levee System Overview

The McLean Bottom Levee system is located on the right bank of the Arkansas River in Logan County near the head of the Dardanelle Reservoir. It begins at the north bank of Six Mile Creek, about 12 miles above the mouth of that stream, and extends northward to a point near the south bank of the Arkansas River at mile 248.7. The McLean Bottom Levee System primarily serves as flood damage reduction for approximately 12,600 acres of highly productive agricultural land situated between the Arkansas River and Six Mile Creek. Several structures and natural gas pumping stations are also located within the protected area. Failure of the earthen embankment or pumping station during a flood event would potentially result in property damage (buildings and crops, depending on time of year), loss of life, and contamination of the area from the natural gas wells.

The McLean Bottom Levee District No. 3 levee was originally constructed from 1947 to 1948. However, the construction of the Dardanelle Lock and Dam (placed into operation in 1969) required the addition of the McLean Bottom Pumping Station and Six Mile Diversion Levee segments. The Six Mile Diversion Levee was constructed between August 1963 and June 1964. As part of the construction, 1,350 feet of the McLean Bottom Levee District No. 3 segment located south of Six Mile Creek was removed. The McLean Bottom Pumping Station and access road were constructed between October 1963 and February 1965. Responsibility for maintenance of the McLean Bottom Levee District No. 3 segment between Stations 469+95 and 480+13 was transferred to the McLean Bottom Levee and Pumping Station segment sponsors in 1965.The Six Mile Diversion and Mclean Bottom levees has an average height of 15 feet, 10-foot-wide crowns, and 3:1 side slope. Embankment materials for the two levees range from high plasticity clays to sandy silt. The diversion levee has 50-foot-wide stability berms where it crosses Six Mile Creek due to its increased height.

National Levee Database (army.mil)

Levee Performance and Potential Lost Benefits/Impact and Vulnerability

The risk associated with McLean Bottom System Levee is considered to be low. The concern for the McLean Bottom Levee segment is its history of poor performance during high water events. The levee was loaded to 59% and 35% during 1990 and 2011, respectively, during which time embankment seepage and sand boils were observed. The Six Mile Diversion segment has a history of poor performance with respect to slope stability due to desiccation cracking. The performance concerns are offset by the fact that the potential for loss of life is very low since there are not structures protected by the levees and the potential economic damages to infrastructure due to the fact that this area is only farmland. The extent of flooding is measured with the use of hydrology maps provided daily from the National Weather Service. The Corps of Engineers controls navigation on the Arkansas River, and flood events would be forecasted well in advance due to constant monitoring of the watershed. For a large flood event scenario, evacuations of the area could probably begin early. Although there is not a formal evacuation plan for this system, the long time-of-rise for the Arkansas River allow for local emergency responders to conduct evacuation operations. Egress will be overland or by farm roads, there are few homes within the leveed area, therefore life loss should be minimal, if any.

National Levee Database (army.mil)

Probability

McLean Levee overtoped and was breached in May 2019. This event happened due to the release of flood waters from Keystone Lake near Sand Springs, OK on May 22, 2019. The released caused the Arkansas River to excede historic flood marks. The over toppping of the levee caused severe scouring that lead to the failure of three portions of the McLean Levee system. Due to lack of previous occurrences, there is a 2% chance of a full breach in any given year.

6 COMMUNITY DEVELOPMENT TRENDS

Logan County has experienced a slow loss of population since 2010. Paris and Booneville remain the two primary urban centers in the county and probably be the two areas where growth might occur, especially if companies like Cloyes Gear and Products or Stark Industries expand. Otherwise, one third of the population will continue to be concentrated in Booneville and Paris with the remaining residents located in one of the seven small municipalities or scattered throughout the unincorporated county. With population distributed widely over the county, providing emergency services is a challenge. This requires individual and families to have their own emergency preparedness plan. There has not been any change in development in regards in vulnerability to hazards throughout the planning area. The county through its new Logan County OEM website is an excellent tool to post information to educate residents on ways they can help themselves to mitigate hazard impacts. Having a communication system that it can quickly notify residents of an impending disaster situation can mitigate personal injury and property damage. To date, the county does not have that capacity.

While there is little growth and/or redevelopment expected to occur in Logan County, if there are situations where a new public facility is planned, it is important that no new facility is located in a hazard area like a floodplain and in dam inundation flood zone. Educational materials are posted on the Logan County OEM website for educating the public on practical steps that can be taken to protect ones' family and property from hazards such as flooding and wildfire.

7 JURISDICTIONAL PARTICIPATIONS IN THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

Cities of Booneville, Magazine, and Paris, as well as the Town of Subiaco and Logan County (covers only unincorporated area), participate in the NFIP. Refer to **Table 3.25** for each jurisdiction's initial date of participation into the NFIP and adoption of initial Flood Insurance Rate Maps (FIRM). Each jurisdiction adopted the minimum standards required by FEMA, including a floodplain management regulation. This constitutes the jurisdiction's primary regulatory tool to manage development in floodplains. Countywide there are 35 NFIP policies. NFIP participation has mitigated a significant portion of the flood risk for each participating jurisdiction's residents that have purchased flood insurance. According to the Flood Insurance Administration, as of 2020 there are no repetitive and severely repetitive loss properties in Logan County.

h. Table 3.25 Each Jurisdiction's date of National Flood Insurance Program and initial participation and adoption of Flood Insurance Rate Maps. Source: Program Manager, Arkansas Dam Safety & Floodplain Management Section, Arkansas Resources Commission, 2020.

Jurisdiction	Init FIRM Identified	Current Effective Map Date	# Of NFIP Policies	NFIP Administration	Other NFIP Type Activities#
Blue Mountain	Not Participating				N/A
Booneville	12/5/85	6/2/11	4	Building Inspector	Does not participate CRS
Caulksville	Not Participating	6/2/11			N/A
Magazine	7/13/82	6/2/11	0	Floodplain Manager	Does not participate CRS
Morrison Bluff	Not Participating	6/2/11			N/A
Paris	7/6/82	6/2/11	4	Code Enforcement Officer	Does not participate CRS

Jurisdiction	Init FIRM Identified	Current Effective Map Date	# Of NFIP Policies	NFIP Administration	Other NFIP Type Activities#
Ratclff	Not Participating	6/2/11			N/A
Scranton	Not Participating	6/2/11			N/A
Subiaco	7/5/78	6/2/11	0	Mayor	Does not participate CRS
Logan County	10/18/88	6/2/11	7	Emergency Manager	Does not participate CRS

Blue Mountain, Caulksville, Morrison Bluff, Ratcliff, and Scranton do not participate in the NFIP program. They do not have the staff or resources to participate.

Currently, no local government in Logan County participates in the Community Rating System (CRS) program. CRS is a program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP standards. The CRS provides a discount in flood insurance premiums to property owners in participating communities. The premium discount depends upon the community implementing a wide range of floodplain management activities. Discounts can range up to 45% of the premium. A wide range of floodplain management activities, and the total of these points determines the amount of the discount.

All five participating communities have an individual responsible for administering their local Flood Damage Prevention Ordinance. Due to the low number of NFIP policy holders in the county, it is not easy to motivate active participation in NFIP. However, historically, the County OEM Director has annually convened a meeting of the local governments participating in the NFIP to discuss issues each community may have relative to the administration of their floodplain ordinance, disseminate any new information from FEMA regarding the NFIP, as well as, ways to improve their rating. In addition, the county OEM The Director has made herself available to meet with communities not in NFIP to discuss the benefits of joining the program.

Participating jurisdictions will continue to comply with NFIP requirements by issuing permits for building in floodplains. Also, each of the participating municipalities will maintain their compliance through the continued code enforcement of nonconforming structures and properties.

LOGAN COUNTY (Unincorporated)

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arkansas State Plane North Zone (FIPS zone 0301). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on FIRM was provided in digital format by the Arkansas Geographic Information Office, 2008.

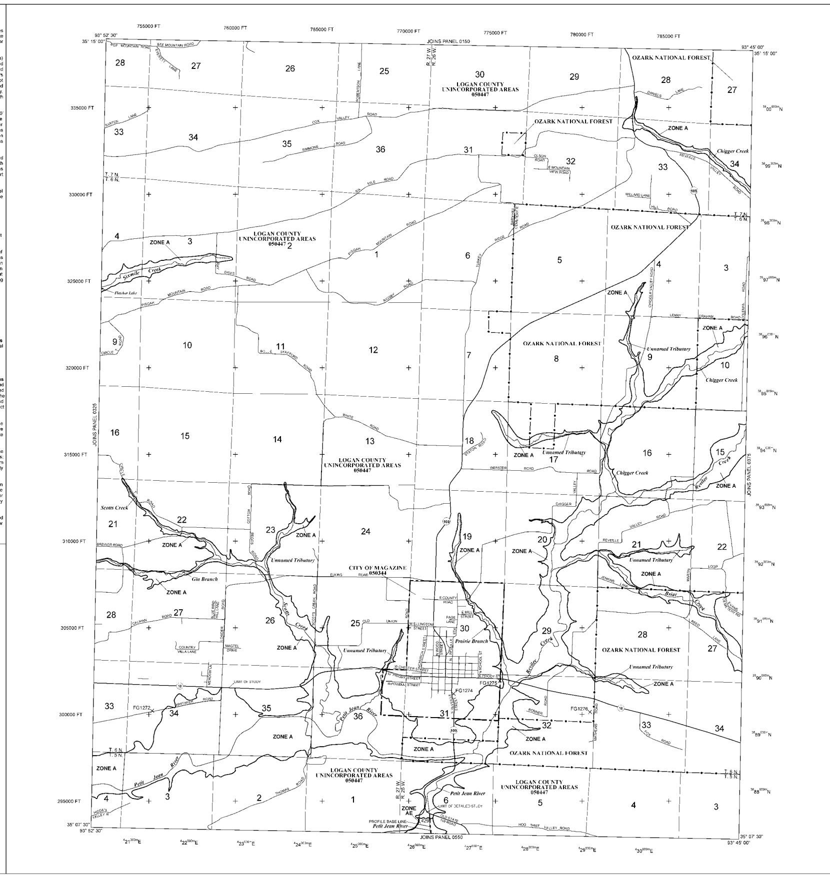
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - 23	Transect line
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
3100000 FT	5000-foot ticks: Arkansas State Plane North Zone (FIPS Zone 0301), Lambert Conformal Conic projection
89 N	1000-meter Universal Transverse Mercator grid values, zone 15
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
June 2, 2011

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET
600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0350E

FIRM
FLOOD INSURANCE RATE MAP
LOGAN COUNTY, ARKANSAS
AND INCORPORATED AREAS

PANEL 350 OF 575
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LOGAN COUNTY, UNINCORPORATED AREAS	050447	0350	E
MAGAZINE, CITY OF	050344	0350	E

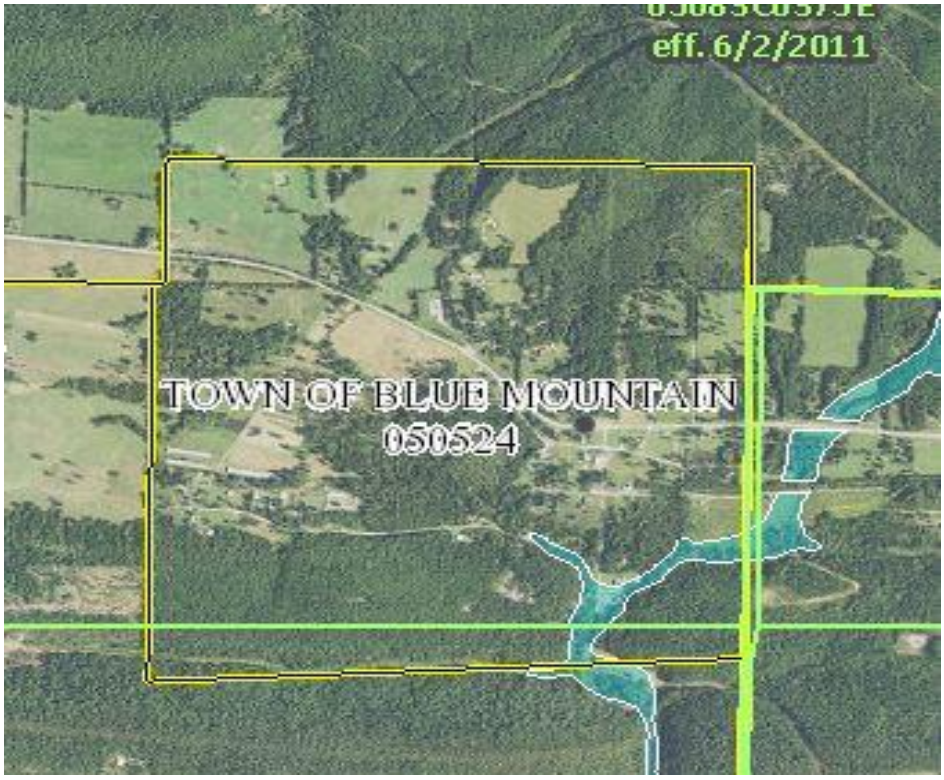
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
05083C0350E

EFFECTIVE DATE
JUNE 2, 2011

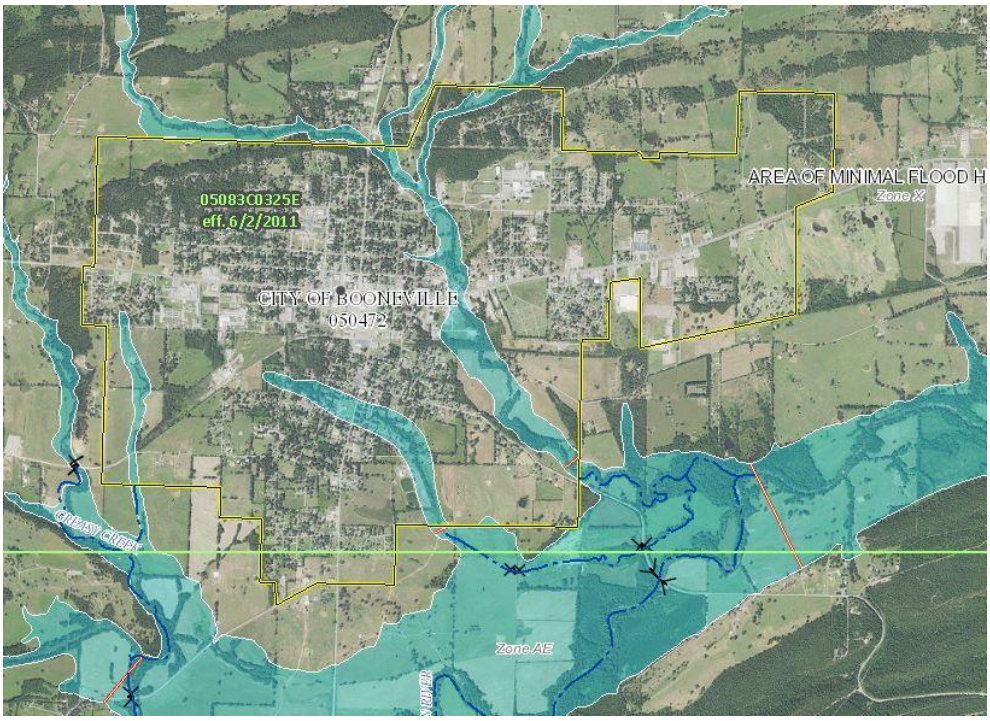
Federal Emergency Management Agency

Town of Blue Mountain

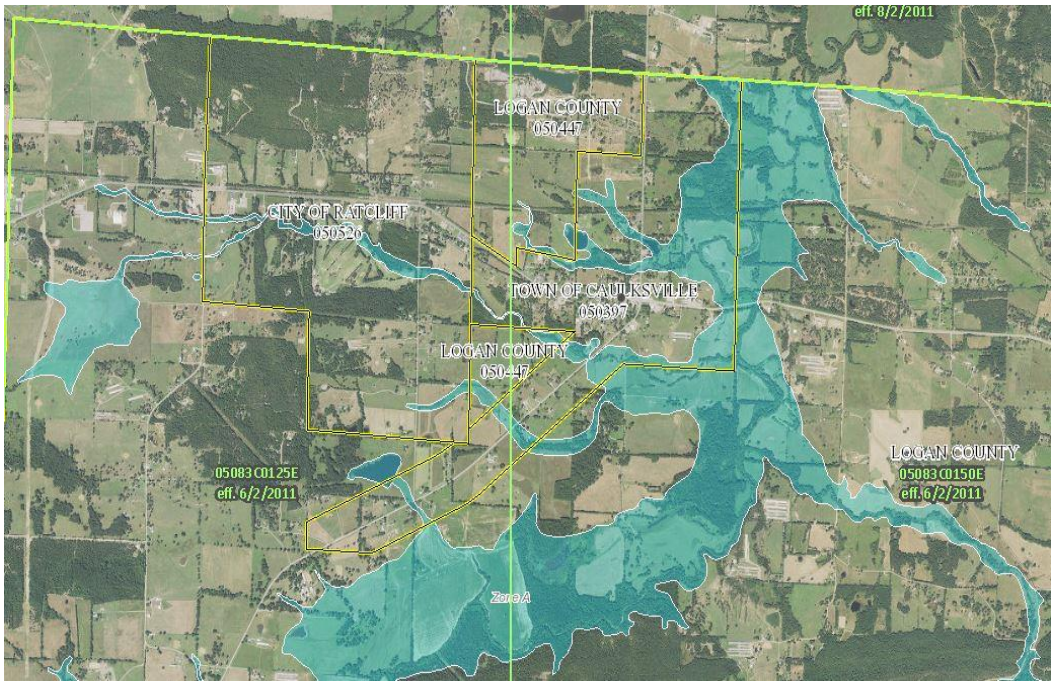


City of Magazine

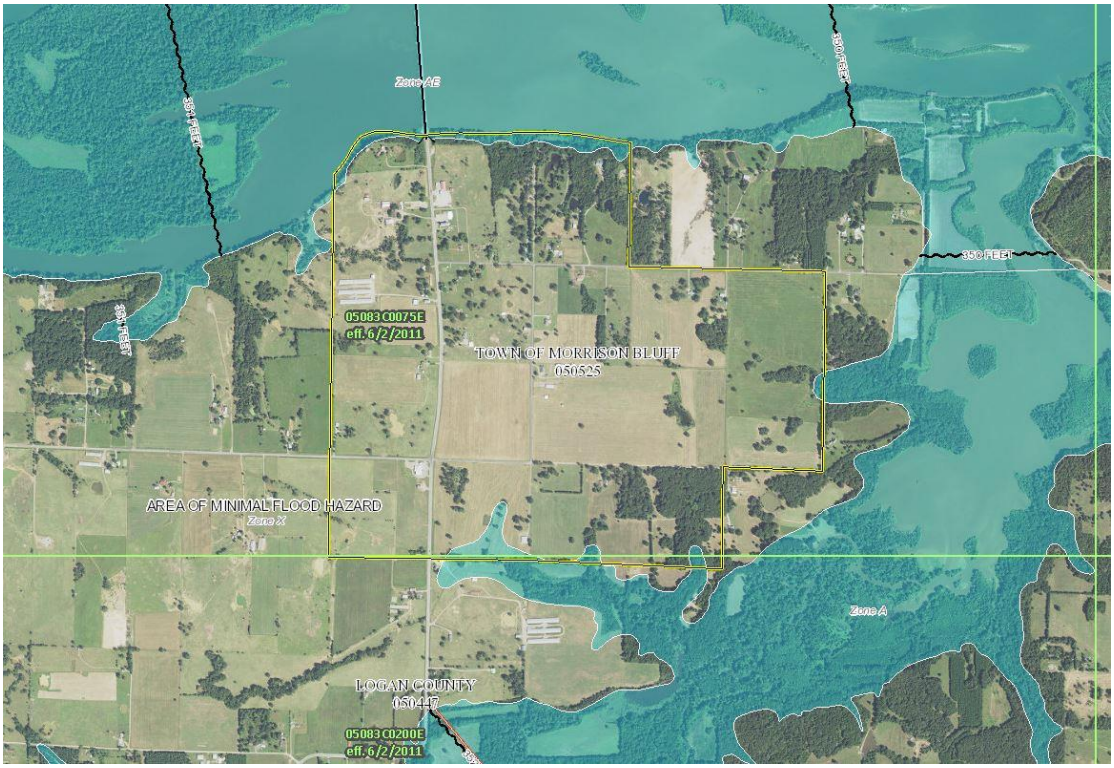
City Of Booneville



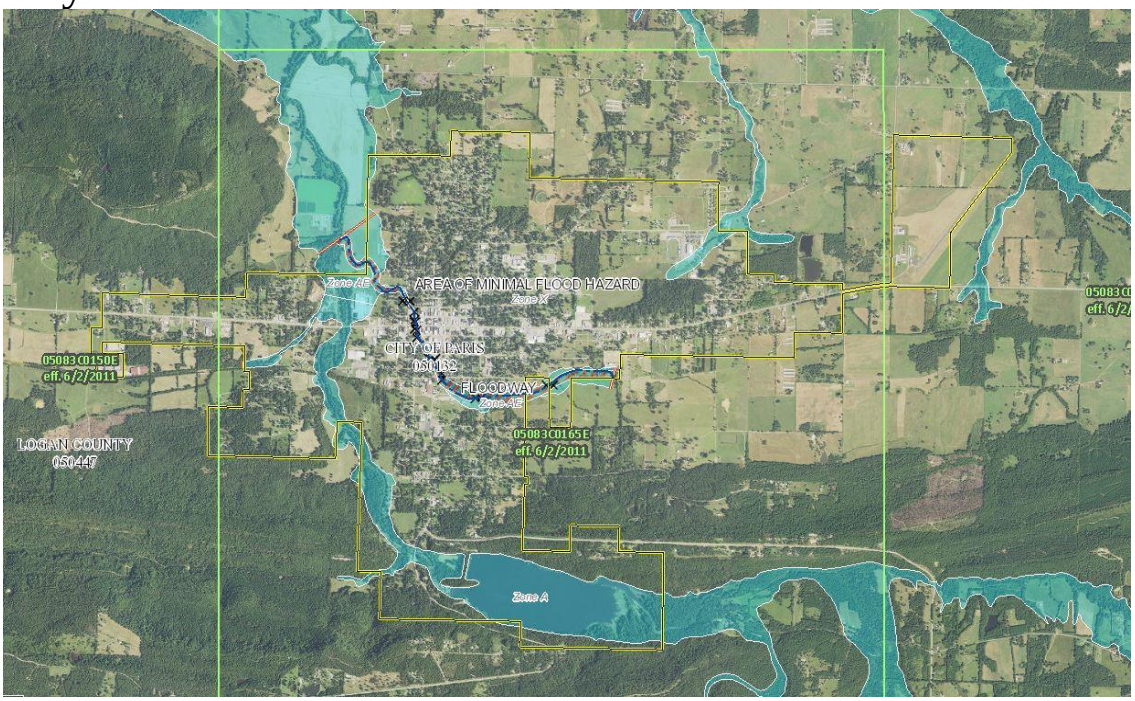
City of Caulksville and City of Ratcliff



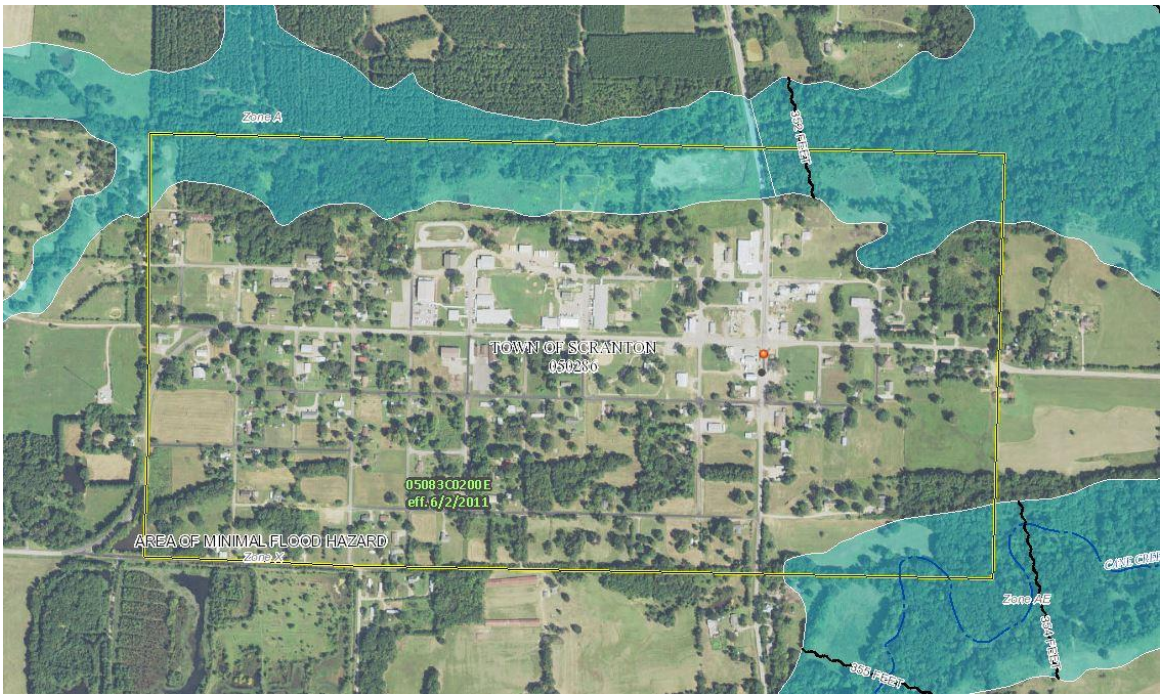
Morrison Bluff



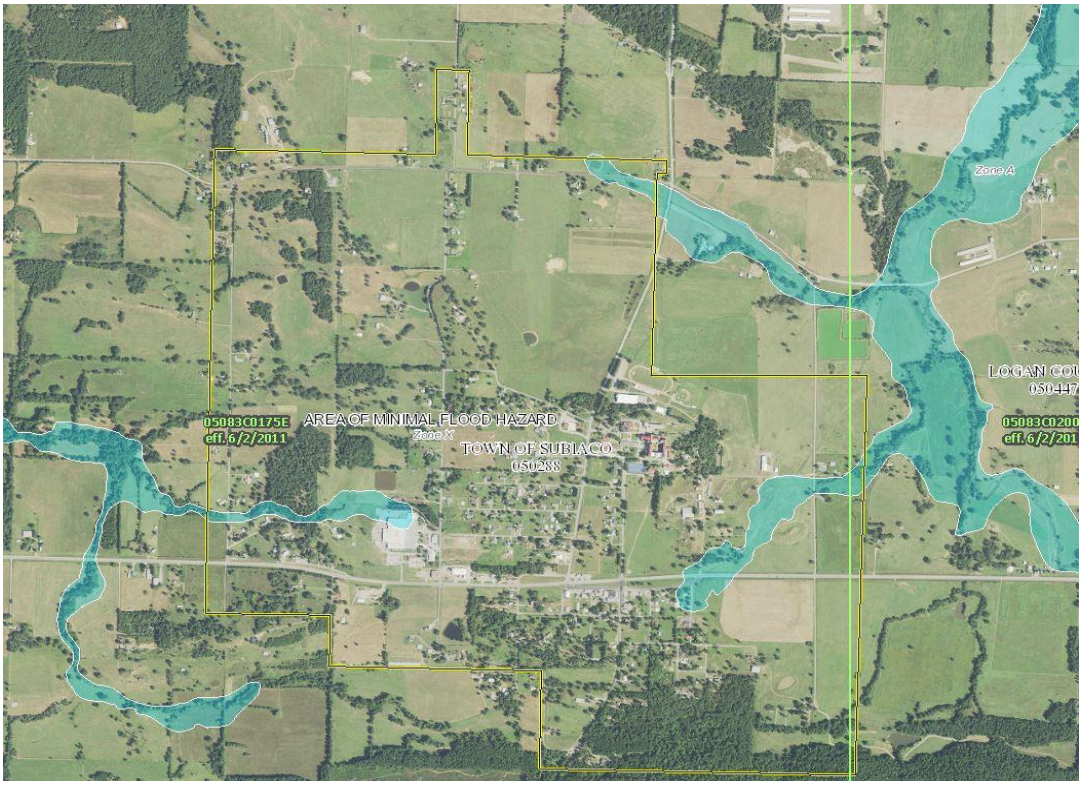
City of Paris



Town of Scranton



Town of Subiaco



Section 4 Mitigation Strategy

1 HAZARD MITIGATION STRATEGY DEVELOPMENT

Section 4 – Mitigation Strategy serves as the long-term blueprint for reducing the potential losses profiled in *Section 3 – Risk Assessment*. *Section 4* begins with an analysis of the institutional capacity in Logan County to effectively implement the proposed Action Plan. Also, it sets forth a series of hazard mitigation goals which serve as broad concepts, which taken together provide a framework for carrying out the HMP's intent to mitigate or permanently reduce hazard risk. Hazard mitigation goals are expressed in a manner that reflects Logan County's values and culture.

Hazard Mitigation Actions are policies or specific rules of conduct to be followed in achieving Hazard Mitigation Goals. The Hazard Mitigation Actions expressed in this section form the core of the HMP and provide specific steps for the County and each participating jurisdiction to mitigate hazard risk. At a minimum, each Hazard Mitigation Action contains a brief description, an approximate cost, the name of the sponsoring agency/department, funding source, benefit/cost review, and a proposed timeframe for implementation.

Because funding is limited and the opportunity to take advantage of it is often short, it is important that Hazard Mitigation Actions be prioritized before funding becomes available. Since the majority of federal funding is provided in the aftermath of a disaster, agreement on funding priorities during the pre-disaster, "blue sky" period can help communities resist the pressure to select projects based on short term, often political needs at the expense of the community's long term Hazard Mitigation Goals. The method adopted by the HMPT for Hazard Mitigation Action selection and prioritization is FEMA's Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) method. The STAPLEE method is a systematic process for identifying opportunities and constraints likely to occur during the implementation stage of each Hazard Mitigation Action. The STAPLEE method evaluates each identified Hazard Mitigation Action's cost effectiveness, political and community values, environmental soundness, legal constraint, and economic reality. The result is a prioritized list of
Hazard Mitigation Actions that are technically and administratively feasible, socially and politically acceptable, legal, economically sound and not harmful to the environment. The above-identified rational planning process increases the likelihood of the successful implementation of Hazard Mitigation Actions for Logan County and each participating jurisdiction. It was determined by the HMPT that Hazard Mitigation Actions would be implemented only for hazards assessed as **Moderate Risk** or **Severe Risk**.

2 INSTITUTIONAL CAPACITIES

There are nine incorporated municipalities in Logan County. Communities range in size. Many are small like Ratcliff, Caulksville, Blue Mountain and Scranton with populations of 215, 234, 91, and 241, respectively. The two major centers of population are City of Booneville and City of Paris with populations of 3,413 and 3,841, respectively. City of Magazine, situated approximately seven miles east of Booneville, has a population of 792 people. Booneville and Paris have larger staffs with a wider array of skills and resources to reduce losses in the future

The small communities lack a governmental structure. In most towns and cities, staff wear many hats and in some of the very small towns, there is no staff only an elected council. Many depend upon the larger adjacent jurisdiction like Paris and Booneville for water and sewer services. Some of the outlying, isolated jurisdictions depend upon well water and on-site septic systems; therefore, receive permits from

the Logan County Health Unit. Booneville, Magazine, Paris, Subiaco, and Logan County participate in the National Flood Insurance Program (NFIP) and have floodplain ordinances. Some are administered by a floodplain coordinator and others the elected council or mayor. Blue Mountain, Caulksville, Morrison Bluff, Ratcliff, and Scranton do not participate in NFIP program. Only Paris has a planning function that is administered by the Planning Commission. Booneville, Paris, and Magazine are the only local governments that issue building permits. In all other areas of Logan County building permits are not required; although, individuals are required to adhere to the state building code. However, compliance is voluntary. Paris and Booneville are the only fire departments to have paid fire fighters. All other fire stations throughout the county are manned by volunteers. Only the County, Paris and Booneville operate road/street departments that handle drainage issues. The smaller towns depend upon assistance from the county. The Institute of Economic Development at the University of Arkansas at Little Rock, projects that there will be limited growth, possibly even a loss of population projected for Logan County over the next decade. Therefore, with either limited increases in revenue, or a possible shrinking tax base, one can anticipate that the institutional functions and capabilities of the county, towns and cities will, at best, remain unchanged.

Within Logan County there are five school districts. County Line School District is located in both Logan County and Franklin County. According to Survey sent out by Logan County OEM the School Year total enrollment in Logan County is 4,228, Enrollment varies significantly with Paris having the largest enrollment 1,500, followed by Booneville having the second largest, 1,160. The other three school districts have substantially lower enrollments, Scranton – 408, Magazine – 510, and County Line Schools 650. Each school district has a crisis management plan that addresses a comprehensive list of hazards ranging from man-made crisis's (e.g., school shootings, hazardous materials accidents) to thunderstorms/natural disaster events (e.g., tornadoes, levee failure, flooding). The plans contain protocols defining how the school will respond to each hazard. Tornadoes are a major concern for all schools. Once a year, all schools must conduct a tornado drill. Several school districts have saferooms where students seek safe shelter from a tornado or severe storm event. However, neither also, saferooms are needed at Paris Elementary and Paris High School. In terms of flooding, all schools in the county are not situated in flood prone areas.

All participating jurisdictions could improve on their capabilities to expand upon their abilities accomplish mitigation by hiring additional staff, participating in additional training floodplain management, as well as emergency management training and exercises. Blue Mountain, Caulksville, Morrison Bluff, Ratcliff, and Scranton could join the NFIP. Unincorporated Logan County, Caulksville, Morris Bluff, Ratcliff, Scranton, and Subiaco could adopt ordinances to require building permits to a higher standard.

3 HAZARD MITIGATION GOALS

Hazard mitigation goals are general guidelines that explain what the community wants to achieve with the HMP. They are usually broad policy-type statements that are long-term, and they represent visions for reducing or avoiding losses from the identified hazards. The goals and objectives are reflective of the community issues and the vulnerabilities identified in **Section 3** – Risk Assessment. The HMPT has reviewed the goals and objectives set out in the 2015 HMP and determined that the 2021 objectives and priorities still apply. The goals have been restructured so they reflect broader, more directional statements regarding the purpose of the HMP.

GOAL 1 Reduce the potential for loss of life, injury and economic damage created by exposure to natural hazards for residents of Logan County

GOAL 2. Control and eliminate inappropriate construction activities within designated floodplains and floodways and the undertaking of appropriate flood mitigation actions.

GOAL 3 Enhance public awareness and understanding of hazard mitigation.

GOAL 4 Have adequate and accurate data needed for mitigation planning, disaster preparedness and disaster response purposes.

GOAL 5 Assure minimal disruption of essential services provided by critical facilities and operations in the event of natural disasters.

GOAL 6 Achieve cooperation among jurisdictions to maximize hazard mitigation efforts and results.

4 HAZARD MITIGATION ACTION CATEGORIES

FEMA has identified six broad categories of Hazard Mitigation Actions: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. All six Hazard Mitigation Action categories are included in the Logan County HMP. The following definitions were included in the FEMA How to Guide 3: Developing the Mitigation Plan (FEMA, 2008).

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and stormwater management regulations.
2. **Property Protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard, or removal from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
3. **Public Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school age and adult education programs.
4. **Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. These actions include sediment and erosion

control, steam corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

5. **Emergency Services:** Actions that protect people and property during and immediately after a disaster or hazard event. Services include warning systems, emergency responses services, and protection of critical facilities.
6. **Structural Projects:** Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

5 BENCHMARKS FOR PROGRESS

The 2015 Logan County HMP established 24 Hazard Mitigation Actions to be implemented for reducing the identified hazard risks affecting Logan County and all participating jurisdictions. During the 2022 update process the HMPT reviewed the progress made in implementing each 2015 Hazard Mitigation Action. Refer to **Table 4.1** that describes the progress.

Table 4.1. Benchmarks for progress. Benchmark is indicated as Completed, Ongoing, In-Progress, Deferred, Delayed, Modified, Not Completed, or Deleted.

Project Number	Hazard Mitigation Action	Benchmark of Progress	Comments
1	Establishing shelter agreements between Red Cross and shelter locations before disaster events	Completed	Have established shelter agreements with three school districts in 2021. Working with the other schools in the county.
2	Interested jurisdictions seek funding for construction of safe shelters from such sources as FEMA PDM program.	Completed	——Scranton Schools has completed storm shelter in 2016.
3	Improve timely broadcasts of tornado alerts through encouraging residents to acquire weather radios.	Ongoing	Promote weather radios
4	Pass along improvements to weather warnings from local media to businesses & and the public that improves the effectiveness of winter storm alerts.	Ongoing	Have implemented on County Facebook page for impending weather. 3.4 thousand people follow weather on Facebook.
5	Encourage & arrange meetings between cities of Scranton, Blue Mountain, Morrison Bluff and Ratcliff and appropriate state agencies regarding benefits & requirements of participating in NFIP.	Delayed	Progress hindered by lack of staff capacity
6	Arrange for floodplain management workshops & training for local jurisdictions to improve program administration & effectiveness and qualifications of managers.	Delayed	Have attempted to organize workshops. Lack of funding and staff have hindered progress.
7	Identify & evaluate alternative floodplain management means for small towns lacking personnel for this job through meetings between town officials & county.	Delayed	Insufficient funding and staff capacity
8	Secure improved FEMA floodplain maps and implement ways to utilize maps using county-wide 911 maps.	Completed	911Coordinator overlayed the county 911 map with flood layer and a notification of address in the floodplain was added to 911 address request form.
9	Secure funding to address flooding problems at City of Paris' wastewater treatment plant.	Delayed	Lack of insufficient funding
10	Determine status of area water utilities' actual and potential inter-connectivity between systems and current and potential for back-up supply arrangements in the event of water shortages.	In-Progress	Cities are in the process of resolving this issue.
11	Assess status of current and planned water supplies versus projected long-term demand.	In-Progress	Paris' contract engineer is working with City to increase the height of the reservoir. No plans for Booneville.

Project Number	Hazard Mitigation Action	Benchmark of Progress	Comments
12	Present programs to area groups on the county's mitigation plan, rationale, suggested mitigation measures and community benefits.	In-Progress	The HMP is available on the OEM webpage for public comment and the mitigation plan is discussed at community meetings.
13	Identify data limitations, need, source & means to achieve for data sets needed to improve county's hazard mitigation planning and plan maintenance.	Completed	Improvements being made with HMP Update. FEMA Risk Map information, once available will help. FEMA has provided more useful tools for base flood elevations and more detailed mapping.
14	When new critical facilities are being constructed or existing ones remodeled, plan structural designs that are hazard resistant.	Delayed	No critical facilities or upgrades have been constructed since the last plan. Any new facilities in the future will consider hazard resistant construction.
15	Leveraging current hazard mitigation planning process, arrange meetings among jurisdictions to identify opportunities for cooperation & coordination.	Ongoing	County Emergency Management actively supports it cities, towns, and school districts.
16	Implement at least one mitigation activity that realizes jurisdictional cooperation.	Completed	A number of activities have occurred. Nearly all school districts have built saferooms.
17	Acquire and distribute of NOAA weather radios	Completed	County OEM & All Cities within Logan County Mayor and Police/Fire of Booneville,

6 EVALUATION CRITERIA FOR HAZARD MITIGATION OPTIONS

In the 2015 HMP, the HMPT presented, outlined, categorized, defined, and ranked each Hazard Mitigation Option. The priorities of the 2020 plan remain unchanged. FEMA's STAPLEE method was then used to systematically measure the opportunities and constraints of implementing each Hazard Mitigation Option. This method analyzes each Hazard Mitigation Option in terms of cost effectiveness, political will, community values, environmental issues, legal constraints, and economic realities. Each is described in **Table 4.2**.

The County Hazard Mitigation Planning Team identified a comprehensive range of possible mitigation actions intended to reduce the effects of the eleven hazard types posing a high critical risk for the area: tornado, severe winter storm, flood, severe thunderstorm/ high wind, wildfire, severe hailstorm, drought, extreme heat and dams. For this purpose, tornado and high wind are combined, because mitigation measures are essentially the same for each.

The actions were selected and prioritized based upon their potential effects on the overall risk to life and property (particularly new and existing buildings and infrastructure), ease of implementation, community and agency support, consistency with local jurisdictions' plans and capabilities, and

availability of funding. The county used the STAPLEE method to help do this. The table on the following page provides the STAPLEE evaluation criteria and the information sources and description for each.

In addition to STAPLEE, consideration was also given to the cost / benefit of each of the possible actions. For many of the actions, however, a cost / benefit analysis was not available or conducted because of the expense and time required to do so or because of the inappropriateness of or necessity for such analysis at this time. In these cases, economic considerations, instead, were relied on for the county's analysis of possible mitigation actions. For all actions, upon development of project proposals or applications for assistance, a cost / benefit analysis was performed.

Table 4.2 STAPLEE Prioritization and review criteria.

Evaluation Category	Sources of Information
Social	Members of Local governments and the County Government were members of the Hazard Mitigation Planning Team and had input throughout the planning process. It must be noted that many small-town political leaders are also business or professional persons. They are also members of the LEPC Existing community plans were and will be relied on wherever possible. Members of the media were contacted and invited to all attend all HMPT meetings.
Technical	The following persons/agencies were consulted as to the technical feasibility of the various projects: Arkansas Geological Commission, University of Arkansas Extension Service, Arkansas Soil and Water Conservation Commission, Arkansas Health Department, Arkansas Highway and Transportation Department, Arkansas Department of Environmental Quality, Arkansas Governor's Pre-Disaster Advisory Council, Arkansas Governor's Earthquake Advisory Council, and Arkansas Forestry Service. Arkansas Department of Emergency Management. All of these had their comments and suggestions incorporated.
Administrative	Staffing for proper implementation of the plan currently will rely largely on existing members of the various agencies involved. Technical assistance is available from various local and state agencies. Some local jurisdictions have incorporated Hazard Mitigation efforts into their Capital Improvement Plans. Operations costs are under discussion by the appropriate agency or department heads.
Political	The County Quorum Court has passed resolutions in support of mitigation activities involving floodplain ordinances, mitigation planning, fire districts, among others. The Governor of Arkansas issued an Executive Order in August of 2004 (EO 04-02) instructing all state agencies to assist ADEM in mitigation planning and implementation of mitigation goals.
Legal	Members of the HMPT discussed legal issues, and it was their opinion that no significant legal issues were involved in the projects that were selected by the HMPT. However, where legalities may be an issue, this is noted.
Economic	Economic issues were the predominant issues discussed by all concerned. Each entity felt that the projects selected would have positive effects, but yet realized that actions often have costs, sometimes hidden, imposed on the community, residents and businesses. Funding for the various activities was a major concern as local budgets are always under pressures with existing and competing projects and activities. Where necessary, particularly for costly capital projects, outside grants would be relied on heavily.
Environmental	The Arkansas Geological Commission, Arkansas Department of Environmental Quality, Arkansas Forestry Commission, and Arkansas Soil and Water Conservation Commission were all consulted as to the environmental impact of the various projects and it was felt that there would be no negative impact. Local environmental issues and concerns were also taken into consideration.

The selection process utilized the research, analysis and input described here and in previous sections of this Plan, followed with extensive evaluation and discussion by the Planning Team. **Table 4.3** is a summarization of the analysis of the mitigation actions considered. Presented for each of the possible actions are the hazards with which the actions are associated, brief comments relating to STAPLEE considerations, and cost/benefit or economic considerations. Each action relates to one of the objectives presented in the preceding section, and that objective is identified by its number. For those mitigation measures relating to multiple hazards or hazard mitigation in general, "multi-hazard" is noted as the associated hazard. If comments relating to STAPLEE do not indicate otherwise, then the STAPLEE criteria were determined to have been met or to not be a significant issue.

7 HAZARD MITIGATION ACTIONS

The implementation of appropriate Hazard Mitigation Actions allows Logan County and each participating jurisdiction to successfully achieve its Hazard Mitigation Goals., The HMPT participated in reviewing a comprehensive range of Hazard Mitigation Options for each hazard assessed as **Moderate Risk** or **Severe Risk**. For each selected Hazard Mitigation Action each was evaluated according to 9 items (**Table 4.3**). Each criterion was measured based on cost estimates[1], administrative capacity[2], local knowledge[3], and technical research. Refer to **Table 4.4** for a prioritized list of Hazard Mitigation Actions.

Table 4.3. Hazard Mitigation Action Review Items

Items	How Reviewed
1. Assigned Priority	What is the Hazard Mitigation Action's Priority based on the STAPLEE Method?
2. Hazard Mitigation Action	Name of hazard mitigation activity
3. Hazard(s) Mitigated	What hazard is mitigated from the Hazard Mitigation Action?
4. Funding Source(s) and Situation	Local budget
	State and Federal grants (specific grant programs if identified)
	Additional grant source (specific grant programs if identified)
	All funding sources
	No potential funding source can be readily identified
5. Estimated Cost	How much will the Hazard Mitigation Action cost to implement? N/A means that cost estimations are not available at this time
6. Cost-Benefit Review	Cost/Benefit Review According to the STAPLEE Method
7. Administration/Agency Responsible	The agency/department(s) implementing the Hazard Mitigation Action
8. Timeline	Achieved: Hazard Mitigation Action has already been achieved by Logan County
	In Progress: Hazard Mitigation Action, which Logan County is already implementing
	Short Term: Hazard Mitigation Action is capable of implementation within one to two years
	Long Term: Hazard Mitigation Action may require new or additional resources or authorities, and may take from two to five years to implement
9. Beneficiary	What group, organization or jurisdiction is benefiting from the Hazard Mitigation Action?

Table 4.4. Hazard Mitigation Action Matrix.

HMPT Project Number	Hazard Mitigation Action	Hazard(s) Mitigated	Required Resources	Cost- Benefit Review	Administration/Agency Responsible	Timeframe	Beneficiary
1	Construction of safe rooms at schools, cities and unincorporated areas.	Tornado Severe Thunderstorms	School District and Participating Jurisdictions with technical assistance from OEM	Cost Effective	School Districts/Cities Participating Jurisdictions	18 Months	Community, Students, Faculty, and Support staff at District Schools
2	Construct improvements to or relocate wastewater treatment plant to mitigate damage from flooding or dam failure.	Flood; Dam Failure	City of Paris Mayor & Council & staff	Cost Effective	City of Paris Mayor & Council & staff	5 Years	City of Paris
3	Alleviate and/or improve storm water drainage on roads that flood, or damage for problem areas on school campuses.	Flood;	Jurisdictions' public works / consulting engineers as directed by governing bodies and school districts	Cost Effective	Logan County and all municipalities within Logan County (Blue Mountain, Booneville, Caulksville, Magazine, Paris, Morrison Bluff, Ratcliff, Scranton, Subiaco) School Districts Each jurisdictions' public works / consulting engineers as directed by governing bodies	5 Years	Logan County, Cities, Towns, & School Districts and emergency first responders
4	Construct drainage improvements based on comprehensive drainage study for City of Paris.	Flood	Funding	Cost Effective	Paris Street and Sanitation Department/ City Mayor	12 Months	City of Paris
5	Construct drainage improvements based on comprehensive drainage study for City of Booneville.	Flood	Funding	Cost Effective	Booneville Water and Sewer Department/ City Mayor	12 Month	City of Booneville
6	Retrofit existing critical facilities and build new hazard resistant critical facilities.	Tornado;Thunderstorms; Wildfire; Flood, Hailstorms	County OEM, local jurisdictions proposing new / remodeled facilities, PDD to assist with securing funding	Cost Effective	County OEM, All municipalities within Logan County Judge, City Mayors and Public Works Departments of Blue Mountain, Booneville, Caulksville, Magazine, Paris, Morrison Bluff, Ratcliff, Scranton, Subiaco, School District Superintendent	5 Years	County, Cities, Towns, School Districts, Medical facilities, Fire Districts

7	Construct interconnection of rural and city water supplies to alternate water supplies to eliminate the loss of water during disaster	Drought/Winter weather Storm/Tornado/ Dam Failure	Staff of all participating water supply facilities	Cost Effective	MOU between All participating Jurisdictions, with water associations/companies and cities with dams that are public water supply City Mayors	24 Months	Logan County, Cities, Towns and School Districts
8	Expand capacity of Paris Reservoir to avoid potential breach and increase available water capacity. (Initially a baseline engineering study would need to be completed since there are no historical records available).	Drought, Flooding	Paris Water Department	Cost Effective	Paris Water Department\City Mayor	24 Months	Paris and all jurisdictions contracting for water from Paris Water Department (City of Scranton, Greasy Valley Water Users, Central Logan Water, North Carbon City Water, City of Ratcliff, Gray Rock Water)
9	Develop and implement reservoir maintenance program to avoid potential breach of Reservoir.	Dam Failure, Flooding	Paris Water Department; Arkansas Dam Safety Section	Cost Effective	Paris and Booneville Water Department/City Mayors	24 Months	City of Paris, City of Booneville
10	Acquire and distribute NOAA weather alert radios to all participating jurisdictions and the public	Flood, Tornadoes, Severe Thunderstorms, Dam Failure, Levee Failure, Earthquake, Wildfire, Hailstorms Winter Weather	County OEM	Cost Effective	Logan County OEM	12 Months	County, Cities, Towns, and School Districts
11	Conduct a Comprehensive Drainage Study that addresses flood improvements needed in unincorporated areas of Logan County. Build and retrofit recommended drainage improvements.	Flood	Logan County Quorum Court	Cost Effective	County Judge, County OEM	24 Months	Un-incorporated areas of Logan County
12	Build a new wind and tornado resistant Emergency Operating Center	Tornados/ Hailstorms	Logan County	Cost Effective	Logan County OEM	5 Years	Residents of Logan County

13	Update outdated water and sewer lines	Flooding, Thunderstorms	City Of Paris	Cost Effective	City of Paris Mayor	Start 2022; Complete 2027	City of Paris residents
14	Reconstruct town branch through town	Flooding	City Of Paris	Cost Effective	City of Paris Mayor	Start 2022; Complete 2027	City of Paris residents
15	Tornado Resistant Building for the Mt. Magazine Tower Site	Tornado, Thunderstorms	Logan County	Cost Effective	Logan County Judge	Start 2022; Complete 2027	Logan County Residents
16	Lidar study of Paris Dam	Dam Failure	City Of Paris	Cost Effective	City of Paris Mayor	Start 2022; Complete 2027	Start 2022; Complete 2027
17	Building of new Paris Dam	Dam Failure	City Of Paris	Cost Effective	City Of Paris Mayor	Start 2022; Complete 2027	City of Paris residents and the City of Paris
18	Paris Dam Emergency Spillway reconstruction	Dam Failure	City Of Paris	Cost Effective	City Of Paris Mayor	Start 2023; Complete 2027	City of Paris residents and the City of Paris
19	In-depth study of Paris reservoir dam to develop a reconstruction plan for the dam	Dam Failure	City Of Paris	Cost Effective	City Of Paris Mayor	Start 2023; Complete 2027	City of Paris residents and the City of Paris
20	Add fill to top of Mclean bottoms levee to get levee up to grade above flood level	Levee Failure	McLean Levee Board	Cost Effective	McLean Levee Board	Start 2023; Complete 2027	Mclean Bottom farmers
21	Elevating or flood proofing equipment at the waste water facility due to nearby floodplain	Flooding	Participating Jurisdictions	Cost effective	City Mayor of Paris	Start 2023; Complete 2027	P Participating Jurisdictions
22	Purchase backup generators for critical infrastructure	Flooding, Tornado, Thunderstorms, Winter Storm	Participating Jurisdictions	Cost effective	City Mayors, County Judge, Superintendents	Start 2023; Complete 2027	P Participating Jurisdictions
23	Expansion of bridge near Booneville High School on	Flooding	City of Booneville	Cost effective	City of Booneville Mayor	Start 2023; Complete 2027	P Participating Jurisdictions
24	Acquire/relocate and/or acquire/demolish structures built within the floodplain that has had repetitive flooding	Flooding	All NFIP Participating Jurisdictions	Cost effective	All NFIP Participating Jurisdictions County Judge, City Mayors	Start 2023; Complete 2027	P Participating Jurisdictions

25	Create defensible space around critical facilities and schools	Wildfire	All participating jurisdictions	Cost effective	All participating jurisdictions judges, mayors, and superintendents	Annually, continuous	All participating jurisdictions
26	Strap down/secure water heaters, heavy equipment/ objects in all critical facilities and schools	Earthquakes, Tornadoes	All participating jurisdictions	Cost effective	All participating jurisdictions, Mayors, and School Superintendents	6 months	All participating jurisdictions
27	Implement a water restriction ordinance for water usage	Drought, winter weather	All participating jurisdictions	Cost effective	County Judge and Mayors	Start 2023; Complete 2027	All participating jurisdictions

Section 5 References

Title 7, Arkansas Administrative Rules Governing Design and Operations of Dams (Title 7), Section 705.3
Arkansas Hazard Mitigation Plan, 2018

ArkANSAS Natural Resource Commission

NOAA.Storm Information.https://www.noaa.gov/

State of Arkansas - all-hazards mitigation plan.Previous Dam Occurrences.https://www.dps.arkansas.gov/

U.S. Geological Survey.Mercalli Intensity Scale.https://www.usgs.gov/

Arkansas Economic Development Commission.Economy.https://arkansassiteselection.com/aedc/

2020 Census.Population.https://www.census.gov/

Arkansas GIS Office.https://gis.arkansas.gov/

National Flood Insurance Program.https://www.floodsmart.gov/

National Levee Database.https://levees.sec.usace.army.mil/

Arkansas Natural Resource Commission.https://www.agriculture.arkansas

National Climatic Data Center. 2014. Historical Hazard Event Database. http://www.ncdc.noaa.gov/oa/ncdc.html

Appendix I

Adoption Resolutions
Memorandums of
Understanding

RESOLUTION NO. 2023 - 01

BE IT RESOLVED BY THE QUORUM COURT OF THE COUNTY OF LOGAN, STATE OF ARKANSAS A RESOLUTION ENTITLED:

"A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR LOGAN COUNTY"

WHEREAS, certain areas of Logan County, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Logan County, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE Logan County, AR:

That Logan County, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 13th day of February 2023.

COUNTY & PROBATE COURT LOGAN COUNTY ARKANSAS

APPROVED:

Hon. Ray Gack, County Judge

Approved Date: 2/14/2023

ATTEST:

Peggy Fitzjurls, County Clerk

Attest Date: 2/14/23

FILED FOR RECORD
FEB 14 2023
PEGGY FITZJURLS
County and Probate Clerk
Logan County, AR

Sponsor: JP Sparks

RESOLUTION NO. 03/25/2023

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR City of Ratcliff

WHEREAS, certain areas City of Ratcliff, Arkansas is subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, City of Ratcliff, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE City of Ratcliff, AR:

That Ratcliff, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 25th day of March, 2023. APPROVED:

Mayor

ATTEST:

Oleda Bennett
Secretary/Clerk
(Authorized Representative)

RESOLUTION NO 1.

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR Paris School District

WHEREAS, certain areas of Logan County, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Logan County, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE PARIS SCHOOL DISTRICT IN PARIS, AR:

That PARIS SCHOOL DISTRICT,PARIS AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 6 day of APRIL, 2023. APPROVED:

County Judge/Mayor/School Superintendent
(Authorized

Representative)

ATTEST:

Secretary/Clerk
(Authorized Representative)

RESOLUTION NO. 020923

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR Magazine School District

WHEREAS, certain areas of Logan County, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Logan County, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE MAGAZINE SCHOOL DISTRICT:

That Magazine School District in Logan County, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 9 day of February 2023. APPROVED:

Beth Shumate

Beth Shumate, Superintendent
(Authorized Representative)

ATTEST:

Secretary/Clerk
(Authorized Representative)

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR
Scranton School District

WHEREAS, certain areas of Scranton School District, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Scranton School District, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE Scranton School District, AR:

That Scranton School District, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 5th day of April , 2023.
APPROVED:

T. Cook

School Superintendent
(Authorized

Representative)

ATTEST:

Audrey Tribble

Secretary/Clerk
(Authorized Representative)

RESOLUTION NO.

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR County Line School District

WHEREAS, certain areas of County Line School District, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS,County Line School District, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE County Line School District, AR:

That County Line School District, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 27th day of March , 2023.
APPROVED:

Taylor Gattis, Superintendent

ATTEST:

Amanda Price
Secretary/Clerk
(Authorized Representative)

RESOLUTION NO. 2023-2

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR TOWN OF MORRISON BLUFF, ARKANSAS

WHEREAS, certain areas of the Town of Morrison Bluff, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Town of Morrison Bluff, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE TOWN OF MORRISON BLUFF, AR:

That Town of Morrison Bluff, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 2nd day of February 2023

APPROVED:

Charlotte Siebenmorgen
Mayor

ATTEST:

Mark Siebenmorgen
Recorder

RESOLUTION NO. 2023-2-7-1

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR City of Subiaco, Arkansas.

WHEREAS, certain areas of the City of Subiaco, Arkansas within Logan County, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, the City of Subiaco, Arkansas within Logan County, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE City of Subiaco, Arkansas within Logan County, AR:

That the City of Subiaco within Logan County, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED this 7 day of Feb, 2023.

Bobby Sewell
Mayor, City of Subiaco, Arkansas

ATTEST: 2-7-2023

Jill Sewell
City Clerk, City of Subiaco, Arkansas

RESOLUTION NO. 2023-1

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR CITY OF MAGAZINE, ARKANSAS

WHEREAS, certain areas of Logan County, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Logan County, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE Logan County, AR:

That Logan County, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 13th day of March, 2023.

APPROVED:

Mayor, City of Magazine
(Authorized

Representative)

ATTEST:

City Clerk-Treasurer, City of Magazine
(Authorized Representative)

RESOLUTION NO. 23-2

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR BOONEVILLE, AR

WHEREAS, certain areas of Logan County, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Logan County, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BOONEVILLE:

That Booneville, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 27th day of February, 2023.

APPROVED:

Edgar Baker

Edgar Baker, Mayor

ATTEST:

Gayleene R. West

Gayleene R. West, City Clerk

Resolution NO 2023-02-01

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR CITY OF BLUE MOUNTAIN, AR

WHEREAS, CERTAIN AREAS OF Blue Mountain, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area: and

WHEREAS, Blue Mountain, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdiction have in place a FEMA – approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, Logan County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan for the county and all jurisdictions in the county, specifically the cities and school districts:

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF Blue Mountain, AR;

That Blue Mountain, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022 – 2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed Adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration: and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 13th day of February, 2023

APPROVED Juanita Granier, MAYOR (Authorized Representative)
Juanita Granier

ATTEST:

Sharon Leach, RECORDER/TREASURER (Authorized Representative)
Sharon Leach

RESOLUTION NO. 2023-2

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR THE CITY OF SCRANTON

WHEREAS, certain areas of Scranton, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, Scranton, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF SCRANTON, AR:

That Scranton, AR, hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and

Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED on this 7th day of May, 2023. APPROVED:

/Mayor

ATTEST:

Recorder/Treasurer

Resolution Number 2023-1

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR City of Caulksville, Arkansas

WHEREAS, certain areas of the City of Caulksville, Arkansas within Logan County, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties with the area; and

WHEREAS, the City of Calksville, Arkansas within Logan County, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts;

NOW , THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE City of Caulksville, Arkansas within Logan County, AR

That the City of Caulksville within Loan County, AR, hereby adopts those portion of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027; and Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least manually and that any needed adjustments to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

APPROVED and ADOPTED this 6 day of March, 2023.

Scott Lee

Scott Lee
Mayor, City of Caulksville, Arkansas

ATTEST: March 6th 2023

Bobby McCartney

Bobby McCartney
City Clerk, City of Caulksville, Arkansas

RESOLUTION NO. 2023-2

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR THE CITY OF PARIS, ARKANSAS.

WHEREAS, certain areas of Paris, Arkansas are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to peoples' properties within the area; and

WHEREAS, the City of Paris, Arkansas desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency (FEMA) required that local jurisdictions have in place a FEMA- approved Hazard Mitigation Action Plan as a condition of receipt of certain future Federal mitigation funding after November 1, 2004; and

WHEREAS, to assist cities and counties in meeting this requirement, the County has initiated development of a county wide, multi-jurisdiction Hazard Mitigation Plan the county and all jurisdictions in the county, specifically the cities and school districts.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY OF PARIS, ARKANSAS, THAT:

SECTION 1: The City of Paris, Arkansas hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, from 2022-2027.

SECTION 2: Appoints the Emergency Management Director to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

This resolution adopted on this 6th day of February 2023.

Daniel Rogers, Mayor

ATTEST:

Mary Sullivan, City Clerk

Adoption resolutions will be provided to the Logan County Office of Emergency Management as they are enacted by participating local governments and school district

Appendix II

Public Advertisements
Meeting Sign-In
Sheets Meeting
Minutes Meeting
Materials

Logan County Hazard Mitigation Plan

Kick-off Meeting

December 15, 2020, 10:00

Via Zoom

Introductions
Project Presentation
Discussion of Relevant Issues

- **Expectations of Committee members**
- **Additional Committee members**
- **Public Outreach Strategy**
- **Data Collection/GIS info**
- **Implementation Capacity of Jurisdictions**

Next Meeting **January, 26, 2021**

Logan County Hazard Mitigation Plan
Update

Attendees

(County Judge) Ray Gack, (OEM Director) Tobi Miller, (Logan County OEM Deputy) Kristi Frederick, (ADEM Area Coordinator) Tim Gehring, (Booneville Superintendent) Trent Goff, (Magazine School District Superintendent) Beth Shumate, (Countyline School District Superintendent) Taylor Gattis, (ADEM Mitigation) Jennifer Oakley, (Paris City Clerk) Mary Sullivan

Public: None

Meeting Objectives

- What is Hazard Mitigation?
- Benefits of Hazard Mitigation Planning
- Purpose of a Hazard Mitigation Plan
- Federal and State Grant Opportunities
- Hazard Mitigation Plan Update Process
- Status of Hazard Mitigation Plan Update
- Public Input on Hazard Identification

Introductions

Defining Hazard Mitigation

- Because a number of HMPT members were not familiar with the hazard mitigation planning process, some time was spent familiarizing the team with some of the key concepts such as FEMA's definition of hazard mitigation and

its role in the Emergency Management Cycle.

Federal and State Grant Opportunities

- A review of potential federal funding sources was discussed:

- Hazard Mitigation Grant Program (HMGP)
- Building Resilient Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- Repetitive Flood Claims Program (RFC)
- Severe Repetitive Loss Program (SRL)
- Public Assistance Grant Program (PA)

- The State of Arkansas also provides funding opportunities. They include:

- Arkansas Rural Community Development Grant Programs (Community Development Grant and Fire Protection Grant)

Hazard Mitigation Plan Update Process

- Logan County is basing the Hazard Mitigation Plan Update process on FEMA's How-To Guidance. By following the Guidance document, definitely improves how quickly the Hazard Mitigation Plan can obtain the necessary approvals needed to obtain approval from the State of Arkansas and FEMA. There are 4 phases in the plan update process.

- Phase 1 includes organizing resources, developing a HMPT with a diverse background, and establishing connections with members of the local community.
- Phase 2 will update the Risk Assessment Chapter of the Hazard Mitigation Plan. This includes updating hazard profiles, historical hazard losses, loss estimations, and vulnerabilities within each participating jurisdiction.
- Phase 3 consists of updating the Hazard Mitigation Plans Goals and Actions. After Hazard Mitigation Actions are selected, they will be reprioritized based on FEMA's STAPLEE method and HMPT input.
- Phase 4 will establish a method for implementing and monitoring the plan. The method will identify responsible departments for each Hazard Mitigation Action and planning mechanisms for implementing the actions over the next 5 years.

Status of Hazard Mitigation Plan Update Process

- To date the following has been accomplished:

- Historical hazard losses have been updated according to the National Climatic Data Center.
- All Repetitive Loss and Severe Repetitive Loss data has been updated with data from the Arkansas Natural Resource Commission.
- Relevant information from the 2018 State of Arkansas All Hazard Mitigation Plan has applied to the hazard profiles for all identified hazards.
- Man-made hazards are included in the update process.

PROOF OF PUBLICATION
STATE OF ARKANSAS
COUNTY OF LOGAN

I, Tara Lynch, an advertising representative of the Booneville Democrat, a weekly newspaper published at Booneville, Arkansas, and having bona fide circulation in Logan County, Arkansas, for one year next proceeding the first insertion of, and during the publication of the Notice hereto attached, do solemnly swear that said Notice was published in the above named paper as follows:

Customer Name: Logan County Emergency Management

RE: Zoom Meeting on January 26, 2021 @ 10 a.m.

ORDER NUMBER: 1385924
COST: $41.68

Was published in the regular daily issue of said newspaper for consecutive insertions as Follows:
First Run: 01/13/2021
Second Run: 01/20/2021
Third Run:
Fourth Run:

Tara Lynch
(Signature)

Sworn before me on the 21st day of January 2021

My Commission expires April 10, 2026

Tawana D. Wright
Notary Public

TAWANA D. WRIGHT
MY COMMISSION # 12347009
EXPIRES: April 10, 2026
Sebastian County

LEGALS

The public is invited to attend a Zoom Meeting on January 26, 2021 at 10 a.m. to participate in a discussion to update the Logan County Hazard Mitigation Plan. The log-in link and call-in information can be found on the Logan County Emergency Management Facebook page or logancountyoem.org

Logan County Emergency Management
Published by Tobi Miller · January 4 ·

TO: CITIZENS OF LOGAN COUNTY
FROM: TOBI MILLER
SUBJECT: LOGAN COUNTY HAZARD MITIGATIONPLAN UPDATE
DATE: 1/4/2021

With the passage of the Disaster Mitigation Act in the year 2000, it become a federal requirement that any community that wishes to apply for a federal mitigation grant must participate in the development of a Hazard Mitigation Plan, either individual or as part of a multi-jurisdictional plan. The original Logan County Hazard Mitigation Plan was approved in 2006 and was revised in 2015 and expired in 2020. All of the cities, towns, and school districts within Logan County were members of the original plan.

Logan County has received a grant from the Arkansas Division of Emergency Management to update the Logan County Hazard Mitigation Plan. The Logan County Emergency Management Office in coordination with the community, cities, towns and schools to update the plan.

In December 2020, Logan County conducted an initial meeting to begin preparing the update for the plan. The Community is invited to attend the next Logan County Hazard Mitigation Plan Zoom Meeting on January 26, 2021 at 10 a.m. The link to the meeting is
https://us02web.zoom.us/j/81505043518...
Meeting ID: 815 0504 3518
Passcode: 532002
Mobile
+1 312 626 6799 US
Meeting ID: 815 0504 3518
Passcode: 532002

The current Logan County Hazard Mitigation Plan is linked below:
http://www.wapdd.org/.../WAPDD-Logan-County-HMPUpdate-3.pdf

The public is invited to complete the hazard survey for Logan County. The Survey can be down loaded from logancountyoem.org or from the Logan County Emergency Management Facebook page.

Logan County Hazard Mitigation Plan

Meeting #2

January 26, 2021,
10:00 A.M.
Via Zoom

Introductions

Project Overview
Project Status

- **Discussion of**
- **Household Natural Hazards Preparedness**

Questionnaire Evaluating Hazards Exercise

Identifying Important Issues
Next Meeting March 12, 2021
Adjournment 10:35

Attendees

(OEM Director) Tobi Miller, (Logan County OEM Deputy) Kristi Frederick, (Paris City Clerk) Mary Sullivan, (Paris Chamber of Commerce Director) Tonya Fletcher, Rockline Industries) Cynthia Totton, (ADEM Area Coordinator) Tim Gehring, (Community Health Service Manager) Leslie Maddox

Public: None

Meeting Objectives

- Provide Project Overview
- Discuss Project Status
- Evaluating and Prioritizing Hazards
- Special Hazard –Related Issues
- Emphasize local involvement
- Discuss Next Meeting

Introductions

- Meeting objectives were reviewed.

Provide Project Overview

Participants did attend the Kickoff Meeting in December; Tobi Miller took time to explain the importance of hazard mitigation planning and the benefits derived from such a program. They included:

- Provide Project Overview
- Discuss Project Status
- Evaluating and Prioritizing Hazards
- Special Issues
- Questions?
- Emphasize local involvement
- Discuss Next Meeting

Project Status

Since the December meeting the mitigation plan has been added to the logancountyoem.org website for public review. Hard Copies of the plan was distributed to the mayors' offices for review and also sent a link to the online version of the plan.

Evaluating Hazards Exercise

Discussed any hazards that could be mitigated and what projects that could be added to the mitigation Plan.

Identifying Important Issues

Discussed that the current plan needed to be reviewed by each jurisdiction and any changes needed to be sent to the Emergency Management Office.

Meeting #3

AGENDA

March 12, 2021 10:00 A.M.

Via Zoom

Introductions
Project Status
Risk Assessment

- **Public Surveys**
- **Questions**
- **Issues**

Mitigation Strategy/Implementation

- **New Potential Projects**

- Adjournment 10:20

Logan County Hazard Mitigation Plan Update

Attendees

(OEM Director) Tobi Miller, (Logan County OEM Deputy) Kristi Frederick, (Blue Mountain Fire Chief) Anthony Sanfillipo, (Tyson Complex Environments Manager Scranton) Danielle Gray

Public: None

Meeting Objectives

- Provide Project Status
- Discuss potential mitigation strategies
- Current disasters and risks

Introductions

- Meeting objectives were reviewed.

Project Status

Mitigation Strategy Implementation

Tobi, walked the members of the HMPT through a discussion that involved assessing the progress in implementing the mitigation actions set out in the 2015 HMP. In addition, based on the latest risk assessment, new potential projects were discussed. Member of the HMPT identified other potential projects which resulted from our earlier risk assessment discussion.

Meeting #4

Logan County Hazard Mitigation Plan Update

AGENDA

May 11, 2021, 10:00 A.M.

Via Zoom

Introductions
Project Status
Risk Assessment

- **Questions**
- **Issues**

Mitigation Strategy/Implementation

4th Meeting – May 11, 2021 10:00

Attendees

(OEM Director) Tobi Miller, (Logan County OEM Deputy) Kristi Frederick, (Scranton School District Superintendent) David Corbitt

Public: None

Meeting Objectives

- Provide Project Status
- Review Risk Assessment
- Identify Issues not addressed risk assessment
- Review maps
- Discuss potential mitigation strategies

Introductions

- Meeting objectives were reviewed.

Project Status

78% 6:07

survey in Logan County Emerge

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Logan County Emergency Management
Jan 4 •

TO: CITIZENS OF LOGAN COUNTY
FROM: TOBI MILLER
SUBJECT: LOGAN COUNTY HAZARD MITIGATIONPLAN UPDATE
DATE: 1/4/2021

With the passage of the Disaster Mitigation Act in the year 2000, it become a federal requirement that any community that wishes to apply for a federal mitigation grant must participate in the development of a Hazard Mitigation Plan, either individual or as part of a multi-jurisdictional plan.
The original Logan County Hazard Mitigation Plan was approved in 2006 and was revised in 2015 and expired in 2020. All of the cities, towns, and school districts within Logan County were members of the original plan.
Logan County has received a grant from the Arkansas Division of Emergency Management to update the Logan County Hazard Mitigation Plan. The Logan County Emergency Management Office in coordination with the community, cities, towns and schools to update the plan.
In December 2020, Logan County conducted an initial meeting to begin preparing the update for the plan. The Community is invited to attend the next Logan County Hazard Mitigation Plan Zoom Meeting on January 26, 2021 at 10 a.m.
The link to the meeting is
https://us02web.zoom.us/j/81505043518?pwd=QTA1aWtSTmtHVWtocndacDZyQzhWZz09
Meeting ID: 815 0504 3518
Passcode: 532002
Mobile
+1 312 626 6799 US
Meeting ID: 815 0504 3518
Passcode: 532002
The current Logan County Hazard Mitigation Plan is linked below:
www.wapdd.org/wp-content/uploads/2016/09/WAPDD-Logan-County-HMPUpdate-3.pdf
The public is invited to complete the hazard survey for Logan County. The Survey can be down loaded from logancountyoem.org or from the Logan County Emergency Management Facebook page.

WAPDD.ORG
www.wapdd.org

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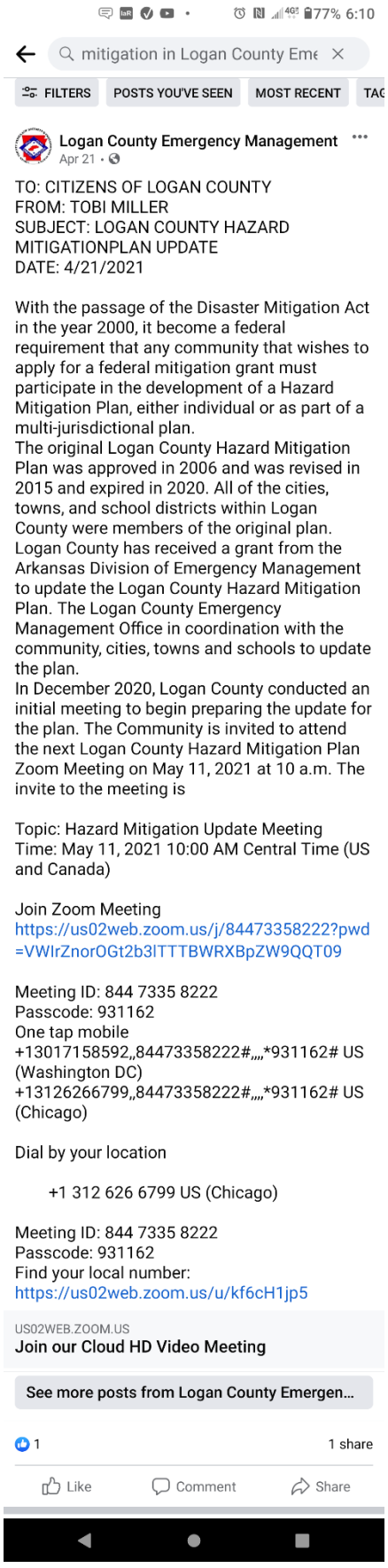
Logan County Emergency Management
Mar 31 •
Logan County is working to update the Hazard Mitigation Plan. We welcome any comments and thoughts so we can help the residents of Logan County. That is the sole purpose of this plan. One of our missions is to provide tools to the public that can help with decision making before, during and after disasters. It would be helpful if some of you would review our website logancountyoem.org and give feed back as what we can do to provide the most useful and informative information. On the website there is a link to the current hazard mitigation plan. All cities and school districts are participating in the update. We do encourage the public to give thoughts and concerns. Send comments to kfrederick@logan-oem.org
See more posts from Logan County Emergen...
1
2 shares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mitigation in Logan County Eme
FILTERS
POSTS YOU'VE SEEN
MOST RECENT
Logan County Emergency Management
Apr 21 •
TO: CITIZENS OF LOGAN COUNTY
FROM: TOBI MILLER
SUBJECT: LOGAN COUNTY HAZARD MITIGATIONPLAN UPDATE
DATE: 4/21/2021
With the passage of the Disaster Mitigation Act in the year 2000, it become a federal requirement that any community that wishes to apply for a federal mitigation grant must participate in the development of a Hazard Mitigation Plan, either individual or as part of a multi-jurisdictional plan.
The original Logan County Hazard Mitigation Plan was approved in 2006 and was revised in 2015 and expired in 2020. All of the cities, towns, and school districts within Logan County were members of the original plan.
Logan County has received a grant from the Arkansas Division of Emergency Management to update the Logan County Hazard Mitigation Plan. The Logan County Emergency Management Office in coordination with the community, cities, towns and schools to update the plan.
In December 2020, Logan County conducted an initial meeting to begin preparing the update for the plan. The Community is invited to attend the next Logan County Hazard Mitigation Plan Zoom Meeting on May 11, 2021 at 10 a.m. The invite to the meeting is
Topic: Hazard Mitigation Update Meeting
Time: May 11, 2021 10:00 AM Central Time (US and Canada)
Join Zoom Meeting
https://us02web.zoom.us/j/84473358222?pwd=VWIrZnorOGt2b3lTTTBWRXBpZW9QQT09
Meeting ID: 844 7335 8222
Passcode: 931162
One tap mobile
+13017158592,,84473358222#,,,,*931162# US (Washington DC)
+13126266799,,84473358222#,,,,*931162# US (Chicago)
Dial by your location
+1 312 626 6799 US (Chicago)
Meeting ID: 844 7335 8222
Passcode: 931162
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https://us02web.zoom.us/u/kf6cH1jp5
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Logan County Hazard Mitigation Plan
Update

5th Meeting – July 20, 2021 10:00

Attendees

(OEM Director) Tobi Miller, (Logan County OEM Deputy) Kristi Frederick, (Paris City Clerk) Mary Sullivan

Public: None

Meeting Objectives

- Provide Project Status
- Review Risk Assessment
- Identify Issues not addressed risk assessment
- Discuss potential mitigation strategies

Introductions

- Meeting objectives were reviewed.

Project Status

Date	JURISDICTION	MEETING	DISCUSSION TOPICS
6/11/2021	**City of Paris**	**Phone meeting with Paris Mayor**	**Explained the what the mitigation plan was and discussed hazards and inquired about projects he may have in mind for the city.**
1/13/2022	**City of Paris**	**Paris Dam Table Top Exercise**	**Table-top exercise for the City of Paris evacuation plan and EAP. During the conclusion of exercise mitigation ideas were discussed and explanation of Mitigation plan were given to group and mitigation ideas were recorded.**
8/24/2022	**Prairie View**	**Prairie View Preparedness Council Meeting.**	**Met with the Prairie View Preparedness Council to explain what the Mitigation Plan is for and that if they wanted to build a safe room for the community that the project has to be in the mitigation plan.**
9/8/2022	**City of Booneville**	**Met with Booneville Mayor**	**Explained the what the mitigation plan was and discussed hazards and inquired about projects he may have in mind for the city. He was going to get with his water guy to see what ideas he had for the plan.**
9/12/2022	**City of Magazine**	**Magazine City Council Meeting**	**Explained to the City Council about the mitigation plan and how it benefits their citizens and asked them if they had any projects that they may be interested in that would mitigate disaster during natural hazards.**
9/23/2022	**McClean Levee Board**	**McClean Levee Board**	**Explained the what the mitigation plan was and discussed hazards and inquired about projects they may have in mind for the levees at McClean Bottoms**

Subject: Logan County Mitigation plan suggestions

Logan County Mitigation Plan
TM
Tobi Miller
Wed 12/8/2021 3:43 PM
Reply all Mayors
The Logan County Emergency Management Office is working to finish up the Mitigation Plan. This plan is only updated every 5 years. If there are any projects that you feel like may need to be added please let us know. This plan is important when applying for grant funding. If you have any road improvements, bridge projects, drainage issues, dam projects, storm shelters, flood prevention, wind resistance, fire resistant projects or any other projects you can think of that qualify as mitigation. I would like to meet with each one of you even if it is over the phone to discuss this plan and any projects you may have. We will be working on this through next week and are trying to get it to a finishing point. All Cities participation is required in this plan if you plan on applying for funding from certain grants.

Tobi Miller
479-847-0678

MAGAZINE CITY COUNCIL MEETING
September 12, 2022

The council met in regular session on September 12, 2022 at 5:00 p.m.

Mayor McConnell was absent. City Clerk Vicki Smith called the meeting to order.

Aldermen present : Bennett, Corbitt, Hill, Mills, Cheney.

Alderman Corbitt moved to suspend the reading and approve the August minutes with a second from Alderman Bennett. All members voted yes.

Visitors: Saria Parrish, Tanya Hopper, Kelly Thompson, Tobi Miller

Alderman Corbitt motioned to appoint Saria Parrish for Alderman W2 P1. Alderman Mills seconded.. Upon roll call all members voted yes. She was then sworn in by City Clerk Vicki Smith.

Kelly Thompson asked the Council to open and name the alley that runs east and west between N Wood and N Hwy 109 to have access to the old print shop that is being turned into a residence. The current 911 address is State Street but there is no longer access to this address from State Street. The Council does not want to name the alley. They suggested she take this up with the county and see if the address can be changed to Wood Street or State Hwy 109.

Tobi Miller, Logan County OEM spoke with the Council about the Mitigation Plan. Asking for a list of any projects that need to be included on the Plan. She also said to speak with Loy Claunch (Engineer) and see if flooding affects sewer plant operations.

Financial Reports and paid invoices were presented. Alderman Mills motioned to approve. Seconded by Alderman Hill. All members voted yes.

Fire Report: Eli Bennett told the Council the ISO inspection last month did not go too well. He also said the Rescue Truck is in the shop again. He would like the Council to consider selling the Rescue Truck and replace with a Rescue Pumper Truck.

Old Business: Having reviewed Proposed Ordinance 2022-06 last month, Alderman Hill motioned to read Proposed Ordinance 2022-06 Water & Sewer Rates by title only. Alderman Mills seconded. All members voted yes.
Proposed Ordinance 2022-06 Water & Sewer Rates
After the first reading Alderman Bennett motioned to suspend the rule and read for a second time. Alderman Corbitt seconded. All members voted yes.
After the second reading Alderman Corbitt motioned to suspend the rule and read for a third time. Alderman Bennett seconded. All members voted yes.
After the third reading Alderman Corbitt motioned to adopt Ordinance 2022-06. Alderman Mills seconded. A roll call vote was taken with all Aldermen voting yes. The Ordinance will be posted on Facebook and advertised in The RattleCat, and mailed to all water customers.

New Business:
Reviewed Financial and Compliance Report for December 31, 2021.

Alderman Corbitt motioned to adjourn. Alderman Bennett seconded. All members voted yes. Meeting adjourned.

Stanley B. McConnell
Stanley McConnell, Mayor

Vicki Smith
Vicki Smith, City Clerk

Appendix III

Logan County Website
www.logancountyoem.org

Logan County Office of Emergency Management

205 E. Maple Street
Paris, Ar. 72855

Tobi Miller, Director
tmiller@logan-oem.org
Office 479-963-3218
Fax 479-963-3890

Kristi Frederick, Deputy Coordinator
kfrederick@logan-oem.org
Office 479-963-3218
Fax 479-963-3890

Appendix IV

Annual Progress Report Form

LOGAN COUNTY ANNUAL PROGRESS REPORT

(DATE)

HMPT Project #	Hazard Mitigation Action	Status/Progress
1	Construction of safe rooms at schools and cities.	
2	Construct improvements to or relocate wastewater treatment plant to mitigate damage from flooding or dam failure.	
3	Alleviate and/or improve storm water drainage on roads that flood, or damage for problem areas on school campuses.	
4	Construct drainage improvements based on comprehensive drainage study for City of Paris.	
7	Construct drainage improvements based on comprehensive drainage study for City of Booneville.	
6	Retrofit and build new hazard resistant critical facilities.	
7	Construct interconnection of rural and city water supplies to alternate water supplies to eliminate the loss of water during dam failure, tornado and drought.	
8	Expand capacity of Paris Reservoir. (Initially a baseline engineering study would need to be completed since there are no historical records available).	
9	Expand capacity of Booneville Lake (Initially a baseline (engineering study would need to be completed since there are no historical records	
10	Develop and implement reservoir maintenance program to avoid potential breach of Paris Reservoir.	
11	Upgrade existing water delivery systems to eliminate breaks and leaks in all Participating Jurisdictions	
12	Conduct professional structural engineering assessments of critical facilities to determine structural integrity to natural hazards; develop	

13	Acquire and distribute NOAA weather alert radios to participating jurisdictions and the public	
14	Conduct a Comprehensive Drainage Study that addresses flood improvements needed in unincorporated areas of Logan County.	
15	Wind and Tornado resistant Emergency Operating Center	
16	Develop a process of creating a list of special needs of downstream residents of high hazard dams and updated annually.	
17	Conduct a Comprehensive Drainage Study that addresses flood improvements needed in participating Jurisdictions	
18	Clear Brush from Paris Dam	
19	Study Dam for any damage	
20	Clear Town branch that goes through town from Cherry St. to N. Roseville	
21	Address issues to our sewer system inflow and infiltration problems that we have a consent administrative order on	
22	Build a Safe Room near the Coal Miners memorial on the South part of town	
23	Update outdated water and sewer lines	
24	Conduct a Comprehensive Drainage Study that addresses flood improvements needed	
25	Safe Room for Wood Street City Park	

26	Reconstruct town branch through town	
27	Tornado Resistant Building for the Mt. Magazine Tower Site	
28	Equipment for Paris City dam repair	
29	Lidar study of Paris Dam	

30	Building of new Paris Dam	
4 31	Paris Dam Emergency Spillway reconstruction	
32	Paris Dam Emergency Spillway tree debris removal	
33	Reconstruct town branch through town	

Appendix V

Glossary

Acquisition: Local governments can acquire lands in high hazard areas through conservation easements, purchase of development rights, or outright purchase of property.

Asset: Any manmade or natural feature that has value, including, but not limited to people; buildings; infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.

Building: A structure that is walled and roofed, principally above ground and permanently affixed to a site. The term includes a manufactured home on a permanent foundation on which the wheels and axles carry no weight.

Coastal Zone: The area along the shore where the ocean meets the land as the surface of the land rises above the ocean. This land/water interface includes barrier islands, estuaries, beaches, coastal wetlands, and land areas having direct drainage to the ocean.

Community Rating System (CRS): CRS is a program that provides incentives for National Flood Insurance Program communities to complete activities that reduce flood hazard risk. When the community completes specified activities, the insurance premiums of the policyholders in those communities are reduced.

Contour: A contour line depicts equal ground elevation on a topographic (contour) map.

Debris: The scattered remains of assets broken or destroyed in a hazard event. Debris caused by a wind or water hazard event can cause additional damage to other assets.

Digital Flood Insurance Rate Map (D-FIRM): Map of a community, prepared by FEMA, shows both the special flood hazard areas and the risk premium zones applicable to the community under the National Flood Insurance Program.

Disaster Mitigation Act of 2000 (DMA 2000): DMA 2000 (Public Law 106-390) is the latest legislation to improve the planning process. It was signed into law on October 10, 2000. This new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur.

Earthquake: A sudden motion or trembling that is caused by a release of strain accumulated within or along the edge of Earth's tectonic plates.

Erosion: Wearing away of the land surface by detachment and movement of soil and rock fragments, during a flood or storm or over a period of years, through the action of wind, water, or other geologic processes.

Exposure: The condition of being at risk and subject to some effect or influence.

Extent: The size of an area affected by a hazard or hazard event.

Federal Emergency Management Agency (FEMA): Independent agency created in 1979 to provide a single point of accountability for all federal activities related to disaster mitigation and emergency preparedness, response, and recovery.

Flood Depth: Height of the floodwater surface above the ground surface.

Flood Hazard Area: The area inundated by a flood of a given magnitude on a map.

Flood Mitigation Assistance Program (FMA): The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FEMA provides FMA funds to assist States and communities implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under the National Flood Insurance Program. **Flood Zone**: A geographical area shown on a Flood Insurance Rate Map (FIRM) that reflects the severity or type of flooding in the area.

Floodplain: Any land area, including watercourse, susceptible to partial or complete inundation by water from any source.

Governor's Office of Homeland Security & Emergency Preparedness (GOSHEP): GOSHEP coordinates State Disaster Declarations authorized by the Governor. Activities include preparedness, prevention, response, mitigation, and recovery.
Hazard: A source of potential danger or adverse condition.

Hazard Event: A specific occurrence of a particular type of hazard.

Hazard Identification: The process of identifying hazards that threaten an area.

Hazard Mitigation: Sustained actions taken to reduce or eliminate long-term risk from hazards and their effects.

Hazard Mitigation Grant Program (HMGP): The Hazard Mitigation Grant Program (HMGP) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

HAZUS (Hazards U.S.): A GIS-based, nationally standardized, loss estimation tool developed by FEMA.

Hurricane: An intense tropical cyclone, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or "eye." Hurricanes develop over the North Atlantic Ocean, northeast Pacific Ocean, or the South Pacific Ocean east of 1600E longitude. Hurricane circulation is counter-clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

Impact: The force of impression of one thing on another with significant or major effect.

Infrastructure: Refers to the public services of a community that have a direct impact on the quality

of life. Infrastructure includes communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, and includes an area's transportation system such as airports, heliports, highways, bridges, tunnels, roadbeds, overpasses, railways, bridges, rail yards, depots; and waterways, canals, locks, seaports, ferries, harbors, dry docks, piers, and regional dams.

Landslide: Downward movement of a slope and materials under the force of gravity.

Land Use: Land use is the human use of land. Land use involves the management and modification of natural environment or wilderness into built environment such as fields, pastures, and settlements. It has also been defined as "the arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it"

Local Emergency Planning Committee (LEPC): LEPC's consist of community representatives and are appointed by the State Emergency Response Commissions (SERC's), as required by Superfund Amendments and Reauthorization Act (SARA), Title III. They develop an emergency plan to prepare for and respond to chemical emergencies. They are also responsible for coordinating with local facilities to find out what they are doing to reduce hazards, prepare for accidents, and reduce hazardous inventories and releases. The LEPC serves as a focal point in the community for information and discussions about hazardous substances, emergency planning, and health and environmental risks.

Magnitude: A measure of the strength of a hazard event. The magnitude (also referred to as severity) of a given hazard event is usually determined using technical measures specific to the hazard.

Mitigate: To cause something to become less harsh or hostile, to make less severe or painful.

Mitigation Plan: Systematically evaluating community policies, actions, and tools, and setting goals for implementation over the long term that will result in a reduction in risk and minimize future losses community-wide.

National Climatic Data Center (NCDC): NCDC is the world's largest active archive of weather data. NCDC produces numerous climate publications and responds to data requests from all over the world. NCDC operates the World Data Center for Meteorology which is co-located at NCDC in Asheville, North Carolina, and the World Data Center for Paleoclimatology which is located in Boulder, Colorado.

National Flood Insurance Program (NFIP): Federal program created by Congress in 1968 that makes flood insurance available in communities that enact minimum floodplain management regulations as indicated in 44 CFR §60.3.

National Weather Service (NWS): Prepares and issues flood, thunderstorms and coastal storm warnings and can provide technical assistance to federal and state entities in preparing weather and flood warning plans.

Planning: The act or process of making or carrying out plans; the establishment of goals, policies, and procedures for a social or economic unit.

Preparedness: Actions that strengthen the capability of government, citizens, and communities to respond to disasters.

Presidential Major Disaster Declaration: A formal action by the President of the United States to make a State eligible for major disaster or emergency assistance under the Robert T. Stafford Relief and Emergency Assistance Act, Public Law 93-288, as amended.

Probability: A statistical measure of the likelihood that a hazard event will occur.

Recovery: The actions taken by an individual or community after a catastrophic event to restore order and lifelines in a community.

Regulatory Power: Local jurisdictions have the authority to regulate certain activities in their jurisdiction. With respect to mitigation planning, the focus is on such things as regulating land use development and construction through zoning, subdivision regulations, design standards, and floodplain regulations.

Repetitive Loss Properties (RL): Repetitive loss Properties are NFIP insured properties for which two or more losses of at least $1,000 each have been paid under the NFIP within any 10-year period since 1978.

Response: The actions taken during an event to address immediate life and safety needs and to minimize further damage to properties.

Risk: The estimated impact that a hazard would have on people, services, facilities, and structures in a community; the likelihood of a hazard event resulting in an adverse condition that causes injury or damage. Risk is often expressed in relative terms such as a high, moderate, or low likelihood of sustaining damage above a particular threshold due to a specific type of hazard event. It also can be expressed in terms of potential monetary losses associated with the intensity of the hazard.

Scale: A proportion used in determining a dimensional relationship; the ratio of the distance between two points on a map and the actual distance between the two points on the Earth's surface.

Severe Repetitive Loss (SRL): SRL are NFIP insured properties in which either Four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or for which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building

Stafford Act: The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100-107 was signed into law November 23, 1988 and amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most federal disaster response activities, especially as they pertain to FEMA and its programs.

Stakeholder: Individual or group that will be affected in any way by an action or policy. They include businesses, private organizations, and citizens.

State Hazard Mitigation Officer (SHMO): The representative of state government who is the primary point of contact with FEMA, other state and federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.

Substantial Damage: Damage of any origin sustained by a structure in a Special Flood Hazard Area whereby the cost of restoring the structure to its before-damaged condition would equal or

exceeds 50 percent of the market value of the structure before the damage.

Tectonic Plate: Torsion ally rigid, thin segments of the Earth's lithosphere that may be assumed to move horizontally and adjoin other plates. It is the friction between plate boundaries that cause seismic activity.

Topographic: Characterizes maps that show manmade features and indicate the physical shape of the land using contour lines.

Tornado: A violently rotating column of air extending from a thunderstorm to the ground.

Tropical Cyclone: A generic term for a cyclonic, low-pressure system over tropical or sub-tropical waters.

Tropical Storm: A tropical storm or cyclone having maximum sustained winds greater than 39 mph and less than 74 mph.

Tsunami: Great Sea wave produced by submarine earth movement or volcanic eruption.

United States Army Corps of Engineers (USACE): USACE provides vital public engineering services in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters.

Vulnerability: Describes how exposed or susceptible to damage an asset is. Vulnerability depends on an asset's construction, contents, and the economic value of its functions. Like indirect damages, the vulnerability of one element of the community is often related to the vulnerability of another. For example, since many businesses depend on uninterrupted electrical power, if an electric substation is flooded it will affect not only the substation itself, but a number of businesses as well. Often, indirect effects can be much more widespread and damaging than direct ones.

Vulnerability Assessment: The extent of injury and damage that may result from a hazard event of a given intensity in a given area. The vulnerability assessment should address impacts of hazard events on the existing and future built environment.

Wildfire: An uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.

Kristi Frederick
Fri 6/19/2020 3:16 PM
To: tcook@scrantonrockets.net; scottrubicon

Good Afternoon,

This is just a reminder on the Mitigation update email that I sent on the 5th.
We have a deadline to get this application sent in.
If you wish to participate in the updating of the plan
please send back your letter. If you wish not to participate please send back an email stating that you
do not want to participate so we can move forward on getting this application sent in.

Thanks,

Kristi Frederick
Logan Co. Office of Emergency Management
205 E. Maple St.
Paris, Ar. 72855
479-963-3218 Office
479-963-3890 Fax

MO Microsoft Outlook
Your message to cityofbnbl@gmail.com couldn't be delivered. cityofbnbl wasn't f... Fri 6/5/2020 9:00 AM

This message was sent with High importance.

Flag for follow up.

You forwarded this message on Fri 6/19/2020 3:16 PM

KF Kristi Frederick
Fri 6/5/2020 9:00 AM
To: dallou@magtel.com; cityofbnbl@gmail.c

Good Morning,

It is time to update the Logan County Hazard Mitigation Plan.
Logan County will be applying for a grant to update this plan.
If your city would like to participate please copy and paste this letter of support on your letter head and sign. Please either email, fax, or mail back to the Logan County Emergency Management Office. If all possible we ask that this be sent back by next Wednesday
6/10/2020 in order to get the Grant Information sent in.
You will find the Support letter below. Also I have attached the link to the 2015 Plan
http://www.wapdd.org/wp-content/uploads/2016/09/WAPDD-Logan-County-HMPUpdate-3.pdf

Logan County, Arkansas - WAPDD

LOGAN COUNTY HAZARD MITIGATION PLAN Ensure that Logan County and its partners maint range of future Federal disaster relief. The 2014 HMP Update was a complete rewrite of the 200 rewrite of the HMP

www.wapdd.org

Thank you,

Kristi Frederick
Logan Co. Office of Emergency Management
205 E. Maple St.
Paris, Ar. 72855
479-963-3218 Office
479-963-3890 Fax

June 5,2020

Mitigation Branch
Arkansas Devision of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

To Whom It May Concern:

As a participant in the 2015 Logan County Hazard Mitigation Plan, I understand the importance
of having such a plan in place. I also understand that the current Logan County Hazard Mitigation Plan has expired.

I support Logan County's application for assistance in order to update the Logan County Hazard
Mitigation Plan. In Addition, I plan on being a participant in the updated Logan County Hazard
Mitigation Plan.

Your consideration of Logan County's application for assistance would be greatly apreciated.

Sincerely,

Mayor

Kristi Frederick
Fri 6/5/2020 9:00 AM
To: dallou@magtel.com; cityofbnbl@gmail.com; scottrubiconlee@gmail.com

Good Morning,

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If your city would like to participate please copy and paste this letter of support on your letter head and sign. Please either email, fax, or mail back to the Logan County Emergency Management Office. If all possible we ask that this be sent back by next Wednesday 6/10/2020 in order to get the Grant Information sent in.
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Logan County, Arkansas - WAPDD

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www.wapdd.org

Thank you,

Kristi Frederick
Logan Co. Office of Emergency Management
205 E. Maple St.
Paris, Ar. 72855
479-963-3218 Office
479-963-3890 Fax

June 5,2020

Mitigation Branch
Arkansas Devision of Emergency Management
Building #9501
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North Little Rock, AR. 72199-9600

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Your consideration of Logan County's application for assistance would be greatly apreciated.

Sincerely,

Mayor

Re: CHANGED MEETING DATE OF MITIGATION MEETING

Tobi Miller <tmiller@logan-oem.org>

Wed 4/21/2021 11:43 AM

To: Jay Gack (loganjdg@magtel.com) <loganjdg@magtel.com>; Dale Dickens <dallou@magtel.com>; cityclerk@paris-ar.net <cityclerk@paris-ar.net>; Jerry Wilkins <cityofbnvl@gmail.com>; Scott Lee <scottrubiconlee@gmail.com>; Stanley McConnell <magazinear@magtel.com>; csiebenmorgen@gmail.com <csiebenmorgen@gmail.com>; Daniel Rogers <danielr19832001@yahoo.com>; hugheyroger@yahoo.com <hugheyroger@yahoo.com>; cityofscranton@centurylink.net <cityofscranton@centurylink.net>; jillbob@centurytel.net <jillbob@centurytel.net>; Beth Shumate <beth.shumate@magazinek12.com>; Taylor Gattis <tgattis@countylineindians.org>; Trent Goff <trent.goff@boonevilleschools.com>; Wayne Fawcett <wfawcett@parisschools.org>; Toby Cook <tcook@scrantonrockets.net>; susan@booneville.com <susan@booneville.com>; 'Paris Chamber of Commerce' <pariscoc@gmail.com> <pariscoc@gmail.com>; Danielle Careceuticals <danielle@careceuticalsinc.com>

To All Hazard Mitigation Participates

Below is a list of projects that are currently included in the mitigation plan. If any of them pertain to your community and you want them removed, please let me know. This plan is updated every five years. If there are any plans for projects that you may have to apply for grants you may want to add them to this plan in the case of that grant requiring your community to be part of a mitigation plan. This includes grants that approve money for connecting water systems or saferooms for schools or cities. Included in this email is the meeting invitation to the next meeting on May 11, 2021. If anyone has an issue with this date and time we need meet one-on-one. Please let me know if you are attending the meeting. It is important that I receive a response from this email and look forward to everyone participating in the next meeting. If anyone needs to come to the OEM for the meeting that is fine also. The Zoom meeting is an option for the ones who want to join by Zoom.

Schools Paris, Booneville, & Magazine Retrofit public school shelters to make structures more resilient.

Schools Paris Construct safe rooms at Paris Elementary and Paris High School.

Schools ALL Pillowcase Project for schools.

Schools Magazine Active Shooter Exercise & Update of Emergency Operations Plan and Continuity of Operations Plan following exercise.

Paris City, Booneville, Magazine Conduct workshop with local home builders about the benefits and costs of building wind and hail- resistant homes.

Paris City, Booneville, Magazine Conduct workshop with mobile home dealers regarding proper tie-downs for mobile homes.

Paris Construct improvements to or relocate wastewater treatment plant to mitigate flooding or dam failure.

Paris Construct drainage improvements based on comprehensive drainage study for City of Paris.

Paris Expand capacity of Paris Reservoir. (Initially a baseline engineering study would need to be completed since there are no historical records available).

Paris Develop and implement reservoir maintenance program to avoid potential breach of Paris Reservoir.

Paris Conduct annual inspections of dams with the Arkansas Department of Natural Resources, Dam Safety Unit where by State Dam Supervisor along with County and City of Paris staff and identify corrective actions to ensure safety of the public.

All Municipalities Alleviate and/or improve storm water drainage on roads that flood, or damage for problem areas on school campuses.

All Municipalities Adopt structural design standards recommended by either NIST or International Code Council for new or remodeled publicly-owned critical facilities.

All Municipalities Retrofit and build new hazard resistant critical facilities.

All Municipalities Upgrade existing water delivery systems to eliminate breaks and leaks

All Municipalities Conduct professional structural engineering assessments of critical facilities to determine structural integrity to natural hazards; develop costing, funding source(s), and implement recommendations.

All Municipalities Exhibitor Booth
Promote/educate public on emergency preparedness and hazard mitigation at public events like October Daze, Butterfly Festival. County Fair

Booneville Construct drainage improvements based on comprehensive drainage study for City of Paris.

Booneville Expand capacity of Booneville Lake (Initially a base line engineering study would need to be completed since there are no historical records available.)

Establish (2) new Firewise; programs – **Driggs** and **Sugar Grove to** participate in program along with **Paris** and **Ratcliff.**

Paris & Booneville Construct interconnection between Paris Water System and Booneville Water System.

MEETING INVITATION

Tobi Miller is inviting you to a scheduled Zoom meeting.

Topic: Hazard Mitigation Update Meeting
Time: May 11, 2021 10:00 AM Central Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/84473358222?pwd=VWlrZnorOGt2b3lTTTBWRXBpZW9QQT09

Meeting ID: 844 7335 8222
Passcode: 931162
One tap mobile
+13017158592,,84473358222#,,,,*931162# US (Washington DC)
+13126266799,,84473358222#,,,,*931162# US (Chicago)

Dial by your location
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
+1 929 436 2866 US (New York)
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
+1 669 900 6833 US (San Jose)
Meeting ID: 844 7335 8222
Passcode: 931162
Find your local number: https://us02web.zoom.us/u/kf6cH1jp5

Tobi Miller
479-847-0678

From: Tobi Miller <tmiller@logan-oem.org>
Sent: Monday, February 22, 2021 10:50 AM
To: Jay Gack (loganjdg@magtel.com) <loganjdg@magtel.com>; Dale Dickens <dallou@magtel.com>; cityclerk@paris-ar.net <cityclerk@paris-ar.net>; Jerry Wilkins <cityofbnvl@gmail.com>; Scott Lee <scottrubiconlee@gmail.com>; Stanley McConnell <magazinear@magtel.com>; csiebenmorgen@gmail.com <csiebenmorgen@gmail.com>; Daniel Rogers <danielr19832001@yahoo.com>; hugheyroger@yahoo.com <hugheyroger@yahoo.com>; cityofscranton@centurylink.net <cityofscranton@centurylink.net>; jillbob@centurytel.net <jillbob@centurytel.net>; Beth Shumate <beth.shumate@magazinek12.com>; Taylor Gattis <tgattis@countylineindians.org>; Trent Goff <trent.goff@boonevilleschools.com>; Wayne Fawcett <wfawcett@parisschools.org>; Toby Cook <tcook@scrantonrockets.net>; susan@booneville.com <susan@booneville.com>; 'Paris Chamber of Commerce' <pariscoc@gmail.com> <pariscoc@gmail.com>; Danielle Careceuticals <danielle@careceuticalsinc.com>
Subject: CHANGED MEETING DATE OF MITIGATION MEETING

Thank you for attending the last Logan County Hazard Mitigation meeting. Participating in the Hazard Mitigation Plan is not mandatory unless your school or community applies for grants that require being part of a mitigation plan. Each participating community needs to have someone to at least represent them during the meetings and submit ideas. This is the five-year update for the Logan County Multijurisdictional Mitigation Plan. The next meeting has been changed to March 12, 2021 at 10 a.m. on ZOOM. Below is the link to the meeting. Attached to the previous update I would like for you to review the mitigation plan and review any of the current mitigation strategies that pertain to your school or community. I need to know if you want them deleted or add any additional ideas. If you need a printed copy of the plan, we can get one to your office. Any question don't hesitate to contact the Logan County Emergency Management Office at 479-963-3218 or email. The current Logan County Hazard Mitigation Plan is linked below:
www.wapdd.org/wp-content/uploads/2016/09/WAPDD-Logan-County-HMPUpdate-3.pdf

Tobi Miller is inviting you to a scheduled Zoom meeting.

Topic: Logan County Hazard Mitigation Plan Meeting
Time: Mar 12, 2021 10:00 AM Central Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/81505043518?pwd=QTA1aWtSTmtHVWtocndacDZyQzhWZz09

Meeting ID: 815 0504 3518
Passcode: 532002
One tap mobile
+19294362866,,81505043518#,,,,*532002# US (New York)
+13017158592,,81505043518#,,,,*532002# US (Washington DC)

Dial by your location
+1 929 436 2866 US (New York)

+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
+1 669 900 6833 US (San Jose)
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
Meeting ID: 815 0504 3518
Passcode: 532002
Find your local number: https://us02web.zoom.us/u/kj3WW1VCZ

From: Tobi Miller
Sent: Friday, December 18, 2020 3:11 PM
To: Jay Gack (loganjdg@magtel.com) <loganjdg@magtel.com>; Dale Dickens <dallou@magtel.com>; cityclerk@paris-ar.net <cityclerk@paris-ar.net>; Jerry Wilkins <cityofbnvl@gmail.com>; Scott Lee <scottrubiconlee@gmail.com>; Stanley McConnell <magazinear@magtel.com>; csiebenmorgen@gmail.com <csiebenmorgen@gmail.com>; Daniel Rogers <danielr19832001@yahoo.com>; hugheyroger@yahoo.com <hugheyroger@yahoo.com>; cityofscranton@centurylink.net <cityofscranton@centurylink.net>; jillbob@centurytel.net <jillbob@centurytel.net>; Beth Shumate <beth.shumate@magazinek12.com>; Taylor Gattis <tgattis@countylineindians.org>; Trent Goff <trent.goff@boonevilleschools.com>; Wayne Fawcett <wfawcett@parisschools.org>; Toby Cook <tcook@scrantonrockets.net>; susan@booneville.com <susan@booneville.com>; 'Paris Chamber of Commerce' <pariscoc@gmail.com> <pariscoc@gmail.com>
Subject: Follow Up to Mitigation Meeting

Reply Delete Junk Block ···

Survey and meeting information

KF

Kristi Frederick
Mon 5/10/2021 10:12 AM
To: Beth Shumate <beth.shumate@magazinek12.com>; Taylor Gattis <tgattis@countylineindians.org>; trent.goff@boonevilleschools.com; wfawcett@parissch

School Survey.docx
13 KB

Good morning,

I have attached a survey to be filled out and sent back. This survey will help us with updating the Hazard Mitigation Plan. Also, below you will find the link to tomorrow's meeting.

Tobi Miller is inviting you to a scheduled Zoom meeting.

Topic: Hazard Mitigation Update Meeting
Time: May 11, 2021 10:00 AM Central Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/84473358222?pwd=VWIrZnorOGt2b3lTTTBWRXBpZW9QQT09

Meeting ID: 844 7335 8222
Passcode: 931162
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Dial by your location
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
+1 929 436 2866 US (New York)
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
+1 669 900 6833 US (San Jose)
Meeting ID: 844 7335 8222
Passcode: 931162
Find your local number: https://us02web.zoom.us/u/kf6cH1jp5

Thanks,

Kristi Frederick
Logan Co. Office of Emergency Management
205 E. Maple St.
Paris, Ar. 72855
479-963-3218 Office
479-963-3890 Fax

Reply | Reply all | Forward

School Survey

School Enrollment Compacity _____

Structural Value of Buildings (total only) _____

Do you have operational procedures during tornados, severe weather, and earthquakes? _____

Are any of your buildings prone to flooding? _____

Do you have any water drainage issues on your campus? _____

If so, do you have any projects in mind to fix them? _____

Does your school district have plans to add additional safe rooms to your Campus? _____

Does your school district have any plans or project to prevent any natural disasters to your campus? _____

AR Economic Development Institute
Jim Youngquist
Tobi Miller
Kristi Frederick
miles mcDonald
Carlos

9-10

Zoom meeting

Employement growth

Census info coming out in Aug
Reschedule another

Logan County
Arkansas

COURTHOUSE PARIS
72855

COURTHOUSE BOONEVILLE
72927

June 5, 2020

To Whom It May Concern:

As a participant in the 2015 Logan County Hazard Mitigation Plan, I understand the importance of having such a plan in place. I also understand that the current Logan County Hazard Mitigation Plan has expired.

I support Logan County's application for assistance in order to update the Logan County Hazard Mitigation Plan. In Addition, I plan on being a participant in the updated Logan County Hazard Mitigation Plan.

Your consideration of Logan County's application for assistance would be greatly appreciated.

Sincerely,

Ray Gack
Logan County Judge

June 5, 2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

To Whom It May Concern:

As a participant in the 2015 Logan County Hazard Mitigation Plan, we understand the importance of having such a plan in place. We also understand that the current Logan County Hazard Mitigation Plan has expired.

We support Logan County's application for assistance to update the Logan County Hazard Mitigation Plan. In addition, we plan on being a participant in the updated Logan County Hazard Mitigation Plan.

Your consideration of Logan County's application for assistance would be greatly appreciated.

Sincerely,

Daniel Rogers, Mayor

June 5,2020

Mitigation Branch
Arkansas Devision of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Sincerely,

Dale Dickens

Mayor

BOONEVILLE
A Good
HOME
TOWN

City of Booneville, Arkansas
City Hall, 497 East Main St - Suite A
Booneville, AR 72927
Office (479)675-3811 Fax (479)675-3636

JERRY WILKINS
Mayor

GAYLEEN R. WEST
Clerk-Treasurer

JOHN WILLIAMS
City Attorney

June 8, 2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Sincerely,

Jerry Wilkins, Mayor

CITY OF MAGAZINE
23 N. State Hwy. 109 - PO Box 367
Magazine, Arkansas 72943
479.969.8550 Fax 479.969.2558

Stanley McConnell
Mayor

Vicki Smith
Recorder-Treasurer

June 5,2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Your consideration of Logan County's application for assistance would be greatly appreciated.

Sincerely,

Stanley B. McConnell

Mayor, City of Magazine

Town Of Morrison Bluff
22189 N. State Hwy. 109
Scranton, AR 72863

June 5, 2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Sincerely,

Charlotte Siebenmorgen

Mayor

County Line School District

"A Tradition of Excellence, One Student at a Time . . ."
12092 West State Highway 22
Branch, AR 72928

Taylor Gattis
Superintendent
479-635-2222 *Phone*
479-635-2087 *Fax*

June 8, 2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Sincerely,

Superintendent

Eric Parsons
High School Principal
479-635-2441 *Phone*
479-635-2452 *Fax*

Linda Teague
Elementary Principal
479-635-4701 Phone
479-635-2102Fax

Magazine Public Schools
485 East Priddy Street
Magazine, AR 72943
Phone 866-900-2001
Fax 479-969-8740
Dr. Beth Shumate
Superintendent

Magazine Elementary
Karen Gipson, Principal
866-900-2001 ext. 7070

Magazine High School
Randy Bryan, Principal
866-900-2001 ext. 8080

June 8, 2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

To Whom It May Concern:

As a participant in the 2015 Logan County Hazard Mitigation Plan, I understand the importance of having such a plan in place. I also understand that the current Logan County Hazard Mitigation Plan has expired.

I support Logan County's application for assistance in order to update the Logan County Hazard Mitigation Plan. In Addition, I plan on being a participant in the updated Logan County Hazard Mitigation Plan.

Your consideration of Logan County's application for assistance would be greatly appreciated.

Sincerely,

Beth Shumate, Ed.D.
Magazine School District Superintendent

Paris School District
602 North 10th Street, Paris AR 72855
Phone: 1-844-963-3243
Fax:1-479-208-7554

Dr. R Wayne Fawcett, Superintendent
Dr. Netlla Cureton, Asst. Superintendent

June 5,2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Sincerely,

Superintendent

Lakaen Schluterman, Principal – Paris Elementary School, 479-208-5898 (Fax)
Casey Mainer, Principal – Paris Middle School, 479-208-7482 (Fax)
Mike Nichols, Principal – Paris High School, 479-208-7564 (Fax)

June 9,2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Sincerely,

Mayor
City of Ratcliff

June 22, 2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Sincerely,

Bobby Sewell
Mayor, Subiaco AR

City of Scranton

PO Box 457
Scranton, AR 72863

June 8,2020

Mitigation Branch
Arkansas Division of Emergency Management
Building #9501
Camp Joseph T. Robinson
North Little Rock, AR. 72199-9600

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Sincerely,

David Corbitt, Mayor
479-847-5270

AGENDA

Paris Community Health Council

Location: FNB COMMUNITY CENTER
Date: 6/8/2021
Time: 1:00 PM – 2:00 PM

I. **Welcome & Prayer**

II. **New Business/Old Business**

III. **First Assembly of God Paris-** *Roxie Campbell*

IV. **Paris School District-** *Netlla Cureton*

V. **Boys and Girls Club-** *Kathy Wright*

VI. **Volunteer Opportunities**

VII. **Roundtable**

VIII. **Next Month's Meeting - July 6th, 2021**

IX. **Adjournment**

2021 Schedule
Location- Paris Community Center (behind First National Bank)
Meeting time: 1 p.m. to 2 p.m.
July 6
Aug 10
Sep 7
Oct 5
Nov. 9
Dec. 7

Logan County Hazard Mitigation Plan Update Meeting Next Week

Tobi Miller <tmiller@logan-oem.org>

Tue 12/8/2020 2:29 PM

To: Beth Shumate <beth.shumate@magazinek12.com>; Taylor Gattis <tgattis@countylineindians.org>; Trent Goff <trent.goff@boonevilleschools.com>; Wayne Fawcett <wfawcett@parisschools.org>; Toby Cook <tcook@scrantonrockets.net>; Jay Gack (loganjdg@magtel.com) <loganjdg@magtel.com>; Dale Dickens <dallou@magtel.com>; cityclerk@paris-ar.net <cityclerk@paris-ar.net>; Jerry Wilkins <cityofbnvl@gmail.com>; Scott Lee <scottrubiconlee@gmail.com>; Stanley McConnell <magazinear@magtel.com>; csiebenmorgen@gmail.com <csiebenmorgen@gmail.com>; Daniel Rogers <danielr19832001@yahoo.com>; hugheyroger@yahoo.com <hugheyroger@yahoo.com>; cityofscranton@centurylink.net <cityofscranton@centurylink.net>; jillbob@centurytel.net <jillbob@centurytel.net>
Cc: Kristi Frederick <kfrederick@logan-oem.org>; Jennifer Oakley <jenniferboakley@yahoo.com>; susan@booneville.com <susan@booneville.com>; 'Paris Chamber of Commerce' <pariscoc@gmail.com>; natosha Hammonds (natoshalcj@magtel.com) <natoshalcj@magtel.com>

1 attachments (6 MB)

Hazard Mitigation Plan 2015 (1).pdf;

12/8/20

Dear Hazard Mitigation Plan Team Members,

Concerning: Logan County Hazard Mitigation Plan Update

In year 2000 the Disaster Mitigation Act was passed that requires communities wishing to apply for mitigation funds to be part of a hazard mitigation plan. Logan County has developed a mulit-jurisdictional plan. Since the current plan is due to expire next year the Logan County Office of Emergency Management is working to update the Logan County Hazard Mitigation Plan.

The communities included in the plan, which make up the planning team, are: Logan County, Blue Mountain, Booneville, Caulksville, Magazine, Morrison Bluff, Paris, Ratcliff, Scranton, Subiaco, County Line School District, Booneville School District, Paris School District and Scranton School District. Each community is encouraged to participate in this update for grant opportunities.

A Kick-Off Meeting is scheduled for December 15, 2020 at 10:00 a.m. The Zoom meeting invitation is included. Please consider attending or send this invitation to someone that can represent your community or school that can participate.

Also included in this letter is the link to the current Hazard Mitigation Plan. We will be discussing how we will be handling the update and grant funding opportunities. This meeting is planned for an hour. We understand that many of you are busy with the current COVID-19 situation. We will have a couple of follow-up meetings to discuss updates from team members and any comments from the public. We are hoping to have this finished within the year.

If you have any questions or concerns, please call Tobi Miller or Kristi Frederick at the Logan County Emergency Management Office at (479) 963-3218 or tmiller@logan-oem.org .

Sincerely,

Tobi Miller

Logan County Emergency Management Director

Tobi Miller is inviting you to a scheduled Zoom meeting.

Topic: Logan County Hazard Mitigation Plan Update
Time: Dec 15, 2020 10:00 AM Central Time (US and Canada)

Join Zoom Meeting
https://us02web.zoom.us/j/89140959034?pwd=U21YV0w4NngyRVhEenpsUk5Ldjh4QT09

Meeting ID: 891 4095 9034
Passcode: 017773
One tap mobile
+19294362866,,89140959034#,,,,,,0#,,017773# US (New York)
+13017158592,,89140959034#,,,,,,0#,,017773# US (Washington D.C)

Dial by your location
+1 929 436 2866 US (New York)
+1 301 715 8592 US (Washington D.C)
+1 312 626 6799 US (Chicago)
+1 669 900 6833 US (San Jose)
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)
Meeting ID: 891 4095 9034
Passcode: 017773
Find your local number: https://us02web.zoom.us/u/keem7mQq7j

Reply Delete Junk Block ...

Mitigation Plan

This message was sent with High importance.

KF

Kristi Frederick
Tue 6/8/2021 10:50 AM
To: dallou@magtel.com; scottrubiconlee@gmail.com; csiebenmorgen@gmail.com; danielr19832001@yahoo.com; hugheyroger@yahoo.

Logan County Mayors,

The Logan Emergency Management Office is currently updating the Mitigation Plan.
If you have any project's such as culvert improvement, expanding water systems, drainage systems, or if there is a possibility of a drainage study for your community please submit these project ideas to this office so you can get included in the plan. This plan will not be updated for another 5 years. If there is any possibility that you will be applying for
funding that requires you to be included in a mitigation plan this is the time to get those projects submitted. This does not have to be a detailed project
just state your project ideas.

Thanks,

Kristi Frederick
Logan Co. Office of Emergency Management
205 E. Maple St.
Paris, Ar. 72855
479-963-3218 Office
479-963-3890 Fax

Reply | Reply all | Forward

2020 Logan County Hazard Mitigation Plan Survey

This Survey is designated to help the Logan County Office of Emergency Management identify the community's concerns about natural and human-caused hazards, to better understand community needs in reducing risk and loss from such hazards. Please take a few minutes to complete the survey. All individual responses are strictly confidential.

1. Zip Code_____ Community Name or Location_____ Within City Limits? Y N

2. How concerned are you about the following threats affecting Logan County?
   (Check all that apply)

Natural Disaster	Extremely Concerned	Very Concerned	Concerned	Somewhat Concerned	Not Concerned
Drought	☐	☐	☐	☐	☐
Earthquake	☐	☐	☐	☐	☐
Flood	☐	☐	☐	☐	☐
Landslide	☐	☐	☐	☐	☐
Wildfire	☐	☐	☐	☐	☐
Household Fire	☐	☐	☐	☐	☐
Windstorm	☐	☐	☐	☐	☐
Tornado	☐	☐	☐	☐	☐
Other_____	☐	☐	☐	☐	☐

3. Have you ever received information about how to make your family home safer from a natural disaster? Y☐ N☐

4. What is the most effective way for you to receive information about how to make your household and home safer from natural disasters? (Please check all that apply)

Media:

- ☐ Newspaper
- ☐ Television
- ☐ Radio
- ☐ Cell Phone

Other Methods:

- ☐ Employer
- ☐ Mail
- ☐ Website
- ☐ Public Meeting
- ☐ Government Agency
- ☐ Schools
- ☐ Books
- ☐ Fire Dept
- ☐ Fact Sheet
- ☐ Other_____

2020 Logan County Hazard Mitigation Plan Survey

5. How aware are you of the natural hazards that could affect your home?
☐ Not at all ☐ Somewhat ☐ Moderately ☐ Very Much

6. Do you feel preparedness activities for disaster are important to the safety and well being of your family? Y ☐ N ☐

7. **In your household,** have your or someone: **(check all that apply)**

Preparedness Activity	Have Done	Have done	Not Done	Unable to do
A. Talked with members in your household about what to do in case of a natural disaster or emergency?	☐	☐	☐	☐
B. Developed a "Household/ Family Emergency Plan?	☐	☐	☐	☐
C. Prepared a "Disaster Supply Kit"	☐	☐	☐	☐

8. Natural and human-caused disasters can have a significant impact on a community but planning for these events can help lesson the impact. Please tell us how important each on is to you.

Statement	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important
Protecting private property	☐	☐	☐	☐	☐
Protecting critical facilities (Hospitals, transportation networks, fire stations)	☐	☐	☐	☐	☐
Preventing development in hazard areas	☐	☐	☐	☐	☐
Protecting natural environment	☐	☐	☐	☐	☐
Strengthening emergency services (police, fire, ambulance)	☐	☐	☐	☐	☐

9. Do you feel emergency services (fire, ambulance, police, hospital,) are adequately prepared to deal with a natural disaster in your municipality? **(If no please give a brief explanation why)**
☐ Yes ☐ No ☐ Not Sure

2020 Logan County Hazard Mitigation Plan Survey

10. Do you have an estimate of the value of your property and personnel items for insurance in the event of a loss due to a natural disaster? Y ☐ N ☐

11. Are you confident you are adequately insured in the event of a major loss? Y ☐ N ☐

12. Do you believe there are government programs (either grants or low-interest loans) to help you recover from losses due to a natural disaster that may not be covered by traditional insurance. Y ☐ N ☐

13. Overall, do you feel prepared in the event of a natural disaster should strike? Y ☐ N ☐

14. What, in your opinion, would help make Logan County more resilient in the event of a natural disaster? _____

_____

_____

THANK YOU for providing this information. Please return this survey to any of the following locations:
OEM 205 E. Maple St Paris, Ar. 72855
Judge's Office, Logan County Courthouse
Email kfrederick@logan-oem.org
Fax 479-963-3890

The public is invited to attend a Zoom Meeting on January 26, 2021 at 10 a.m. to participate in a discussion to update the Logan County Hazard Mitigation Plan. The log-in link and call-in information can be found on the Logan County Emergency Management Facebook page or logancountyoem.org