

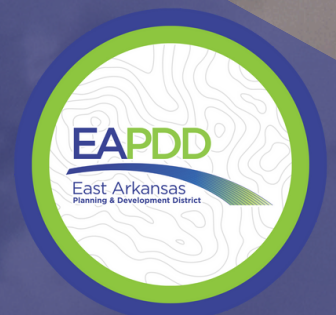


HAZARD MITIGATION PLAN

ST. FRANCIS COUNTY & CROSS COUNTY

EFFECTIVE THROUGH 2029

PREPARED BY:
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St. Francis/Cross County Hazard Mitigation Plan

FEMA 4318 -DR-AR-#0010

Awarded February 15th, 2019.

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RESOLUTION #

A RESOLUTION ADOPTING THE ST. FRANCIS/CROSS COUNTY HAZARD MITIGATION PLAN FOR THE CITY/COUNTY/SCHOOL DISTRICT ST. FRANCIS/CROSS COUNTY ARKANSAS.

WHEREAS, certain areas of St. Francis/Cross County are subject to periodic flooding and other natural and man caused hazards with the potential to cause damages to people's properties with the area; and

WHEREAS, the City/County/School District 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, St. Francis/Cross County, with the assistance of East Arkansas Planning & Development District, has initiated development of County wide, multijurisdictional 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/Quorum/Board of City/County/School District.

That the City/County/School District, Arkansas adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards (date) 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 ____ day of ____, 2024

APPROVED:

Mayor/Judge/Superintendent

ATTEST:

Secretary

SECTION 1

Planning Process

1.1 Plan Introduction

Hazard mitigation is the cornerstone of emergency management. It is defined as any sustained action to reduce or eliminate long-term risk to life and property from a hazard event. Mitigation encourages long term reduction of hazard vulnerability. The goal of mitigation is to save lives and reduce property damage.

The purpose of the St. Francis/Cross County Hazard Mitigation Plan is to provide guidance for hazard mitigation activities in St. Francis/Cross County. The St. Francis/Cross County Office of Emergency Management has the responsibility to coordinate all local activities relating to hazard evaluation and mitigation and to prepare and submit to FEMA a Local Mitigation Plan following the criteria established in 44 CFR 201.4 and Section 322 of the Disaster Mitigation Act of 2000 (Public Law 106-390). The Disaster Mitigation Act of 2000 became law on October 30, 2000, and amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the “Stafford Act”) (Public Law 93-288, as amended). Regulations for this activity can be found in Title 44 of the Code of Federal Regulations Part 206, Subpart M.

This plan meets requirements for a local mitigation plan under Interim Final Rule 44 CFR 201.4, published in the Federal Register by the Federal Emergency Management Agency (FEMA) on February 28, 2002. Meeting the requirements of the regulations cited above keeps St. Francis/Cross County qualified to obtain all disaster assistance including hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended.

St. Francis/Cross County initiated the Hazard Mitigation planning process by securing a FEMA HMGP grant to complete the Plan. St. Francis/Cross County hired East Arkansas Planning and Development District, Inc. (EAPDD) to author the plan. St. Francis/Cross County Judges Office and EAPDD worked together to engage the County, cities, communities, and school districts in the planning process.

1.1.1 Disaster Mitigation Act of 2000

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 (PDM) and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP). It also requires that communities must have an approved hazard mitigation plan to receive Stafford Act assistance, excluding assistance provided pursuant to emergency provisions.

The goals of this St. Francis/Cross County Hazard Mitigation plan are to;

- **Goal 1:** Reduce the potential for loss of life, injury and economic damage created by exposure to natural hazard for residents of St. Francis/Cross County due to natural disasters.
- **Goal 2:** 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.
- **Goal 3:** Seek grants for mitigation projects through the State and Federal funding.
- **Goal 4:** Protect existing properties from natural disasters.

The St. Francis/Cross County Hazard Mitigation Plan is being developed to assess the ongoing natural hazard mitigation activities in St. Francis/Cross County, to evaluate additional mitigation measures that should be undertaken,

and to outline a strategy for implementation of mitigation projects. This plan is multi-jurisdictional with a planning area that includes all unincorporated St. Francis/Cross County and municipalities of Colt, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, and Wynne. This plan also includes the East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District s: Forrest City schools, Hughes Schools, Palestine-Wheatley Schools, Crowley's Ridge Technical Institute, Cross County Schools, and Wynne Schools.

Formal adoption and implementation of a hazard mitigation plan presents many benefits to St. Francis/Cross County and its residents. By identifying problems and possible solutions in advance of a disaster, St. Francis/Cross County and participating communities and school districts will be in a better position to obtain pre- and post-disaster funding. Specifically, the Disaster Mitigation Act of 2000 establishes a pre-disaster hazard mitigation program and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP). It requires that states and communities have a FEMA approved hazard mitigation plan in place prior to receiving post-disaster HMGP funds. Adoption of this hazard mitigation strategy will also increase St. Francis/Cross County County's eligibility for assistance from FEMA's Flood Mitigation Assistance (FMA) program. St. Francis/Cross County and participating communities will also gain additional credit points under FEMA's Community Rating System (CRS) program, which provides discounts on National Flood Insurance Program (NFIP) flood insurance premiums for residents of communities that voluntarily participate in this program. Most importantly, St. Francis/Cross County will be able to recover faster and more wisely from a disaster. Through planning and acting on local mitigation strategies, the city will reduce vulnerability to disasters and identify opportunities for mitigation. In addition, the communities may meet comprehensive planning and other planning requirements and achieve community goals.

1.1.2 Parts of the Plan

The St. Francis/Cross County Hazard Mitigation Plan is divided into sections to address FEMA requirements for a local multi-jurisdictional plan. These sections are;

1. Planning Process
2. Planning Area and Resources
3. Hazard Identification and Risk Assessment
4. Mitigation Strategy
5. Acronyms
6. Plan Adoption

This Hazard Mitigation Plan is multi-jurisdictional with a planning area that includes all unincorporated St. Francis/Cross County including the Cities of Unincorporated areas of St. Francis County and Cross County, City of Colt, City of Hughes, City of Palestine City of Widener, City of Forrest City, City of Madison, City of Wheatley, City of Cherry Valley, this plan also includes the East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District .

All jurisdictions and school district listed above actively participated in the planning process from its inception. Each jurisdiction provided a representative to participate on the planning team or if a representative was unable to attend, they chose to be represented by the St. Francis/Cross County Office of Emergency Management. Planning team members actively participated in meetings, solicited input from members of their communities, and ensured that all jurisdiction information was reflected in the plan.

1.1.3 Involvement of Local Governments

St. Francis/Cross County County's The mitigation planning process began on January 30th, 2019, East Arkansas Planning & Development District (EAPDD) to facilitate the mitigation planning efforts on February 15th, 2019. St. Francis/Cross County began working with EAPDD to schedule planning meetings and begin gathering updated data. East Arkansas Planning & Development District served as facilitator while St. Francis/Cross County Judge and OEM, led the planning effort. Once all participating cities and school districts for which the St. Francis/Cross County OEM is responsible formally agreed to participate, an initial planning team comprised of representatives from St. Francis/Cross County and participating jurisdiction was organized. This initial team was instructed to solicit interested persons from their community to participate on the planning team. This solicitation led to the addition of several additional planning team members. The planning team members include representatives from County government,

local city governments, public works officials, emergency management officials, fire districts, and school districts. All participating jurisdictions actively participated in the planning process through soliciting input from their communities and participation in meetings. If a city or school district could not attend a meeting, all minutes and materials were mailed out to the jurisdiction. The St. Francis/Cross County Mitigation Planning Team also discussed mitigation actions, projects, and past hazard occurrences with EAPDD during conference calls.

Multiple planning events were scheduled throughout the planning process. Training events began the planning process. The East Arkansas Planning & Development District also utilized technical assistance provided by the Arkansas Department of Emergency Management by receiving during webinars provided by ADEM and FEMA. Guidelines for the mitigation plan were discussed as well as training for entering data and how to locate and research the data needed for the mitigation plan. It was stressed to have public involvement and to work together with cities, schools, and County.

Neighboring communities; local agencies; and regional agencies involved in hazard mitigation activities, emergency services, and other expertise were informed of LMPC and HMPT meetings. While some of these agencies consisted of those that have the authority to regulate development, many of the neighboring community attendees were individuals that contributed information relating to the complications of transportation and communications during regional hazard events. Participating stakeholders included: St. Francis/Cross County Sheriff's Office, St. Francis/Cross County Road Department, St. Francis/Cross County Water District, and other volunteers. The agencies and neighboring communities were requested by personal invitation from the St. Francis/Cross County OEM, EAPDD, or by a Local Mitigation Planning Committee (LMPC). Neighboring communities were also invited to participate in the public review of the draft hazard mitigation plan during the public review event from July 2022 – August 2022.

1.1.4 Neighboring Community Involvement

During the Mitigation Planning Process for St. Francis County, Cross County, neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development were informed of the meetings and invited personally by St. Francis/Cross County Judges Office to attend planning meetings. Representatives from City of Colt, City of Hughes, City of Palestine City of Widener, City of Forrest City, City of Madison, City of Wheatley, City of Cherry Valley, City of Hickory Ridge, City of Parkin, and the City of Wynne, and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District s attended the planning meetings.

In summary, the planning process consisted of the following items:

- County appointed a planning committee consisting of mayors and city personnel, school personnel, fire department members, emergency workers, planning and development district employees, and LEPC/ Citizens Corp/Hazard Mitigation Planning Team Members.
- County engaged East Arkansas Planning & Development District (EAPDD), the regional planning organization, to provide staff support in conducting the planning process and preparing the plan.
- Meetings were held with committee members to understand and agree on planning processes and steps required, including organizing resources, assess hazards, develop a mitigation plan, and implement the plan and mentor progress.
- East Arkansas Planning & Development District staff attended workshops presented by FEMA and ADEM on the preparation of the mitigation plan.
- East Arkansas Planning & Development District staff also had numerous subsequent discussions about the planning process with ADEM staff. The EAPDD staff also discussed planning process issues with others in the state that were involved in, other Planning and Development Districts.

The Planning Committee utilized the following technical documents.

- Arkansas Hazard Mitigation Plan was used as a guidance tool for past occurrences and risk assessments.
- EAPDD Comprehensive Economic Development Strategy.
- National Oceanic Atmospheric (NOAA) Past Hazard Events
- FEMA's National Flood Hazard Layer
- Southern Wildfire Risk Assessment

Timeline:

First Meeting 2019

Planning Grant was awarded February 15th, 2019, as a HMGP under disaster FEMA-4318-DR-AR-Project #10

First organized planning meeting was held February 2019 at the St. Francis/Cross County Court house. Each person in attendance received a workbook containing a copy of the PowerPoint “Overview of the Mitigation Planning Process” Worksheets from the FEMA’s Local Mitigation Planning Handbook March 2013; Tasks 4- Community Capabilities, Task 5- Risk Assessment and Critical Facilities Task 6-Development a Mitigation Strategy and Task 7- Procedures to Keep Plan Updated

- The information was presented, then a time for question-and-answer session.
- St. Francis/Cross County Hazard Mitigation Questionnaires were handed out.

Follow-up meetings 2020 - 2021

After the first meeting there was a slight delay in the writing of this plan. During this time, the events of COVID-19 unfolded resulting in future meetings being conducted on a one-on-one basis with each community as information was needed. Communication with each community was conducted via phone between EAPDD and the community. If information was needed it was gathered via phone, email, or fax from each community.

Kick off Meeting 2021

- Information presented to the Judge and OEM Zach Jumper, this was also a question-and-answer session.
- Questionnaires were distributed to all superintendents addressing the school district’s inclement weather policy via email.
- Questionnaires were distributed to each mayor and superintendents as well as the county to be made available to the public. These questionnaires were released in hard copy form at various public buildings and via social media. No comments were received.

1.1.5 Public Review

St. Francis/Cross County is dedicated to involving the public directly in the continual reshaping and updating of the St. Francis/Cross County Hazard Mitigation Plan. The St. Francis/Cross County Judge and Office of Emergency Management are responsible for the annual monitoring, evaluation, and update of the plan. The public will be notified of the date(s), time(s), and location(s) of subsequent planning processes that are made available for public feedback and participation via public announcement in the local newspapers. Although the planning team represents the community to some extent, the public will have the opportunity to provide feedback about the plan by contacting their local planning team representative(s) or the St. Francis/Cross County Office of Emergency Management by phone, mail, email, or in-person.

Copies of the FEMA approved St. Francis/Cross County Hazard Mitigation Plan will be available at:

- www.eapdd.com
- St. Francis/Cross County Office of Emergency Management
- City Halls of City of Colt, City of Caldwell, City of Hughes, City of Palestine City of Widener, City of Forrest City, City of Madison, City of Wheatley, City of Cherry Valley,
- City of Hickory Ridge, City of Parkin, and the City of Wynne, and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District.

1.1.6 Plan Developers

| Team Member | Title(s) | Agency/Organization | Involvement |
|------------------|-------------------------------------|--|--|
| Craig Jones | St. Francis County Judge | St. Francis County | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Lynn Blake | Cross County Judge | Cross County | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Zach Jumper | OEM Director Planning Team Chief | St. Francis/Cross County Office of Emergency Management (OEM) / St. Francis/Cross County Hazard Mitigation Planning Team | Provided local data; assisted with mitigation actions; attended meetings; assists with project planning; and aided the development of the local hazard mitigation committee; |
| Adam Love | Mayor | City of Cherry Valley | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Tillman Kennon | Mayor | City of Hickory Ridge | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Dianne Patterson | Mayor | City of Parkin | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Jennifer Hobbs | Mayor | City of Wynne | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Gary Hughes | Mayor | City of Caldwell | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Tyler Mullins | Mayor | City of Colt | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Larry Bryant | Mayor | City of Forrest City | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Lincoln Barnett | Mayor | City of Hughes | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |

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| Roy Winfrey | Mayor | City of Madison | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Billy Shafer | Mayor | City of Palestine | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Larry Nash | Mayor | City of Wheatley | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Arvin Billingsley | Mayor | City of Widener | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Cathie Cline | President | EACC | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Tiffany Hardrick | Superintendent | Forrest City School District | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Jon Estes | Superintendent | Palestine-Wheatley School District | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Nathan Morris | Superintendent | Cross County School District | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |
| Carl Easley | Superintendent | Wynne School District | Attended meetings; provided local data; assisted with mitigation actions; and aided the development of the local hazard mitigation committee |

Planning Team-

Point of Contacts

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|---|
| St. Francis County Judge Craig Jones 313 Izard St., Forrest City, AR. 72335 |
| Cross County Judge Lynn Blake 705 E. Union St., Wynne, AR. 72450 |
| St. Francis/Cross County OEM Zach Jumper |

1.2 Plan Maintenance Process

1.2.1 Monitoring, Evaluation and Updating the Plan

Although FEMA regulations require a plan update within five years, St. Francis/Cross County has developed a method to ensure that monitoring, evaluation, and updating of the St. Francis/Cross County Hazard Mitigation Plan occurs annually or as needed. The plan will be submitted to FEMA within five-years for review. The County will form a Hazard Mitigation Plan Evaluation Sub-Committee of the existing St. Francis/Cross County Local Emergency Planning Committee (LEPC). The LEPC consists of members from fire service, health officials, emergency management, law enforcement, community groups, transportation, hospital personnel, school administration and emergency medical personnel, elected officials, and owners and operators of covered facilities. The Director of the St. Francis/Cross County Office of Emergency Management will be the initial Chair of the sub-committee or Planning Team Leader. The Planning Team Leader will contact the planning team committee, set up meeting dates, and ensure that each community will maintain a representative on the team.

During the update period representatives of the Hazard Mitigation team will verify that information such as point of contact information for the jurisdictions and entities that are a part of this plan is still correct. Also, as events occur within the jurisdictions that are covered by this plan it will be recorded in the appropriate sections throughout. If the planning team feels as if a new hazard is faced by the county and its jurisdictions, then this should be added and addressed in the plan. In the event St. Francis/Cross County receives a new presidential declaration this information will be recorded in the appropriate sections of the plan. As mitigation actions are completed then this should be updated in the appropriate section as well.

The responsible party for overseeing and assuring plan updates is the St. Francis/Cross County Office of Emergency Management. At this time, the maintenance procedures for the Mitigation Plan will be conducted at the LEPC meeting, which are held quarterly. Each community's representative will be responsible for monitoring and evaluating the progress of the mitigation strategies in the plan. The team members will monitor the plan by providing a mitigation planning update at each quarterly meeting.

During the last LEPC meeting of each year, the sub-committee will meet to review and evaluate each goal and objective to determine their relevance to changing situations in St. Francis/Cross County, as well as changes in State or Federal policy, and to ensure that they are addressing current and expected conditions. The Sub-committee will also review and evaluate the risk assessment portion of the plan to determine if this information should be updated or modified. The parties or agencies responsible for the various implementation actions (identified in Section 4) will report on the status of their projects and will evaluate which implementation processes worked well, any difficulties encountered, how coordination efforts were proceeding, and which strategies should be revised.

The St. Francis/Cross County Office of Emergency Management will then have three months to update and make changes to the plan before submitting it to the Sub-Committee members and the State Hazard Mitigation Officer. If no changes are necessary, the State Hazard Mitigation Officer will be given a justification for this determination. Comments and recommendations offered by Sub-Committee members and the State Hazard Mitigation Officer will be incorporated into the plan update.

In addition, the St. Francis/Cross County Hazard Mitigation Plan will be integrated into other plans. Integrating hazard mitigation into the local comprehensive plan thereby establishes resilience as an overarching value of a community and provides the opportunity to continuously manage development in a way that does not lead to increased hazard vulnerability.

St. Francis/Cross County is covered by the following plans either from a local level or regional level involvement. Once these plans are updated the St. Francis/Cross County Mitigation Plan is expected to help facilitate in the plans. Also, any relevant changes that may impact mitigation will also be incorporated from the following plans into the St. Francis/Cross County mitigation plan.

Land Use and Development Plans will guide future growth and development away from areas with known hazards, or to ensure design standards for new or improved construction take potential hazards into account. Land use policies can build community resilience by taking information on location, frequency, and severity of hazards into

consideration and setting forth recommendations that influence development in a way that does not increase risks to life and property.

Transportation Plans can build community resilience by adopting policies that direct growth away from known hazard areas. Also, by ensuring that transportation systems and other critical infrastructure are designed to withstand the effect of known hazards, so they still function in the event of an emergency or disaster.

Housing Plans can help strengthen community resilience by ensuring that the location and design of new or improved housing complies not only with existing building codes, but with potential hazards. Opportunities to strengthen or replace structures unidentified as vulnerable to hazard can be promoted through existing maintenance or rehabilitation programs, and particularly through policies regarding non-conforming, substantially damaged, or substantially improved properties.

Economic Development Plans can promote commercial or industrial expansion in area that are not vulnerable to damage or disruption from hazard and by making community resilience a key feature in attracting, expanding and retaining businesses and industry.

Public Facilities and Infrastructure Plans policies can be adopted to ensure critical facilities such as police and fire stations, as well as key infrastructure such as water and wastewater treatment plants, are protected from the effects of hazards. This provides opportunities to establish goals and policies in support of mitigation projects such as storm water drainage improvements or the public acquisition of hazard areas for open space.

Natural Resource Protection Plans have policies designed to preserve or enhance environmental areas of concern, such as wetlands, riparian corridors, and floodplains, often include the added benefit of avoiding or minimizing development in hazard areas. These types of policies build community resilience by protecting lives and property and maintaining natural and beneficial functions of systems that act as buffers against hazardous events.

Historic Properties and Cultural Resources Plans are designed to protect and preserve historic and cultural sites, buildings, and other resources and can be linked with mitigation strategies to prevent damage and losses from hazardous events.

The Hazard Mitigation Plan will consider any changes in these plans and incorporate the information accordingly in its next update.

The Planning Committee will make every attempt to ensure the public will be able to directly comment on and provide feedback about the Plan by posting the agenda and submitting meeting notice to the local media through newspaper articles, County website and postings in public locations. This process will inform the County citizens on any changes or revisions of the St. Francis/Cross County Hazard Mitigation Plan.

Since future plans and government regulations might need to be adopted into the Hazard Mitigation Plan, St. Francis/Cross County Quorum Court will be informed of any necessary changes to the plan by the Team Leader, to be adopted into the Plan by County resolution. The Arkansas Department of Emergency Management will be contacted as necessary for professional and technical advice as needed.

1.2.2. Incorporation into Existing Planning Mechanisms

St. Francis/Cross County and plan participants currently use state laws pertaining to compliance with the National Flood Insurance Program as well as state fire codes, to encourage compliance with its hazard mitigation programs. These existing mechanisms have hazard mitigation strategies integrated into them. St. Francis/Cross County, as every other County in the State, has a current Emergency Operations Plan. The Hazard Mitigation Plan will become an annex of the EOP for future submissions. The St. Francis/Cross County Hazard Mitigation Plan will be available for public view on the East Arkansas Planning & Development District's website www.eapdd.com for any entity or citizen who wishes to view or make a copy of it. Copies will also be made available at public libraries, the St. Francis/Cross County Courthouse in St. Francis/Cross County and each participating jurisdiction's city hall. The cities of, and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District will be adopting the approved Hazard Mitigation Plan in their existing plans

that are relevant to Hazard Mitigation. Any participant without previous plans in place will be encouraged to develop zoning plans and other land ordinance plans to incorporate mitigation strategies. Participants incorporating the St. Francis/Cross County Hazard Mitigation Plan pertain to them. After these discussions, each incorporating mechanism will follow their local laws or guidelines necessary for implementation through open forum public meetings. Each incorporating party will monitor the progress of any incorporated mitigation strategies and report the success or failure to the Emergency Operations Council for inclusion in its annual report.

St. Francis/Cross County will be incorporating the St. Francis/Cross County Hazard Mitigation Plan into the St. Francis/Cross County Emergency Operations Plan and County land use ordinances and/or plans by following the laws set forth by the County government. Incorporating the plan into other plans will be done by vote at the regular quorum court meetings and passed by resolution.

Mitigation action will be adopted by the appropriate governing authority for each jurisdiction. This will also include current and future actions that may be added during the planning process. The County will adopt the action via resolution at the appropriate quorum court meeting at that time. Each city will adopt the actions via resolution at the appropriate city council meeting, and each school will update all appropriate actions via resolution at the appropriate school board meeting.

1.2.3 Continuous Public Involvement

St. Francis/Cross County is dedicated to involving the public directly in the continual reshaping and updating of the St. Francis/Cross County Hazard Mitigation Plan. The Hazard Mitigation Plan Evaluation Sub-Committee members are responsible for the annual monitoring, evaluation, and update of the plan. Although they represent the public to some extent, the public will be able to directly comment on and provide feedback about the plan.

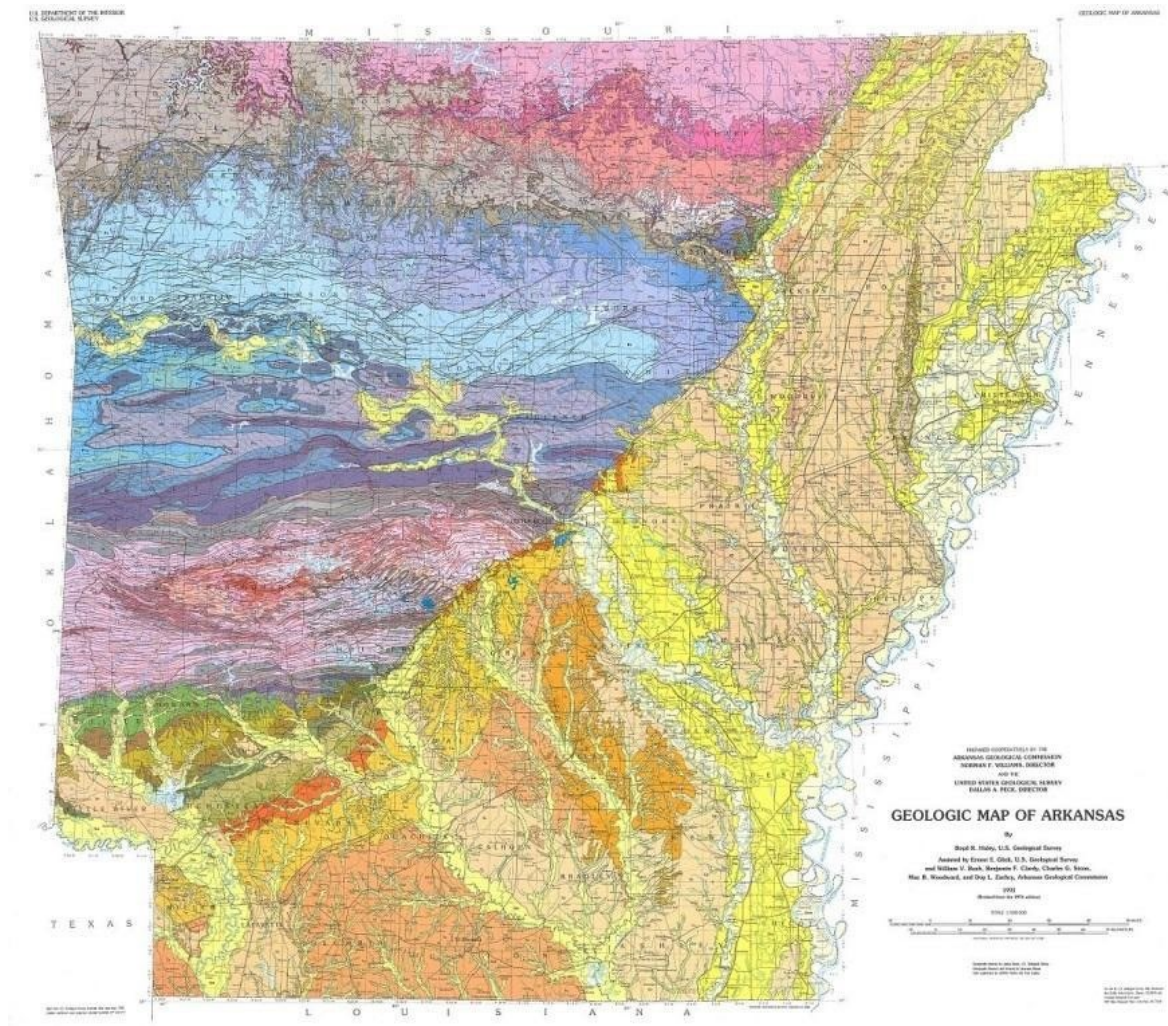
Copies of the FEMA approved St. Francis/Cross County Hazard Mitigation Plan will be available at www.eapdd.com. Contained in the plan are the address, phone number, and e-mail of the Director of the St. Francis/Cross County Office of Emergency Management, the primary point of contact for the plan.

A public announcement inviting all interested parties will be made prior to each quarterly LEPC meeting, including the first calendar year LEPC meeting during which the Hazard Mitigation Planning Sub-Committee reviews and evaluates the plan in its entirety. This meeting will provide the public a forum for which the general public can express concerns, opinions, or ideas about the plan. The St. Francis/Cross County Office of Emergency Management and the St. Francis/Cross County LEPC will publicize and host this meeting. Following the meeting, the evaluation committee will review the comments and make changes to the plan, as appropriate.

Notices were posted throughout St. Francis County and Cross County to request comment from underserved and vulnerable persons such as the senior population in the participating Jurisdictions. Notices were posted in locations such as Hughes Community Center, EACC Food Pantry, and Area Agency on Aging. These locations allow for the underserved and vulnerable populations to be reached and allow them an opportunity to provide responses to the district.

SECTION 2

Planning Area and Resources



2.1 Analyzing Development and Economic Trends

Since 2009 Land Use and Development trends have changed within the county. Many Cities have noted that populations have decreased following the recessions that occurred in 2009. Dependence on the farmland has increased and is one of the main incomes for many of the citizens and communities located within St. Francis/Cross County. One thing that has not changed according to the cities within St. Francis/Cross County is their ability to recover from disasters when they occur in St. Francis/Cross County. There have been no changes in development since the last plan update, thus resulting no change in vulnerability. Since there has been no changes in vulnerability, there are no changes in the community priorities.

| <i>Demographics 1</i> | Total St. Francis County | Caldwell | Colt | Hughes | Forrest City |
|--|-----------------------------|----------|----------|----------|--------------|
| <i>TOTAL POPULATION</i> | 23,090 | 451 | 293 | 1,056 | 13,015 |
| AGE | | | | | |
| <i>Under 5 years</i> | 1,593 | 25 | 13 | 126 | 863 |
| <i>18 years and over</i> | 19,999 | 366 | 265 | 772 | 10,872 |
| <i>62 years and over</i> | 4,897 | 165 | 50 | 222 | 1,792 |
| RACE | | | | | |
| <i>White/ Caucasian</i> | 9,551 | 328 | 262 | 201 | 3,046 |
| <i>Black/ African American</i> | 12,561 | 94 | 21 | 810 | 9,184 |
| <i>American Indian/ Alaskan Native</i> | 65 | 0 | 2 | 3 | 42 |
| <i>Asian</i> | 127 | 0 | 0 | 0 | 78 |
| <i>Native Hawaiian/ Other Pacific Islander</i> | 8 | 0 | 0 | 0 | |
| <i>Other Race</i> | 189 | 12 | 1 | 14 | 462 |
| <i>Two or More Races</i> | 589 | 17 | 7 | 28 | 203 |
| HOUSEHOLDS | | | | | |
| <i>Total Households</i> | 9,313 | 215 | 180 | 421 | 4,586 |
| <i>Median Household Income</i> | \$36,053 | \$37,386 | \$49,475 | \$18,594 | \$33,062 |

| <i>Demographics 2</i> | Total St. Francis County | Madison | Palestine | Wheatley | Widener |
|--|-----------------------------|----------|-----------|----------|----------|
| <i>TOTAL POPULATION</i> | 23,090 | 14,461 | 838 | 279 | 212 |
| AGE | | | | | |
| <i>Under 5 years</i> | 1,593 | 1,109 | 50 | 13 | 30 |
| <i>18 years and over</i> | 19,999 | 12,222 | 538 | 396 | 156 |
| <i>62 years and over</i> | 4,897 | 2,275 | 239 | 103 | 39 |
| RACE | | | | | |
| <i>White/ Caucasian</i> | 9,551 | 3,992 | 404 | 190 | 66 |
| <i>Black/ African American</i> | 12,561 | 9,948 | 81 | 65 | 136 |
| <i>American Indian/ Alaskan Native</i> | 65 | 47 | 0 | 0 | 0 |
| <i>Asian</i> | 127 | 85 | 0 | 0 | 3 |
| <i>Native Hawaiian/ Other Pacific Islander</i> | 8 | 2 | 0 | 0 | 1 |
| <i>Other Race</i> | 189 | 90 | 3 | 7 | 1 |
| <i>Two or More Races</i> | 589 | 297 | 20 | 15 | 5 |
| HOUSEHOLDS | | | | | |
| <i>Total Households</i> | 9,313 | 5,144 | 321 | 191 | 90 |
| <i>Median Household Income</i> | \$36,053 | \$34,079 | \$28,173 | \$39,476 | \$31,250 |

| <i>Demographics 3</i> | Total Cross County | Cherry Valley | Hickory Ridge | Parkin | Wynne |
|--|-----------------------|---------------|---------------|----------|----------|
| TOTAL POPULATION | 16,833 | 575 | 228 | 794 | 8,314 |
| AGE | | | | | |
| Under 5 years | 1,101 | 53 | 11 | 27 | 632 |
| 18 years and over | 12,626 | 429 | 205 | 687 | 5,683 |
| 62 years and over | 3,649 | 91 | 78 | 229 | 1,484 |
| RACE | | | | | |
| White / Caucasian | 12,067 | 489 | 218 | 215 | 5,038 |
| Black / African American | 3,651 | 38 | 0 | 526 | 2,720 |
| American Indian / Alaskan Native | 38 | 5 | 0 | 3 | 23 |
| Asian | 102 | 0 | 0 | 0 | 93 |
| Native Hawaiian / Other Pacific Islander | 5 | 1 | 0 | 0 | 1 |
| Other Race | 395 | 9 | 3 | 7 | 82 |
| Two or More Races | 575 | 33 | 7 | 43 | 357 |
| HOUSEHOLDS | | | | | |
| Total Households | 7,585 | 247 | 120 | 347 | 3,037 |
| Median Household Income | \$44,379 | \$49,475 | \$36,250 | \$24,464 | \$36,310 |

2.2 NFIP Participation and Capability Assessment

National Flood Insurance Program (NFIP)

St. Francis County – CID: 050184

Init FHBM Identified- 06/28/77
Init FIRM Identified- 11/01/85
Curr Eff Map Date- 02/18/05(M)
Reg-Emer Date- 11/01/85
Tribal-NO

St. Francis County will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

City of Caldwell – CID: 050185

Init FHBM Identified- 11/01/74
Init FIRM Identified- 10/19/82
Curr Eff Map Date- 02/18/05(M)
Reg-Emer Date- 10/19/82
Tribal-NO

Caldwell will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

City of Colt– CID: 050186

Init FHBM Identified- 08/23/74
Init FIRM Identified- 02/18/05
Curr Eff Map Date- 02/18/05
Reg-Emer Date- 02/18/05
Tribal-NO

Colt will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

City of Forrest City– CID: 050187

Init FHBM Identified- 03/15/74
Init FIRM Identified- 12/04/79
Curr Eff Map Date- 02/18/05
Reg-Emer Date- 12/04/79
Tribal-NO

Forrest City will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

City of Hughes– CID: 050188

Init FHBM Identified- 10/12/73
Init FIRM Identified- 11/01/85
Curr Eff Map Date- 02/18/05(M)
Reg-Emer Date- 11/01/85
Tribal-NO

Hughes will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff

members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

City of Madison– CID: 050189

Init FHBM Identified- 03/22/74
Init FIRM Identified- 02/01/87
Curr Eff Map Date- 02/18/05(L)
Reg-Emer Date- 02/01/87
Tribal-NO

Madison will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

City of Palestine– CID: 050359

Init FHBM Identified- 04/25/75
Init FIRM Identified- 10/12/82
Curr Eff Map Date- 02/18/05(M)
Reg-Emer Date- 10/12/82
Tribal-NO

Palestine will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

City of Wheatley– CID: 050374

Init FHBM Identified- 09/19/75
Init FIRM Identified- 09/04/85
Curr Eff Map Date- 02/18/05(M)
Reg-Emer Date- 09/04/85
Tribal-NO

Wheatley will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

Town of Widener is not currently participating in the NFIP. There is no plan at this time to join. They do not have the resources to participate in the NFIP.

Severe Loss:

No Severe Repetitive Losses were recorded for St. Francis County.

Repetitive Loss:

No Repetitive Losses were recorded in St. Francis County.

Cross County – CID: 050056

Init FHBM Identified- 06/07/77

Init FIRM Identified- 06/01/87

Curr Eff Map Date- 06/01/87(L)

Reg-Emer Date- 06/01/87

Tribal-NO

Cross County will assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The county will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The County stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits. The county floodplain manager is appointed by the county judge.

City of Cherry Valley– CID: 050057

Init FHBM Identified- 03/15/74

Init FIRM Identified- 05/04/88

Curr Eff Map Date- 05/04/88

Reg-Emer Date- 05/04/88

Tribal-NO

Cherry Valley assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The town will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The town stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits.

City of Hickory Ridge– CID: 050058

Init FHBM Identified- 09/06/74

Init FIRM Identified- 01/03/86

Curr Eff Map Date- 01/03/86(M)

Reg-Emer Date- 01/03/86

Tribal-NO

Hickory Ridge assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The town will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with

FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The town stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits.

City of Parkin– CID: 050059

Init FHBM Identified- 06/14/74
Init FIRM Identified- 10/15/85
Curr Eff Map Date- 10/15/85(M
Reg-Emer Date- 10/15/85
Tribal-NO

Parkin assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The town will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The town stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits.

City of Wynne – CID: 050060

Init FHBM Identified- 03/22/74
Init FIRM Identified- 08/15/80
Curr Eff Map Date- 08/15/80)
Reg-Emer Date- 08/15/80
Tribal-NO

Wynne assist residents with document completion for the NFIP and educates the citizens about the NFIP program. Permits are issued for those building in the floodplain, and then the floodplain manager monitors the construction process to ensure compliance. The town will continue to participate through continuing floodplain education and staying in compliance with the NFIP by participating in the Community Assistance Visit (CAV) with FEMA/ISO staff members and with members of the Arkansas Natural Resource Commission (ANRC). The ANRC provides technical assistance to the community assuring that the community is adequately enforcing its floodplain management regulations. The town stays in compliance with FEMA/ISO and ANRC by doing their recommendations that are determined at their visits.

School District National Flood Insurance Program (NFIP)

The East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District is not required to be a member of the NFIP, but they are located in St. Francis/Cross County and the Cities of Marianna.

Severe Loss:

No Severe Repetitive Losses were recorded for Cross County

Repetitive Loss:

| Planning Area | # of Losses | Properties | Structure Type | Payments |
|---------------|-------------|------------|----------------|--------------|
| Cross County | 4 | 2 | Single Family | \$161,824.23 |

SI/SD Reporting:

Cross County and St. Francis County utilize their respective OEMs for SI/SD reporting and permitting in the participating jurisdictions.

***Note- Please see Arkansas State Legislature Act 754 of 2003 in regard to Floodplain management and Administration. <http://www.floodplain.ar.gov/>**

St. Francis/Cross County Capability Assessment

[illegible]

[illegible]

| Financial Capabilities | | | | | | | |
|------------------------------------|--|--------------------------------------|-----------------------------------|--------------------------|------------------------|---------------------------------|---|
| Jurisdictions | Fees for water, sewer, gas, or electric services | Capital improvements project funding | Community Development Block Grant | Federal Funding Programs | State Funding Programs | Impact fees for new development | Authority to levy taxes for specific purposes |
| St. Francis Cross County | X | X | X | X | X | X | X |
| Caldwell | X | | X | X | X | X | X |
| Colt | X | | X | X | X | X | X |
| Hughes | X | | X | X | X | X | X |
| Forrest City | X | X | X | X | X | X | X |
| Palestine | X | | X | X | X | X | X |
| Madison | X | | X | X | X | X | X |
| Wheatley | X | | X | X | X | X | X |
| Widener | X | | X | X | X | X | X |
| Cherry Valley | X | | X | X | X | X | X |
| Hickory Ridge | X | | X | X | X | X | X |
| Parkin | X | | X | X | X | X | X |
| Wynne | X | X | X | X | X | X | X |
| Cross County School District | X | X | X | X | X | X | X |
| Wynne School District | X | X | X | X | X | X | X |
| EACC | X | X | X | X | X | X | X |
| Forrest City School District | X | X | X | X | X | X | X |
| Palestine Wheatley School District | X | X | X | X | X | X | X |

| Jurisdictions | Non-profit organizations focused on environmental protection, emergency preparedness, or access and functional needs populations | Ongoing public education program or information | Natural disaster or safety related school programs | Public-private partnership initiatives addressing disaster related issues | Storm ready certification |
|------------------------------------|--|---|--|---|---------------------------|
| St. Francis Cross County | X | X | X | X | X |
| Caldwell | X | X | X | | |
| Colt | X | X | X | | |
| Hughes | X | X | X | | |
| Forrest City | X | X | X | X | X |
| Palestine | X | X | X | | |
| Madison | X | X | X | | |
| Wheatley | X | X | X | | |
| Widener | X | X | X | | |
| Cherry Valley | X | X | X | | |
| Hickory Ridge | X | X | X | | |
| Parkin | X | X | X | | |
| Wynne | X | X | X | X | X |
| Cross County School District | X | X | X | X | X |
| Wynne School District | X | X | X | X | X |
| EACC | X | X | X | X | X |
| Forrest City School District | X | X | X | X | X |
| Palestine Wheatley School District | X | X | X | X | X |

Improving Capabilities:

Leadership and representatives in all participating jurisdictions are very receptive to mitigation. The St. Francis/Cross County Judge, St. Francis/Cross County OEM, make mitigation a priority. Representatives are actively seeking additional funding to improve the readiness and preparedness of their communities. Ways the communities are improving capabilities are:

- Regularly attend state-wide full-scale drills for evacuation
- Become a Storm Ready Certified
- Employee a Certified Emergency Manager and a Certified Floodplain Manager
- Conduct county exercises to test plans in place
- Expand upon education and outreach by establishing and promoting mitigation activities
- Expand the Road Department Budget to improve culverts and water crossings.
- Work with schools to construct safe rooms.

SECTION 3

Hazard Identification and Risk Assessment

3.1 Hazard Identification and Prioritization

Hazard identification, the process of identifying hazard that threatens a given area, is the first step in the risk assessment process. St. Francis/Cross County has identified several natural hazards that, because they pose a threat to the County and its residents, have warranted a complete profile in this hazard mitigation plan.

The following hazards were identified from historical information provided by planning team members, newspapers, review of plans and reports, internet research, the State Mitigation Plan, and FEMA publication “Multi-Hazard Identification and Risk Assessment”, and information provided by FEMA and ADEM.

| Hazards in St. Francis County | Hazard Events in St. Francis County |
|-------------------------------|--|
| Drought | There have been 17 Drought events between 1950 - 2022 |
| Dam Failure | There have been 0 Dam Failure events between 1950-2022 |
| Earthquake | There have been 3 Earthquake events between 1931-2022 |
| Extreme Heat | There have been 23 Extreme Heat event between 1950 - 2022 |
| Flood | There have been 18 flash flood events and 5 flood events between 1950-2022 |
| Hailstorm | There have been 72 Hail events between 1950 - 2022 |
| Lightning | There have been 2 Lightning events between 1950 - 2022 |
| Thunderstorm Winds | There have been 103 Thunderstorm wind events between 1950 - 2022 |
| Tornado | There have been 22 Tornadoes between 1950 - 2022 |
| Wildfire | There have been 0 Wildfire events between 1950 - 2022 |
| Winter Storms | There have been 21 Winter Storm event and 4 Ice Storm events 4 Heavy Snow events between 1950 – 2022 |

| Hazards in Cross County | Hazard Events in Cross County |
|-------------------------|--|
| Drought | There have been 17 Drought events between 1950 - 2022 |
| Dam Failure | There have been 0 Dam Failure events between 1950-2022 |
| Earthquake | There have been 3 Earthquake events between 1931-2022 |
| Extreme Heat | There have been 25 Extreme Heat event between 1950 - 2022 |
| Flood | There have been 14 flash flood events and 5 flood events between 1950-2022 |
| Hailstorm | There have been 54 Hail events between 1950 - 2022 |
| Lightning | There have been 2 Lightning events between 1950 - 2022 |
| Thunderstorm Winds | There have been 85 Thunderstorm wind events between 1950 - 2022 |
| Tornado | There have been 24 Tornadoes between 1950 - 2022 |
| Wildfire | There have been 0 Wildfire events between 1950 - 2022 |
| Winter Storms | There have been 23 Winter Storm event and 4 Ice Storm events 4 Heavy Snow events between 1950 – 2022 |

Presidential Disaster Declarations in St. Francis/Cross County from 2008 to current date

| Disaster Number | Incident Begin Date | Incident End Date | Declaration Date | Type | County | Description |
|-----------------|---------------------|-------------------|------------------|------|--------|--------------------------|
| 4318 | 4/26/17 | 5/19/2017 | 6/15/17 | DR | Cross | Severe Storms & Flooding |

3.2 Vulnerability and Risk Assessment by Hazard

The St. Francis/Cross County Hazard Mitigation Plan includes a description or profile, location, and extent of all natural hazards that can affect each jurisdiction.

Description describes the natural hazard that can affect the jurisdictions in the planning area.

Location (Geographic Area Affected) is where geographic areas in the planning area that are affected by the hazard, and when possible, maps were used to illustrate the location. But for some hazards, such as tornados, the plan stated that the entire planning area is equally at risk to that hazard.

Previous Occurrences of hazard events for each jurisdiction (44 CFR 201.6 (c) (2)(i) have been addressed.

Probability of Future Events means the likelihood of the hazard occurring in the future and may be defined in terms of general descriptors, historical frequencies, and statistical probabilities. Statistical probabilities often refer to events of a specific size or strength. Hazard likelihood can also be compared using general descriptions or rankings. For the purpose of this plan we will use the general descriptors to describe the likelihood of hazard events based on historical frequency.

- Probability was determined by using Poisson Distribution $P(k) = (\lambda^k / k!) (e^{-\lambda})$
- λ =average number of times the event happens in the past over the whole time period
- k = average number of times the event happens in one year
- $e=2.71828$
- $k!$ =the Factorial of k . (exp. $1*2*3*4*....*8$)

Impact – is the consequence or effect of the hazard on the community and its assets. Impacts will be described by referencing historical disaster impacts and/or an estimate of potential future losses, such as percent damage of total exposure.

Vulnerability of Estimating Potential Loss- identifies structures, systems, populations or other community assets as defined by the community that are susceptible to damage and loss from hazard events. It is a list of key issues or problem statements that clearly describes the community's greatest vulnerabilities and that will be address in the mitigation strategy.

Repetitive Loss Properties and Severe Repetitive Loss Properties- addresses NFIP insured structures describing the types (residential, commercial, institutional, etc.) and estimates the number of repetitive loss properties located in the identified flood hazard areas. (44 CFR 201.6(c) (2)(ii)

3.3 Methodology used in Estimating Potential Loss

The methodology used in this plan for the potential loss estimate was developed by using past hazard events data from The National Climatic Data Center (NCDC) Storm Events Database. If we were unable to obtain information of a certain type of past hazard event, we did not estimate a potential loss due to the lack of information.

3.4 Natural Hazards Affecting St. Francis/Cross County

This mitigation plan addresses the natural hazards that can affect St. Francis/Cross County, the cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District. The Hazards which have affected St. Francis/Cross County in the past or could possibly affect St. Francis/Cross County in the near future are Drought, Extreme Heat, Earthquake, Flooding, Thunderstorms (Lightening, Hail and High Winds), Tornadoes, Wildfire and Winter storms.

3.5.2 Drought

3.7.2.1 Description of Drought

A drought is a period of unusually persistent dry weather that persists long enough to cause serious deficiencies in water supply (surface or underground). Droughts are slow onset hazard, but over time they can severely affect crops, municipal water supplies, recreation resources and wildlife. If drought conditions extend over a number of years, the direct and indirect economic impacts can be significant. High temperatures, high winds, and low humidity can worsen drought conditions and also make areas more susceptible to wildfire. In addition, human actions and demands for water resources can accelerate drought-related impacts.

3.5.2.2 Location of Drought Events

All areas of St. Francis/Cross County, the cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District are equally likely to experience severe drought, there is no defined geographic hazard boundary.

3.5.2.3 Extent, Magnitude or Severity of Drought

Periods of droughts can have significant environmental, agricultural, health, economic and social consequences. The effect varies according to vulnerability. Drought can also reduce water quality, because lower water flows reduce dilution of pollutants and increase contamination of remaining water sources. Common consequences of drought include:

- Diminished crop growth or yield productions
- Lack of water for households
- Lack of water for livestock
- Lack of water for irrigation

- Habitat damage, affecting both terrestrial and aquatic wildlife
- Drought provides too little water to support food crops.
- Malnutrition, dehydration and related diseases
- Shortages of water for industrial users
- Social unrest
- Wildfires are more common during times of drought.
- Death of vulnerable population such as elderly and young people

| Drought Severity Classification Ranges | | | | | | | | |
|--|---------------------|---|----------------|-------------------------|------------------------|---------------------------------|----------------------------------|-----------------------------------|
| Category | Description | Possible Impacts | Palmer Drought | CPC Soil Moisture Model | USGS Weekly Streamflow | Percent of Normal Precipitation | Standardized Precipitation Index | Satellite Vegetation Health Index |
| D0 | Abnormally Dry | Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered. | -1.0 to -1.9 | 21-30 | 21-30 | <75% for 3 months | -0.5 to -0.7 | 36-45 |
| D1 | Moderate Drought | Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing, or imminent, voluntary water use restrictions requested | -2.0 to -2.9 | 11-20 | 11-20 | <70% for 3 months | -0.8 to -1.2 | 26-35 |
| D2 | Severe Drought | Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed | -3.0 to -3.9 | 6-10 | 6-10 | <65% for 6 months | -1.3 to -1.5 | 16-25 |
| D3 | Extreme Drought | Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions | -4.0 to -4.9 | 3-5 | 3-5 | <60% for 6 months | -1.6 to -1.9 | 6-15 |
| D4 | Exceptional Drought | Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies | -5.0 or less | 0-2 | 0-2 | <65% for 12 months | -2.0 or less | 1-5 |

All areas of St. Francis/Cross County, the cities Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District are equally likely to experience severe drought, there is no defined geographic hazard boundary and can experience a drought that is rated between a D0 and D4 in any given year.

D0-D4: The Drought Monitor summary map identifies general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. D0, drought watch areas, are either drying out and possibly heading for drought, or are recovering from drought but not yet back to normal, suffering long-term impacts such as low reservoir levels.

The Drought Severity Classification has a variety of different ranges to measure drought severity.

- Palmer Drought Index – is used to measure the extent of drought by measuring the duration and intensity of long-term drought inducing circulation patterns. Long-term drought is cumulative, with the intensity of drought during the current month dependent upon the current weather patterns plus the cumulative patterns of previous months.
- Climate Prediction Center Soil Moisture- is used to monitor the soil moisture as a predictor in monthly and seasonal temperature and precipitation outlooks.
- USGS Weekly Stream flow- is the average streamflow during the past 7 days. Averaging streamflow values over an entire week.
- Percent of Normal Precipitation- is one of the simplest measurements of rainfall for a location. Analyses using the percent of normal are very effective when used for a single region or a single season. Percent of normal is also easily misunderstood and gives different indications of conditions, depending on the location and season. It is calculated by dividing actual precipitation by normal precipitation—typically considered to be a 30-year mean—and multiplying by 100%. This can be calculated for a variety of time scales. Usually, these time scales range from a single month to a group of months representing a particular season, to an annual or water year. Normal precipitation for a specific location is 100%.
- Standardized Precipitation Index (SPI)- is a toll which was developed primarily for defining and monitoring drought. It allows an analyst to determine the rarity of a drought event at any given time. It can also be used to determine periods of irregular wet events. The SPI is not a drought prediction tool.
- Satellite Vegetation Health Index- a satellite-based global VH System designed to monitor, diagnose, and predict long- and short-term land environmental conditions and climate-dependent socioeconomic activities. The System is based on satellite observations of the Earth, biophysical theory of vegetation response to the environment, set of algorithms for satellite data processing, interpretation, product development, validation, calibration, and applications.

Climate Change

Although climate change is likely to increase the risk of flooding, droughts are also likely to become more severe. Average rainfall is likely to decrease during the 21st century, especially in spring and summer. In addition, rising temperatures increase evaporation, which dries the soil and decreases the amount of rain that runs off into rivers. The total amount of water running off into rivers or recharging ground water each year is likely to decline by 5 percent or more. Droughts are likely to be more severe, because periods without rain will be longer and very hot days will be more frequent.

3.5.2.4 Previous Drought Occurrences

There have been 17 drought events in St. Francis 17 drought events in Cross County between 1950 – 2017.

3.5.2.5 Probability of Future Drought Events

Overall, St. Francis County and Cross County both have a 18% probability of a drought event in any given year and is highly likely to occur. Although, the probability of D2, D3, and D4 classified events are occasional in nature, and less likely to occur, it is still important to remember that it can happen in any given year. Probability of each drought classification can be found in Table 1. Drought Probability in St. Francis/Cross County.

Table 1. Drought Probability in St. Francis/Cross County

| Classification | Probability Percentage | Probability Level | Estimated Length of Time | Likely Months |
|----------------|------------------------|-------------------|--------------------------|---|
| D4 | 5.00% | Occasional | 1 to 8 weeks | July through September |
| D3 | 13.00% | Occasional | 1 to 12 weeks | September through October |
| D2 | 2.00% | Occasional | 1 to 2 weeks | September through November |
| D1 | 16.00% | Likely | 1 to 8 weeks | January; August; and October through December |
| D0 | 26.00% | Likely | 1 to 12 weeks | Any Month |

St. Francis/Cross County will most likely experience severe drought events between the months of June and August. Overall, a drought can occur at any time of the year, but an event is most likely to occur in the late Summer, Fall, and Winter months.

3.5.2.6 Impact of Drought

Drought impacts communities in several ways, spanning all regions, and can affect the economy as well as the environment. Specific impacts can include:

- Reduced crop, rangeland
- Increased livestock and wildlife mortality rates
- Reduced income for farmers and agribusiness
- Increased fire hazard
- Reduced water supplies for municipal/industrial, agricultural, and power uses
- Damage to fish and wildlife habitat
- Increased consumer prices for food
- Reduced tourism and recreational activities
- Increased unemployment
- Reduced tax revenues because of reduced expenditures
- Increased foreclosures on bank loans to farmers and businesses

The most direct impact of drought is economic per agriculture rather than loss of life or immediate destruction of property. Impacts experienced in the agricultural community include direct losses of both crop and livestock production due to a lack of surface and subsurface water; and increases in insect infestations, plant disease, and wind erosion.

In smaller communities, reduced flow in rivers and streams can have a significant effect on the water amount allowed for municipal use. Hot weather during the summer increases supply and demand. In turn, higher water demand can stress many smaller and obsolete treatment facilities to the point of collapse. Prolonged drought has a much greater impact on rural communities, which usually rely on relatively small watersheds and are especially vulnerable during such periods.

Water deficiencies can likewise influence firefighting capacities in both urban and rural settings through decreased water flows and pressures. Most droughts dramatically increase the danger of fires on wild land. When wild lands are destroyed by fire, the resulting erosion can cause heavy silting of streams, rivers, and reservoirs. Serious damage to aquatic life, irrigation, and power production then occurs. Although drought can have serious impact during winter months, it is most often associated with extreme heat. Wildlife, pets, livestock, crops, and humans are vulnerable to the high heat that can accompany drought. When temperatures reach 90 degrees and above, people and animals are more likely to suffer heat stroke, heat cramps, and heat exhaustion. St. Francis/Cross County scored a 18% risk to Drought on the Hazard Vulnerability Assessment. Property impact in the planning area was estimated as high risk, while human impact and continuity of business were identified as moderate risk. The biggest strength of the planning area is the high level of preparedness and internal response for this type of event. Weakness for the planning area is external response and funding for mitigation activities.

3.5.2.7 Vulnerability and Estimating Potential Loss

There is no evidence that drought has any kind of potential loss on building structures. It primarily affects agriculture, livestock, and water supply. The most vulnerable population is those with health conditions, elderly, homeless, and farmers.

3.5.2.8 Multi-Jurisdictional Risk Assessment

St. Francis/Cross County, cities Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District of are all equally subject to drought, there is no defined geographic hazard boundary. Damages from drought are generally economic. Assets at

risk would include open land that could become vulnerable to the wildfire hazard due to extended periods of low rain and high heat. Water supply resources would be affected and the vulnerable populations such as the farmers.

Public Health would be affected through lack of water supply, unsafe water in ponds and creeks, and airborne dust. Those affected most would be the homeless, children, those with health conditions and elderly. Thus, the threat is Countywide, multi-jurisdictional.

3.5.2.8 Dam Failure

3.7.2.1 Description of Dam Failure

A dam is a barrier across flowing water that obstructs, directs, or slows down the flow, often creating a reservoir, lake, or impoundments. Most dams have a section called a spillway or weir, over or through, which water flows, either intermittently or continuously.

Dams fail in two ways, a controlled spillway release done to prevent full failure, or the partial or complete collapse the dam itself. In each instance an overwhelming amount of water, and potentially debris, is released. Dam failures are rare, but when they occur can cause loss of life, and immense damage to infrastructure and the environment.

3.5.2.2 Location and Extent to Dam Failure

Dam failure can occur with little warning. Intense storms may produce a flood in a few hours or even minutes from upstream locations. Dam failure can occur within hours of the first signs of breaching. Although the floodwaters will drain, the area will be affected by flooding from the dam failure for days to weeks and the destruction will affect the area for years.

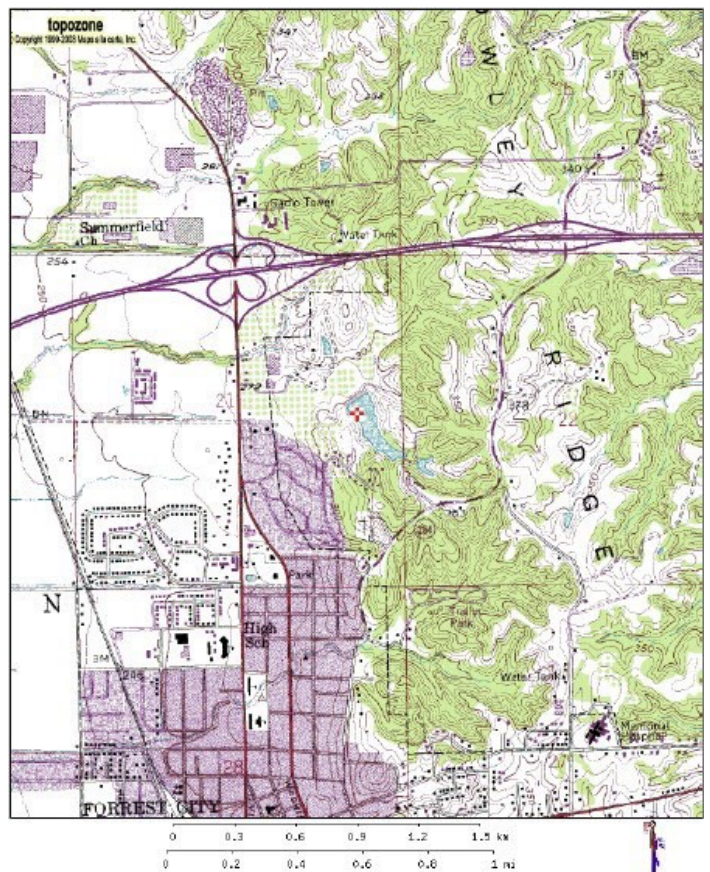
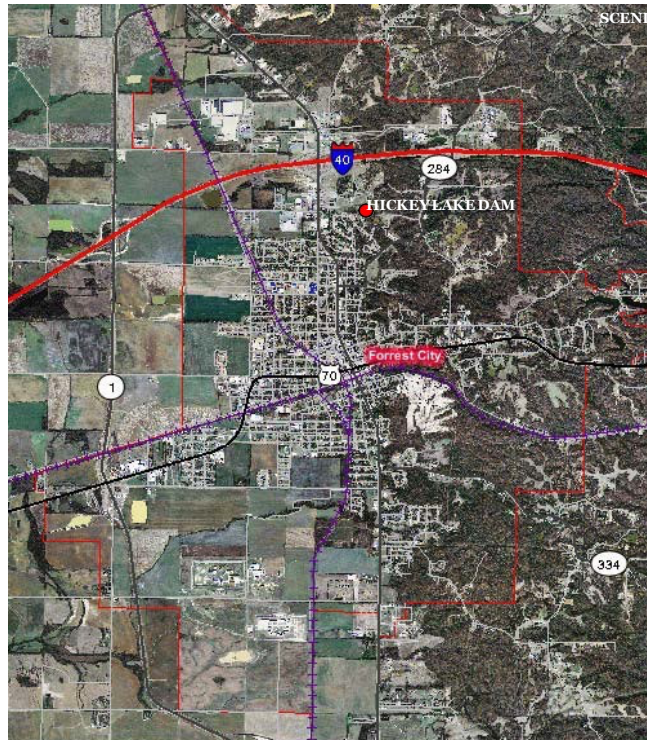
The expected intensity of a dam failure is based on the speed at which the water is released from the dam, whether or not it fails instantly or slowly over a period of time. If one of these dams fails slowly, it is possible the depth of water affecting the inundation area is a little as a few inches. However, if one of these dams fails catastrophically, the identified inundation areas could be filled the maximum capacity water stored behind the dam.

The maps on the following pages depict the locations of these dams as well as their modeled impact zone. These maps were gathered based off the past successful mitigation plan.

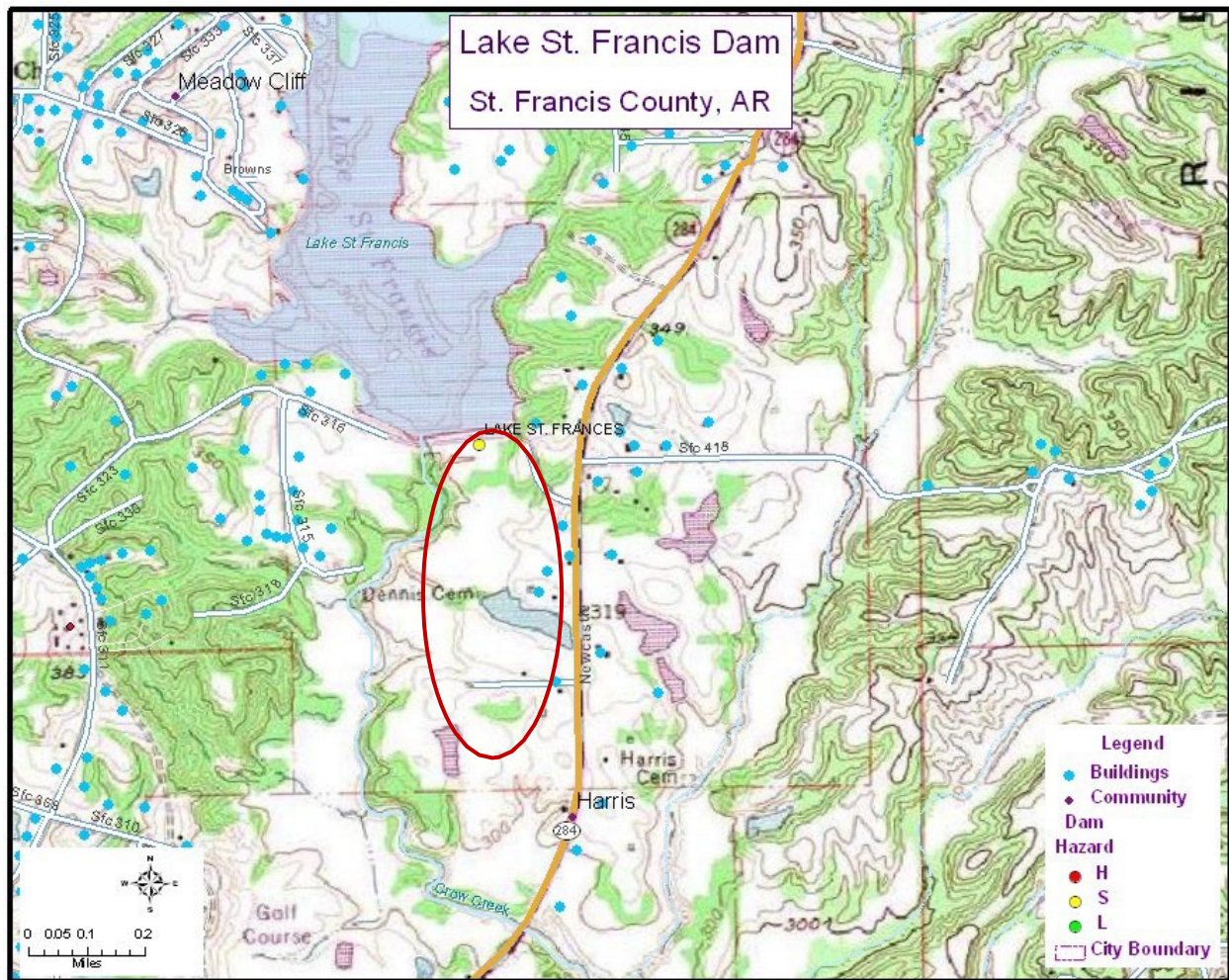
Inundation data was searched for on the National Inventory of Dams (NID) but no data was found for St. Francis/Cross County and the participating jurisdictions. Over the next 5 years, St. Francis/Cross County and the participating jurisdictions will conduct a study for inundation data. This is a mitigation action for flooding in St. Francis/Cross County.

Climate Changes

According to the New York Times Engineers from the University of California believe that with the way Dams were designed decades ago, that they are unsuited to withhold the warmer weather and stronger storms. Considering rising temperatures, which cause more severity in weather-related events, dams may be more susceptible to fail with more severe weather events in the future.



Hickey Lake Dam: Completed in 1948, (B) this is a Class "C" High Hazard dam owned by Phillip Hickey (A) (E) located within the city limits of Forrest City on L'Anguille River tributary. This is an earthen dam built for recreational purposes and last inspected in June 1979 (F). In the event of failure, loss of life is expected due to its proximity to populated areas and capacity. Damage would also be sustained by neighboring agricultural fields as seen in the above left image. The dam is indicated with a red circle on the images and cross-hairs on the topographic map. The solid red line in the left aerial indicates the city limits of Forrest City. The thick red line is Interstate 40. The circle on the right aerial identifies property at highest risk of failure and inundation area.

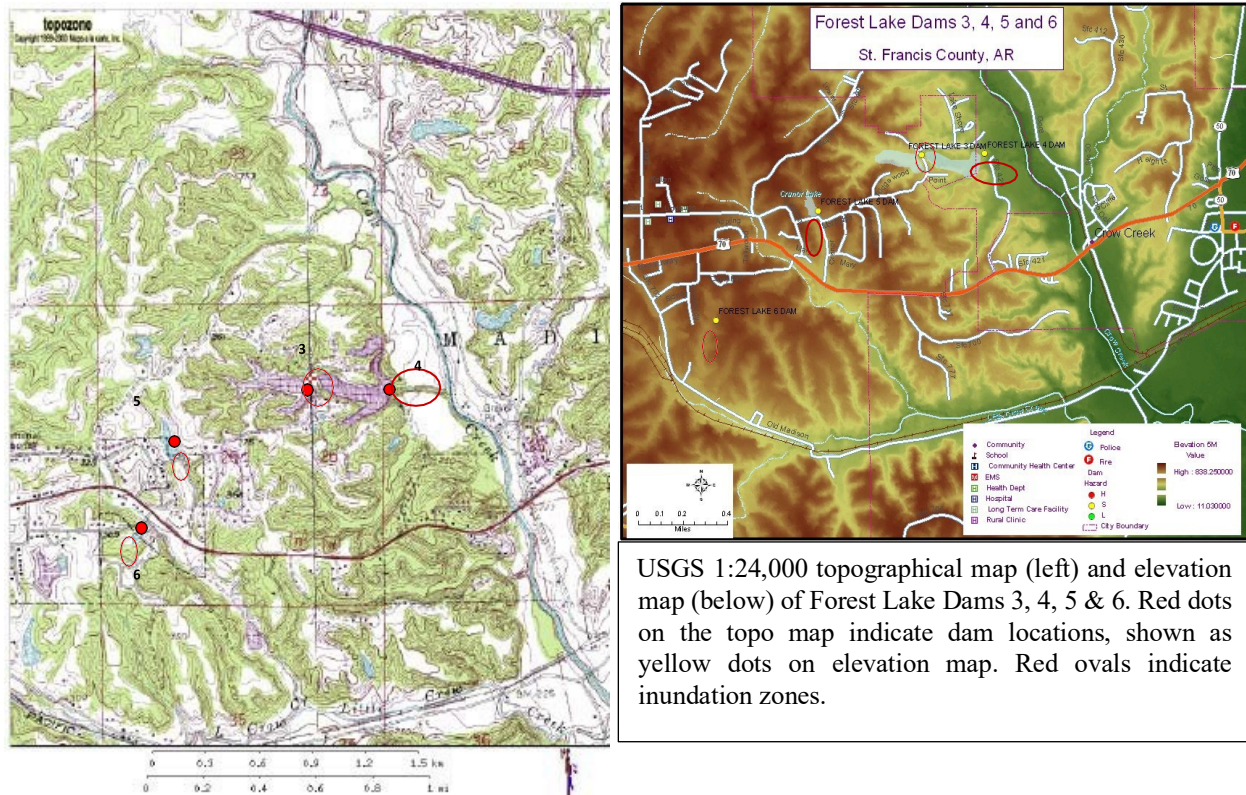


Lake St. Francis Dam: Completed in 1960, this (B) is a Class “B” Significant Hazard dam owned by the Capitol Growth Corporation and (A) is on Crow Creek. This is an earthen dam built for recreational purposes and last inspected in May 1984. (E) While most areas nearby are at higher elevations, due to the storage capacity of the dam, loss of life is possible as is significant property damage and transportation disruption. (F) The Harris community area is the most vulnerable in the case of failure. Aerial photography from 2006 and 2007 shows very low level water to no water; however, at its peak, the dam can hold up to 4,000 acre feet of water, which would cause significant damage to nearby roads and homes. The cyan dots on the map above depict locations of buildings. While the flow is water is expected to course the Crow Creek, should the failure occur on the eastern side of the dam, there are several structures that could be impacted, as well as Highway 284. The red circle indicates area of potential inundation should the dam fail along the eastern edges. The yellow dot indicates the dam location while they cyan dots represent buildings from the CAMP data set.



(A) located on Crow Creek tributary. This is an earthen dam built for recreational purposes. (E)(F) Loss of life is not anticipated and damages are only expected in the immediate vicinity of the lake. Most areas are at higher elevations, further protecting them from failure.

There are no structures in the path of inundation; however there is a road (CR 409) that may suffer damage. Cyan dots represent structures identified by the CAMP data set. The red oval indicates inundation area.



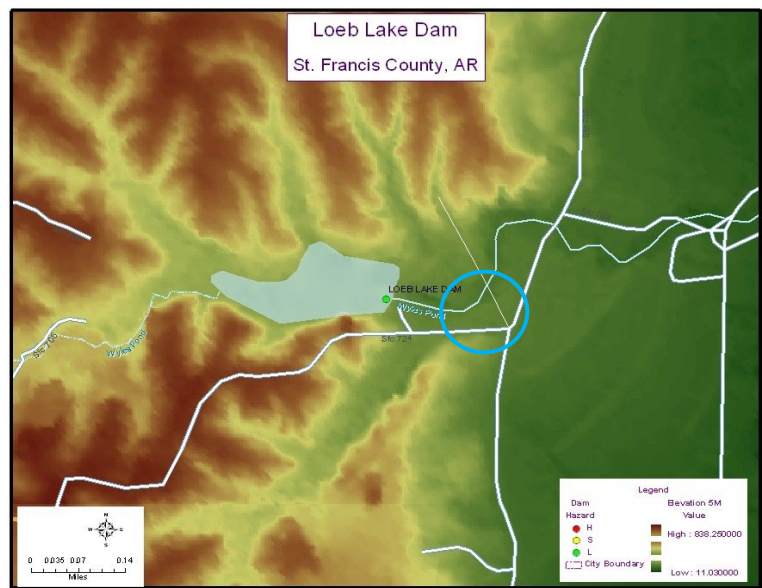
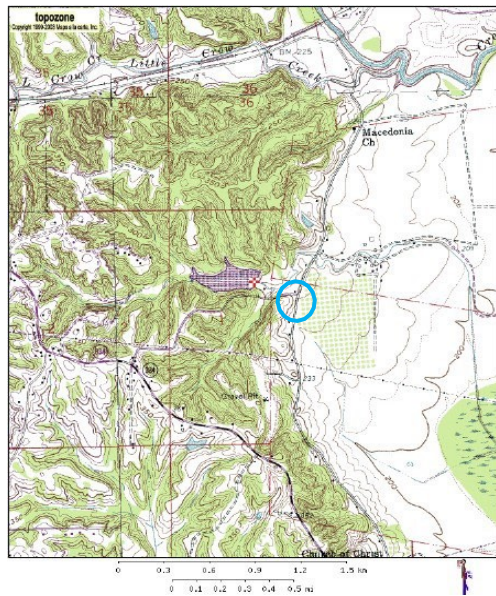
Forest Lake 3 Dam: Completed in 1956, this (B) is a Class “B” Significant Hazard dam owned by the Charles Turner Estate, is (A) located 1 mile upstream of the City of Madison on Crow Creek tributary. This is an earthen dam built for recreational purposes. (E)(F) In the event of failure, Upper Lake Road would be inundated, and water should empty into the #4 Dam. There appear to be three structures that could be affected as well. Should the #4 dam be at or above capacity, see results below.

Forest Lake 4 Dam: Completed in 1966, this (B) is a Class “B” Significant Hazard dam owned by the Charles Turner Estate, is (A) located 1 mile upstream of the City of Madison on Crow Creek. This is an earthen dam built for recreational purposes. (E)(F) In the event of failure, water should empty into the Crow Creek, inundating CR 420 in the process. Depending on the amount of water contained prior to failure, the City of Madison may become impacted with low depth water.

Forest Lake 5 Dam: Completed in 1968, this (B) is a Class “B” Significant Hazard dam owned by the Charles Turner Estate, is (A) located 1 mile upstream of the City of Madison on Little Crow Creek tributary. This is an earthen dam built for recreational purposes. (E)(F) In the event of failure, water would go due south, possibly affecting Broadway/US Highway 70, Gates, Mary, Virginia, Morledge and/or Cranor Streets.

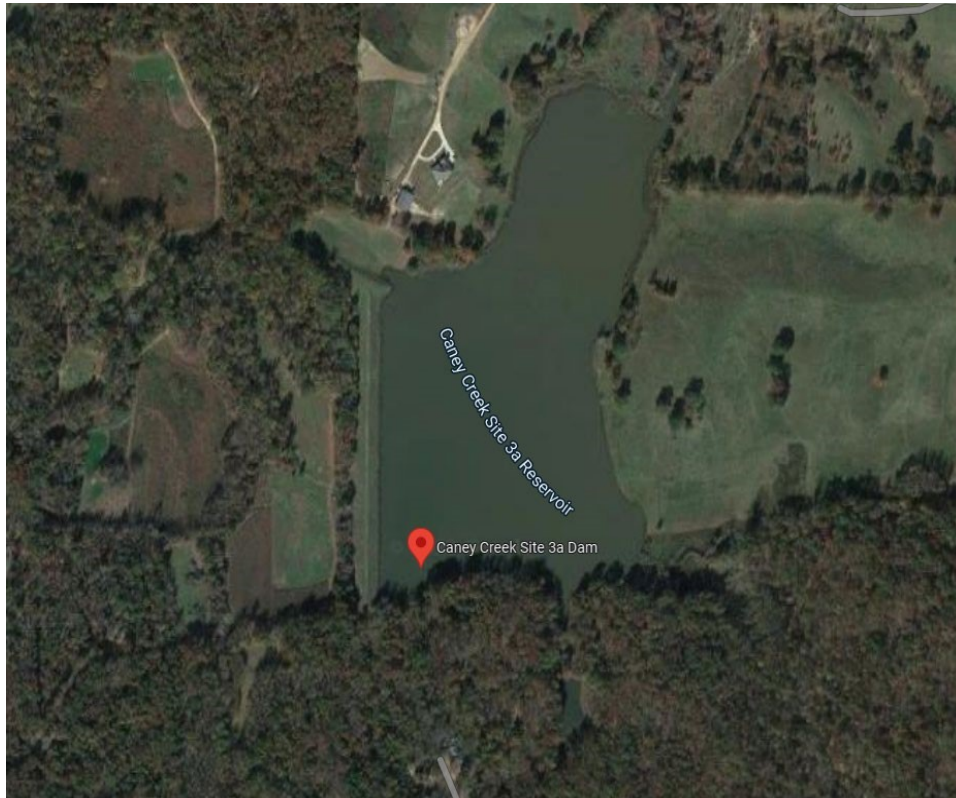
Forest Lake 6 Dam: Completed in 1967, this (B) is a Class “B” Significant Hazard dam owned by the Charles Turner Estate, is (A) located 1 mile upstream of the City of Madison on Little Crow Creek tributary. This is an earthen dam built for recreational purposes. (E)(F) In the event of failure, Old Madison and the railroad would be impacted by water.

Loeb Lake Dam: Completed in 1969, this (B) is a Class “A” Low Hazard dam owned by Mary Loeb located on Wyles Pond Slough. This is an earthen dam built for recreational purposes and last inspected in November 2001. (E)(F) No loss of life is anticipated in the event of failure, as there are no nearby structures. Water should flow into the Wyles Pond stream, potentially inundating CR 724, 735, and/or 708. The green dot symbolizes the (A) location of the dam on the elevation map, while red cross-hairs identify the location on the topo map. The cyan circles indicate inundation zones.



Hazard: (L) Low Hazard, Class "A": Dam; (S) Significant Hazard, Class "B" Dam; (H) High Hazard, Class "C"
 Dam Owner: P=Private, F=Federal

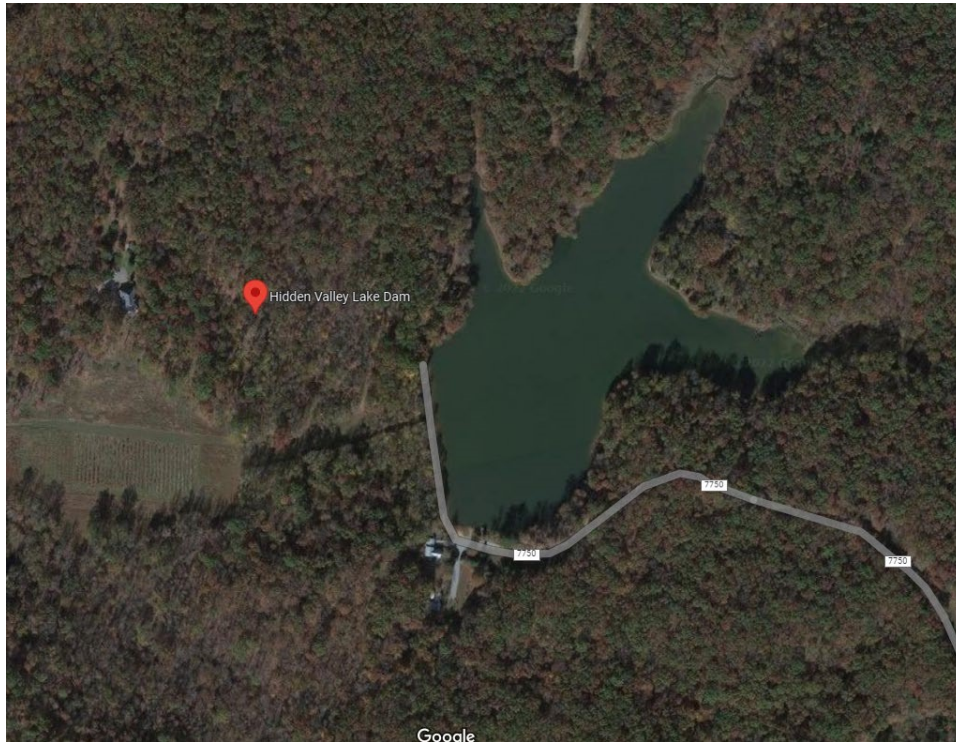
| Dam Name | Hazard | Longitude | Latitude |
|---------------------------|--------|-------------|-------------|
| St. Francis County | | | |
| Forest Lake 4 Dam | S | -90.7450 | 35.0183 |
| Forest Lake 5 Dam | S | -90.7583 | 35.0150 |
| Forest Lake 6 Dam | S | -90.7667 | 35.0083 |
| Hickey Lake Dam | H | -90.7833 | 35.0300 |
| Lake St. Frances | S | -90.7583 | 35.0717 |
| Loeb Lake Dam | L | -90.7400 | 34.9883 |
| Scenic Hills Lake Dam | L | -90.7317 | 35.0567 |
| Telico Lake Dam | H | -90.8067 | 35.0800 |
| Cross County | | | |
| Caney Creek Dam | L | -90.7667794 | 35.2434217 |
| Gardner Lake Dam | H | -92.4168300 | 36.3600700 |
| Hidden Valley Dam | L | -90.7217778 | 35.2200887° |
| Hunter Rest Dam | L | -90.7284448 | 35.246755 |
| Pufahl Lake Dam | | | |



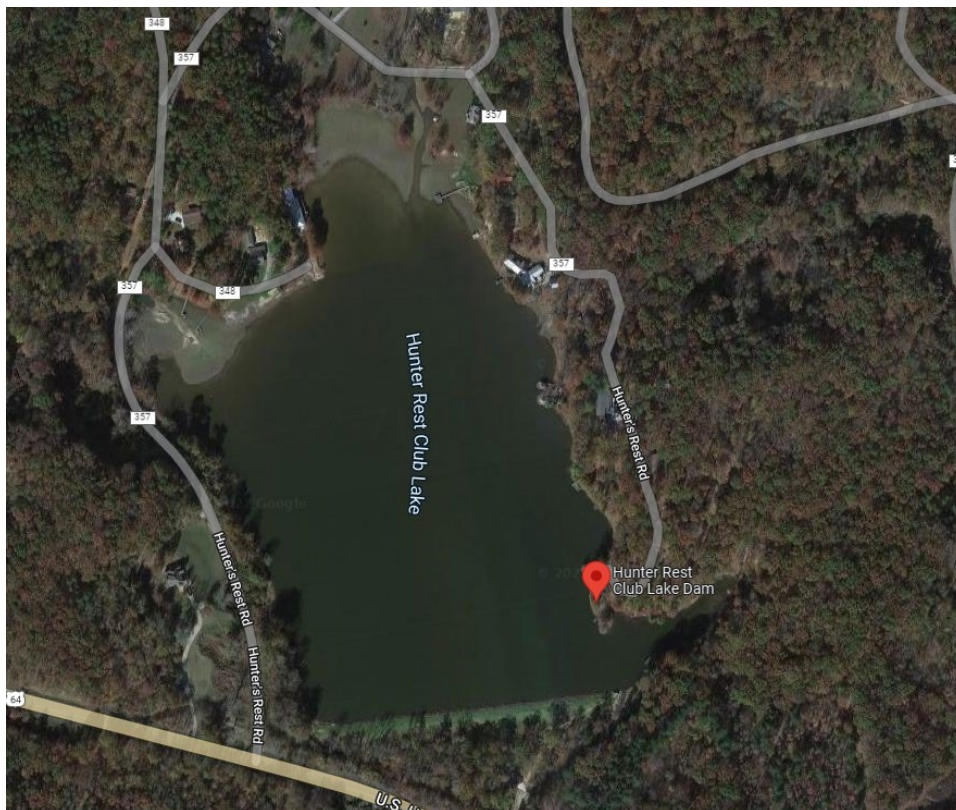
Caney Creek Dam: is a Class “A” Low Hazard dam located 2 miles northwest of Wynne. No loss of life is anticipated in the event of failure, as there are no nearby structures.



Gardner Lake Dam: is considered a Class “B” Significant Hazard dam considering the number of residents surrounding the Dam.



Hidden Valley Lake Dam: is considered a is a Class “A” Low Hazard the Dam located 3.7 miles from Wynne.



Hunter Rest Club Lake Dam: is considered a is a Class “A” Low Hazard the Dam located 3.6 miles southwest from Wynne.

3.5.2.2 Previous Occurrences

There are more than 80,000 dams in the United States, according to the USACE's National Inventory of Dams. Approximately one third of these are classified as a high or significant hazard to life and property in the event of a breach or failure.

Presently there are no incidents of dam failure in St. Francis/Cross County or its participating jurisdictions.

3.5.2.3 Vulnerability and Impact of Dam Failure Events

Populations within a dam failure inundation area are at extreme risk. Depending on the speed of the water's arrival, a community's population may not have time to evacuate. Additionally, evacuation routes can be blocked by the dam waters. If flood waters arrive quickly, many people can die. Depending on the elevation of the water, a community's population may not have any available shelter to avoid the waters.

Businesses can suffer economic losses when buildings are damaged, or roads are closed, as well as during times of forced closure to protect public health and safety if fresh water is unavailable or if fire safety poses a risk. Although St. Francis/Cross County has never experienced their own dam failure, no lives are predicted to be lost in this type of hazard event. Based on USACE's study it has been determined that no infrastructure or critical facilities will be impacted in all participating jurisdictions by Dam Failure. The table below shows potential populations at risk.

3.5.2.5 Probability of Future Events

As previously stated there can be advanced warning to no warning at all for a dam failure event. At present, there is no history of a dam failure of any size in St. Francis/Cross County or its participating jurisdictions. In lieu of any historical events, the next best prediction tool would be based on the structural state of the dam.

However, maintenance and structural information on the USACE's dams in St. Francis/Cross County and its participating jurisdictions is confidential information and not for public use.

Given the absence of any historical precedence of dam failure in St. Francis/Cross County and its participating jurisdictions, information on the dams being poorly maintained, or having reoccurring structural flaws, the probability of experiencing a dam failure event is less than 1% in any given year.

3.5.3 Earthquake

3.5.1 Description of Earthquake:

An earthquake is what happens when two blocks of the earth suddenly slip past one another. The surface where they slip is called the fault or fault plane. The location below the earth's surface where the earthquake starts is called the hypocenter, and the location directly above it on the surface of the earth is called the epicenter.

Sometimes an earthquake has foreshocks. These are smaller earthquakes that happen in the same place as the larger earthquake that follows. Scientists can't tell that an earthquake is a foreshock until the larger earthquake happens. The largest, main earthquake is called the mainshock. Mainshocks always have aftershocks that follow. These are smaller earthquakes that occur afterwards in the same place as the mainshock. Depending on the size of the mainshock, aftershocks can continue for weeks, months, and even years after the mainshock.

3.5.2 Locations affected by Earthquake and Previous Occurrences

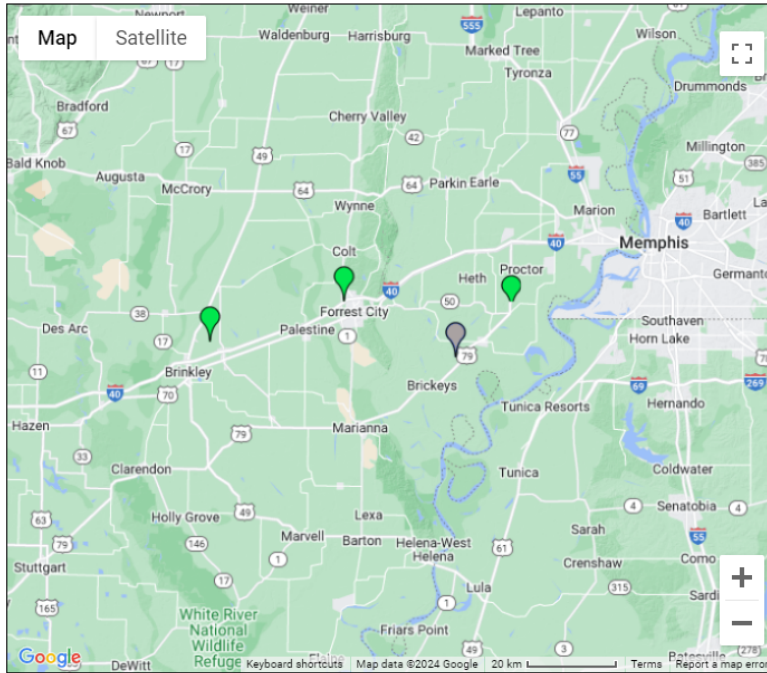
The Following Maps depict the number of earthquakes in St. Francis and Cross County. Dates, Times, Locations, and magnitudes are listed on the maps.

There have been 4 recorded earthquake events in St. Francis County since 1976.

Magnitude



St. Francis County

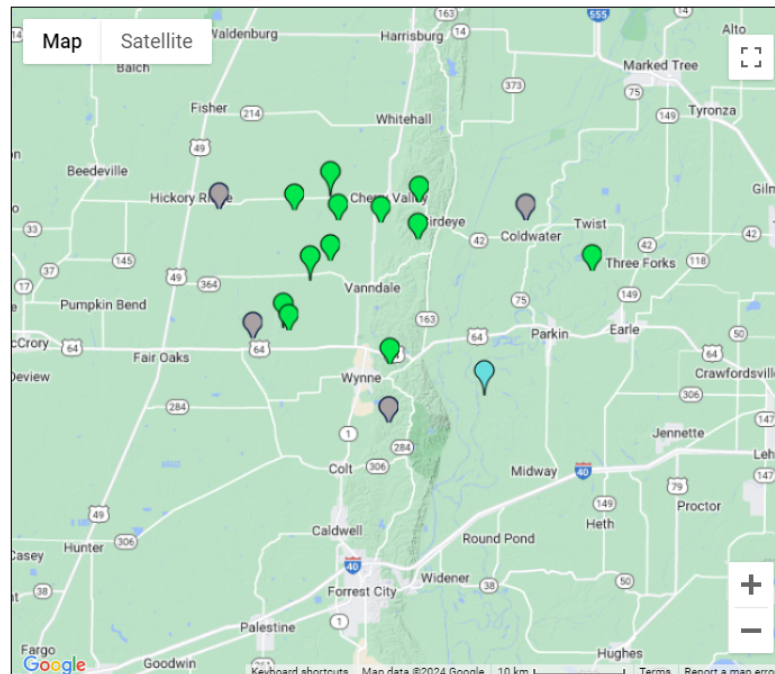


Magnitude - Date - Time

2.2 8/21/1976 02:31:01
 1.7 11/23/1989 18:10:53
 2.3 8/12/1992 19:51:45
 2.1 8/8/2014 21:52:47

There have been 17 earthquakes in Cross County Since 1976.

Cross County



Magnitude - Date - Time

1.6 4/7/1976 07:05:59
 2.1 10/15/1980 13:02:41
 1.4 6/14/1988 00:00:00
 2.6 12/25/1989 02:29:27
 1.9 12/27/1989 06:58:59
 2.1 12/17/1995 10:12:33
 2.3 2/3/1999 10:59:20
 2.6 7/9/2000 03:52:36
 2.3 7/22/2002 04:53:25
 2.5 4/5/2007 19:10:55
 2.0 12/14/2011 12:30:27
 3.9 10/29/2012 07:39:22
 2.2 7/14/2013 22:00:00
 2.6 1/28/2014 17:55:08
 1.9 7/9/2015 05:56:54
 2.5 7/14/2019 11:21:19
 2.2 9/30/2020 21:41:38

3.5.4 Extent, Magnitude or Severity of Extreme Earthquake Events:

During a New Madrid Earthquake St. Francis/Cross County Could experience a magnitude VI on the Mercalli Scale. All participating jurisdictions are equally likely to experience an earthquake and could see up to a VI, it's likely that they will experience between a II-IV based on past occurrences.

| Magnitude | Mercalli | Description | Earthquake Effects | Extent |
|-----------|----------|-----------------|--|----------|
| 2 | I | Instrumental | Not felt except by a very few under especially favorable conditions. | Weak |
| | II | Feeble | Felt only by a few persons at rest, especially on upper floors of buildings. | |
| 3 | III | Slight | Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations like the passing of a truck. Duration estimated. | |
| | IV | Moderate | 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 motor cars rocked noticeably. | Moderate |
| 4 | V | Rather Strong | Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop. | |
| 5 | VI | Strong | Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. | |
| | VII | Very Strong | 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. | Severe |
| 6 | VIII | Destructive | Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. | |
| 7 | IX | Ruinous | 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. | Extreme |
| | X | Disastrous | Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. | |
| 8 | XI | Very Disastrous | Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. | |
| | XII | Catastrophic | Damage total. Lines of sight and level are distorted. Objects thrown into the air. | |

Climate Change

Earthquakes are not influenced by climate change, although plate tectonics, of which earthquakes are a manifestation, can impact climate over vast periods of geological time. The Richter Scale is a measurement of the energy released while the Mercalli Scale measures the intensity.

Probability of Future Events

There have 4 recorded events regarding an earthquake occurring in St. Francis County in the past scoring a probability of 9%. 17 recorded events since 1976 in Cross County produce a probability of 36% chance of an earthquake occurring in any given year.

Impact and Vulnerability of Earthquake

The Arkansas State Mitigation Plan describes the regions with high probability of future earthquakes in the State of Arkansas are along the New Madrid Fault. The portion of Arkansas that is likely to experience damage is in the northeast portion of the state. St. Francis/Cross County is not located in this area and jurisdictions in St. Francis/Cross County have not experienced an earthquake since the Arkansas Geological Survey has been monitoring however damage still could occur in the event of a New Madrid Earthquake.

Using the Mercalli Scale and what it details for damage in regard to a VI event St. Francis/Cross County and participating jurisdictions could have heavy furniture moved and, in some cases, fallen plaster. Buildings in the areas especially those constructed with unreinforced masonry may receive some damage. The severity of damage will depend upon the magnitude of the earthquake that is produced by the New Madrid Fault Line.

3.5.5 Extreme Heat

3.5.1 Description of Extreme Heat

Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks are defined as extreme heat. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground.

3.5.5.2 Locations Affected by Extreme Heat

The entire planning area is uniformly affected by extreme heat. There is no geographical hazard boundary for extreme heat in this planning area. Extreme heat generally affects people rather than property. However, agriculture can be majorly impacted during events if not mitigated. All participating jurisdictions within the planning area are

equally likely to experience an extreme heat event, especially between the months of June, July, and August. The location of extreme heat throughout the planning area is extensive.

3.5.5.3 Extent, Magnitude or Severity of Extreme Heat Events

All participating jurisdictions, including unincorporated areas of St. Francis/Cross County, Aubrey, Haynes, LaGrange, Marianna, Moro, Rondo; and the school districts of St. Francis/Cross County is affected seasonally by summer heat, with summer temperatures averaging 80 degrees and maximum around 92 degrees. But in 2010 heat waves made extremely hot summers with temperatures in St. Francis/Cross County ranging from 100 degrees or greater. The past occurrences help predict that the participating jurisdictions mentioned above are likely to expect extreme heat up to 120 degrees Fahrenheit.

The magnitude or intensity of an extreme heat event is measured according to temperature in relation to the percentage of humidity. According to the National Oceanic Atmosphere Administration (NOAA) this relationship is referred to as the "Heat Index" which is shown below. The Heat Index measures how hot it feels outside when humidity is combined with high temperatures.

NOAA's National Weather Service

Heat Index

Temperature (°F)

| | 80 | 82 | 84 | 86 | 88 | 90 | 92 | 94 | 96 | 98 | 100 | 102 | 104 | 106 | 108 | 110 |
|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 40 | 80 | 81 | 83 | 85 | 88 | 91 | 94 | 97 | 101 | 105 | 109 | 114 | 119 | 124 | 130 | 136 |
| 45 | 80 | 82 | 84 | 87 | 89 | 93 | 96 | 100 | 104 | 109 | 114 | 119 | 124 | 130 | 137 | |
| 50 | 81 | 83 | 85 | 88 | 91 | 95 | 99 | 103 | 108 | 113 | 118 | 124 | 131 | 137 | | |
| 55 | 81 | 84 | 86 | 89 | 93 | 97 | 101 | 106 | 112 | 117 | 124 | 130 | 137 | | | |
| 60 | 82 | 84 | 88 | 91 | 95 | 100 | 105 | 110 | 116 | 123 | 129 | 137 | | | | |
| 65 | 82 | 85 | 89 | 93 | 98 | 103 | 108 | 114 | 121 | 128 | 136 | | | | | |
| 70 | 83 | 86 | 90 | 95 | 100 | 105 | 112 | 119 | 126 | 134 | | | | | | |
| 75 | 84 | 88 | 92 | 97 | 103 | 109 | 116 | 124 | 132 | | | | | | | |
| 80 | 84 | 89 | 94 | 100 | 106 | 113 | 121 | 129 | | | | | | | | |
| 85 | 85 | 90 | 96 | 102 | 110 | 117 | 126 | 135 | | | | | | | | |
| 90 | 86 | 91 | 98 | 105 | 113 | 122 | 131 | | | | | | | | | |
| 95 | 86 | 93 | 100 | 108 | 117 | 127 | | | | | | | | | | |
| 100 | 87 | 95 | 103 | 112 | 121 | 132 | | | | | | | | | | |

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

| | |
|--|--|
| | Caution- is the first level of intensity where fatigue due to heat exposure is possible |
| | Extreme Caution- indicates that sunstroke, muscle cramps or heat exhaustion are possible |
| | Danger- indicates that sunstroke, muscle cramps or heat exhaustion are likely |
| | Extreme Danger- indicates that heat stroke is likely |

IMPORTANT: Since heat index values were devised for shady, light wind conditions, **exposure to full sunshine can increase heat index values by up to 15°F.** Also, **strong winds**, particularly with very hot, dry air, can be extremely hazardous.

The Heat Index Chart shaded zone above 105°F (orange or red) shows a level that may cause increasingly severe heat disorders with continued exposure or physical activity. The colored zones indicate varying symptoms or disorders that could occur depending on the magnitude or intensity of the event.

Based on the latest research findings, the National Weather Service has devised the “Heat Index” (HI), (sometimes referred to as the “apparent temperature”). The HI, given in degrees F, is an accurate measure of how hot it really feels when relative humidity (RH) is added to the actual air temperature.

To find the HI, look at the Heat Index Chart. As an example, if the air temperature is 95°F (found on the top of the table) and the RH is 55% (found at the left side of the table), the HI-or how hot it really feels-is 110°F. This is at the intersection of the 95° row and the 55% column.

IMPORTANT: Since HI values were devised for shady, light wind conditions, **EXPOSURE TO FULL SUNSHINE CAN INCREASE HI VALUES BY UP TO 15°F.** Also, **STRONG WINDS, PARTICULARLY WITH VERY HOT, DRY AIR, CAN BE EXTREMELY HAZARDOUS.**

Heat Index/Heat Disorders: Possible heat disorders for people in higher risk groups.

Heat Index of 130° OR Higher: HEATSTROKE/SUNSTROKE HIGHLY HIGHER LIKELY WITH CONTINUED EXPOSURE,

Heat Index of 105°- 130°: SUNSTROKE, HEAT CRAMPS OR HEAT EXHAUSTION LIKELY, AND HEATSTROKE POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY.

Heat Index of 90°- 105°: SUNSTROKE, HEAT CRAMPS AND HEAT EXHAUSTION POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY.

Heat Index of 80° - 90°: FATIGUE POSSIBLE WITH PROLONGED EXPOSURE AND/OR PHYSICAL ACTIVITY
Note on the HI chart the shaded zone above 105°F. This corresponds to a level of HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

The “Heat Index vs. Heat Disorder” table (next to the HI chart) relates ranges of HI with specific disorders, particularly for people in higher risk groups.

Climate Change

Rising temperatures in the future not only will directly affect incidences of extreme heat and may also cause incidences of extreme heat more frequently and more severely.

3.5.5.4 Previous Occurrences

There have been 23 occurrences in St. Francis County and 25 occurrences in Cross County between 1950-2020.

3.5.3.5 Probability of Future Extreme Heat Events

According to data analysis, St. Francis County has a 23% chance of experiencing extreme heat in any given year. And Cross County has a 24% chance of experiencing extreme heat in any given year. However, an extreme heat event is most likely to occur between 3 and 4 times in a year that experiences temperatures above 95°F. Data indicates that St. Francis/Cross County is highly likely to experience extreme heat in the next five years.

3.5.3.6 Impact of Extreme Heat

Heat is the number one weather-related killer in the United States, resulting in hundreds of fatalities each year. On average, excessive heat claims more lives each year than floods, lightning, tornadoes, and hurricanes combined. Extreme heat, though not a serious threat to structures, can negatively affect agri-businesses, particularly poultry grow-out operations, thus affecting the local economy. Heat stress also adversely affects dairy and livestock production. Optimal temperatures for milk production are between 40 °F and 75 °F.

Extreme heat can also be a hazard to critical facilities that must be temperature controlled, such as hospitals, nursing homes, and communications facilities (due to the heat sensitive electronic equipment). A total power outage or brown-out during a time of extreme heat would create a very serious situation for facilities that do not have a backup power supply, such as a generator, to power air conditioning systems.

An extreme heat event will extend throughout the entire planning area.

As with drought, high temperatures strongly affect people of all types, but particularly the elderly, farmers, homeless, and youth. All agriculture crops, livestock, water supply, and forestlands are vulnerable to extreme heat. No area can be said to be immune from extreme heat. The most vulnerable population is the elderly, young, children, and those who are sick, overweight, live alone, or who work outside.

3.5.3.7 Vulnerability and Estimating Potential Loss by Jurisdiction to Extreme Heat

An extreme heat event can extend throughout the unincorporated areas of St. Francis/Cross County, cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District . It affects people of all ages, primarily the elderly, children and homeless. All agriculture crops, livestock, water supply and timber plantations are vulnerable to extreme heat. No area can be said to be immune from, or any more or less vulnerable to extreme heat. Heat exhaustion usually affects people who are working or exercising in a hot environment. Those at risk for heat exhaustion include:

- Infants and young children are at risk because their temperature regulation mechanisms are not fully developed. They also are dependent upon others for water and appropriate clothing. In St. Francis County 6.3% of the County's population is under the age of 5 years and Cross County has 6.6% of the County's population is under the age of 5 years.
- The elderly are similarly at risk because of underlying medical conditions that limit the ability to sweat including poor circulation, skin changes, and chronic medication usage. In St. Francis County has 16.4% of the County's populations is over the age of 65 years and Cross County has 18.5% of the County's population is under the age of 5 years old.

Socioeconomic issues increase the risk of heat exhaustion if access to air conditioning is limited. During heat waves, large cities often open cooling centers to help minimize the risk of large numbers of people succumbing to heat-related illness. Certain medications may impair the ability of the body to sweat as well.

3.5.6 Flooding

3.5.6.1 Description of Flooding

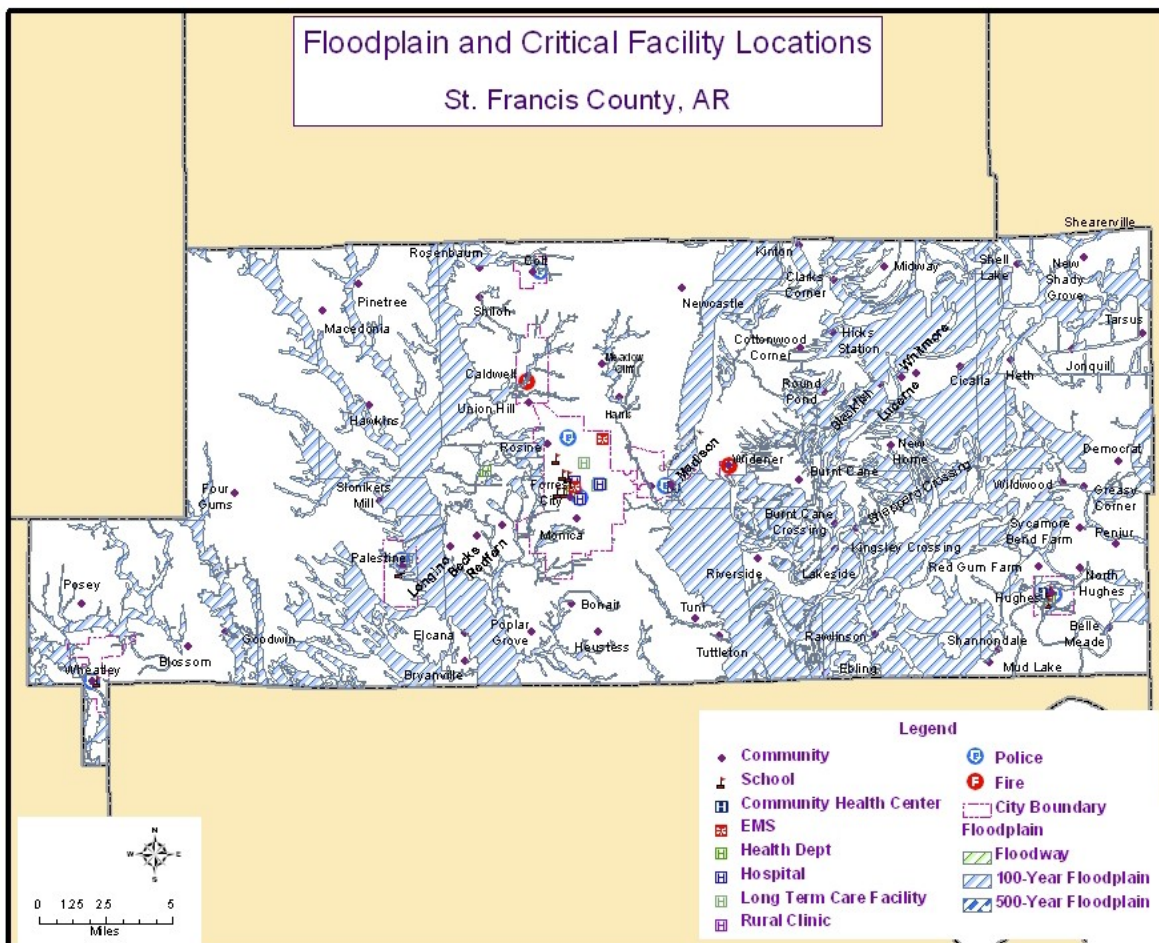
A flood is the partial or complete inundation of normally dry land. The various types of flooding include riverine flooding, and shallow flooding in St. Francis/Cross County. Common impacts of flooding include damage to personal property, buildings, and infrastructure; bridge and road closures; service disruptions; and injuries or even fatalities.

3.5.6.2 Location of Flooding Events

All parts of St. Francis/Cross County are subject to flash flooding. The Hazard Mitigation Planning Team has reviewed St. Francis/Cross County County's Flood Insurance Rate Maps (FIRMs) and worked with the County Floodplain Administrator to compile a profile of the flooding hazard within 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 interviews with individual County residents. The County's floodplain maps were developed in 1980s, and therefore the County's FIRMs do not provide a accurate picture of areas and structures most vulnerable to flooding. Due to the age of the FIRMS as the lack of information provided on them updated maps are needed to gain a better understanding of what areas can be impacted by flooding and the various flooding inundation levels.

| Zone | Description |
|----------------|---|
| A | Areas of 100-year Flood; Base flood elevations and flood hazard factors not determined |
| AO | Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundations are shown, but no flood hazard factors are determined. |
| AE | Base flood elevations determined. |
| AH | Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; Base Flood Elevations are shown, but no flood hazard factors are determined. |
| A1-A30 | Areas of 100-year flood; Base Flood Elevations and Flood Hazard Factors determined. |
| A-99 | Areas of 100-year flood to be protected by flood protection system under construction; Base Flood Elevations and Flood Hazard Factors not determined. |
| AR | The base floodplain that results from the de-certification of a previously accredited flood protection system that is in the process of being restored to provide a 100 year or greater level of flood protection. |
| V | The coastal area subject to a velocity hazard (wave action) where BFE's are not determined on the FIRM. |
| VE | The coastal area subject to a velocity hazard (wave action) where BFE's are provided on the FIRM. |
| B & X Shaded | Areas of moderate flood hazard, usually the area between the limits of the 100 year and 500-year floods. B zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from the 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile. |
| C & X Unshaded | Areas of minimal flood hazard usually depicted on FIRMs as exceeding in 500-year flood level. Zone C may have ponding and local drainage problems that do not warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood. |
| D | Ares of undetermined but possible flood hazards. |

St. Francis County



St. Francis County joined the NFIP in November 1985. There are 46 active flood insurance policies worth \$4,083,700.

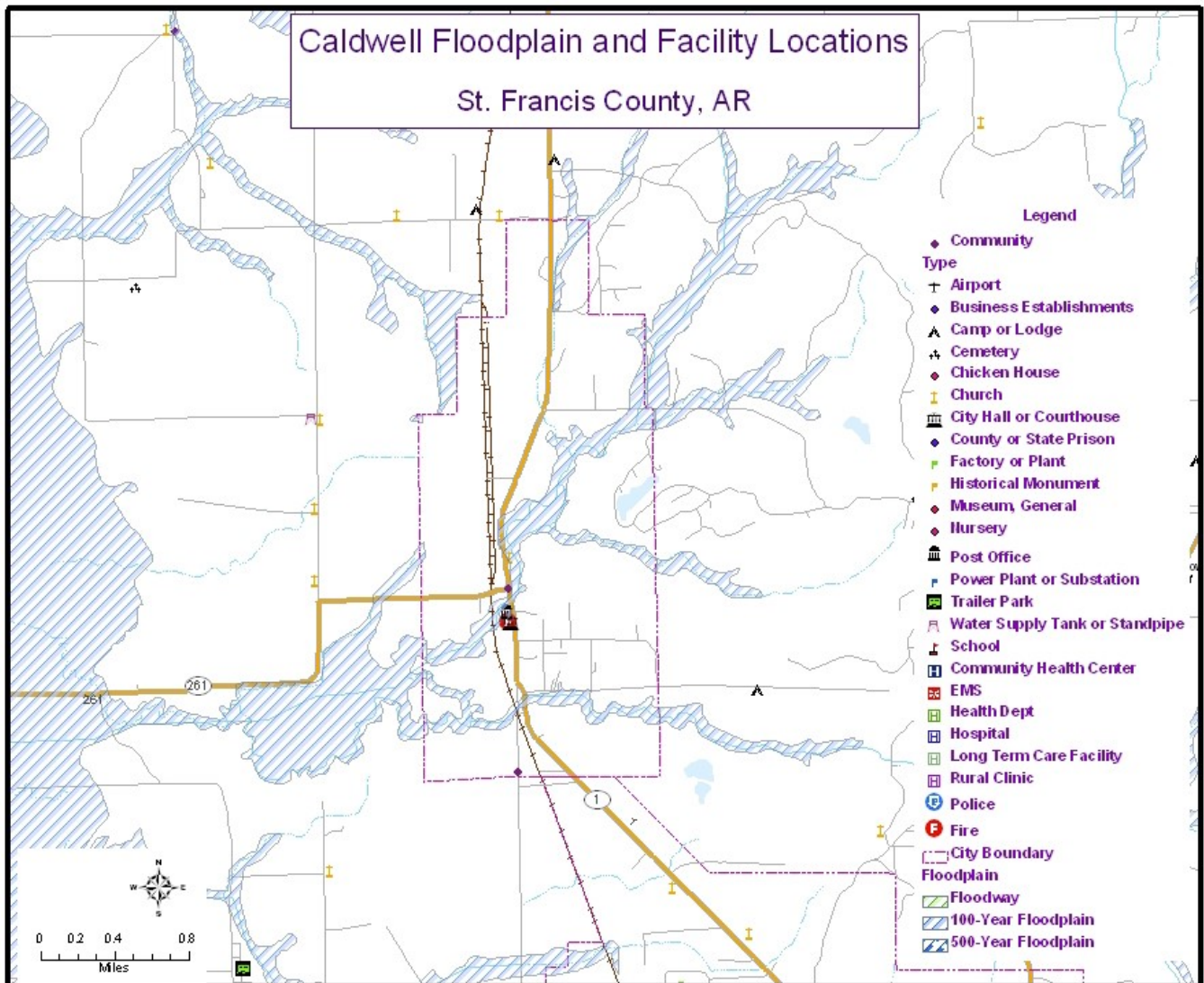
Flood Stage Levels: St. Francis River

Action: 19'
 Minor: 22'
 Moderate: 27'
 Major: 31'

Historic Crests:

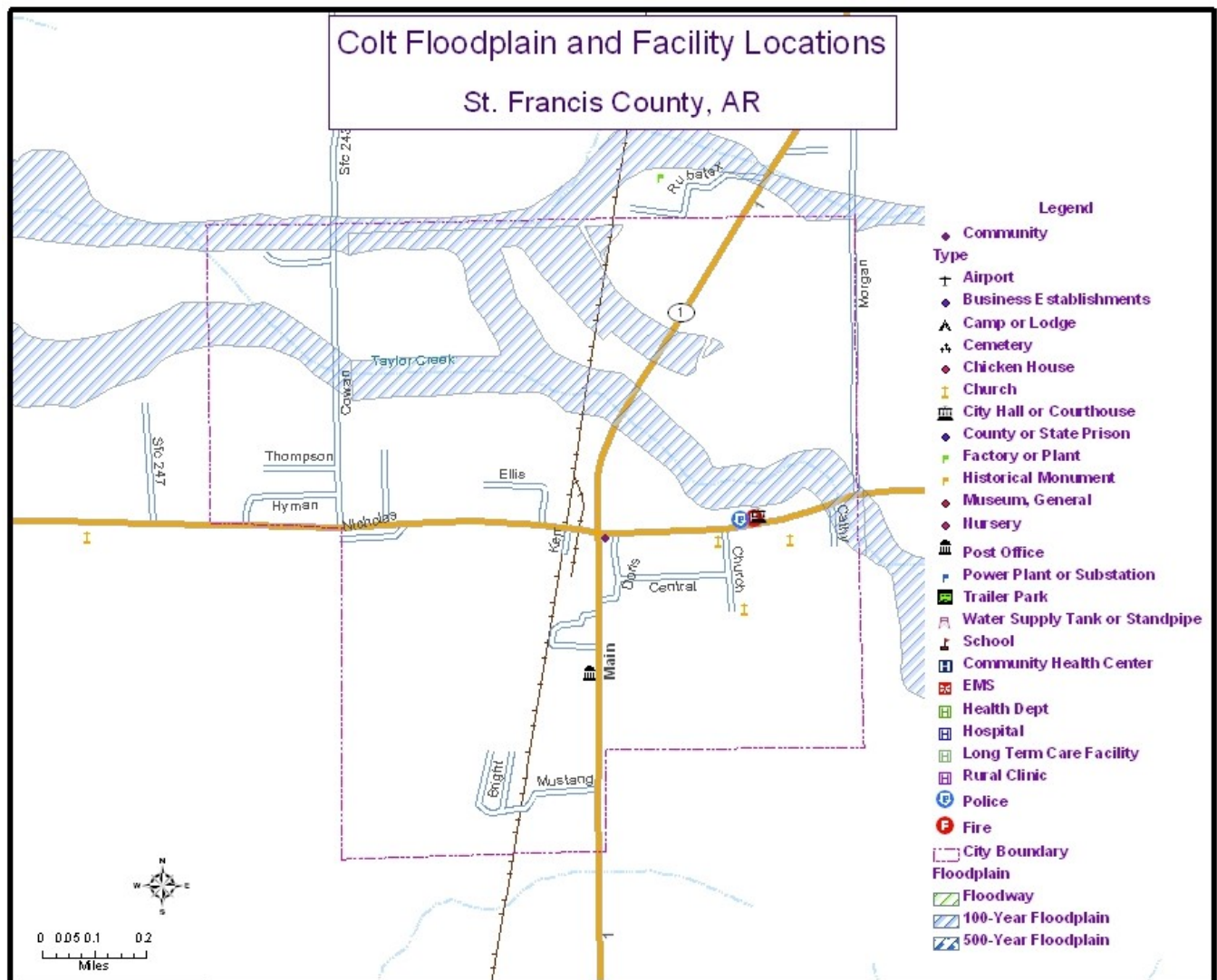
1935: 28.2'
 1928: 26.70'
 1989: 25.55'
 208: 25.35'
 2011: 27.2'

City of Caldwell



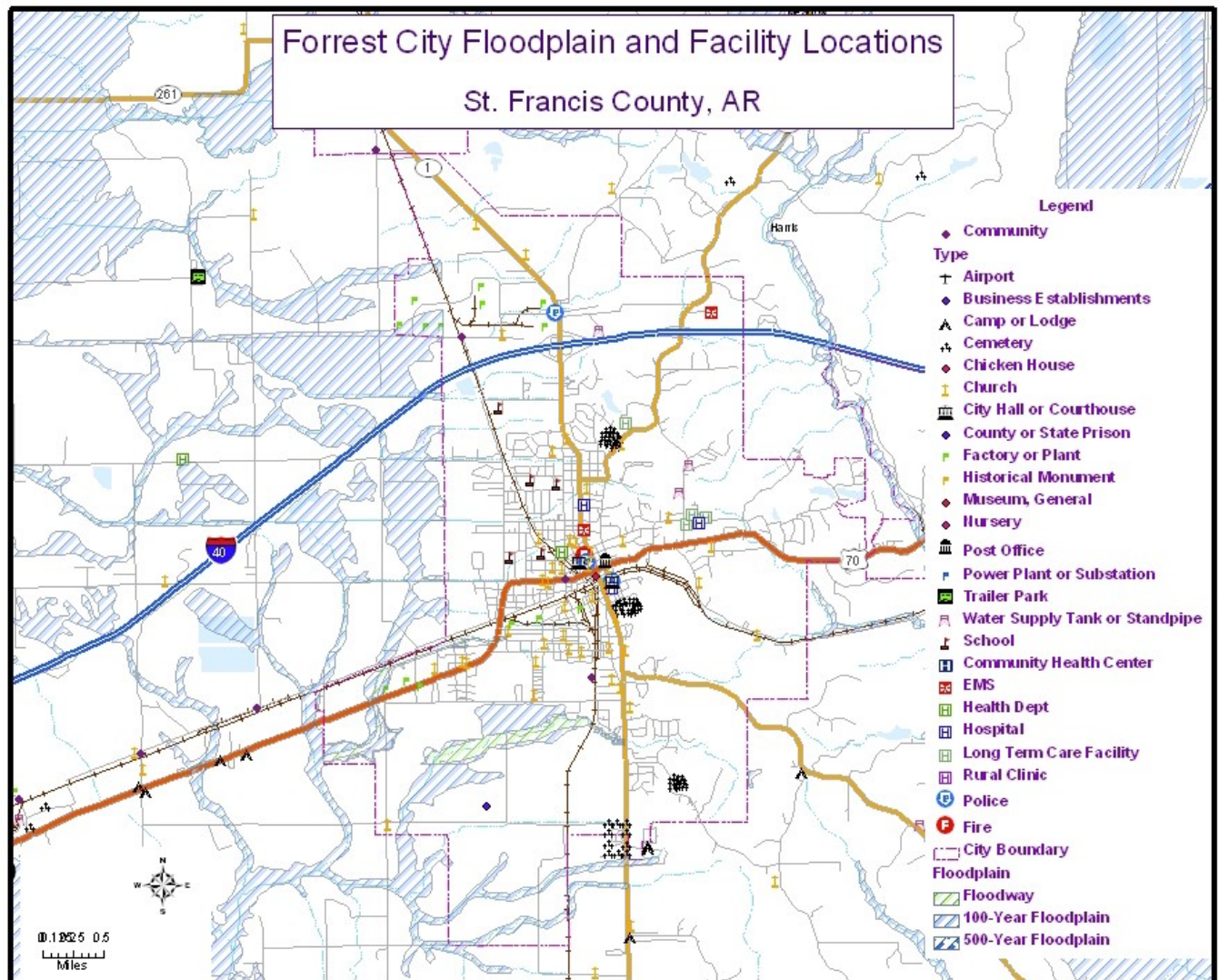
The **Town of Caldwell** joined the NFIP in October 1982. There are no active flood insurance policies, and no claims have been filed since joining. No flood depth data to report.

City of Colt



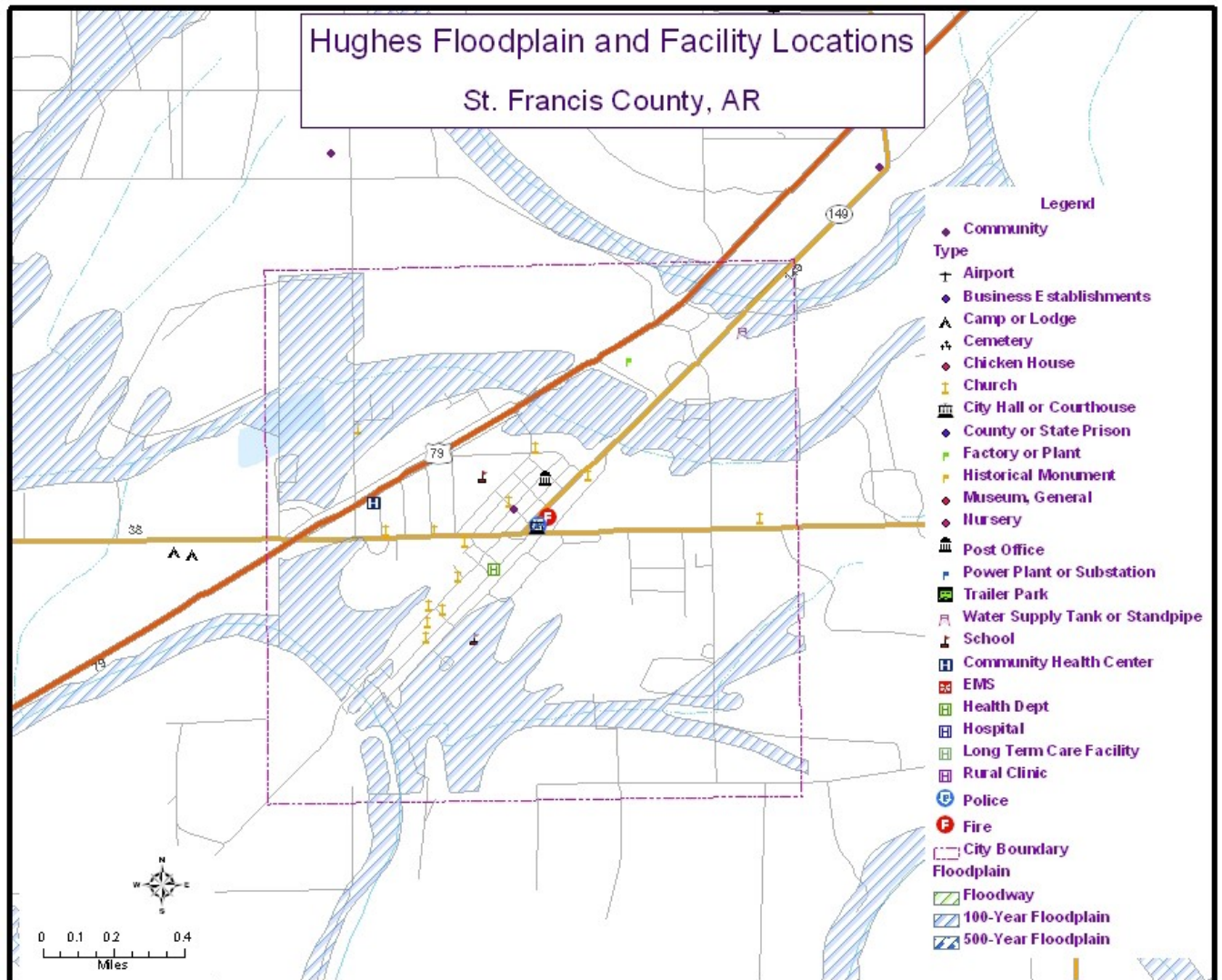
The **City of Colt** joined the NFIP in February 2005. There are no active flood insurance policies, and no claims had been filed since joining. No flood depth data to report.

City of Forrest City



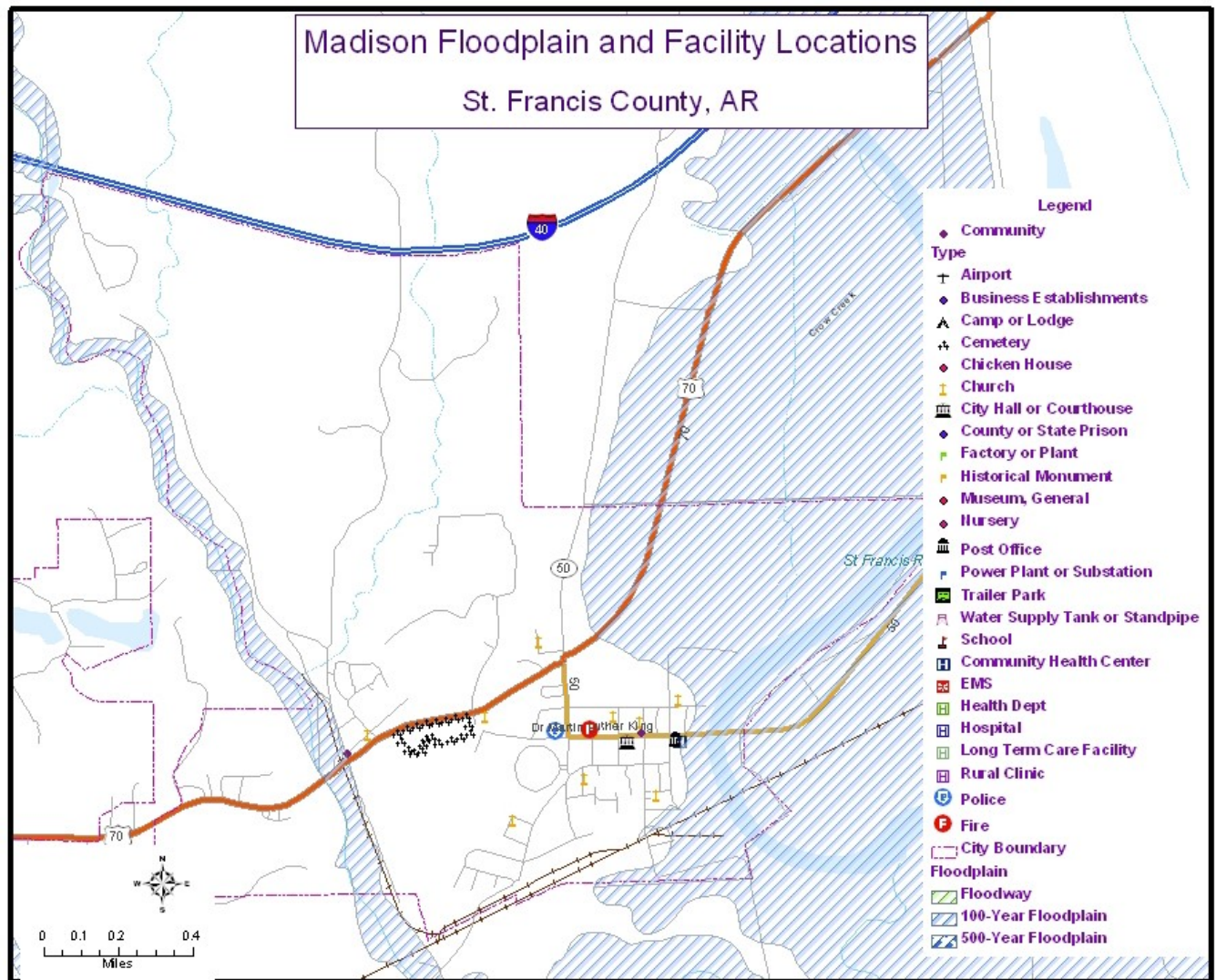
The **City of Forrest City** joined the NFIP in December 1979. There appears to be 3 factories located in the 100-year floodplain. No flood depth data to report.

City of Hughes



The **City of Hughes** joined the NFIP in November 1985. Mildred Jackson Elementary, a church, a water tower and several roads appear to be in the 100-year floodplain. No flood depth data to report.

City of Madison



The **City of Madison** joined the NFIP in February 1987. The St. Francis River runs along its eastern edge with creeks running through its center. The SFHA appears to be largely a result of effects from the St. Francis River.

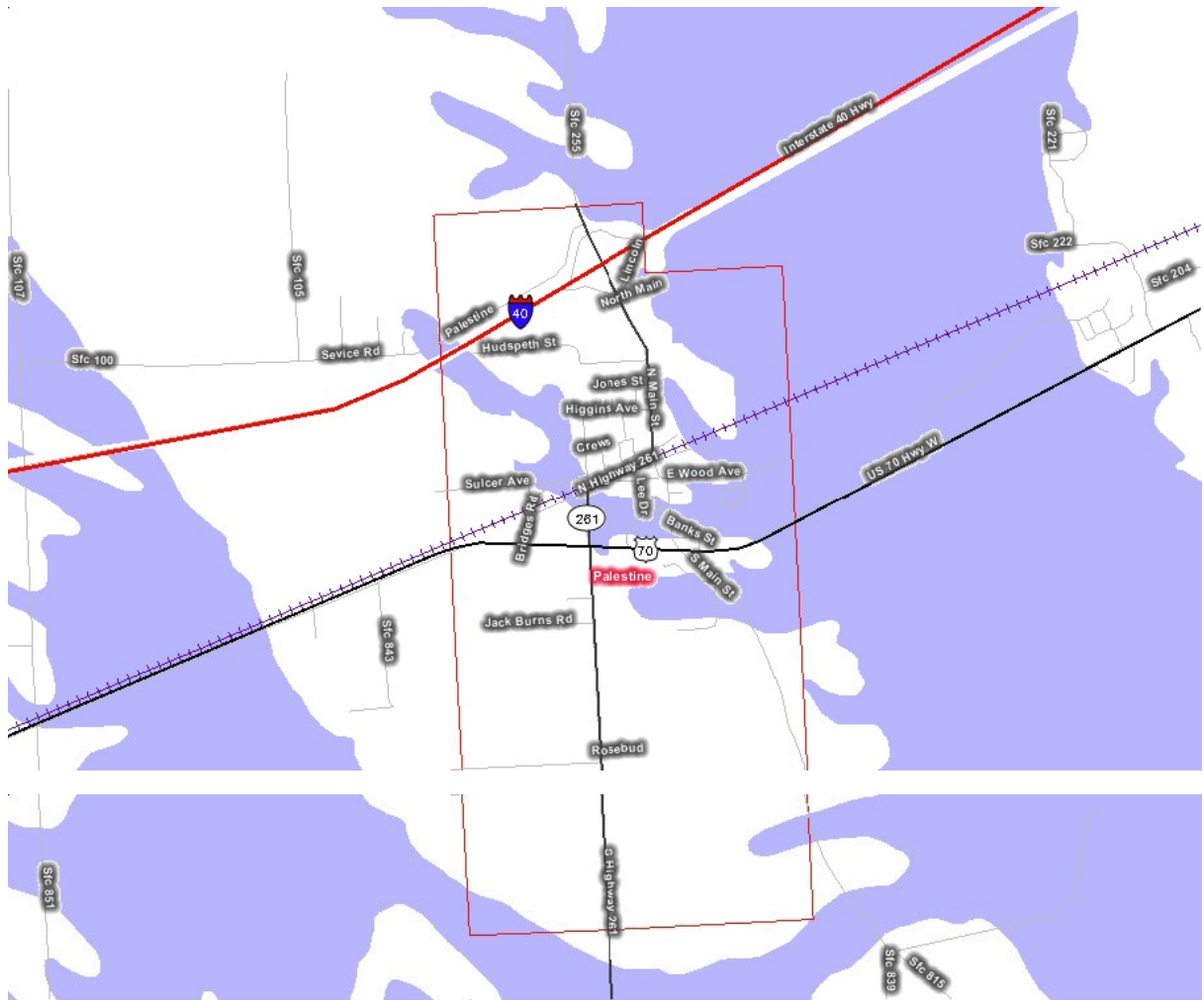
Flood Stages:

Action: 29'
 Minor: 32'
 Moderate: 35'
 Major: 36'

Historic Crests:

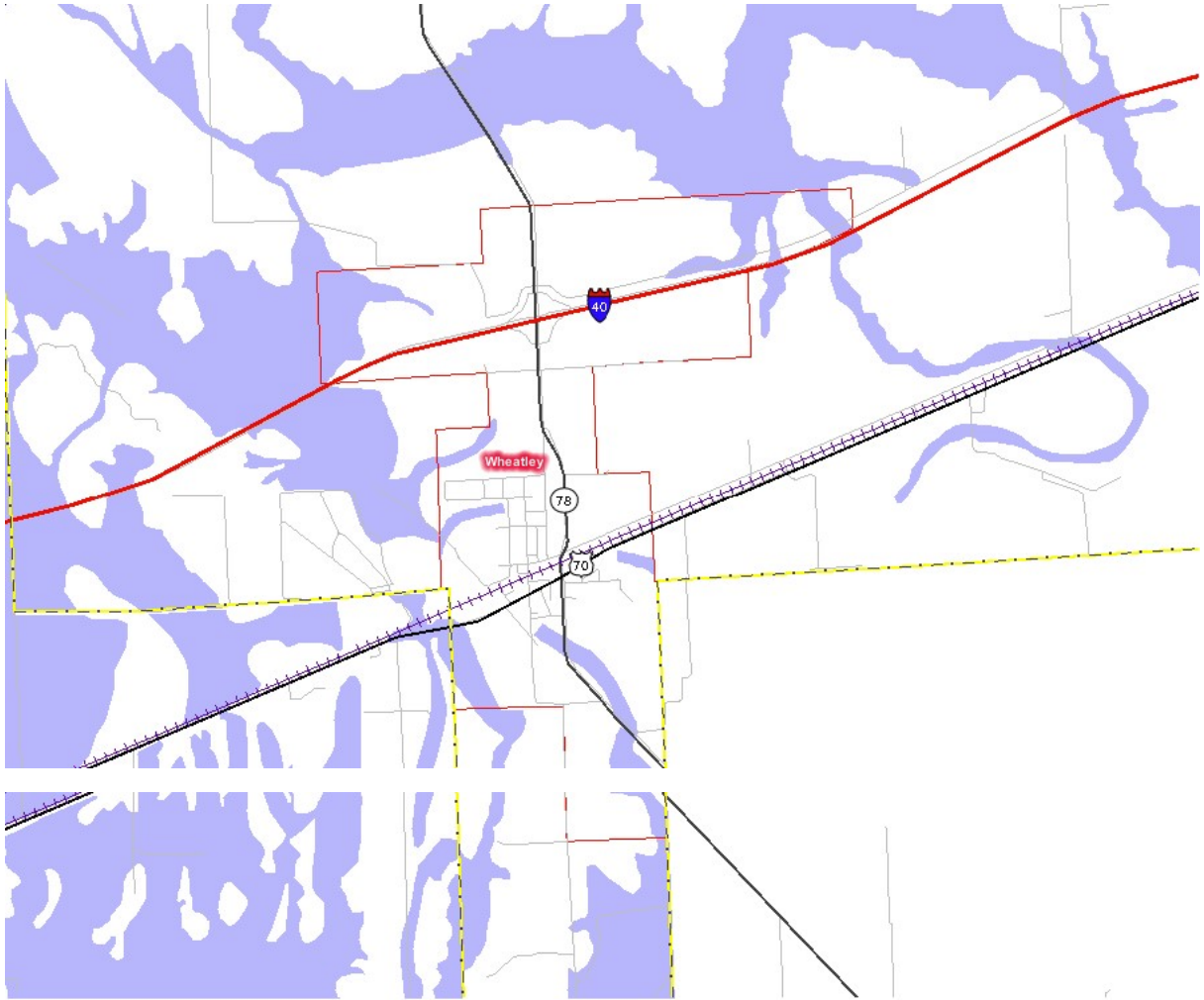
1912: 41.8'
 1927: 39.5'
 1937: 40.7'
 2011: 39.8'

City of Palestine



The **City of Palestine** joined the NFIP in October 1982. No Zone A or V in the area and no flood depth data to report.

City of Wheatley



The **City of Wheatley** joined the NFIP in September 1985. No flood depth data available.

The **City of Widener** Does not participate in the NFIP. No flood depth data to report.

LEGEND

SYMBOLS

ZONE A

ZONE B

ZONE C

ZONE D

ZONE E

ZONE F

ZONE G

ZONE H

ZONE I

ZONE J

ZONE K

ZONE L

ZONE M

ZONE N

ZONE O

ZONE P

ZONE Q

ZONE R

ZONE S

ZONE T

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ZONE V

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References

FLOOD HAZARD BOUNDARY MAP

PROG

COUNTY,

ARKANSAS
UNINCORPORATED AREA

PAGE 5 OF 9

Source: *Journal of the American Statistical Association*, 1997, 92, 1039-1052.

| COMMUNITY RANGE NUMBER | EFFECTIVE DATE |
|------------------------|----------------|
| 1 | 1/1/2007 |
| 2 | 1/1/2007 |
| 3 | 1/1/2007 |
| 4 | 1/1/2007 |
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FEBRUARY 20, 1979
NEW YORK, NEW YORK

1

AND URBAN DEVELOPMENT



Cherry Valley- No Flood Depth Data to Report



Hickory Ridge- No Flood Depth Data to Report

ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION (FT. NGVD) | DESCRIPTION OF LOCATION |
|----------------|----------------------|---|
| RM 1 | 241.95 | A situated cross between the words "Anasag" and "Tee" on the top of a bolt on a flag pole located 300 feet northwest of the intersection of S. Highway 64 and the Northwest Pacific Railroad from the station of Wynne, Arkansas 28 ft. Southwest of the intersection of Arkansas Highway 284 and 1st Street, and 21 ft. East of a 24 inch gaswater column. |
| RM 2 | 264.06 | A situated cross between the words "Anasag" and "Tee" on the top of a bolt on a flag pole located 300 feet northwest of the intersection of S. Highway 64 and the Northwest Pacific Railroad from the station of Wynne, Arkansas 28 ft. Southwest of the intersection of Arkansas Highway 284 and 1st Street, and 21 ft. East of a 24 inch gaswater column. |
| RM 4 | 266.71 | A situated cross between the words "Anasag" and "Tee" on the top of a bolt on a flag pole located 300 feet northwest of the intersection of S. Highway 64 and the Northwest Pacific Railroad from the station of Wynne, Arkansas 28 ft. Southwest of the intersection of Arkansas Highway 284 and 1st Street, and 21 ft. East of a 24 inch gaswater column. |
| RM 6 | 262.23 | A yellow bolt spike through a metal plate stamped "T. S. M. M. 12 3 24 1" on the ground on the North East of a corner post located 8 ft. East of the Northwest corner of Wynne, Arkansas along Union Avenue 80 ft. West of the Northwest corner of a bank house 20 ft. Northwest of the intersection of Kilgus Road and Union Avenue, and about 1 ft. Northwest of a stop sign. |
| RM 6 | 266.17 | A situated cross between the words "Anasag" and "Tee" on the top of a bolt on a flag pole located 300 feet northwest of the intersection of S. Highway 64 and the Northwest Pacific Railroad from the station of Wynne, Arkansas 28 ft. Southwest of the intersection of Arkansas Highway 284 and 1st Street, and 21 ft. East of a 24 inch gaswater column. |
| RM 7 | 260.20 | A yellow bolt spike through a metal plate stamped "T. S. M. M. 12 3 24 1" on the ground on the North East of a corner post located 8 ft. East of the Northwest corner of Wynne, Arkansas along Union Avenue 80 ft. West of the Northwest corner of a bank house 20 ft. Northwest of the intersection of Kilgus Road and Union Avenue, and about 1 ft. Northwest of a stop sign. |
| RM 6 | 267.76 | A situated cross between the words "Anasag" and "Tee" on the top of a bolt on a flag pole located 300 feet northwest of the intersection of S. Highway 64 and the Northwest Pacific Railroad from the station of Wynne, Arkansas 28 ft. Southwest of the intersection of Arkansas Highway 284 and 1st Street, and 21 ft. East of a 24 inch gaswater column. |
| RM 9 | 267.85 | A yellow bolt spike through a metal plate stamped "T. S. M. M. 12 3 24 1" on the ground on the North East of a corner post located 8 ft. East of the Northwest corner of Wynne, Arkansas along Union Avenue 80 ft. West of the Northwest corner of a bank house 20 ft. Northwest of the intersection of Kilgus Road and Union Avenue, and about 1 ft. Northwest of a stop sign. |
| RM 10 | 265.85 | A situated square on the Southeast corner of a concrete signal light stand located 2.0 miles North along the Missouri Pacific Railroad from the station of Wynne, Arkansas 40 ft. North of the intersection of S. Highway 64 and the Northwest Pacific Railroad and 1.1 ft. East of the East end of the Railroad. T. S. M. 12-3-24 is painted on the light stand. |
| RM 11 | 267.47 | A situated square on the Northwest end of the Southwest end of the bridge over the Northwest end of a bridge over Turkey Creek located 2.0 mi. North the Northwest of Wynne, Arkansas along Arkansas Highway 1, near S. Highway 64. |
| RM 12 | 244.74 | A situated square on the Northwest corner of the Southwest corner of a concrete lot under U.S. Highway 64 located 2.0 mi. North of the intersection of S. Highway 64 and the Northwest Pacific Railroad and 1.1 ft. East of the East end of the Railroad. T. S. M. 12-3-24 is painted on the light stand. |
| RM 13 | 256.89 | A situated cross between the words "Anasag" and "Tee" on the top of a bolt on a flag pole located 300 feet northwest of the intersection of S. Highway 64 and the Northwest Pacific Railroad from the station of Wynne, Arkansas 28 ft. Southwest of the intersection of Arkansas Highway 284 and 1st Street, and 21 ft. East of a 24 inch gaswater column. |
| RM 14 | 247.34 | A point between the words "Anasag" and "Tee" on the top of a bolt on a flag pole located 300 feet northwest of the intersection of S. Highway 64 and the Northwest Pacific Railroad from the station of Wynne, Arkansas 28 ft. Southwest of the intersection of Arkansas Highway 284 and 1st Street, and 21 ft. East of a 24 inch gaswater column. |

*Outside Corporate Limits

***EXPLANATION OF ZONE DESIGNATIONS**

| ZONE | EXPLANATION |
|------|---|
| A | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| B | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| C | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| D | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| E | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| F | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| G | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| H | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| I | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| J | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| K | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| L | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| M | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| N | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| O | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| P | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| Q | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| R | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| S | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| T | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| U | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| V | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| W | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| X | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| Y | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |
| Z | Area of 100 feet wide flood elevation and flood hazard areas on distribution. |

NOTES TO USER

These are not the official flood hazard areas and are not to be used for flood insurance purposes only if they are not used in accordance with the Flood Insurance Act of 1968. The Flood Insurance Act of 1968 requires that flood insurance be provided for all properties situated outside special flood hazard areas.

INITIAL IDENTIFICATION:
 DATE: 12/1/76
 FLOOD INSURANCE BOUNDARY MAP REVISIONS:
 NOVEMBER 14, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:
 AUGUST 15, 1980

APPROXIMATE SCALE
 1" = 1000'

NATURAL FLOOD INSURANCE PROGRAM

FIRM FLOOD INSURANCE RATE MAP

CITY OF WYNNE, ARKANSAS CROSS COUNTY

ONLY PANEL PRINTED

COMMUNITY PANEL NUMBER
 050000 0000

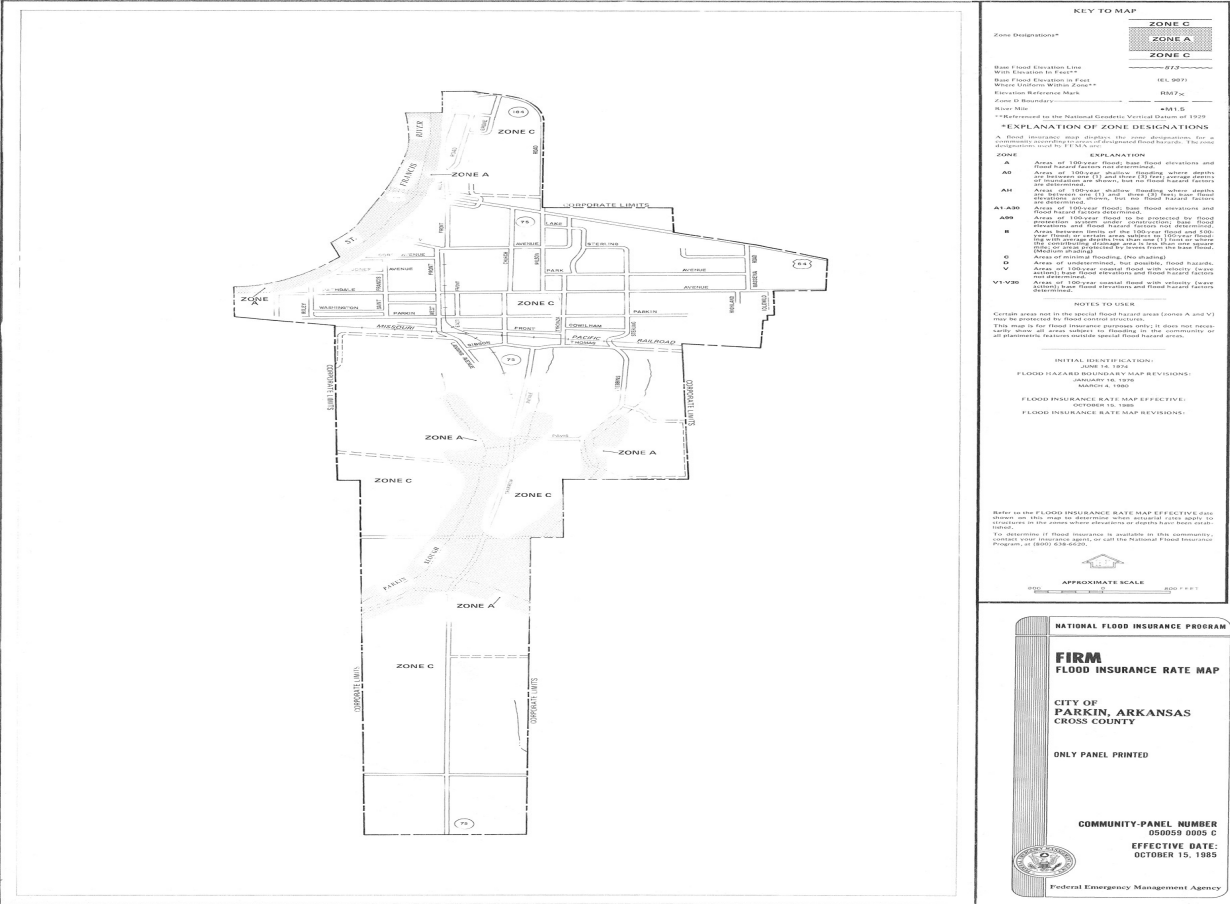
EFFECTIVE DATE
 AUGUST 15, 1980

**Federal emergency management agency
 Federal insurance administration**

Action: 19'
Minor: 22'
Moderate: 27'
Major: 31'

1928: 26.70'
1935: 28.20'
1989: 25.55'
2008: 25.35'
2011: 27.25'

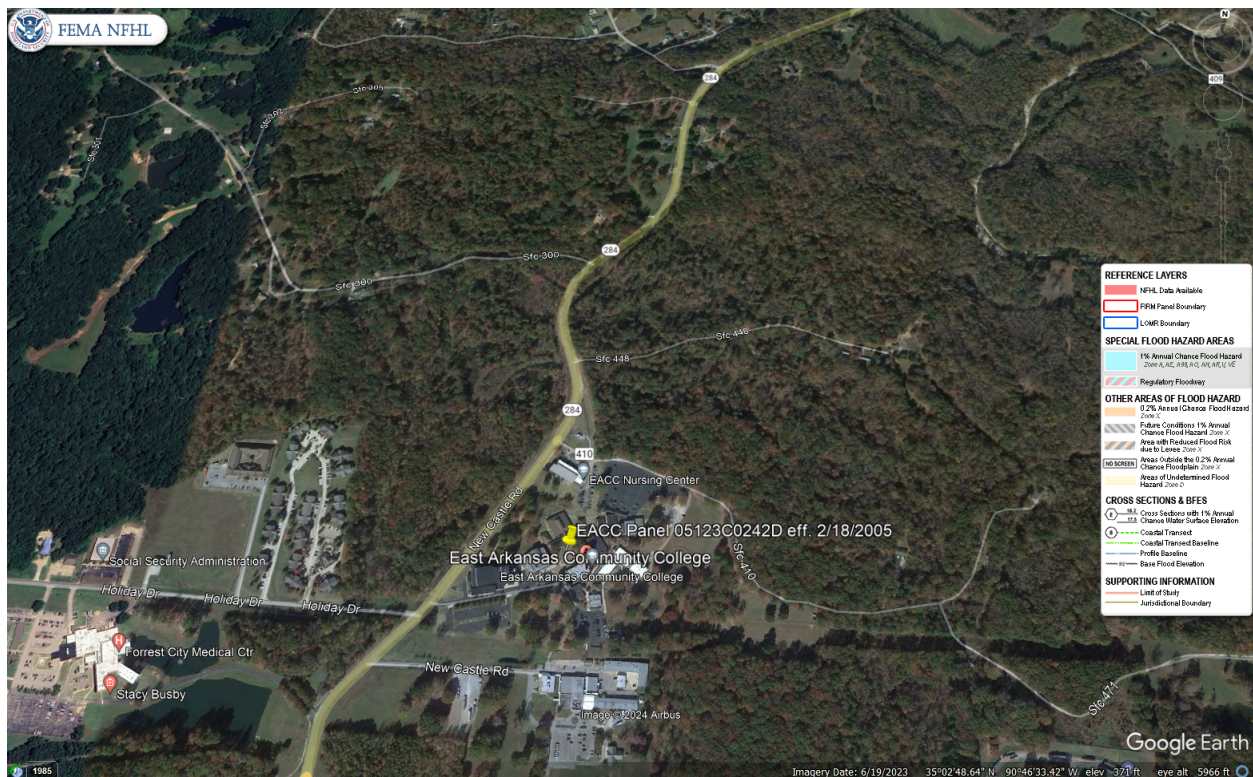
City of Parkin



No Flood Depth Data To Report for Parkin.



Cross County School District- No flood depth data to report



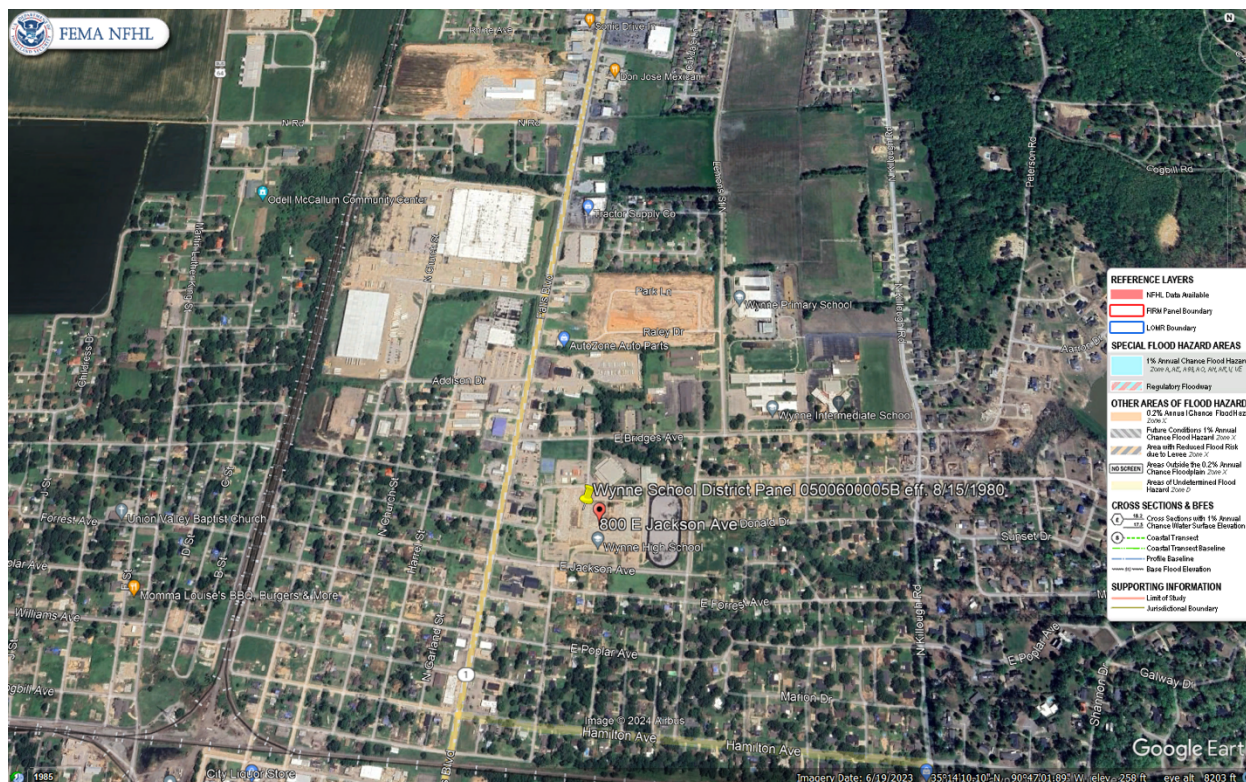
EACC- No flood depth data to report



Forrest City School District- No flood depth data to report



Palestine-Wheatley School District-No flood depth data to report.



Wynne School District – No Flood Depth Data to Report at School

3.5.6.3 Extent, Magnitude or Severity of Flooding

St. Francis/Cross County, including cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District can expect flash flooding events when receiving 3” or more of rainfall. In one hour, these jurisdictions could expect to receive 3 inches of rainfall. All affected jurisdictions are expected to receive around the same amount of rainfall.

Climate Change

Climate change has been addressed by scientists for many years as being a rising cause for flooding issue. According to the IPCC (Intergovernmental Panel on Climate Change) climate change has had a detectable influence on rainfall, snow melts, and floods. The Environmental Protection Agency has stated specifically, in the upcoming decades Arkansas will become warmer, and the state will most likely experience more floods and droughts.

3.5.6.4 Previous Flood and Flash Flooding Occurrences

There have been 13 flash flood and 5 flood events throughout St. Francis and 10 flash flood and 4 flood events throughout Cross County since 1950. St. Francis/Cross County has totaled \$2,186,000 in damages, no deaths, and no injuries from all recorded flood events. However, it is difficult to record all damages as they may not be reported for several reasons, including minor or unnoticeable deterioration of property.

3.5.6.5 Probability of Future Flooding

St. Francis County has a .06% probability of a future flood event and 15% likelihood of a flash flood in any given year.

Cross County has a 0.05% probability of a future flood event and 12% likelihood of a flash flood in any given year.

3.5.6.6 Impact and Vulnerability of Flooding

There are numerous ways that flooding could impact St. Francis/Cross County. Flooding causes traffic problems by cutting off streets, collapsing overpasses and bridges and causing traffic-light failures. Cars may stall and can even be carried off by flood waters. Flood waters interrupt gas, electricity and water services and contaminate the water supply, making drinkable water unavailable. Transportation systems may go off-line because buses, cars and trucks can't navigate the high water.

People can die in floods when their autos and homes are overtaken quickly by fast-rising flood waters. Homes, personal belongings, and businesses can be damaged or lost entirely as a result of ravages of flooding. People may be unable to get to work, creating loss of income and a lack of services they would provide.

Listed are other areas in which flooding can affect St. Francis/Cross County.

Environmental-Flat areas that do not have trees or rocks to prevent erosion are often swept away. Farm fields, which typically are located in flat areas, become washed out and crops are lost. Contaminants from sewer back-ups and other waste may be washed into the water supply, resulting in water that is unsafe for residents to use. The shelters of animals in the area are also washed out, resulting in many homeless animals that can cause problems for their owners.

Economic- Residential loss or repair. Businesses also suffer, not only from the loss of property, but the lack of customers during the flood and for a while after during recovery. Farmers also suffer from the loss of their crops.

Financial- Some residents who do not carry flood insurance suffer a great financial hardship. Those who do have insurance get help with the clean-up, but some costs may still come out of pocket. Towns and cities that are impacted by a flood carry the financial burden of fixing the public buildings, roads and other structures damaged by the flood waters. People who are impacted by the flood may also lose wages because the business they work for suffered damages, or they are unable to get to work.

Health- Flood waters can also damage the health of those living and working in the area. Because flood waters can wash dangerous waste into water supplies, tap water may become unsafe to use if the local authorities do not issue a boil advisory warning everyone to boil water before ingesting it. Mold is also likely to grow in homes and other buildings that were engulfed by the flood waters. It is important to search all homes for mold and remove it completely before moving back in. Breathing the mold spores is dangerous for your health. A flood can also contribute to other health problems from human waste that contaminates the ground.

Safety Once flooding begins, strong currents can pull a grown man beneath the water to drown. Once the flood waters have settled, it is still unsafe to wander through the water by car or on foot. Deep spots may be undetectable and there may be electric currents running through the water as well.

Soil Flooding results in poor soil aeration, leading to poor plant growth. Soil becomes more acidic following flooding. In addition, flooding can lead to soil erosion or soil contamination from such man-made pollutants as oils (on roadways), fertilizers (in yards and farms) and paints.

Rural Impact Floods damage farmland by burying crops in silt, uprooting crops by the force of the water or drowning crops. Flood waters can drown livestock as well. Flooding devastates wetlands and other wildlife habitats by depositing massive amounts of silt or leaving behind toxic substances such as petroleum products, fertilizers and pesticides and other man-made chemicals. This can kill animals and lead to water and land pollution.

Disease Flooding increases human exposure to dysentery and other diseases. Flooded sewage treatment plants contaminate drinking water supplies. Contaminated drinking water is a greater problem in developing countries. The St. Francis River has flood depths of: Action: 19', Minor: 22', Moderate: 27', and Major: 31'. Recent crest reveal the latest in 2019 at 24.68', 2014 at 24.77', 2011 at 27.25' and 2009 at 24.30'. The highest historic crest was in 1935 with a crest of 28.20'.

3.5.8 Thunderstorms

3.5.8.1 Description of Thunderstorm, Lightning, Hail and High Wind Events

A **thunderstorm**, also known as an **electrical storm**, a **lightning storm**, **thundershower** or simply a **storm**, is a form of turbulent weather characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere known as thunder. The meteorologically assigned cloud type associated with the thunderstorm is the cumulonimbus. Thunderstorms are usually accompanied by **strong winds**, heavy rain and sometimes snow, sleet, hail, or no precipitation at all. Those that cause hail to fall are called **hailstorms**. Thunderstorms may line up in a series or rainband, known as a squall line. Strong or severe thunderstorms may rotate, known as supercells. While most thunderstorms move with the mean wind flow through the layer of the troposphere that they occupy, vertical wind shear causes a deviation in their course at a right angle to the wind shear direction.

Lightning- Lightning is a channel of electrical charge called a stepped leader that zigzags downward in roughly 50yard segments in a forked pattern. This step leader is invisible to the human eye, and shoots to the ground in less time than it takes to blink. As it nears the ground, the charged step leader is attracted to a channel of opposite charge reaching up, a streamer, normally through something tall, such as a tree, house, or telephone pole. When the oppositely charged leader and streamer connect, a powerful electrical current begins flowing. A bright return stroke travels about 60,000 miles per second back towards the cloud. A flash consists of one or perhaps as many as 20 return strokes. We see lightning flicker when the process rapidly repeats itself several times along the same path. The actual diameter of a lightning channel is one-to-two inches.

Hail- Hail is a form of precipitation that occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere where they freeze into balls of ice. Hail can damage aircraft, homes and cars, and can be deadly to livestock and people.

According to data from the FEMA 1997 publication “Multi-Hazard - Identification and Risk Assessment,” Arkansas is within a part of the country that averages two to three hailstorms annually.

Thunderstorm Winds- Damaging winds are often called “straight-line” winds to differentiate the damage they cause from tornado damage. Strong thunderstorm winds can come from a number of different processes. Most thunderstorm winds that cause damage at the ground are a result of outflow generated by a thunderstorm downdraft. Damaging winds are classified as those exceeding 50-60 mph.

Damage from severe thunderstorm winds account for half of all severe reports in the lower 48 states and is more common than damage from tornadoes. Wind speeds can reach up to 100 mph and can produce a damage path extending for hundreds of miles.

3.5.8.2 Location of Thunderstorm, Lightning, Strong Winds and Hail Events







All areas of the St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District including cities have experienced Thunderstorm events and are equally at risk.

3.5.8.3 Extent, Magnitude or Severity of Thunderstorm, Lightning, Strong Winds and Hail Events

All jurisdictions of St. Francis/Cross County, including cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District are equally subject to thunderstorms ranging from Marginal to Category 5- High on the chart below. This would result in lightning, hail from 2 to 4 in, and possible tornadoes up to an EF5. Thunderstorms winds with a category 5 may be in excess of 70 mph.

Climate Change

Research in the last decade has shown that climate change is making the air warmer, which then increases moisture in the air, and with this combination of factors can boost the chance of thunderstorms, lightning, strong winds, and hail events. A study done in 2014 by the Department of Earth and Planetary Science at the University of California showed that lightning occurs more frequently when it is hotter than cold. 40% of the wildfires on the west coast are caused by lightning. This could cause major issues for many of the communities struggling with wildfires in places like California but that is not the case in St. Francis/Cross County.

| Understanding Severe Thunderstorm Risk Categories | | | | | |
|--|--|--|--|--|---|
| THUNDERSTORMS (no label) | 1 - MARGINAL (MRGL) | 2 - SLIGHT (SLGT) | 3 - ENHANCED (ENH) | 4 - MODERATE (MDT) | 5 - HIGH (HIGH) |
| No severe* thunderstorms expected | Isolated severe thunderstorms possible | Scattered severe storms possible | Numerous severe storms possible | Widespread severe storms likely | Widespread severe storms expected |
| Lightning/flooding threats exist with <u>all</u> thunderstorms | Limited in duration and/or coverage and/or intensity | Short-lived and/or not widespread, isolated intense storms possible | More persistent and/or widespread, a few intense | Long-lived, widespread and intense | Long-lived, very widespread and particularly intense |
|  |  |  |  |  |  |
| <ul style="list-style-type: none"> • Winds to 40 mph • Small hail | <ul style="list-style-type: none"> • Winds 40-60 mph • Hail up to 1" • Low tornado risk | <ul style="list-style-type: none"> • One or two tornadoes • Reports of strong winds/wind damage • Hail ~1", isolated 2" | <ul style="list-style-type: none"> • A few tornadoes • Several reports of wind damage • Damaging hail, 1 - 2" | <ul style="list-style-type: none"> • Strong tornadoes • Widespread wind damage • Destructive hail, 2" + | <ul style="list-style-type: none"> • Tornado outbreak • Derecho |
| * NWS defines a severe thunderstorm as measured wind gusts to at least 58 mph, and/or hail to at least one inch in diameter, and/or a tornado. All thunderstorm categories imply lightning and the potential for flooding. Categories are also tied to the probability of a severe weather event within 25 miles of your location. | | | | | |

3.5.5.4 Previous Thunderstorm, Lightning, Strong Winds and Hail Events

| Event | Event Total | Fatalities | Injuries | Property Damage | Crop Damage |
|--------------------|-------------|------------|----------|-----------------|-------------|
| Hail | 22 | 0 | 0 | \$8.43K | \$0 |
| Lightning | 0 | 1 | 1 | \$0 | \$0 |
| Thunderstorm Winds | 50 | 1 | 2 | \$212.0M | \$0 |

3.5.8.5 Probability of Future Thunderstorm, Lightning, Hail and Strong Wind Events

In any given year there is a 22% chance of a hail event, 1% chance of a lightning event, and a 34% chance of a thunderstorm wind event occurring.

3.5.8.6 Impact and Vulnerability of Thunderstorm Events

All structures in the County and their contents are vulnerable to damage by thunderstorms winds. Strong winds can down trees onto power lines, damage mobile homes that are not anchored, and rip off roofing. Winds can cause death and injuries by lifting unanchored objects creating flying missiles.

Lightning strikes have the power to fell trees many times disrupting service, and structural fires. Lightning can possibly cause death and injuries. Wind and lightning can damage communication towers located throughout the County.

Hailstorms events are frequent in the County and can cause damage to all structures, mainly roof shingles which can lead to roof leaks and further damage to the structure interiors. All types of real and personal property are vulnerable to hailstorms, cars, trailers, boats, and crops. Hailstorms can cause bodily injury if caught outside without protection.

The entire County is subject to thunderstorm events where usually high winds, lightning and hail are involved.

St. Francis/Cross County and all participating jurisdictions

There are concentrations of manufactured homes, unreinforced masonry homes, older construction types located in the unincorporated areas of St. Francis/Cross County as well as the participating jurisdictions. These homes are susceptible to damage during high wind events and hail and can easily be engulfed in fire if struck by lightning. There are no safe rooms in these areas that offer protection to life during high wind events. Wooden, unreinforced masonry homes and older construction types are also susceptible to damage during high wind and hail. Lightning will destroy these homes by fire. Often, hail creates thousands of dollars of personal property in the unincorporated areas St. Francis/Cross County.

The unincorporated areas of St. Francis/Cross County are concerned about the communication system, and electric grid during thunderstorms. During thunderstorms, the community can lose power and communication capabilities. This threatens safety of the community and hinders response operations. Thunderstorms also can cause crop damage which is also of concern to the communities.

3.9.6 Tornado

3.5.9.1 Description of a Tornado

A tornado is a rapidly rotating vortex or funnel of air extending ground ward from a cumulonimbus cloud. Most of the time, vortices remain suspended in the atmosphere (Golden and Snow, 1991). When the lower tip of the vortex touches earth, the tornado becomes a force of destruction. Approximately 1,000 tornadoes are spawned by severe thunderstorms each year.

Tornadoes are related to larger vortex formations and therefore often form in convective cells such as thunderstorms or in the right forward quadrant of a hurricane, far from the hurricane eye. The strength and number of tornadoes are not related to the strength of the hurricane that generates them. Often, the weakest of hurricanes produce the most tornadoes (Bryant, 1991). In addition to hurricanes, events such as earthquake induced fire and fires from atomic bombs or wildfires may produce tornadoes.

The path of a single tornado generally is less than 0.6 mi (1km). The path length of a single tornado can range from a few hundred meters to dozens of kilometers. A tornado typically moves at speeds between 30 and 125 mph (50 and 200 km/h) and can generate internal winds exceeding 300 mph (500km/h). However, the lifespan of a tornado rarely is longer than 30 minutes.

3.5.9.2. Locations of Tornado Events

Because there is no defined geographic hazard boundary, all people and property in St. Francis/Cross County, including cities Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District,

Wynne School District, and Palestine-Wheatley School District are exposed to the risk of damage from Tornadoes. Based on the short 50-year dataset, no clear areas of high tornado occurrence occur at any County scale. Thus, although tornado risk appears to vary at a statewide scale, variable tornado risk at the County scale cannot be demonstrated. Thus, mapping variations in tornado risk at a local or County scale is not currently possible. For the purpose of this plan, all parts of this plan are considered equally likely to experience a tornado event. This is proven to be the case in tornadoes that have occurred in a wide variety of areas.

3.5.9.3. Extent, Magnitude or Severity of Tornado

The Enhanced Fujita (EF) Scale was devised by a panel of meteorologists and engineers convened by the Wind Science and Engineering Research Center at Texas Tech University. The Weather Channel's severe weather expert Dr. Greg Forbes was on the team of experts who determined the revised wind speed ranges. Since 2007, the EF Scale has been used to rate tornadoes.

| Enhanced Fujita Scale | | |
|------------------------------|-----------------------------|--|
| Category | Wind Speed | Potential Damage |
| EF0 | 105-137 km/h 65-85 mph | Light damage. Peels surface off roofs; some damage to chimneys; branches broken off trees; shallow rooted trees pushed over; mobile homes pushed off foundations or overturned; sign boards damaged |
| EF1 | 138-179 km/h 86-110 mph | Moderate damage. Roofs torn off frame houses; windows and glass doors broken; moving autos blown off roads; mobile homes demolished; boxcars overturned |
| EF2 | 180-217 km/h 111-135 mph | Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground |
| EF3 | 218-266 km/h 136-165 mph | Severe damage. Some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance |
| EF4 | 267-324 km/h 166-200 mph | Devastating damage. Well-constructed houses and whole frame houses completely leveled; structures with weak foundations blown away some distance; trees debarked; cars thrown and small missiles generated. |
| EF5 | >324 km/h >200 mph | Incredible damage. Strong frame houses leveled off foundations and swept away; with strongest winds, brick houses completely wiped off foundations; automobile-sized missiles fly through the air in excess of 100m (109 yd); cars thrown and large missiles generated; incredible phenomena will occur. |

St. Francis/Cross County could experience the entire range of tornadoes from and EF0 – EF5.

Climate Change

There is no doubt that the climate is changing, and the warmer temperatures are causing the United States to see a rise in storms and experiencing thousands of tornadoes each year. However, it was not until the mid-1990's that a Doppler radar network was created in the USA for the detection of tornadoes. According to the national geographic scientists must first study the severe weather ingredients to determine if they support the development of super cell thunderstorms and the effects of climate change. Climate change is anticipated to decrease the amount of wind shear available to severe thunderstorms, which could deprive the storm of a key ingredient for tornado formation. Future conditions have been considered when identifying hazards for this plan. The entire planning area, based on past occurrences, can expect to experience an EF2 tornado or lower. The likelihood of experiencing an EF3, EF4 or EF5 is possible but not probable.

3.5.9.4. Previous occurrences

There have been a reported 13 tornadoes between 1950 and 2020, resulting in 2 Death and 2 injuries as well as \$3.489M in property damage and \$0 in Crop Damage.

3.5.9.5. Probability of Future Tornadoes

There is a 15% chance of a Tornado impacting St. Francis/Cross County in any given year.

3.5.9.6 Impact of Tornado

The table below describes the impact of tornados to residential homes in the participating jurisdictions.

| RESIDENTIAL HOME DAMAGE CLASSES | | |
|---------------------------------|---|---------------------------------|
| Degree of Damage (DOD) | | Expected Wind Speed Value (mph) |
| 1 | Threshold of visible damage | 65 |
| 2 | Loss of roof covering material (<20%), gutters, and/or Awning; loss of vinyl or metal siding | 79 |
| 3 | Broken glass in doors and windows | 90 |
| 4 | Uplift of roof deck and loss of significant roof covering material (>20%); collapse of chimney, garage doors; collapse inward, failure of porch or carport. | 97 |
| 5 | Entire house shifts off foundation | 121 |
| 6 | Large sections of roof structure removed; most walls remain standing | 122 |
| 7 | Exterior walls collapsed | 132 |
| 8 | Most walls collapsed, except small interior rooms | 152 |
| 9 | All walls collapsed | 170 |
| 10 | Destruction of engineered and/or well-constructed residence; slab swept clean. | 200 |

Source: FEMA.GOV

The methodology for the potential loss estimate was developed by using past hazard events data from the NCDC. The following is the resources used in the loss estimation.

- Arkansas Hazard Mitigation Plan
- National Climatic Data Center (NCDC) Storm Events Database

The National Climatic Data Center provides historical details about past hazard events in the County. The chart shows a breakdown of the magnitudes of the tornadoes which have occurred in St. Francis/Cross County in 1950 - 2019.

| Location | County/Zone | St. | Date | Time | I.Z. | Type | Mag | Dth | Inj | PrD | CrD |
|---------------------------------|-----------------|-----|------------|-------|-------|---------|-----|-----|-----|---------|-------|
| Totals: | | | | | | | | 6 | 139 | 26.955M | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 09/16/1958 | 16:30 | CST | Tornado | F0 | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 04/19/1970 | 16:15 | CST | Tornado | F3 | 0 | 2 | 25.00K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 02/21/1971 | 17:00 | CST | Tornado | F2 | 0 | 0 | 25.00K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 07/26/1971 | 17:20 | CST | Tornado | F0 | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 08/14/1973 | 01:30 | CST | Tornado | F2 | 0 | 0 | 250.00K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 06/06/1974 | 16:10 | CST | Tornado | F3 | 4 | 112 | 25.000M | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 09/14/1977 | 12:59 | CST | Tornado | F0 | 0 | 0 | 0.25K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 01/07/1978 | 15:40 | CST | Tornado | F3 | 0 | 0 | 0.25K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 04/02/1982 | 17:15 | CST | Tornado | F2 | 1 | 13 | 250.00K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 05/21/1982 | 12:28 | CST | Tornado | F0 | 0 | 0 | 0.03K | 0.00K |
| ST. FRANCIS CO. | ST. FRANCIS CO. | AR | 07/29/1992 | 13:30 | CST | Tornado | F1 | 0 | 0 | 250.00K | 0.00K |
| HUGHES | ST. FRANCIS CO. | AR | 01/18/1996 | 07:20 | CST | Tornado | F1 | 0 | 0 | 50.00K | 0.00K |
| GOODWIN | ST. FRANCIS CO. | AR | 01/21/1999 | 17:25 | CST | Tornado | F0 | 0 | 0 | 0.10K | 0.00K |
| WHEATLEY | ST. FRANCIS CO. | AR | 01/21/1999 | 17:30 | CST | Tornado | F2 | 0 | 9 | 500.00K | 0.00K |
| COLT | ST. FRANCIS CO. | AR | 01/21/1999 | 18:15 | CST | Tornado | F0 | 0 | 0 | 0.05K | 0.00K |
| HUGHES | ST. FRANCIS CO. | AR | 02/18/2000 | 15:00 | CST | Tornado | F0 | 0 | 0 | 25.00K | 0.00K |
| ROSENBAUM | ST. FRANCIS CO. | AR | 02/05/2008 | 19:19 | CST-6 | Tornado | EF0 | 0 | 0 | 1.00K | 0.00K |
| GREASY CORNER | ST. FRANCIS CO. | AR | 05/25/2011 | 17:18 | CST-6 | Tornado | EF0 | 0 | 0 | 0.00K | 0.00K |
| WHEATLEY | ST. FRANCIS CO. | AR | 05/30/2013 | 23:55 | CST-6 | Tornado | EF1 | 0 | 0 | 50.00K | 0.00K |
| RAWLISON | ST. FRANCIS CO. | AR | 12/21/2013 | 15:13 | CST-6 | Tornado | EF2 | 1 | 3 | 500.00K | 0.00K |
| PALESTINE | ST. FRANCIS CO. | AR | 08/27/2020 | 17:29 | CST-6 | Tornado | EF0 | 0 | 0 | 3.00K | 0.00K |
| WOOD SPUR | ST. FRANCIS CO. | AR | 05/09/2021 | 15:30 | CST-6 | Tornado | EF0 | 0 | 0 | 25.00K | 0.00K |
| Totals: | | | | | | | | 6 | 139 | 26.955M | 0.00K |

| Location | County/Zone | St. | Date | Time | I.Z. | Type | Mag | Dth | Inj | PrD | CrD |
|-------------------------------|-------------|-----|------------|-------|-------|---------|-----|-----|-----|---------|-------|
| Totals: | | | | | | | | 5 | 24 | 10.519M | 0.00K |
| CROSS CO. | CROSS CO. | AR | 03/21/1952 | 18:00 | CST | Tornado | F4 | 4 | 5 | 250.00K | 0.00K |
| CROSS CO. | CROSS CO. | AR | 11/27/1964 | 21:30 | CST | Tornado | F1 | 0 | 0 | 2.50K | 0.00K |
| CROSS CO. | CROSS CO. | AR | 01/07/1978 | 16:05 | CST | Tornado | F3 | 1 | 8 | 2.500M | 0.00K |
| CROSS CO. | CROSS CO. | AR | 05/20/1989 | 09:40 | CST | Tornado | F0 | 0 | 0 | 0.00K | 0.00K |
| CROSS CO. | CROSS CO. | AR | 06/04/1989 | 17:28 | CST | Tornado | F0 | 0 | 0 | 0.00K | 0.00K |
| Wynne | CROSS CO. | AR | 07/02/1994 | 17:46 | CST | Tornado | F0 | 0 | 0 | 5.00K | 0.00K |
| Wynne | CROSS CO. | AR | 07/22/1995 | 19:55 | CST | Tornado | F0 | 0 | 0 | 1.00K | 0.00K |
| HICKORY RIDGE | CROSS CO. | AR | 03/01/1997 | 17:25 | CST | Tornado | F3 | 0 | 0 | 750.00K | 0.00K |
| VANNDAL | CROSS CO. | AR | 05/27/1997 | 01:48 | CST | Tornado | F2 | 0 | 0 | 100.00K | 0.00K |
| HICKORY RIDGE | CROSS CO. | AR | 01/21/1999 | 16:33 | CST | Tornado | F0 | 0 | 0 | 0.05K | 0.00K |
| TWIST | CROSS CO. | AR | 11/09/2002 | 21:15 | CST | Tornado | F2 | 0 | 0 | 25.00K | 0.00K |
| TILTON | CROSS CO. | AR | 05/04/2003 | 20:19 | CST | Tornado | F3 | 0 | 4 | 1.000M | 0.00K |
| CHERRY VLY | CROSS CO. | AR | 05/30/2004 | 19:05 | CST | Tornado | F2 | 0 | 0 | 75.00K | 0.00K |
| FAIROAKS | CROSS CO. | AR | 03/09/2006 | 06:58 | CST | Tornado | F2 | 0 | 2 | 100.00K | 0.00K |
| FAIROAKS | CROSS CO. | AR | 04/02/2006 | 17:34 | CST | Tornado | F3 | 0 | 5 | 5.000M | 0.00K |
| PRINCE DALE | CROSS CO. | AR | 01/08/2008 | 13:26 | CST-6 | Tornado | EF0 | 0 | 0 | 25.00K | 0.00K |
| SMITH DALE | CROSS CO. | AR | 05/02/2008 | 14:18 | CST-6 | Tornado | EF0 | 0 | 0 | 0.00K | 0.00K |
| FAIROAKS | CROSS CO. | AR | 05/10/2008 | 19:07 | CST-6 | Tornado | EF1 | 0 | 0 | 30.00K | 0.00K |
| FAIROAKS | CROSS CO. | AR | 05/01/2010 | 19:58 | CST-6 | Tornado | EF1 | 0 | 0 | 100.00K | 0.00K |
| TOGO | CROSS CO. | AR | 03/13/2016 | 20:10 | CST-6 | Tornado | EF1 | 0 | 0 | 25.00K | 0.00K |
| CHERRY VLY | CROSS CO. | AR | 02/24/2018 | 17:20 | CST-6 | Tornado | EF1 | 0 | 0 | 500.00K | 0.00K |
| LANGIULLE | CROSS CO. | AR | 06/15/2018 | 16:25 | CST-6 | Tornado | EF0 | 0 | 0 | 0.00K | 0.00K |
| HICKORY RIDGE | CROSS CO. | AR | 08/27/2020 | 18:13 | CST-6 | Tornado | EF1 | 0 | 0 | 30.00K | 0.00K |
| MERCK | CROSS CO. | AR | 03/27/2021 | 17:16 | CST-6 | Tornado | EF0 | 0 | 0 | 0.00K | 0.00K |
| Totals: | | | | | | | | 5 | 24 | 10.519M | 0.00K |

3.5.9.7. Vulnerability and Estimating Potential Loss

All areas, residents, structures, and critical facilities in St. Francis/Cross County, including cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District are of high risk of tornado events. Because there is no defined geographic hazard boundary, all people and property in St. Francis/Cross County are exposed to the risk of damage from tornadoes. All structures in St. Francis/Cross County are vulnerable to tornadoes. The most vulnerable to tornadoes are wood frame structures and manufactured homes. Damage to residential structures could cause hundreds to be without shelter or try to live in unsafe conditions.

Utilities most vulnerable to tornado winds are electrical power (e.g. power generation facility, above ground transmission lines and sub-stations) and communication structures (radio towers, cell phone towers). Most transportation systems such as highways, railways are not highly vulnerable to tornadoes, but downed power lines and trees and limbs can delay travel until roads are cleared. This would not only affect the day-to-day traffic but also critical services such as emergency police, fire, and ambulance.

Vulnerable populations (retirement homes, schools, and childcare centers) are located in about every section of the County. Long term care facilities/Nursing Homes are in St. Francis/Cross County. There are numerous schools, and childcare centers are located in St. Francis/Cross County.

The East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District could be closed for extended periods due to power and water outages, or possible damage to building structures on school campuses. The school buses are also disrupted due to damaged or destroyed roads and bridges. Employment would be affected from school closings.

All areas of St. Francis/Cross County, including cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District would be affected due to the lost power, water, sewer, gas, and communications. Power and water outages would cause food spoilage and sanitation problems for communities. Hospitals, grocery stores and other critical need and economically important facilities are damaged and closed for extended periods.

Businesses and local government infrastructure often suffer extensive damage in tornados as well as the death of people, wildlife, and livestock. Employment is often affected because of businesses that close due to the tornado damage and loss of business. Even with the advances in meteorology, warning times may be short.

3.5.10 Wildfire Profile

3.5.10.1 Description of Wildfire

A wildfire is any outdoor fire that is not controlled, supervised, or arranged those spreads through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles around. Naturally occurring and non-native species of grasses, brush, and trees fuel wildfires. A wildland fire is a wildfire in an area in which development is essentially nonexistent, except for roads, railroads, power lines and similar facilities. A Wildland-Urban Interface (WUI) fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels. Areas with a large amount of wooded, brush and grassy areas are at highest risk of wildfires. Additionally, areas anywhere that have experienced prolonged droughts or are excessively dry are also at risk of wildfires.

3.5.10.2 Location of Wildfire

Any jurisdiction located in zones that inhibit the primary factors of fuel, topography, and weather are susceptible to wildfire. These three factors can predict wildfire behavior in WUI areas and wildland areas. Large amount of wooded, brush, and grassy areas are considered fuel that promotes the spread of wildfires. Topography affects the movement of air over the ground surface, and the slopes of terrain will change the rate of speed that the fire spreads. Lastly, areas

that have experienced prolonged droughts or excessive dry spells can predict wildfires. For WUI fires, any location that intermixes with wildland fuel and human development along with topography and weather are at risk to wildfire.

3.5.10.3 Extent, Magnitude or Severity of Wildfire

Burn Severity

From a landscape perspective, burn severity is defined as the degree of environmental change caused by fire. Heterogeneity in burn severity is a result of the spatial variation of factors such as fire intensity, topography and vegetation type. Burn severity can be broken down into several categories, useful in gauging post burn ecological responses:

| Rank | Burn Severity | Description | Characteristics |
|-------------|---------------------------|--|---|
| 0 | Unburned | Fire extinguished before reaching microsite | <ul style="list-style-type: none"> • Leaf litter from previous years intact and uncharred • No evidence of char around base of trees and shrubs • Pre-burn seedlings and herbaceous vegetation present |
| 1 | Low Severity Burn | Surface fire which consumes litter yet has little effect on trees and understory vegetation | <ul style="list-style-type: none"> • Burned with partially consumed litter present • Evidence of low flame heights around base of trees and shrubs (<0.5m) • No significant decreases in overstory and understory basal area, diversity or species richness from pre-burn assessments • Usually burning below 80 ° C |
| 2 | Medium-Low Severity Burn | No significant differences in overstory density and basal area, and no significant differences in species richness declined | <ul style="list-style-type: none"> • No litter present and 100% of the area covered by duff • Flame lengths <2m • Understory mortality present, little or no overstory mortality |
| 3 | Medium-High Severity Burn | Flames that were slightly taller than those of medium-low intensity fires, but these fires had occasional hot spots that killed large trees with significant reduction in the understory | <ul style="list-style-type: none"> • Soil exposure on 1-50% of the area • Flame lengths <6m • High understory mortality with some overstory trees affected |
| 4 | High Severity Burn | Crown fires, usually a stand replacing burn with relatively high overstory mortality | <ul style="list-style-type: none"> • Soil exposure >50% • Flame lengths >6m • Higher overstory mortality >20% • Usually burning above 800 ° C |

All jurisdictions including the unincorporated areas St. Francis/Cross County, including cities Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District fall between the ranks of 0 to 1.

Climate Change

According to the Center for Climate and Energy Solutions Climate change has played a key factor in the increasing risk and extent of wildfires in the Western portion of the United States. These areas do see drier conditions and longer fire seasons. 80% of wildfires are manmade and we can predict the drier conditions helping spread the fires. It is anticipated people in Arkansas will experience especially increased risks from heat, precipitation, and fire due to

climate change over the next 30 years. These risks, through 2050 and beyond, may change depending on how much we reduce emissions in the near future.

3.5.10.4 Previous Occurrences

According to the Storm Events Database published by NOAA there have been 0 previous occurrences in regard to wildfires affecting St. Francis/Cross County and its Jurisdictions.

3.5.10.5 Probability of Future Wildfire Occurrences

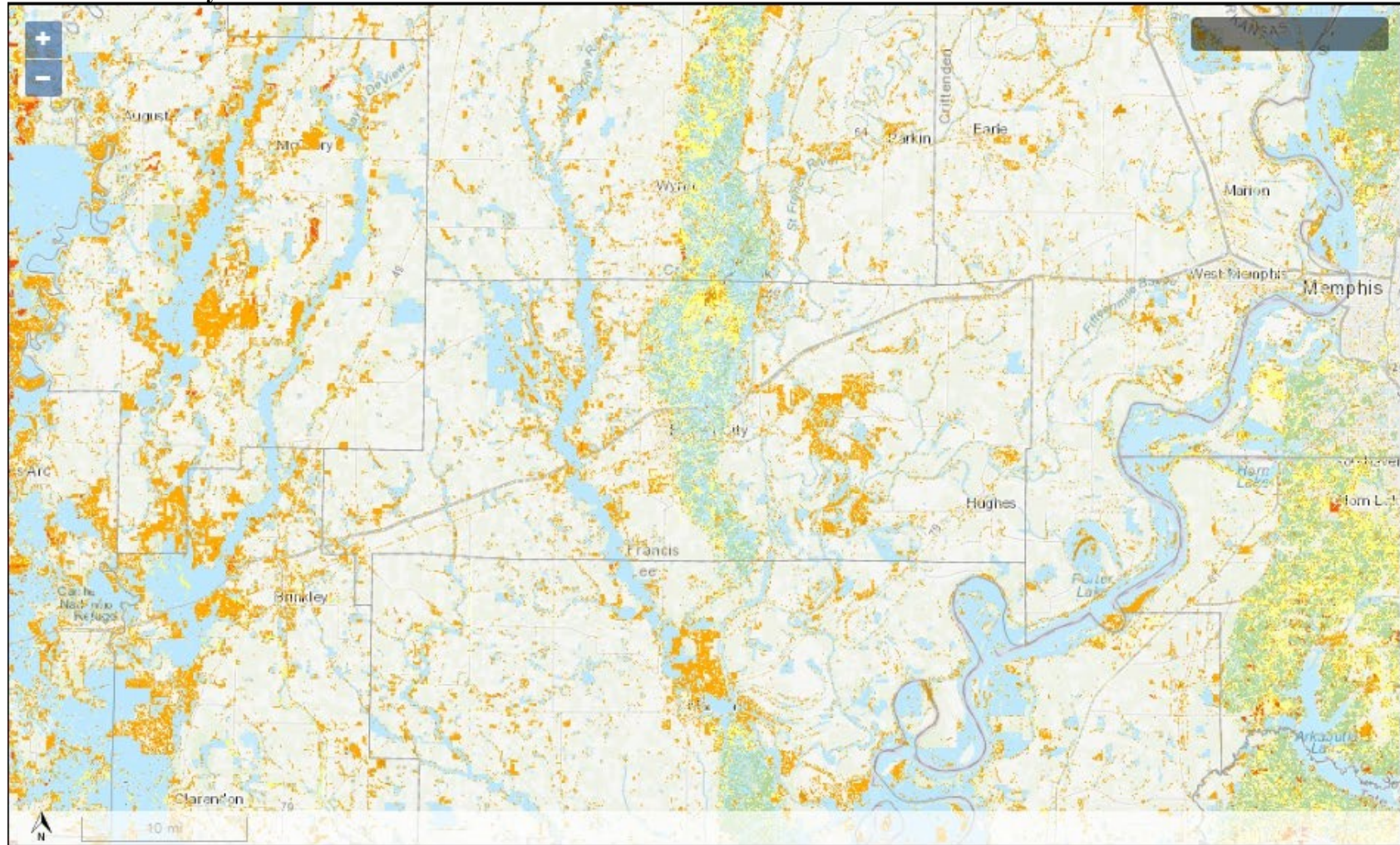
Even though there have been 0 recorded events there is still a less than 1% chance that one could occur in St. Francis/Cross County in any given year.

3.5.10.6 Impact of Wildfire

The map on the following pages is from the Southern Wildfire Risk Assessment. The color legend shows characteristics of the Fire Intensity Scale.

| 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 |

St. Francis County



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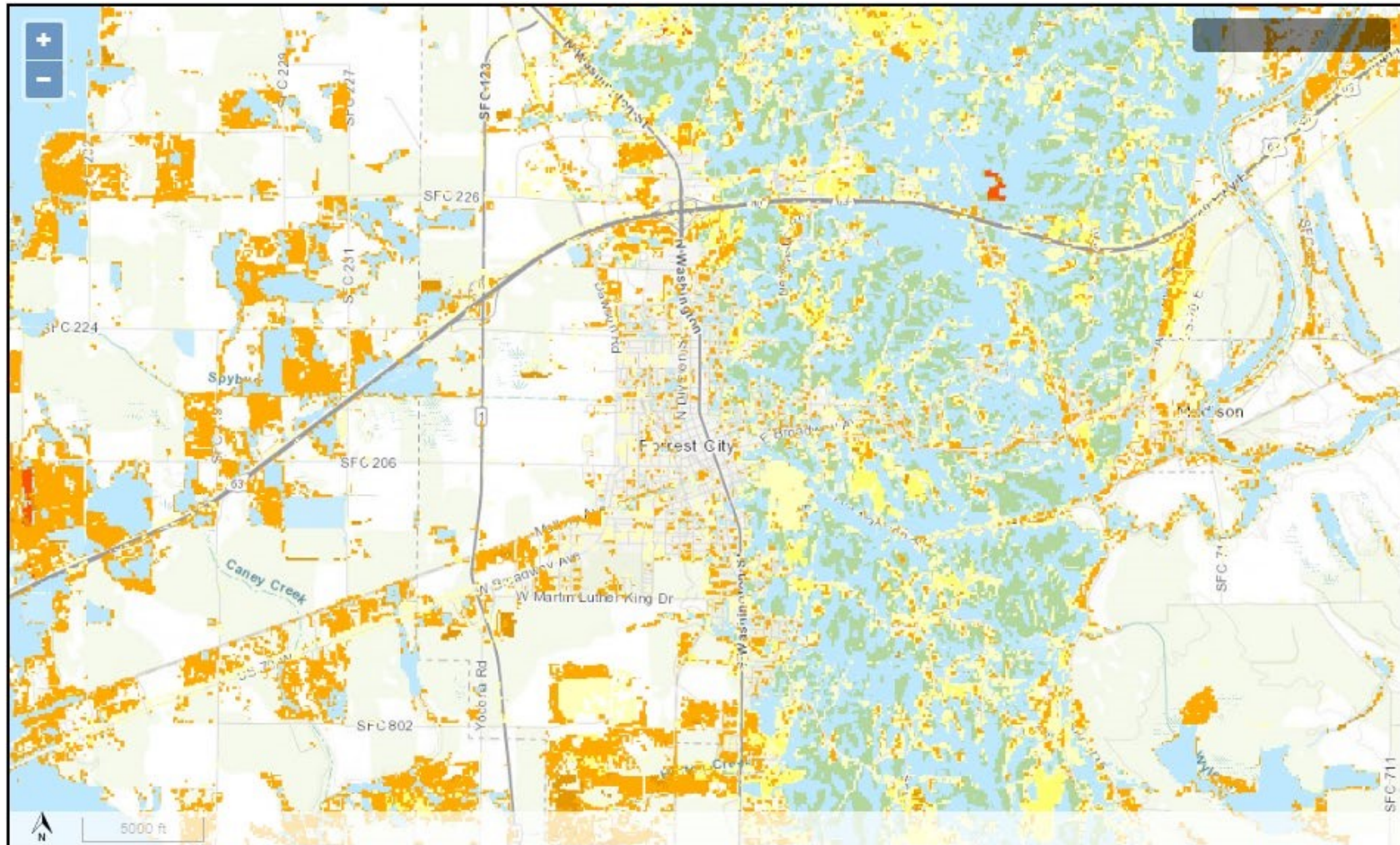
SGSF Wildfire Risk Assessment Portal

<https://www.southernwildfirerisk.com>

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Forrest City



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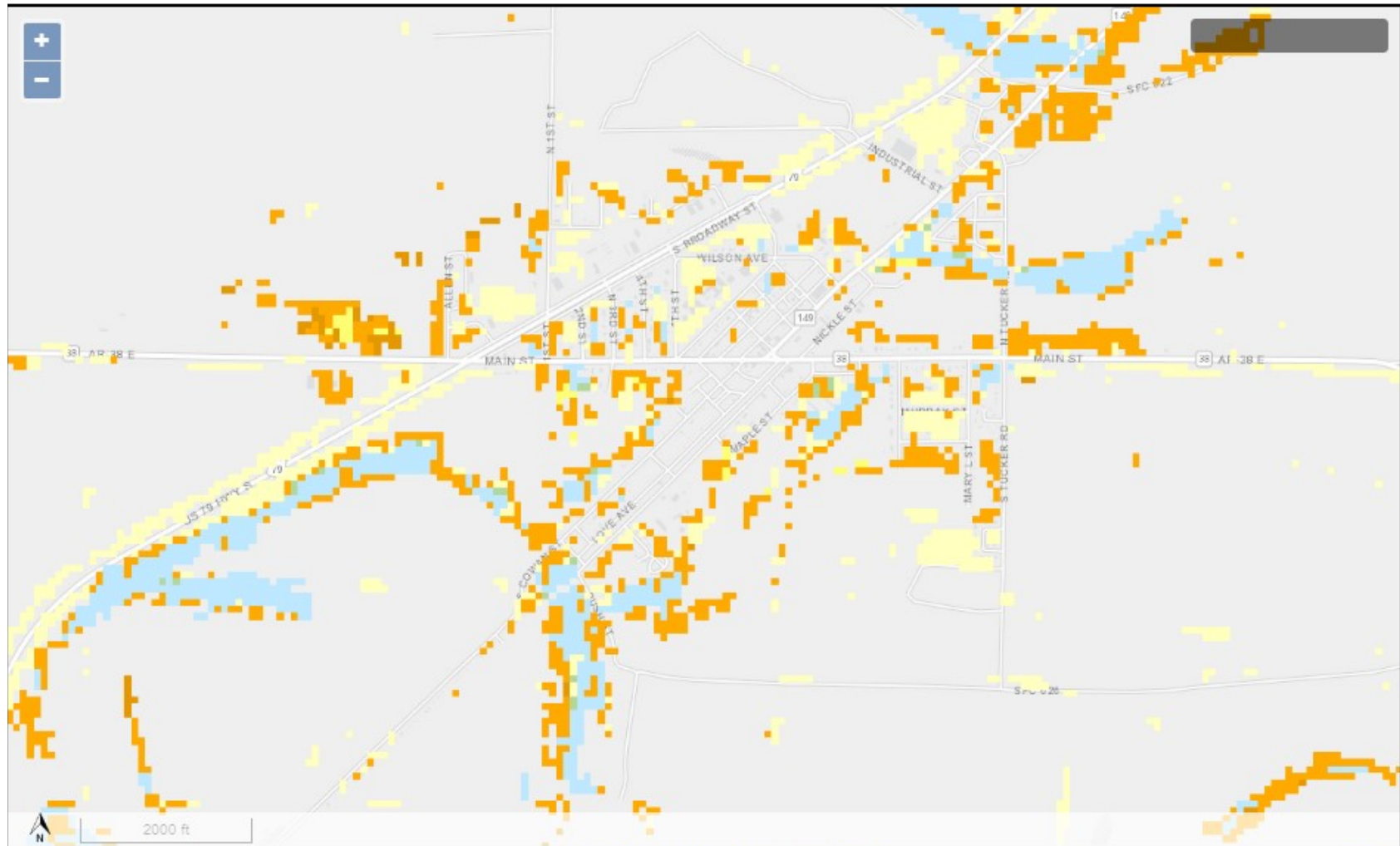
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Hughes



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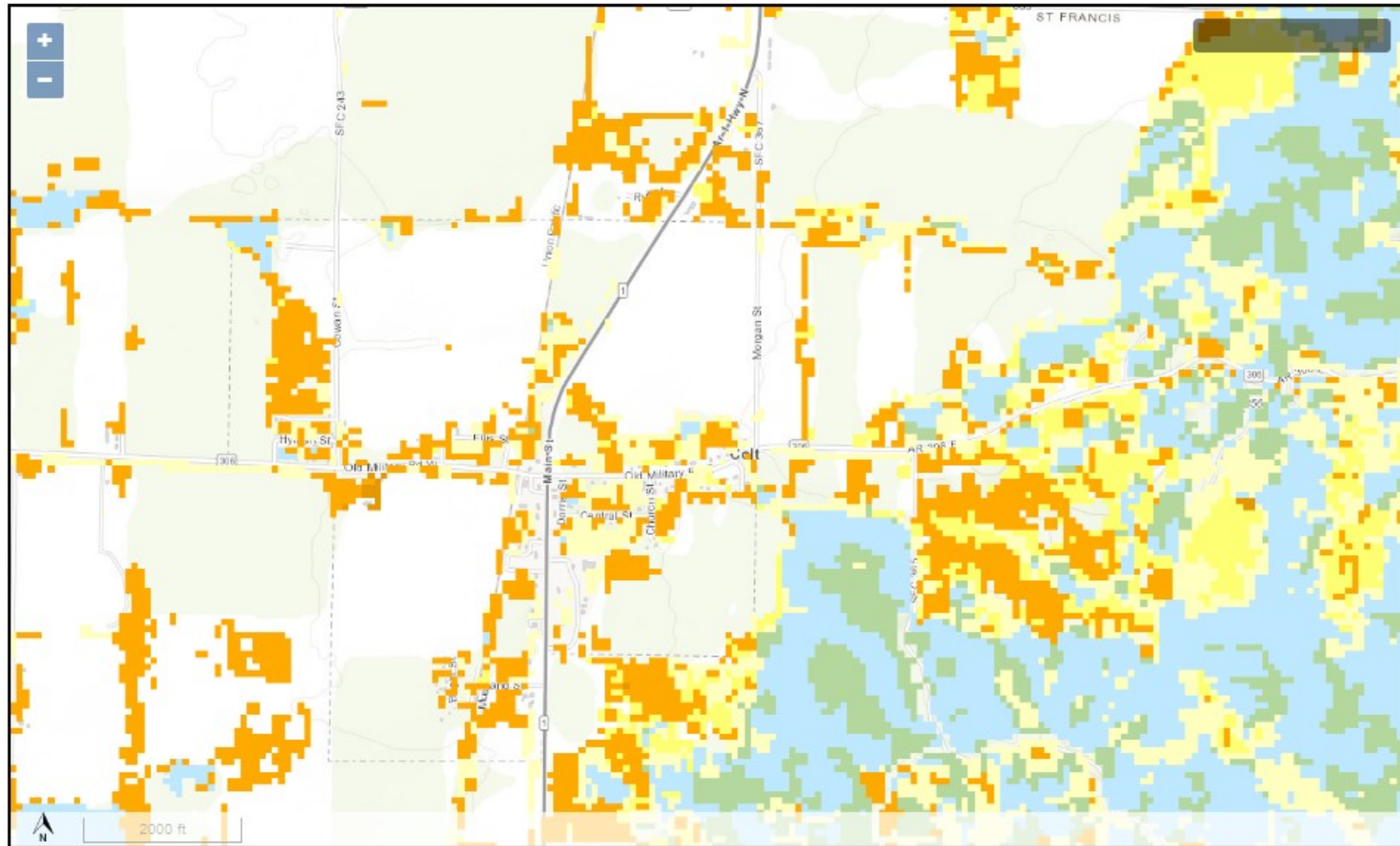
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Colt



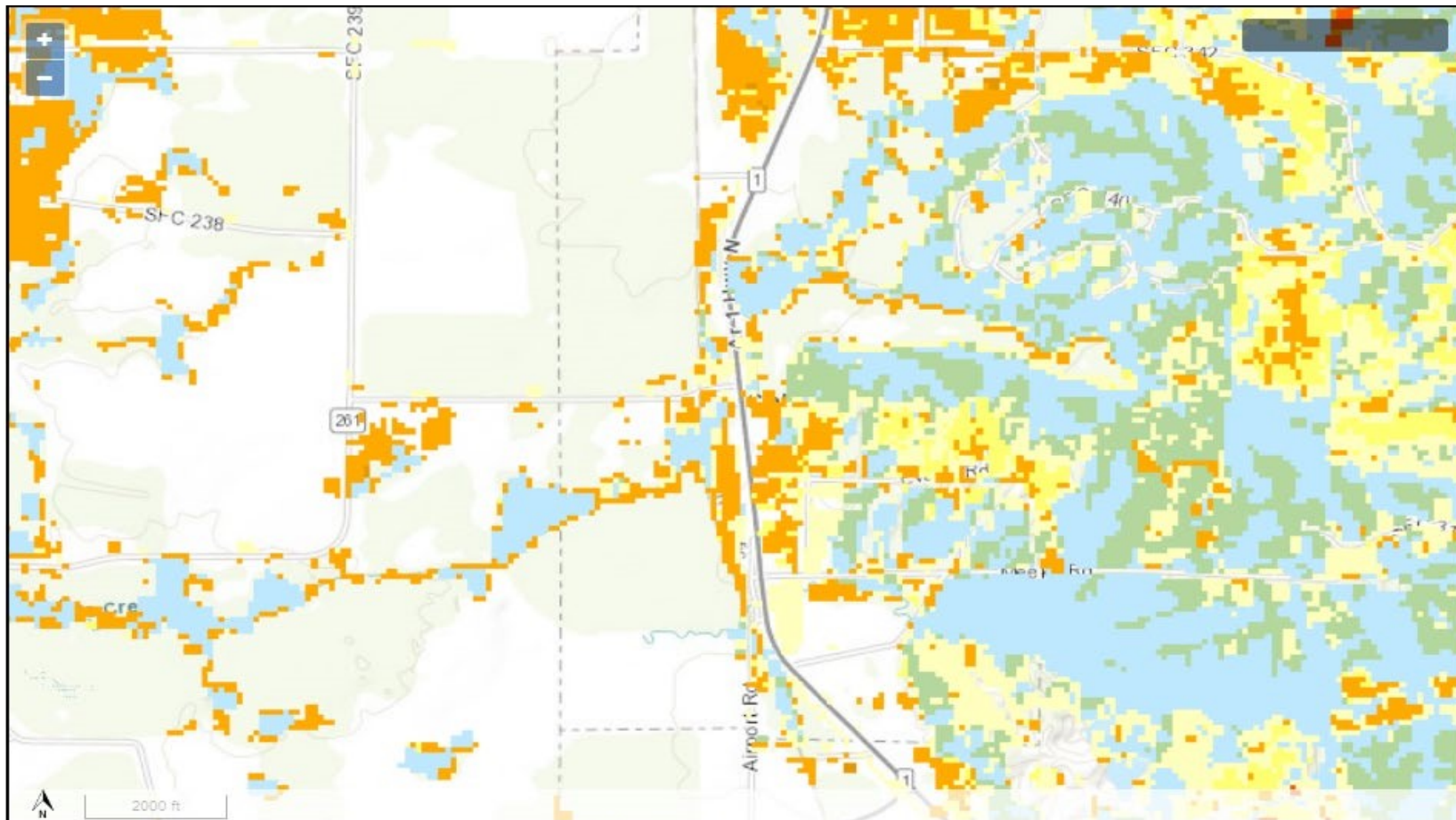
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Caldwell



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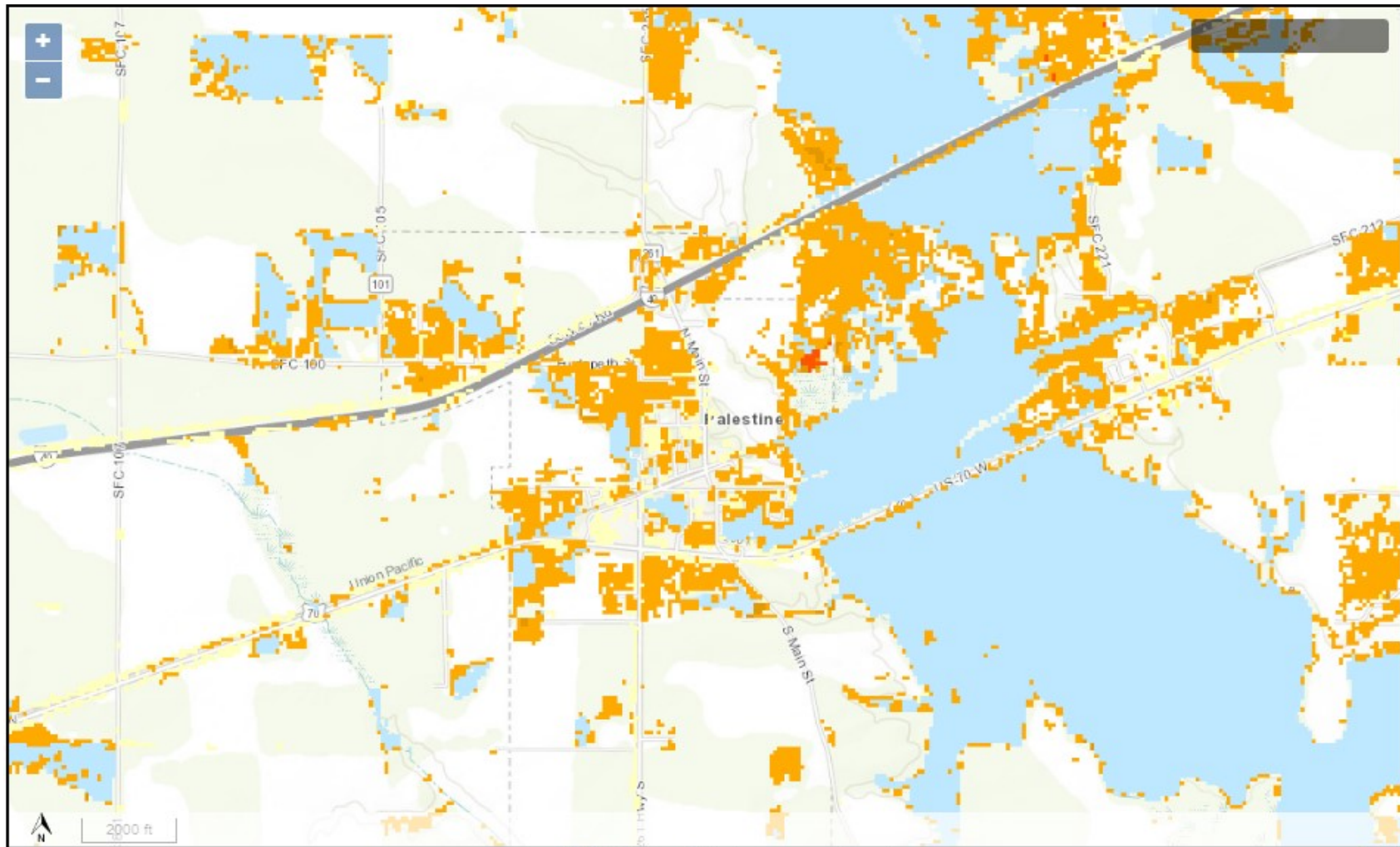
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Palestine



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9/22/2022 - 12:09:09 PM

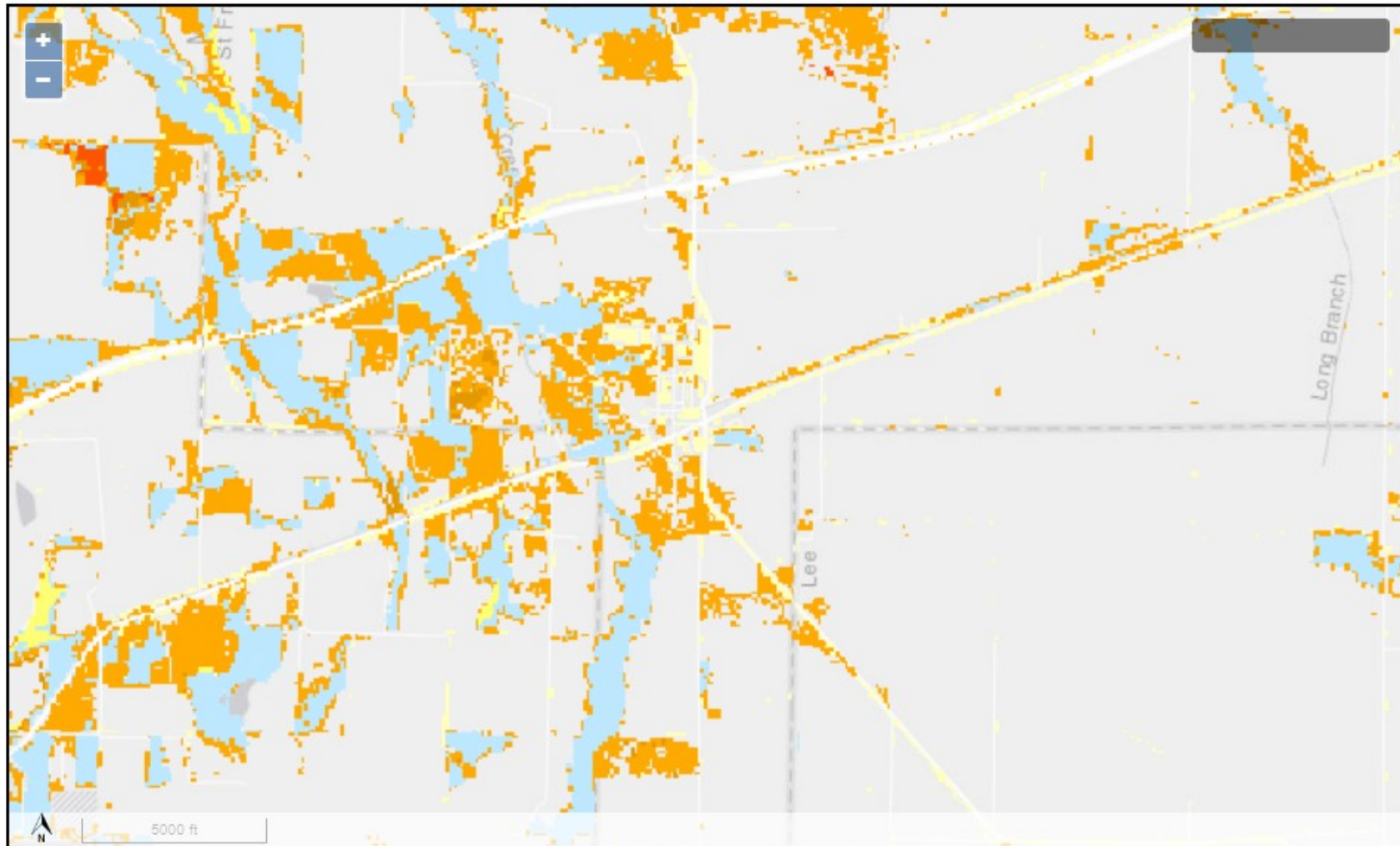
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Wheatley



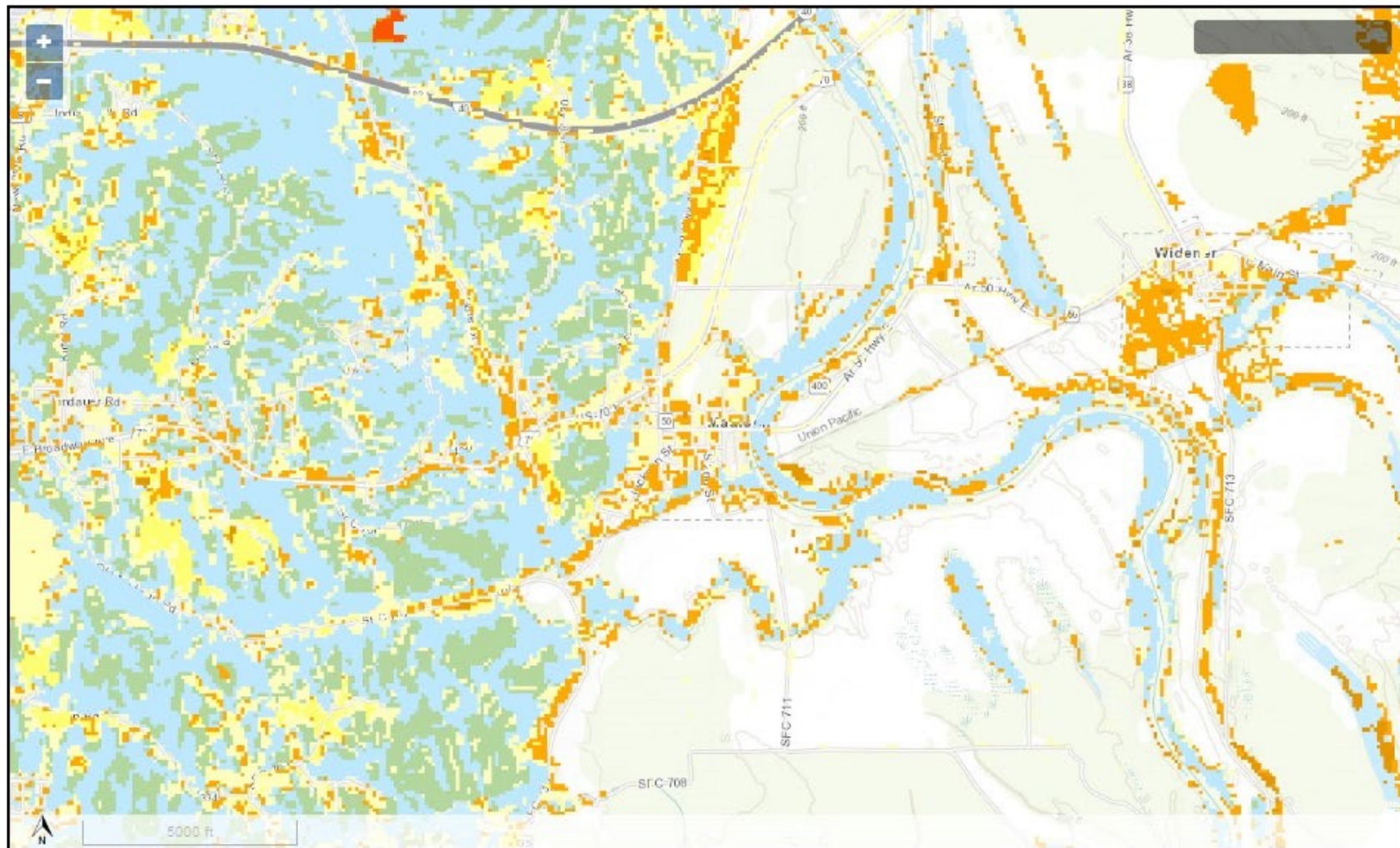
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Madison



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9/22/2022 - 12:10:35 PM

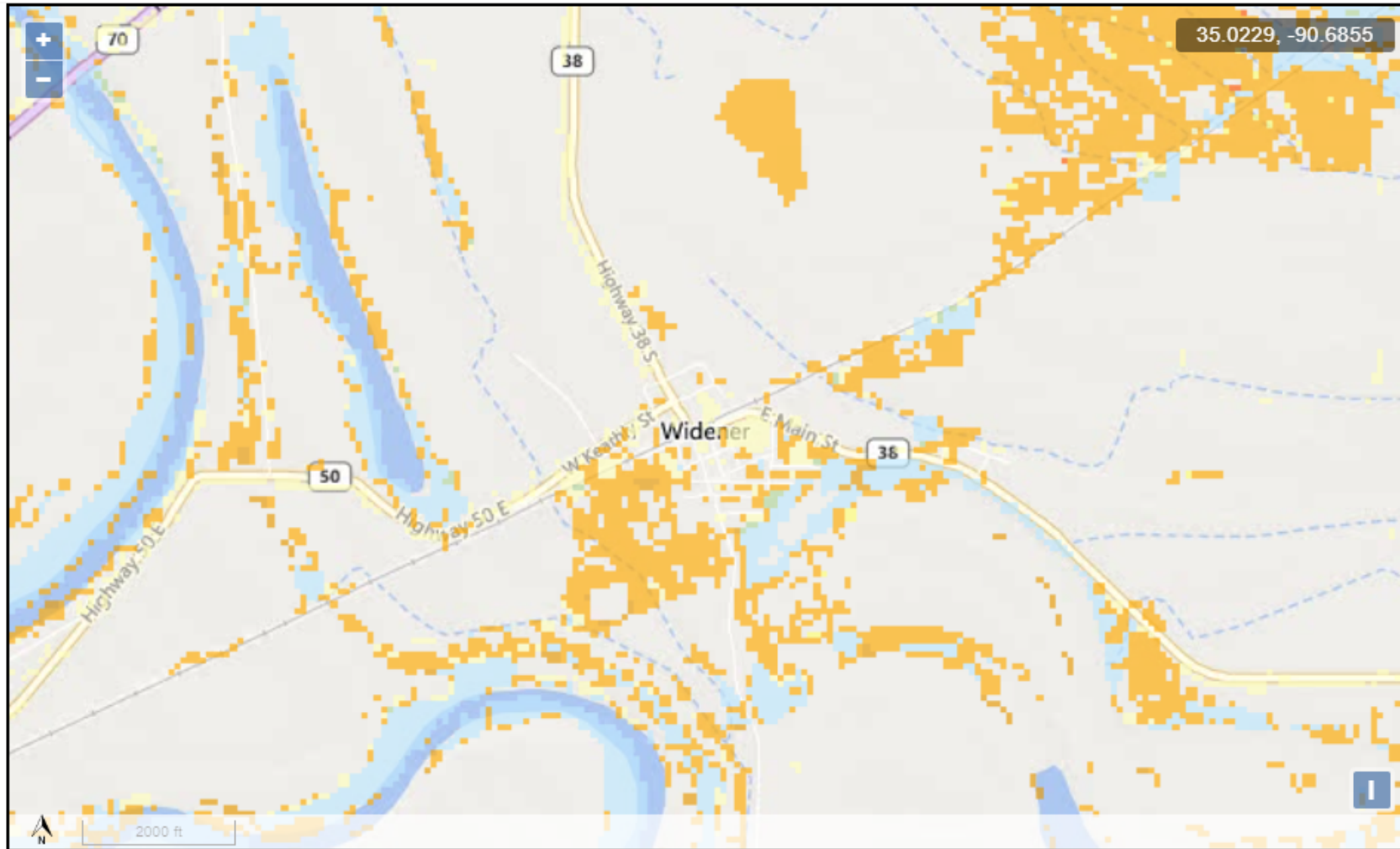
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Widener



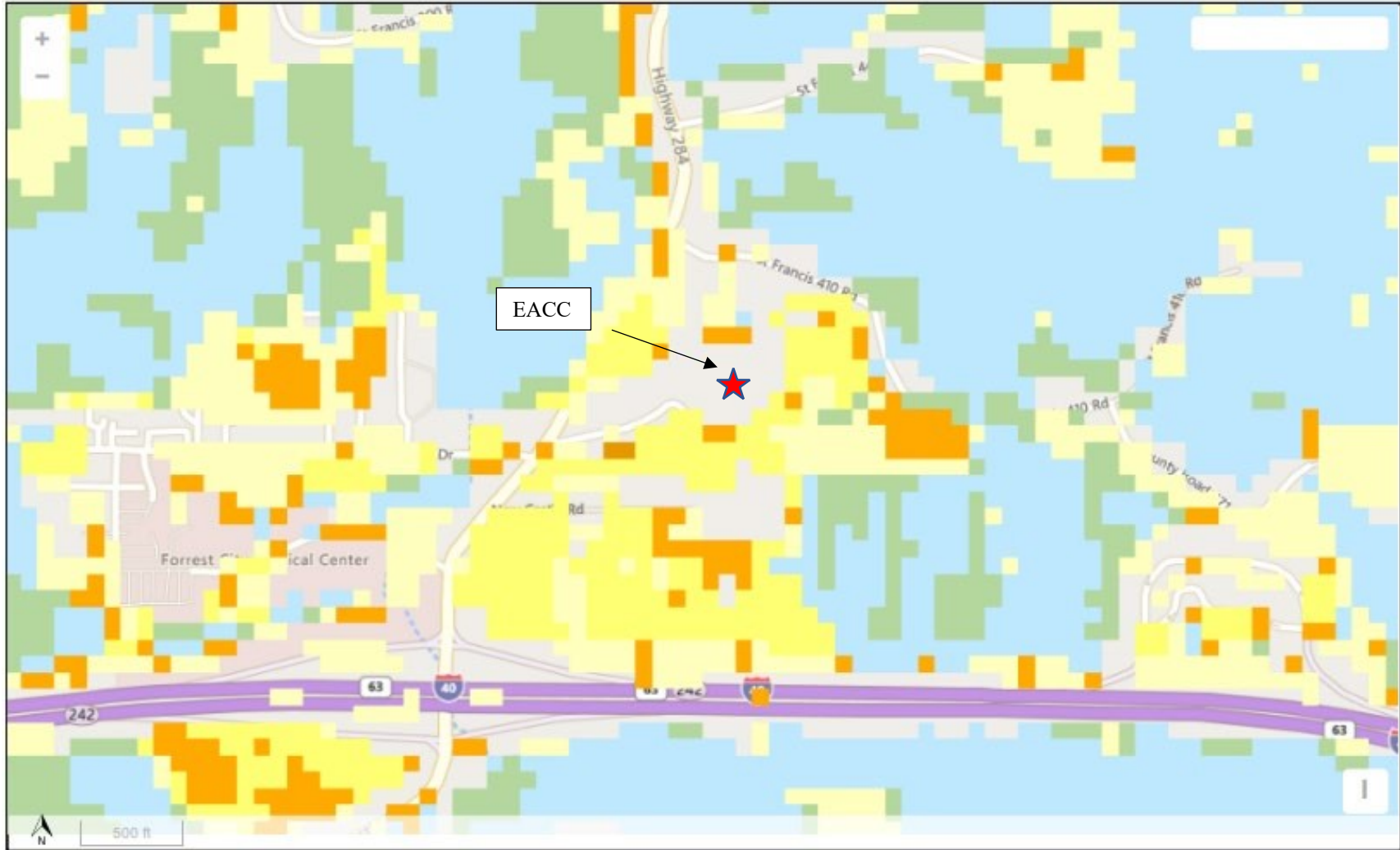
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SGSF Wildfire Risk Assessment Portal
<https://www.southernwildfirerisk.com>

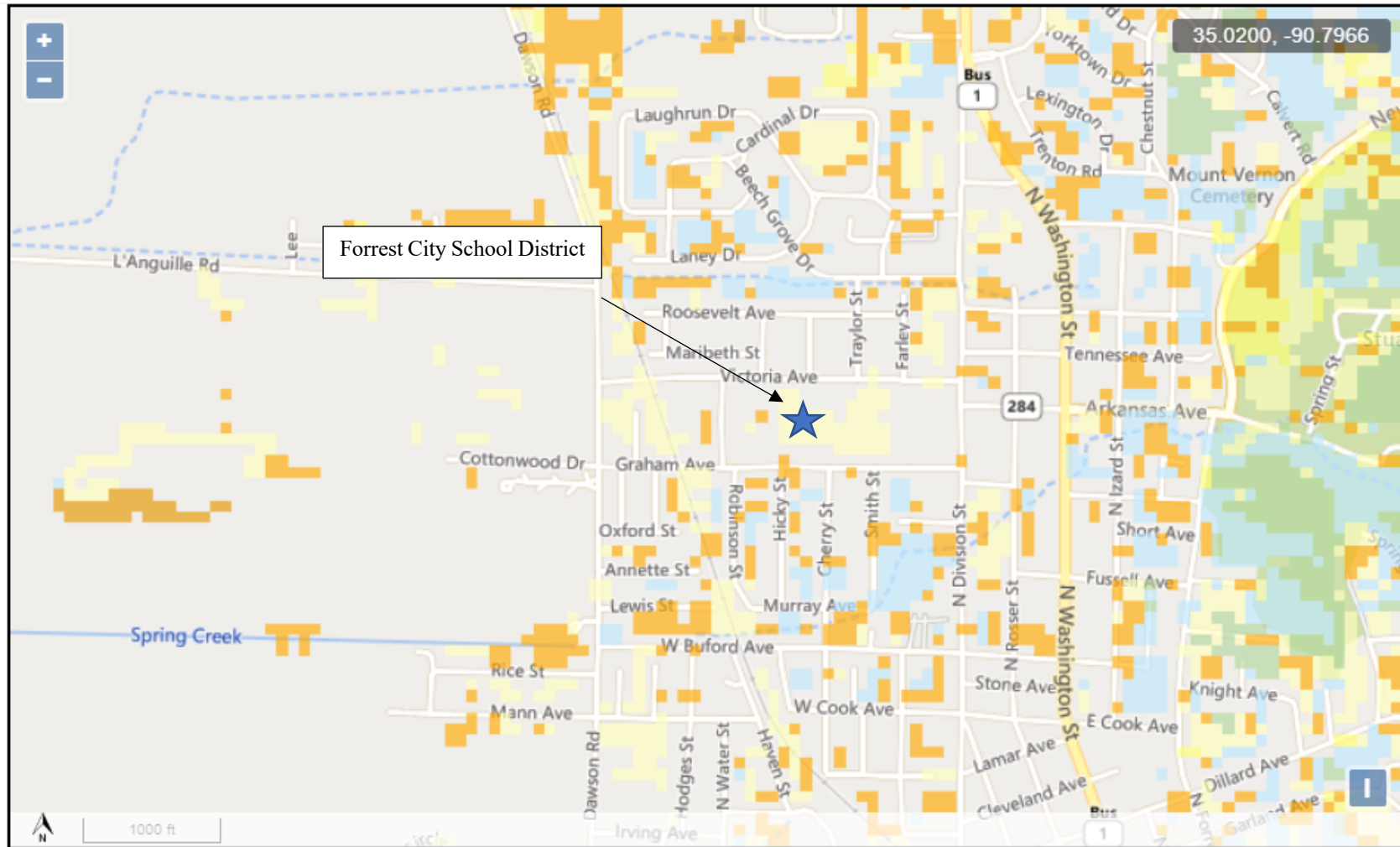


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The map displays the EACC site in Memphis, TN, marked with a red star. The site is located near the intersection of Highway 284 and Highway 40. The Forrest Medical Center is visible to the west of the site. The map includes a scale bar (500 ft) and a north arrow. The map also shows major roads like Highway 284 and Highway 40, and the Forrest Medical Center.



Forrest City School District



Report Created:

2/16/2024 - 11:10:51 AM

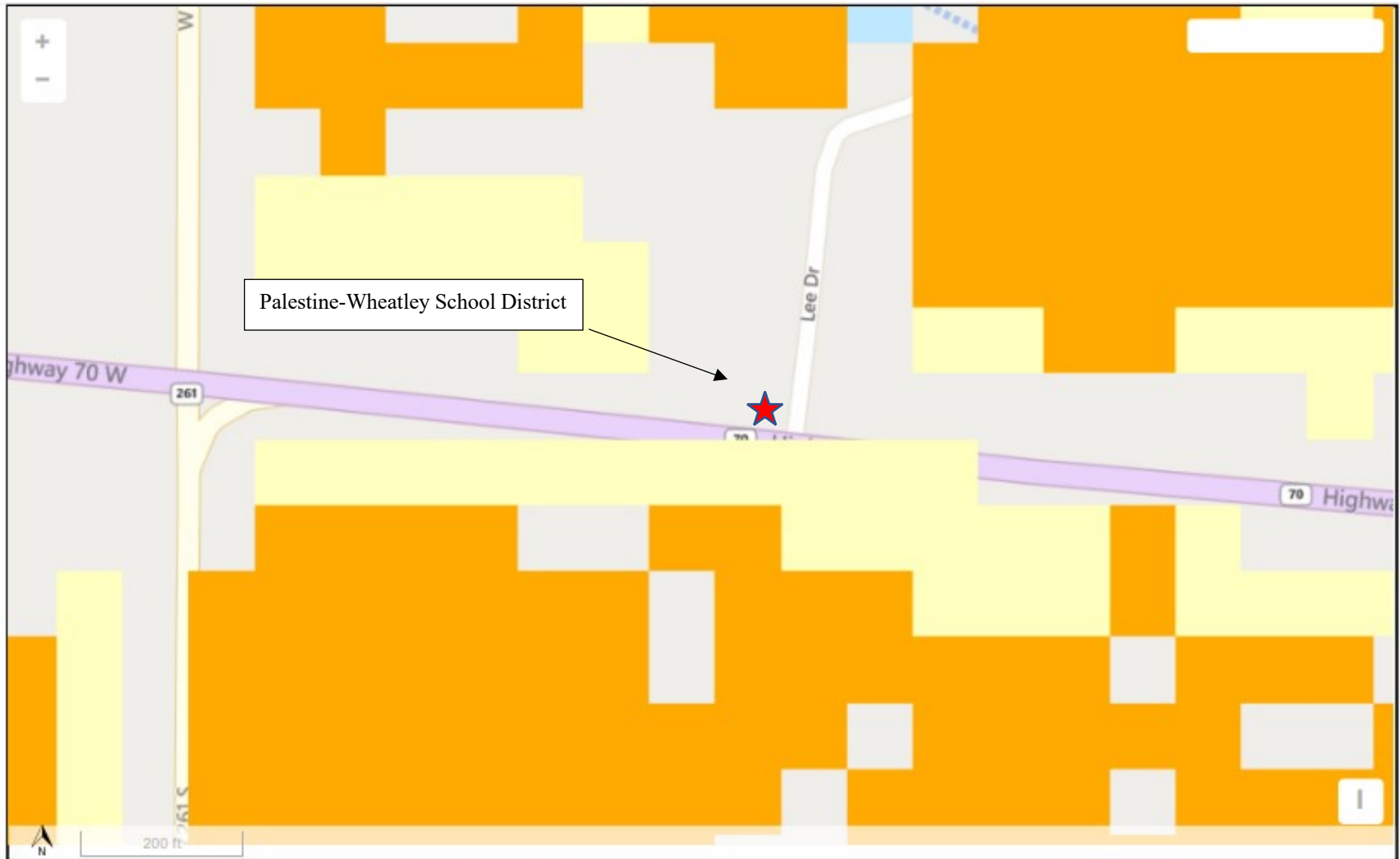
SGSF Wildfire Risk Assessment Portal

<https://www.southernwildfirerisk.com>

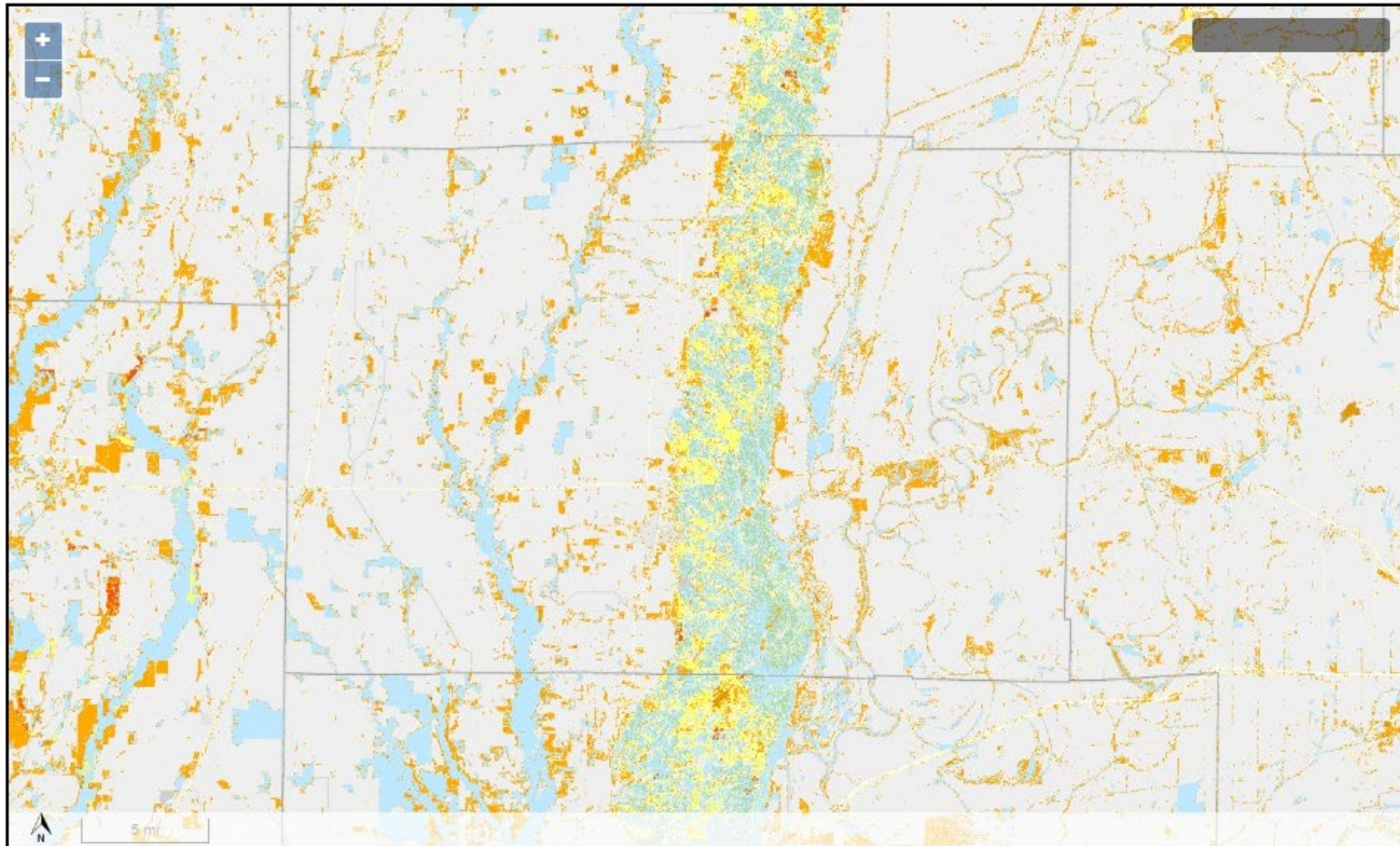
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Palestine-Wheatley School District



Cross County



Report Created:

9/22/2022 - 11:59:52 AM

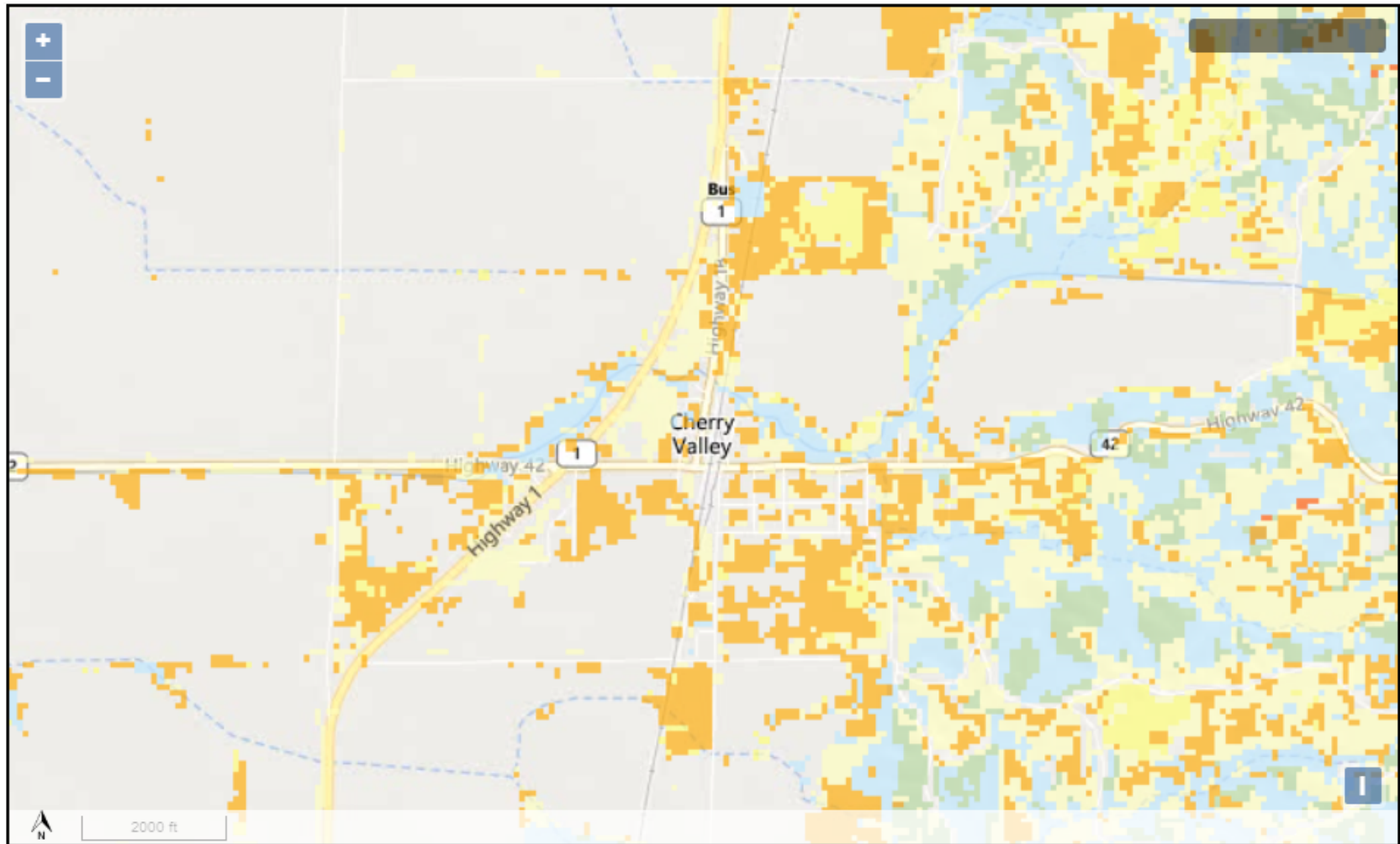
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Cherry Valley



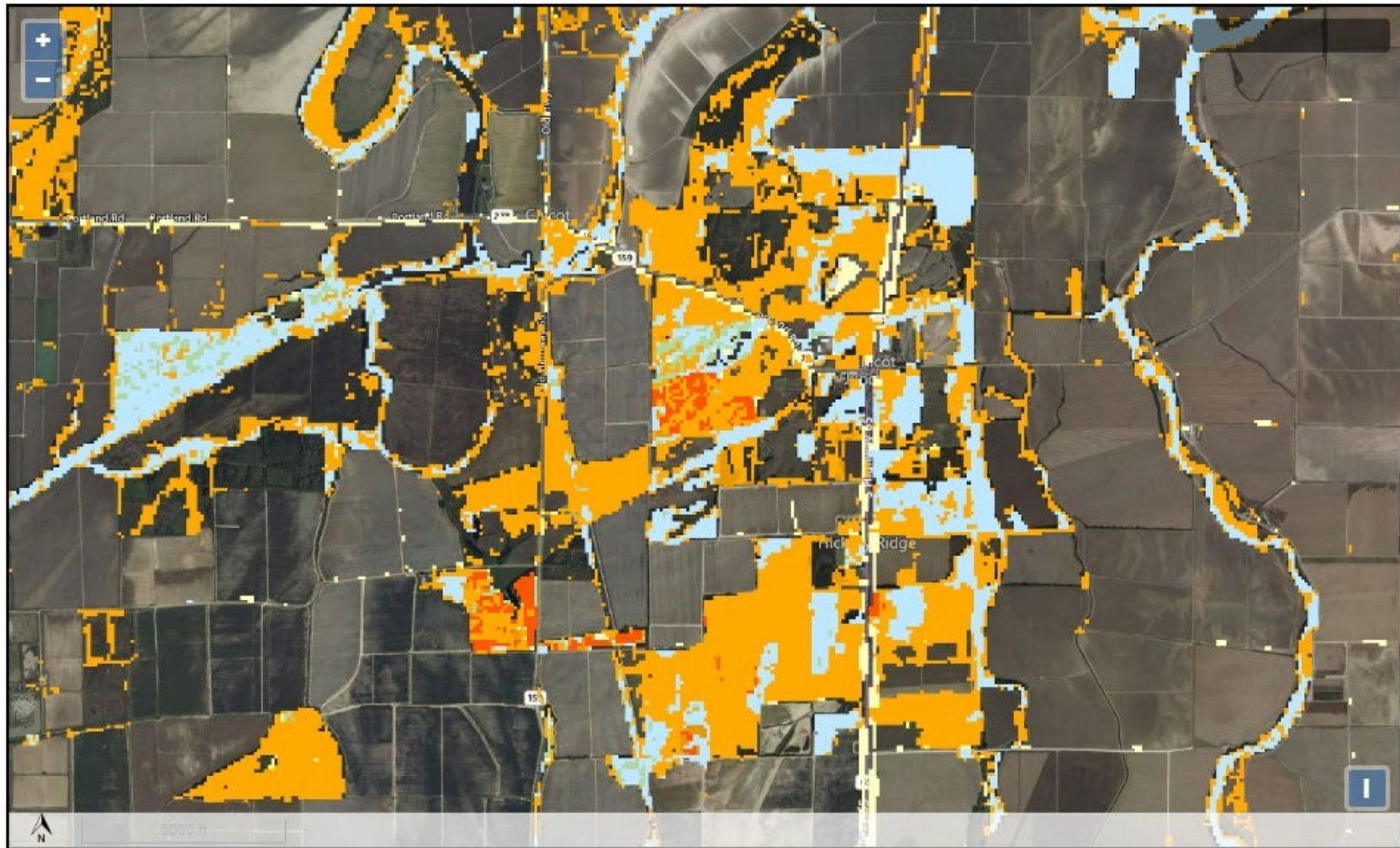
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Hickory Ridge



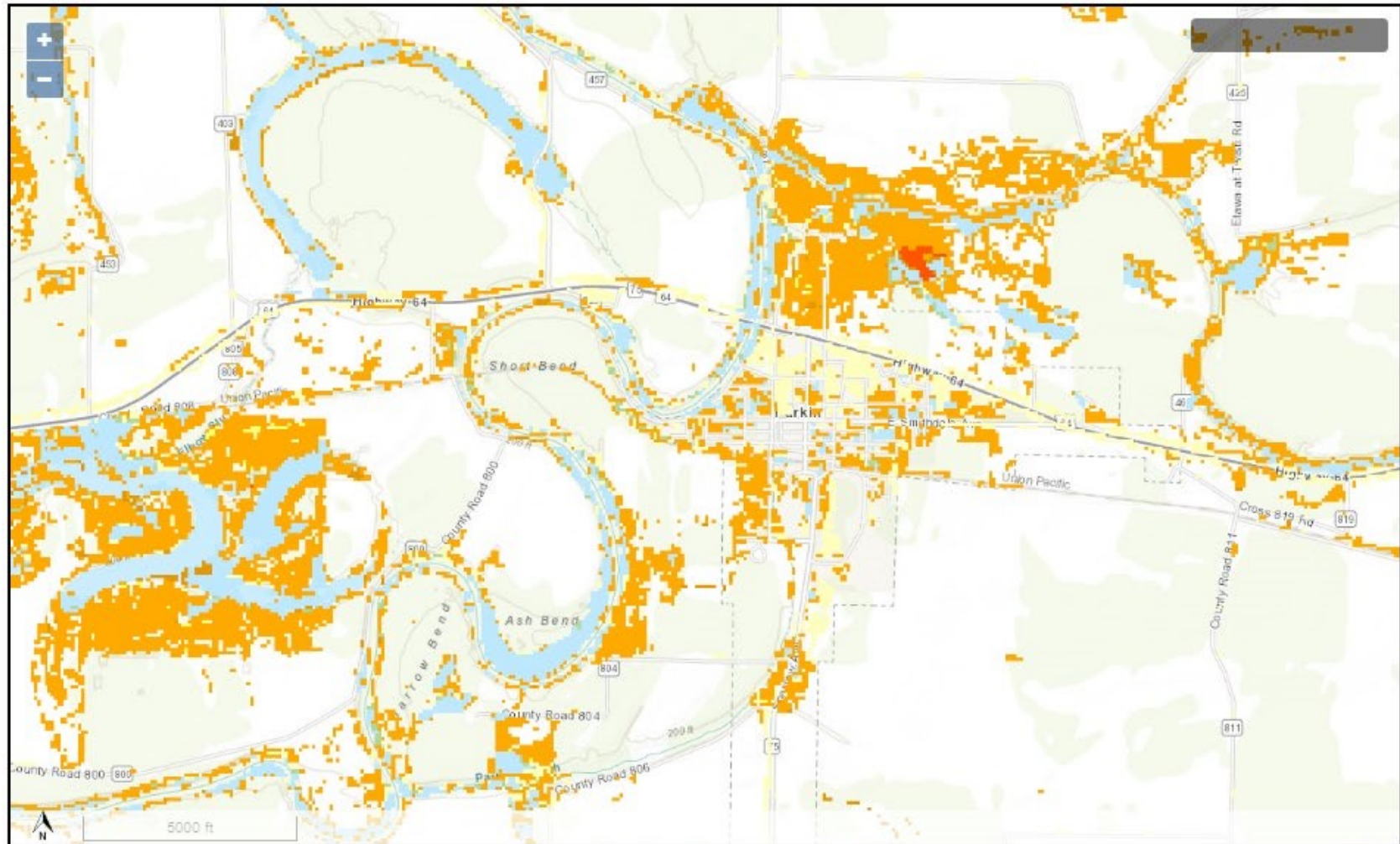
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Parkin



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9/22/2022 - 12:02:49 PM

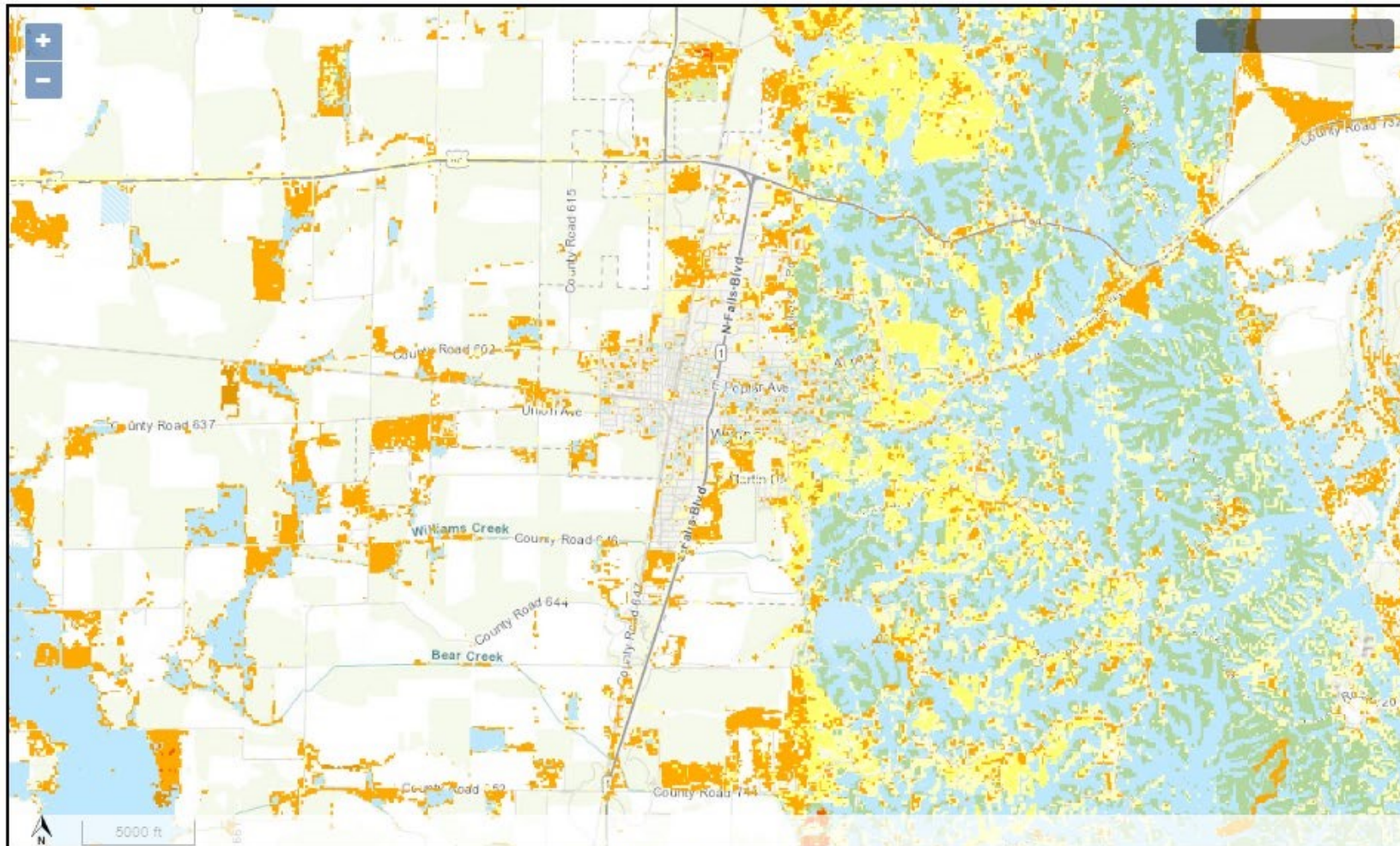
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Wynne



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9/22/2022 - 12:02:03 PM

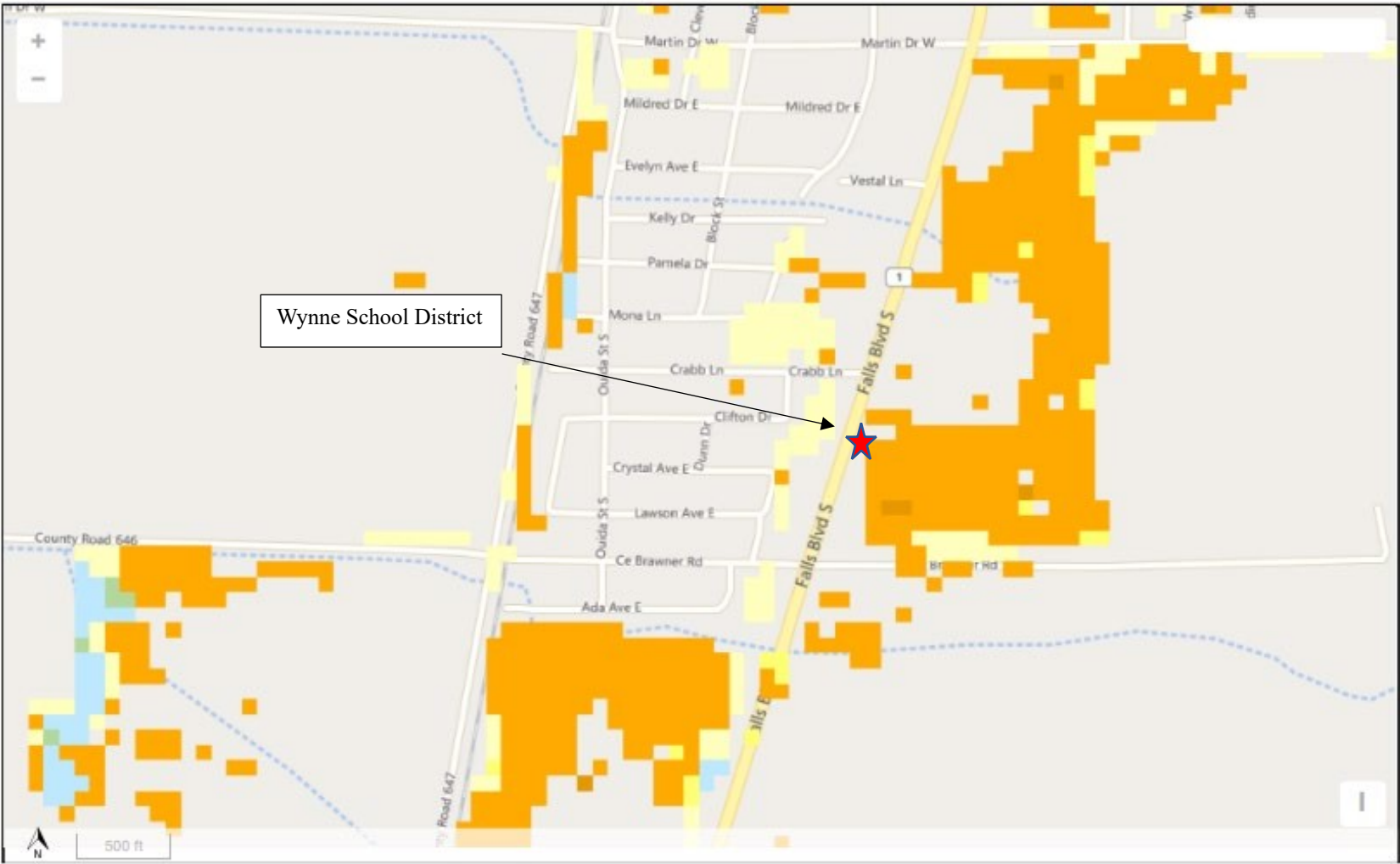
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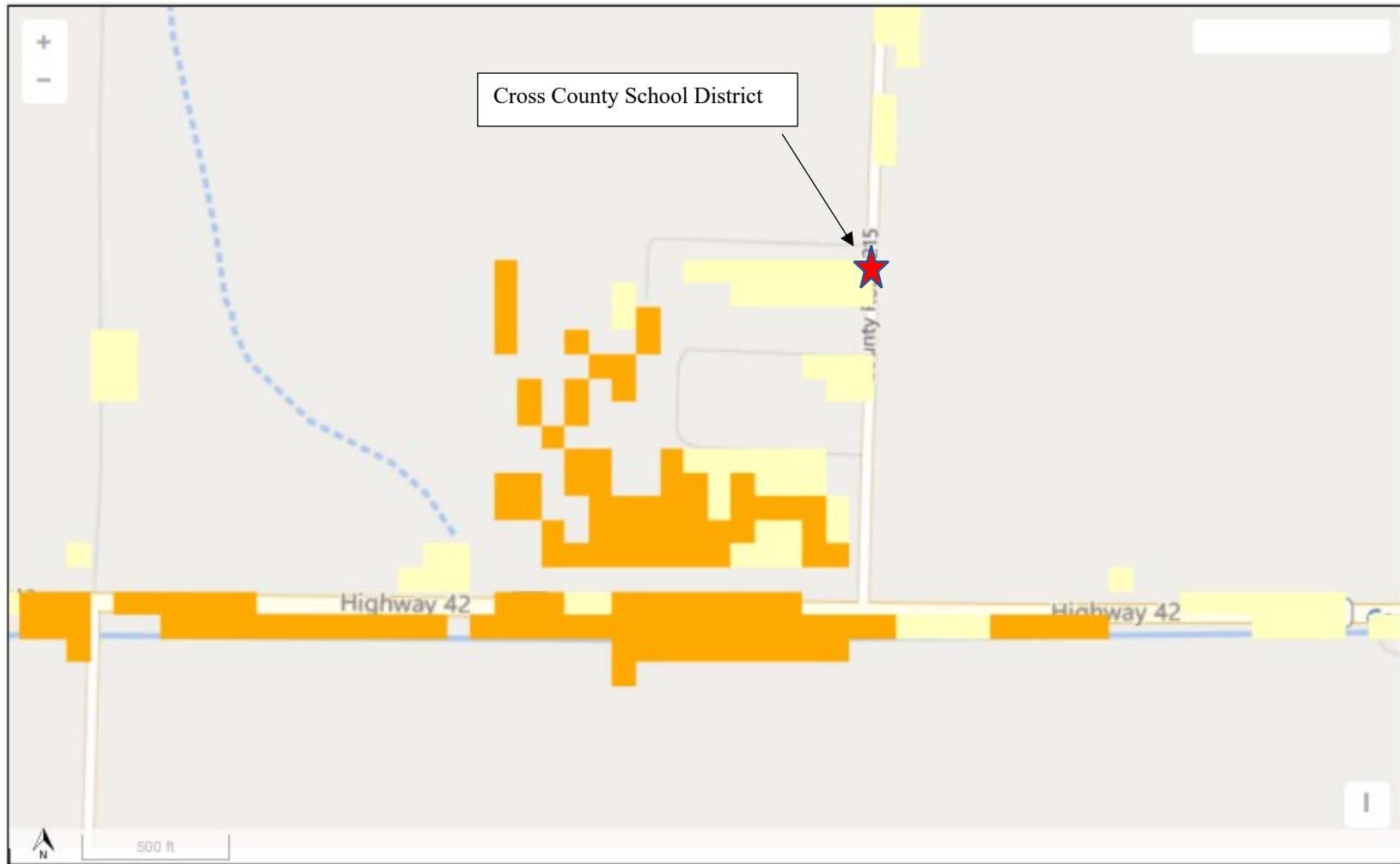
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Wynne School District



Cross County School District



Wildland fires not only consume forest and rangeland vegetation, but impact wildlife habitat, recreation and tourism, water quality and supply and property values. Wildfires can cause extensive damage, both to property and human life.

In St. Francis/Cross County, most rural residents depend on their local volunteer fire departments to protect their property from loss.

In drought conditions, wildfires can be easily started and are extremely dangerous. Protecting structures in the wildland from fires poses special problems and put additional burdens on local firefighting resources. Weather conditions leading to wildfires can change rapidly. Thus, there are few measures, other than rapid response, that can contain wildfires and limit their threat to property. Local economic impacts from catastrophic wildfires include disruptions to both consumption and production of local goods and services. Immediate effects may include decreased recreation / tourism and timber harvest in the fire region, as well as disruptions from evacuations and transportation delays. Increased use of local goods and services for fire protection also impacts local economies. Other effects include direct property losses (in the form of buildings, crops, livestock, and other capital), damage to human health, and possible changes in the long-term structure of the local economy. There are many secondary effects to wildfire. All vegetation may be destroyed as well as the organic material in the soil may be burned away or may decompose into water repellent substances that prevent water from absorbing into the soil. In effect, normal rainfall after a wildfire may result in unusual erosion or flooding from burned areas; depending on the topography of the burned area, heavy rain can produce destructive debris flows. Wildfires also have an effect on water supplies. The loss of ground-surface cover, such as pine needles and small branches, and the chemical transformation of burned soils make watersheds more susceptible to erosion from rainstorms.

3.5.10.7 Vulnerability and Estimating Potential Loss

Structures located within the unincorporated areas of St. Francis/Cross County, including cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District are not equally susceptible to wildfire.

The most vulnerable populations during wildfire are the firefighters. Other vulnerable populations are the children under 5 and elderly over 65. Firefighters are at high risk to heat injuries. Children and elderly are more susceptible to heat exhaustion and smoke inhalation injuries. The most vulnerable structures are manufactured homes, wooden structures, and light construction. These structures will be damaged or destroyed by fire including all furniture and other items contained.

3.5.11 Winter Storm

3.5.11.1 Description of Winter Storm

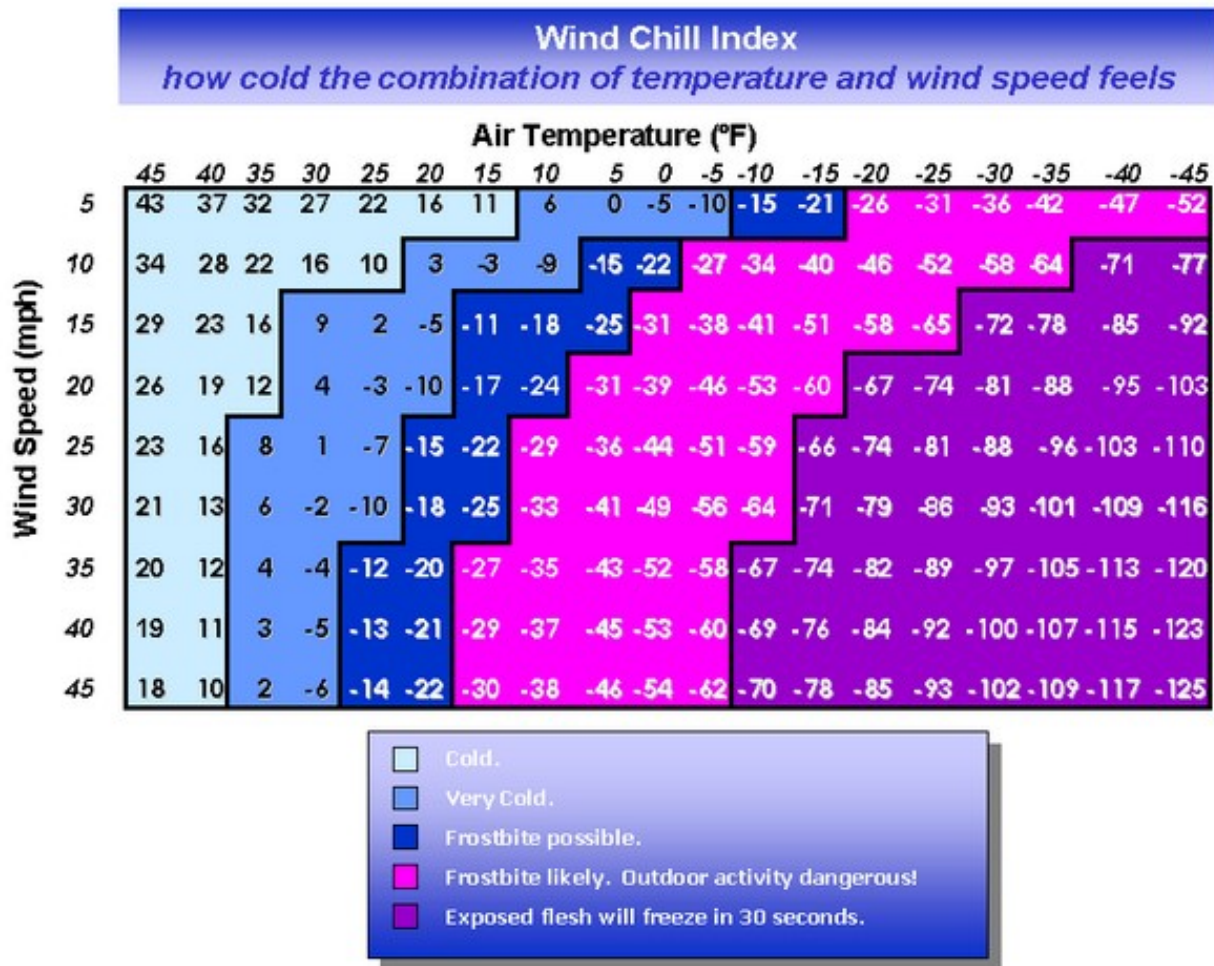
Severe winter storms, which may include heavy snowfall, sleet, freezing rain, or a mix of these wintry forms of precipitation. Severe winter weather can down trees, cause widespread power outages, damage property, and cause fatalities and injuries.

3.5.11.2 Location of Winter Storm Events

All areas of St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District are equally susceptible to severe winter storm events.

3.5.11.3 Extent, Magnitude or Severity of Winter Storms.

In past occurrences all areas of St. Francis/Cross County have experienced wind chill temperatures as low as -15 degrees Fahrenheit, can experience ice accumulation up to 1.25", and snow accumulation up to 13".



Copyright 2000, Oklahoma Climatological Survey. Portions from the National Weather Service.

According to National Climatic Data Center (NCDC) and National Weather Service Data, typical snow accumulations in St. Francis/Cross County during heavy snow and winter storm events ranges from 1 inch to 8 inches. Typical ice storm accumulations range from 1/10 of one inch to 1/2 of an inch. 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.

The St. Francis/Cross County School board has officials who monitor and provide weather updates via television, radio, and internet in regard to schools opening. If weather becomes hazardous, as determined by the superintendent or other authorized official, then appropriate actions are taken based on students being safely able to attend school. If weather is due to snow or ice, and either is forecasted to become hazardous, by the determination of the school official's school may be cancelled. If weather becomes hazardous after school has started school officials may dismiss school early if road conditions are safe to do so. Students may be kept inside by the determination of the building principals if there are extreme cold temperatures. Wind chill would be the determining factor in keeping students inside. Some districts initiate monitoring for wind chill is below 32 degrees, some 40 degrees.



NWS Windchill Chart



| | | Temperature (°F) | | | | | | | | | | | | | | | | | | |
|------------|----|------------------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | | Calm | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 | 0 | -5 | -10 | -15 | -20 | -25 | -30 | -35 | -40 | -45 |
| Wind (mph) | 5 | 36 | 31 | 25 | 19 | 13 | 7 | 1 | -5 | -11 | -16 | -22 | -28 | -34 | -40 | -46 | -52 | -57 | -63 | -69 |
| | 10 | 34 | 27 | 21 | 15 | 9 | 3 | -4 | -10 | -16 | -22 | -28 | -35 | -41 | -47 | -53 | -59 | -66 | -72 | -78 |
| | 15 | 32 | 25 | 19 | 13 | 6 | 0 | -7 | -13 | -19 | -26 | -32 | -39 | -45 | -51 | -58 | -64 | -71 | -77 | -83 |
| | 20 | 30 | 24 | 17 | 11 | 4 | -2 | -9 | -15 | -22 | -29 | -35 | -42 | -48 | -55 | -61 | -68 | -74 | -81 | -87 |
| | 25 | 29 | 23 | 16 | 9 | 3 | -4 | -11 | -17 | -24 | -31 | -37 | -44 | -51 | -58 | -64 | -71 | -78 | -84 | -91 |
| | 30 | 28 | 22 | 15 | 8 | 1 | -5 | -12 | -19 | -26 | -33 | -39 | -46 | -53 | -60 | -67 | -73 | -80 | -87 | -94 |
| | 35 | 28 | 21 | 14 | 7 | 0 | -7 | -14 | -21 | -27 | -34 | -41 | -48 | -55 | -62 | -69 | -76 | -82 | -89 | -96 |
| | 40 | 27 | 20 | 13 | 6 | -1 | -8 | -15 | -22 | -29 | -36 | -43 | -50 | -57 | -64 | -71 | -78 | -84 | -91 | -98 |
| | 45 | 26 | 19 | 12 | 5 | -2 | -9 | -16 | -23 | -30 | -37 | -44 | -51 | -58 | -65 | -72 | -79 | -86 | -93 | -100 |
| | 50 | 26 | 19 | 12 | 4 | -3 | -10 | -17 | -24 | -31 | -38 | -45 | -52 | -60 | -67 | -74 | -81 | -88 | -95 | -102 |
| | 55 | 25 | 18 | 11 | 4 | -3 | -11 | -18 | -25 | -32 | -39 | -46 | -54 | -61 | -68 | -75 | -82 | -89 | -97 | -104 |
| | 60 | 25 | 17 | 10 | 3 | -4 | -11 | -19 | -26 | -33 | -40 | -48 | -55 | -62 | -69 | -76 | -84 | -91 | -98 | -105 |

Frostbite Times

30 minutes

10 minutes

5 minutes

Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Frostbite Times 30 minutes 10 minutes 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

WINTER STORM WATCH: Severe winter conditions, such as heavy snow and/or ice, are possible within the next day or two.

WINTER STORM WARNING: Severe winter conditions have begun or are about to begin in your area. Stay indoors!

BLIZZARD WARNING: Snow and strong winds will combine to produce a blinding snow (near zero visibility), deep drifts, and life-threatening wind chill. Seek refuge immediately!

WINTER WEATHER ADVISORY: Winter weather conditions are expected to cause significant inconveniences and may be hazardous. If caution is exercised, these situations should not become life-threatening. The greatest hazard is often to motorists.

FROST/FREEZE WARNING: Below freezing temperatures are expected and may cause significant damage to plants, crops, or fruit trees. In areas unaccustomed to freezing temperatures, people who have homes without heat need to take added precautions.

Climate Change

There are many studies that have been completed such as Fosu et al. 2018, Trenberth et al. 2015, and the Knutson et al. 2014. All of these studies attribute increases in winter storm risks directly associate to climate change. This data proves a warmer atmosphere holds more water, and storms supplied by climate change with increasing moisture have a chance of producing heavier rain and snow. Most of this evidence is centralized around the mid-west and not the southern communities such as those in St. Francis/Cross County.

3.5.11.4 Previous Occurrences

There have been 19 winter storm events resulting in \$105K in property damages and 3 ice storm events resulting in \$1k in property damage from 1950 – 2021.

3.5.11.5 Probability of Future Winter Storms

In any give there are a 20% chance of a winter storm and 4% chance of an Ice Storm.

3.5.11.6 Impact and Vulnerability of Winter Storms

St. Francis/Cross County experiences a major winter storm about every other year, with sometimes with two occurring in a single year. Damage from of winter storms is often not reported to public agencies for recording in databases such as SHELDUS, typically because the damage is not widespread and usually amounts to no more than downed tree limbs and utility-lines and closed schools and businesses caused by icy road conditions.

Based on past experience, an estimated twenty to thirty structures might be impacted in any given year by severe winter storm events, resulting typically in only minor damage to the structures, mainly due to limbs breaking and falling on roofs.

Winter storms can immobilize an entire County. Six inches of unplowed snow can make roads impassable. Trees can be brought down by the weight of wet snow, snap power lines and damage buildings and houses when they fall. Winter storms can cut off heat, power and communications for several days or weeks. Death can occur from hypothermia. Winter storms with freezing rain create a coating of ice which snaps tree branches, down power lines, ruin crops, and makes driving hazardous. Rural areas are most at risk of losing power and becoming problems during a winter storm. Winter storms can be accompanied by strong winds creating blizzard conditions with blinding wind driven snow, severe drifting, and dangerous wind chill. Strong winds with these intense storms and cold fronts can knock down trees, utility poles, and power lines.

Extreme cold often accompanies a winter storm; exposure to the cold can cause frostbite or hypothermia and be life-threatening. Infants and elderly people are most susceptible. Freezing temperatures can cause severe damage to crop and other vegetation. Pipes may freeze and burst in homes or businesses that are poorly insulated or without heat. Structure fires occur more frequently in the winter due to lack of proper safety precautions and present a greater danger because water supplies may freeze and impede firefighting efforts. People die of hypothermia from prolonged exposure to the cold. Elderly people are most vulnerable to winter storms and account for the largest percentage of hypothermia victims largely due to improperly or unheated homes, but the leading cause of death during winter storms is from automobile or other transportation accidents. Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians. Heavy snow can immobilize an area and paralyze a city, stranding commuters, stopping the flow of supplies, and disrupting emergency services. Large amounts of snow can collapse buildings and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. The cost of snow removal, repairing damages, and loss of business can have large economic impacts on cities and towns.

3.5.11.7 Estimating Potential Losses by Jurisdiction to Severe Winter Weather

The methodology for the potential loss estimate was developed by using past hazard events data from the NCDC.

The following is the resources used in the loss estimation.

- Arkansas Hazard Mitigation Plan
- National Climatic Data Center (NCDC) Storm Events Database

The Storm Events Database provides historical details about past hazard events in the County.

| | | | | | | | | | | |
|------------------------------------|--------------------|----|------------|-------|-------|--------------|---|---|---------|-------|
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 01/27/2000 | 18:00 | CST | Heavy Snow | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 01/27/2000 | 18:00 | CST | Heavy Snow | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 12/13/2000 | 05:00 | CST | Winter Storm | 0 | 0 | 100.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 12/13/2000 | 05:00 | CST | Winter Storm | 0 | 0 | 1.000M | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/05/2002 | 20:00 | CST | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/05/2002 | 20:00 | CST | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/25/2003 | 02:00 | CST | Heavy Snow | 0 | 0 | 1.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/25/2003 | 02:00 | CST | Heavy Snow | 0 | 0 | 1.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 12/22/2004 | 12:00 | CST | Winter Storm | 0 | 0 | 5.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 12/22/2004 | 12:00 | CST | Winter Storm | 0 | 0 | 5.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/10/2006 | 11:00 | CST | Winter Storm | 0 | 0 | 1.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/10/2006 | 11:00 | CST | Winter Storm | 0 | 0 | 1.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/18/2006 | 06:00 | CST | Winter Storm | 0 | 0 | 1.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/18/2006 | 06:00 | CST | Winter Storm | 0 | 0 | 1.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 03/07/2008 | 10:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 03/07/2008 | 10:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 01/29/2010 | 00:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 01/29/2010 | 08:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/08/2010 | 03:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/08/2010 | 03:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 01/09/2011 | 16:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 01/09/2011 | 16:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/09/2011 | 06:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/09/2011 | 06:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 12/25/2012 | 19:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 12/25/2012 | 19:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 12/05/2013 | 22:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 12/05/2013 | 23:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/02/2014 | 14:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/02/2014 | 14:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/04/2014 | 07:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/04/2014 | 07:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 03/02/2014 | 09:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 03/02/2014 | 09:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/15/2015 | 21:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/16/2015 | 00:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/20/2015 | 08:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/20/2015 | 08:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 03/04/2015 | 16:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 03/04/2015 | 16:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 01/21/2016 | 20:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 01/15/2018 | 19:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 01/15/2018 | 20:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/09/2021 | 18:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/14/2021 | 05:00 | CST-6 | Heavy Snow | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/14/2021 | 18:00 | CST-6 | Heavy Snow | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/17/2021 | 03:00 | CST-6 | Heavy Snow | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/17/2021 | 07:00 | CST-6 | Heavy Snow | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 02/03/2022 | 00:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 02/03/2022 | 00:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| CROSS (ZONE) | CROSS (ZONE) | AR | 03/11/2022 | 16:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |
| ST. FRANCIS (ZONE) | ST. FRANCIS (ZONE) | AR | 03/11/2022 | 17:00 | CST-6 | Winter Storm | 0 | 0 | 0.00K | 0.00K |

3.5.11.8 Multi-Jurisdictional Risk Assessment

The unincorporated areas of St. Francis/Cross County, including cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District are equally affected by winter storms. Winter storms do not seem to be unique to areas of the County; the threat is considered to be Countywide with no significant variation at the County or jurisdiction levels.

All parts of St. Francis/Cross County are equally susceptible to severe winter storms events. The occurrence of severe winter storms can have a substantial impact on St. Francis/Cross County County's buildings, utility systems, transportation systems, and agriculture. Heavy accumulations of ice or snow commonly result in collapse of structural damage to buildings. Then 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, businesses, 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. Past storms indicate that poultry houses are particularly vulnerable.

Heavy accumulations of ice from ice storms or heavy snow can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communication and power can be disrupted for days or weeks while utility companies repair the damage. Power and communication disruptions are common consequences of ice storms and heavy snow in St. Francis/Cross County. Winter storms are sometimes accompanied by strong winds. These winds can knock down trees, utility poles and power lines.

St. Francis/Cross County County's transportation systems are vulnerable to severe winter storms. These storms have rarely been hazardous to structural damage in the past, but accumulations of ice and snow can be extremely hazardous to motorist. Motorist in St. Francis/Cross County are not accustomed to driving on icy roads, causing an increase in traffic accidents. Travel is hampered by ice or heavy snow because St. Francis/Cross County lacks the necessary snow removal equipment due to the occurrence of severe winter storms.

The entire County is usually affected when a winter storm hits St. Francis/Cross County. Parts of the County may not be affected as bad as others, but when major roads are affected, it affects the travel flow and the availability of essential services throughout the County.

Assessments of the implemented actions in St. Francis County and Cross County are as follows:

Completed: Project has been completed.

In Progress: Project has been funded but not completed.

Not-Completed: Project has not been funded or completed.

Deferred: Project has not been funded or completed and is still a tentative plan.

2023 Cross County Mitigation Plan Actions and Implementation

| Action Name and # | Mitigation Action | Responsible Agency | Purpose | Timeframe | Cost | Complete, Incomplete, No Longer Relevant |
|-------------------|--|--|---|---|--|---|
| I.1.A. | Increase public awareness by educating the public. | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Teach residents what hazards they are vulnerable to and how to respond in the event of disaster | Begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| I.1.B. | Increase public awareness by educating the public. | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Teach residents how to prepare a Family Emergency Plan and 72hour emergency kit for both home and automobile | Begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| I.1.C. | Increase public awareness by educating the public. | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Teach residents the importance of low-cost mitigation activities to protect personal property | Begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| I.1.D. | Increase public awareness by educating the public. | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Teach residents about “defensible space” for their property and ways to protect from wildfire | Begin at plan adoption and continue throughout life of plan | Less than \$100 per year for printing and/or resources | Deferred |
| I.1.E. | Increase public awareness by educating the public. | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Coordinate and host specific hazard week activities in conjunction with State of Arkansas to support the statewide goal of improving public awareness | Begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Deferred |
| I.1.F. | Increase public awareness by educating the public. | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Educate residents on the importance of purchasing battery or crank-powered NOAA radios for their homes | Begin at plan adoption and continue throughout life of plan | Less than \$100 per year for printing and/or resources | Deferred |
| I.1.G | Increase public awareness by educating the public. | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Educate residents to purchase, install, and maintain smoke detectors and fire extinguishers. Test equipment regularly; change batteries twice a year | Begin at plan adoption and continue throughout life of plan | Little staff met required during meet of assistance | Completed by Wynne Fire department |
| I.1.H. | Increase public awareness by educating the public | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Conduct public training classes on the proper use of fire extinguishers | Begin at plan adoption and continue throughout life of plan | Little staff met required during meet of assistance | Completed |
| II.2.A. | Maintain water, sewer, and emergency power | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install back-up generators at critical and essential facilities to maintain power during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators | Complete (however with the recent tornado this will need to be completed again) |
| III.1.A.i | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, | Dam Failure; Install warning systems in the inundation zone | Begin at plan adoption and continue throughout life of plan | Will use existing staff; cost for sirens will vary by number and type selected | Deferred |

| | | | | | | |
|-------------|-----------------------------------|--|---|---|--|---|
| III.1.A.ii | Decrease vulnerability to hazards | Cross County School Board | Dam Failure: Acquire, elevate, or relocate structures located in dam failure prone areas. | Begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary by number, type, and size of structures selected, as well as current market price of structure | Deferred |
| III.1.A.iii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor | Dam Failure: Educate residents on the dangers of dam failure | Begin at plan adoption and continue throughout life of plan | Less than \$100 per year for pricing/and or resources | Completed |
| III.1.B.ii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor | Drought: Regulate water usage during periods of drought | Begin at plan adoption and continue throughout life of plan | Will use existing staff | Not Completed (all water providers send out notifications during drought season however there is no proof of regulating). |
| III.1.B.iii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Drought: Install low-flow faucets and fixtures at critical facilities and schools | Begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary by number and type of fixtures | Completed but will have to be redone due to recent tornado. |
| III.1.C.i | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Earthquake: Install window film on windows of public buildings to minimize glass breakage during earthquake events | Begin at plan adoption and continue throughout life of plan | No anticipated cost associated with this action | Deferred |
| III.1.C.ii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Earthquake: Establish contents anchoring and/or bracing policies at all schools and critical facilities | Begin at plan adoption and continue throughout life of plan | No anticipated cost associated with this action | Deferred |
| III.1.C.iii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Earthquake: Purchase and install back-up generators at critical and essential facilities to maintain power during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected | Deferred |
| III.1.C.iv | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Earthquake: Purchase and install emergency backup lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Deferred |
| III.1.C.v | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Earthquake: Seismically retrofit/rehabilitate structures | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on specific actions selected | Deferred |
| III.1.D.ii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Extreme Heat: Establish cooling centers for vulnerable population during periods of extreme heat | Begin at plan adoption and continue throughout life of plan | Will use existing staff and volunteers; cost will depend on agreements reached | Completed (community centers and churches throughout Cross county are utilized). |
| III.1.D.iii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Extreme Heat: establish educational outreach program targeting vulnerable populations most likely to be impacted by extreme heat | Participants will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost should be less than \$100 per year for printing | Deferred |

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| | | | event and how to better prepare and mitigate against its effects. | | | |
| III.1.E.i | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Improve drainage of local ditches by increasing regular maintenance and vegetation control measures which will facilitate better water flow and decrease potential flood levels | Participants will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary depending on measures required to accomplish task | Completed |
| III.1.E.ii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Structurally improve local drainage systems by increasing culvert and/or storm-drain sizes where applicable | Participants will begin at plan adoption and continue throughout life of plan | Cost will depend on course of action selected | Completed |
| III.1.E.III | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Regulate high-risk structure placement in and near the floodplain | Following adoption plan | No anticipated costs associated with action | Completed |
| III.1.E.iv | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Apply dry flood proofing materials to public facilities as appropriate | As soon as funding is available and structures have been identified as being eligible | Cost will depend on the size of building and material selected. | Deferred |
| III.1.E.v | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Adopt land use plans to guide development away from floodplain | Following adoption plan | No anticipated costs associated with action | Completed |
| III.1.E.vi | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Regulate debris control by passing and enforcing dumping ordinance to control debris, household items, or stored objects that could pose as a hazard if floodwaters picked them up and carried them away | Following adoption of plan | No anticipated costs associated with this action | Completed |
| III.1.E.vii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Regulate hazardous material storage by prohibiting from locating in floodplain and restrict to low density/low populated areas. If they must be located in floodplain, require anchoring of containers to decrease potential for contamination or exposure of materials to public water supply | Following adoption of plan | No anticipated costs associated with action. | Completed |
| III.1.E.viii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Stabilize shoulders and embankments where needed | Following adoption of plan | Existing staff will be used; cost of supplies will vary by type and amount used | In-Progress (there are many rural areas in the county that still struggle with the shoulders being stabilized) |
| III.1.E.ix | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Acquire, elevate, and/or relocate structures which are vulnerable to flooding, such as those | Will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary by number, type, and size of structures selected, as | In-Progress (Majority of the structures in these areas were residential |

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| | | | in the floodplain or floodway and/or those with multiple losses. | | well as current market price of structure | homes or private land. Owners were not susceptible) |
| III.1.E.x | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Adopt ordinances for real estate disclosure laws that require seller to advise potential buyers about pre-existing conditions in the floodplain, if it has been previously damaged from events. | Following adoption plan | No anticipated costs associated with action | Completed |
| III.1.E.xi | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Purchase and install backup generators at water and sewer facilities to prevent sewage back up, maintain potable water production, and maintain proper pressure to prevent water contamination during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size and types of generators selected | Completed |
| III.1.E.xii | Decrease vulnerability to hazards | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Flood: Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected. | Completed (hospitals, schools, and sewer/water) |
| III.1.F.i | High Wind | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Require manufactured homes be anchored properly | Following adoption of plan | No anticipated costs associated with action | Completed |
| III.1.F.ii | High Wind | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Install window film on windows of public building to minimize glass breakage during high wind events | Will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary depending on material selected and amount required | Deferred |
| III.1.F.iii | High Wind | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Install safe-rooms at public facilities and schools | Will begin seeking funding at plan adoption and continue throughout life of plan | Will require professional to develop plans and construct rooms. Cost will vary depending on size, location, and type of safe room constructed. Matching funds will be required. | Completed (this will need to be completed again due to recent tornado. |
| III.1.F.iv | High Wind | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Generator purchase and installation | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected. | Completed |
| III.1.F.v | High Wind | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Completed |
| III.1.F.vi | High Wind | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Prune trees near power lines regularly to create a buffer zone around power lines and keep free | Will inspect communication and power lines each spring | Existing staff will be utilized to keep costs down | Completed (county road department) |

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| | | | from trees, vegetation, and construction | to identify areas where limbs and vegetation | | |
| III.1.F.vii | High Wind | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1,000 | Completed |
| III.1.F.viii | High Wind | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Provide information for residents to see the benefits of mitigation activities | Will begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| III.1.G.ii | Landslide | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Stabilize roads, shoulders, and embankments as identified as needing it | Following adoption of plan | Existing staff will be used; cost of supplies will vary by type and amount used | Completed |
| III.1.G.iii | Landslide | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1,000 | Completed |
| III.1.H.i | Severe Storm | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Require manufactured homes be anchored properly | Following adoption of plan | No anticipated costs associated with action | Completed |
| III.1.H.ii | Severe Storm | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Install window film on windows of public buildings to minimize glass breakage during severe storm events | Will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary depending on material selected and amount required | In-Progress |
| III.1.H.iii | Severe Storm | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Install safe-rooms at public facilities and schools | Will begin seeking funding at plan adoption and continue throughout life of plan | Will require professional to develop plans and construct rooms. Cost will vary depending on size, location, and type of safe room constructed. Matching funds will be required | Completed |
| III.1.H.iv | Severe Storm | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install back-up generators at critical and essential facilities to maintain power during an event. | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected | Completed |
| III.1.H.v | Severe Storm | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Completed |
| III.1.H.vi | Severe Storm | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Prune trees near power lines regularly to create a buffer zone around power lines and keep free | Will inspect communication and power lines each spring | Existing staff will be utilized to keep costs down | Completed |

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| | | | from trees, vegetation, and construction | to identify areas where limbs and vegetation | | |
| III.1.H.vii | Severe Storm | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1,000 | Completed |
| III.1.H.viii | Severe Storm | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Provide information for residents to see the benefits of mitigation activities | Will begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| III.1.I.ii | Severe Winter | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Prune trees near power lines regularly to create a buffer zone around power lines and keep free from trees, vegetation, and construction | Will inspect communication and power lines each spring to identify areas where limbs and vegetation | Existing staff will be utilized to keep costs down | Completed |
| III.1.I.iii | Severe Winter | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install back-up generators at critical and essential facilities to maintain power during an event. | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected | Completed |
| III.1.I.iv | Severe Winter | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Completed |
| III.1.I.v | Severe Winter | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1,000 | Completed |
| III.1.J.i | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Require manufactured homes be anchored properly | Following adoption of plan | No anticipated costs associated with action | Completed |
| III.1.J.ii | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Install window film on windows of public buildings to minimize glass breakage during tornado events | Will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary depending on material selected and amount required | Completed |
| III.1.J.iii | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Install safe-rooms at public facilities and schools | Will begin seeking funding at plan adoption and continue throughout life of plan | Will require professional to develop plans and construct rooms. Cost will vary depending on size, location, and type of safe room constructed. Matching funds will be required | Completed |

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| III.1.J.iv | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Prune trees near power lines regularly to create a buffer zone around power lines and keep free from trees, vegetation, and construction | Will inspect communication and power lines each spring to identify areas where limbs and vegetation | Existing staff will be utilized to keep costs down | Completed |
| III.1.J.v | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install back-up generators at critical and essential facilities to maintain power during an event. | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected | Completed |
| III.1.J.vi | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Completed |
| III.1.J.vii | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1.000 | Completed |
| III.1.J.viii | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Install public warning systems and sirens | Will begin at plan adoption and continue throughout life of plan | Will use existing staff, cost for sirens will vary by number and type selected | Completed |
| III.1.J.ix | Tornado | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Provide information for residents to see the benefits of mitigation activities | Will begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| III.1.K.ii | Wildfire | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Pass local ordinances to require burn permits and restrict burning activities during dry periods. | Following adoption of plan | No anticipated costs associated with action | Completed |
| III.1.K.iii | Wildfire | Cross County OEM, County Judge, Cherry Valley Mayor, Cross County School Board | Reduce damage potential to public buildings by maintaining a defensible space of 30 feet cleared from combustible materials | Twice a year or as needed during life of plan | Will use existing staff to help lower costs; may require application of safe chemicals to manage vegetation | Not-Completed |
| III.2.A. | General Activities | Cross County OEM and County Judge | Conduct pilot project of replacing bridges with railroad cars | Cross County will begin seeking funding sources at plan adoption and continue until accomplished. | | Deferred |

2023 St. Francis County Mitigation Plan Actions and Implementation

| Action Name and # | Mitigation Action | Responsible Agency | Purpose | Timeframe | Cost | Complete, Incomplete, No Longer Relevant |
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| I.1.A. | Increase public awareness by educating the public. | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Teach residents what hazards they are vulnerable to and how to respond in the event of disaster | Begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| I.1.B. | Increase public awareness by educating the public. | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Teach residents how to prepare a Family Emergency Plan and 72hour emergency kit for both home and automobile | Begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | In-Progress (however the schools did have the education completed) |
| I.1.C. | Increase public awareness by educating the public. | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Teach residents the importance of low-cost mitigation activities to protect personal property | Begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| I.1.D. | Increase public awareness by educating the public. | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Teach residents about "defensible space" for their property and ways to protect from wildfire | Begin at plan adoption and continue throughout life of plan | Less than \$100 per year for printing and/or resources | Completed |

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| I.1.E. | Increase public awareness by educating the public. | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Coordinate and host specific hazard week activities in conjunction with State of Arkansas to support the statewide goal of improving public awareness | Begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Deferred |
| I.1.F. | Increase public awareness by educating the public. | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Educate residents on the importance of purchasing battery or crank-powered NOAA radios for their homes | Begin at plan adoption and continue throughout life of plan | Less than \$100 per year for printing and/or resources | Completed |
| I.1.G | Increase public awareness by educating the public. | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Educate residents to purchase, install, and maintain smoke detectors and fire extinguishers. Test equipment regularly; change batteries twice a year | Begin at plan adoption and continue throughout life of plan | Little staff met required during meet of assistance | Completed |
| I.1.H. | Increase public awareness by educating the public | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Conduct public training classes on the proper use of fire extinguishers | Begin at plan adoption and continue throughout life of plan | Little staff me required during me of assistance | Completed |
| I.2.A | Provide technical support and assistance | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Provide technical support and information for residents implementing mitigation activities | Begin at plan adoption and continue throughout life of plan | Little staff me required during me of assistance | Completed |
| II.1.A. | Increase warning Time | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Partner with NOAA, ADEM, NWS, and others to find ways to improve existing emergency alert system | Begin at plan adoption and continue throughout life of plan | Will use existing staff to keep costs down | Completed |

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| II.1.B. | Increase warning Time | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Train local volunteers to be storm spotters and fire spotters | Begin at plan adoption and continue throughout life of plan | Will use existing staff if no volunteers are found. Cost will vary depending on number trained. | Completed (all St. Francis County Volunteer fire departments are storm spotters) |
| II.1.C. | Increase warning Time | St. Francis County OEM and County Judge | Upgrade current 911 to an enhanced 911 or add 311 service to allow sending of mass telephone announcements to every number in 911 system to alert residents of pending disasters | Begin at plan adoption and continue throughout life of plan | Will use existing staff; cost for system will vary | Completed |
| II.2.A. | Maintain water, sewer, and emergency power | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install back-up generators at critical and essential facilities to maintain power during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators | Completed |
| III.1.A.i | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Madison | Dam Failure; Install warning systems in the inundation zone | Begin at plan adoption and continue throughout life of plan | Will use existing staff; cost for sirens will vary by number and type selected | Deferred |
| III.1.A.ii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Madison | Dam Failure: Acquire, elevate, or relocate structures located in | Begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary by number, type, and size of structures selected, as well as current market price of structure | Deferred |
| III.1.A.iii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Dam Failure: Educate residents on the dangers of dam failure | Begin at plan adoption and continue throughout life of plan | Less than \$100 per year for pricing/and or resources | Deferred |
| III.1.A.iv | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Dam Failure: Conduct studies to determine inundation data when dam failures occur and determine what actions to perform depending on that data | Begin at plan adoption and continue throughout life of plan | Local cash and/or FEMA funding to conduct studies and determine actions | Deferred |
| III.1.A.V | Decreases vulnerability to hazards | ST.FRANCIS County OEM, County Judge, Mayors of Caldwell, Forrest City, Madison | Dam Failure: Retrofit older bridges and dams to withstand damages in the event of an earthquake to prevent collapsing or dam failure | Begin at plan adoption and continue throughout life of the plan | Local cash and/or FEMA funding to conduct studies and determine actions | Deferred |

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| III.1.B.ii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Drought: Regulate water usage during periods of drought | Begin at plan adoption and continue throughout life of plan | Will use existing staff | Deferred |
| III.1.B.iii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Drought: Install low-flow faucets and fixtures at critical facilities and schools | Begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary by number and type of fixtures | Deferred |
| III.1.C.ii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Earthquake: Install window film on windows of public buildings to minimize glass breakage during earthquake events | Begin at plan adoption and continue throughout life of plan | No anticipated cost associated with this action | Deferred |
| III.1.C.iii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Earthquake: Establish contents anchoring and/or bracing policies at all schools and critical facilities | Begin at plan adoption and continue throughout life of plan | No anticipated cost associated with this action | Deferred |
| III.1.C.iv | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Earthquake: Purchase and install back-up generators at critical and essential facilities to maintain power during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected | Deferred |

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| III.1.C.v | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Earthquake: Purchase and install emergency backup lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Deferred |
| III.1.C.vi | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Earthquake: Seismically retrofit/rehabilitate structures | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on specific actions selected | Deferred |
| III.1.D.ii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Extreme Heat: Establish cooling centers for vulnerable population during periods of extreme heat | Begin at plan adoption and continue throughout life of plan | Will use existing staff and volunteers; cost will depend on agreements reached | Completed |
| III.1.D.iii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Extreme Heat: establish educational outreach program targeting vulnerable populations most likely to be impacted by extreme heat event and how to better prepare and mitigate against its effects. | Participants will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost should be less than \$100 per year for printing | Completed |
| III.1.E.ii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Flood: Improve drainage of local ditches by increasing regular maintenance and vegetation control measures which will facilitate better water flow and decrease potential flood levels | Participants will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary depending on measures required to accomplish task | Completed |

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| III.1.E.iii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Flood: Structurally improve local drainage systems by increasing culvert and/or storm-drain sizes where applicable | Participants will begin at plan adoption and continue throughout life of plan | Cost will depend on course of action selected | Completed |
| III.1.E.iv | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Regulate high-risk structure placement in and near the floodplain | Following adoption plan | No anticipated costs associated with action | Completed |
| III.1.E.v | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Flood: Apply dry flood proofing materials to public facilities as appropriate | As soon as funding is available and structures have been identified as being eligible | Cost will depend on the size of building and material selected. | Completed |
| III.1.E.vii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Adopt land use plans to guide development away from floodplain | Following adoption plan | No anticipated costs associated with action | Completed |
| III.1.E.vii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Regulate debris control by passing and enforcing dumping ordinance to control debris, household items, or stored objects that could pose as a hazard if floodwaters picked them up and carried them away | Following adoption of plan | No anticipated costs associated with this action | Completed |
| III.1.E.viii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Regulate hazardous material storage by prohibiting from locating in floodplain and restrict to low density/low populated areas. If they must be located in floodplain, require anchoring of containers to decrease potential for contamination or exposure of materials to public water supply | Following adoption of plan | No anticipated costs associated with action. | Completed |

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| III.1.E.ix | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Stabilize shoulders and embankments where needed | Following adoption of plan | Existing staff will be used; cost of supplies will vary by type and amount used | Completed |
| III.1.E.x | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Acquire, elevate, and/or relocate structures which are vulnerable to flooding, such as those in the floodplain or floodway and/or those with multiple losses. | Will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary by number, type, and size of structures selected, as well as current market price of structure | Deferred |
| III.1.E.xi | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Adopt ordinances for real estate disclosure laws that require seller to advise potential buyers about pre-existing conditions in the floodplain, if it has been previously damaged from events. | Following adoption plan | No anticipated costs associated with action | Completed |
| III.1.E.xii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Purchase and install backup generators at water and sewer facilities to prevent sewage back up, maintain potable water production, and maintain proper pressure to prevent water contamination during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size and types of generators selected | Completed |
| III.1.E.xiii | Decrease vulnerability to hazards | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Flood: Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected. | Completed |
| III.1.F.ii | High Wind | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Require manufactured homes be anchored properly | Following adoption of plan | No anticipated costs associated with action | Completed |
| III.1.F.iii | High Wind | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, | Install window film on windows of public building to minimize glass breakage during high wind events | Will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary depending on material selected and amount required | Completed |

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| | | Board of Directors Crowley's Ridge Technical Institute | | | | |
| III.1.F.iv | High Wind | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Install safe-rooms at public facilities and schools | Will begin seeking funding at plan adoption and continue throughout life of plan | Will require professional to develop plans and construct rooms. Cost will vary depending on size, location, and type of safe room constructed. Matching funds will be required. | Completed |
| III.1.F.v | High Wind | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Generator purchase and installation | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected. | Completed |
| III.1.F.vi | High Wind | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Completed |
| III.1.F.vii | High Wind | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Prune trees near power lines regularly to create a buffer zone around power lines and keep free from trees, vegetation, and construction | Will inspect communication and power lines each spring to identify areas where limbs and vegetation | Existing staff will be utilized to keep costs down | Completed |
| III.1.F.viii | High Wind | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not | Completed |

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| | | Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | | | expected to exceed \$1,000 | |
| III.1.F.ix | High Wind | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Provide information for residents to see the benefits of mitigation activities | Will begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| III.1.G.ii | Landslide | St. Francis County OEM and County Judge | Stabilize roads, shoulders, and embankments as identified as needing it | Following adoption of plan | Existing staff will be used; cost of supplies will vary by type and amount used | Completed |
| III.1.G.iii | Landslide | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1,000 | Completed |
| III.1.H.i | Severe Storm | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Require manufactured homes be anchored properly | Following adoption of plan | No anticipated costs associated with action | Completed |
| III.1.H.ii | Severe Storm | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Install window film on windows of public buildings to minimize glass breakage during severe storm events | Will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary depending on material selected and amount required | Deferred |
| III.1.H.iii | Severe Storm | St. Francis County OEM, County Judge, Mayors of | Install safe-rooms at public facilities and schools | Will begin seeking funding at plan adoption | Will require professional to develop | Completed |

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| | | Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | | and continue throughout life of plan | plans and construct rooms. Cost will vary depending on size, location, and type of safe room constructed. Matching funds will be required | |
| III.1.H.iv | Severe Storm | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install back-up generators at critical and essential facilities to maintain power during an event. | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected | Completed |
| III.1.H.v | Severe Storm | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Completed |
| III.1.H.vi | Severe Storm | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Prune trees near power lines regularly to create a buffer zone around power lines and keep free from trees, vegetation, and construction | Will inspect communication and power lines each spring to identify areas where limbs and vegetation | Existing staff will be utilized to keep costs down | Completed |
| III.1.H.vii | Severe Storm | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1,000 | Completed |

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| | | Board of Directors Crowley's Ridge Technical Institute | | | | |
| III.1.H.viii | Severe Storm | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Provide information for residents to see the benefits of mitigation activities | Will begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| III.1.I.ii | Severe Winter | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Prune trees near power lines regularly to create a buffer zone around power lines and keep free from trees, vegetation, and construction | Will inspect communication and power lines each spring to identify areas where limbs and vegetation | Existing staff will be utilized to keep costs down | Completed |
| III.1.I.iii | Severe Winter | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install back-up generators at critical and essential facilities to maintain power during an event. | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected | Completed |
| III.1.I.iv | Severe Winter | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Completed |
| III.1.I.v | Severe Winter | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1,000 | Completed |

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| | | Board of Directors Crowley's Ridge Technical Institute | | | | |
| III.1.J.i | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Require manufactured homes be anchored properly | Following adoption of plan | No anticipated costs associated with action | Completed |
| III.1.J.ii | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Install window film on windows of public buildings to minimize glass breakage during tornado events | Will begin at plan adoption and continue throughout life of plan | Will use existing staff; cost will vary depending on material selected and amount required | Completed |
| III.1.J.iii | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Install safe-rooms at public facilities and schools | Will begin seeking funding at plan adoption and continue throughout life of plan | Will require professional to develop plans and construct rooms. Cost will vary depending on size, location, and type of safe room constructed. Matching funds will be required | Completed |
| III.1.J.iv | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Prune trees near power lines regularly to create a buffer zone around power lines and keep free from trees, vegetation, and construction | Will inspect communication and power lines each spring to identify areas where limbs and vegetation | Existing staff will be utilized to keep costs down | Completed |
| III.1.J.v | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, | Purchase and install back-up generators at critical and essential facilities to maintain power during an event. | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of generators selected | Completed |

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| | | Board of Directors Crowley's Ridge Technical Institute | | | | |
| III.1.J.vi | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install emergency back-up lighting at critical and essential facilities to maintain light during an event | Will begin seeking funding sources at plan adoption and continue until accomplished | Will vary depending on number, size, and types of lighting units selected | Completed |
| III.1.J.vii | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, Board of Directors Crowley's Ridge Technical Institute | Purchase and install NOAA warning radios to all County Government buildings, public schools, and public shelters | Will begin at plan adoption and continue throughout life of plan | Will vary depending on discounts and type of radios selected, but not expected to exceed \$1.000 | Completed |
| III.1.J.viii | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Install public warning systems and sirens | Will begin at plan adoption and continue throughout life of plan | Will use existing staff, cost for sirens will vary by number and type selected | Completed |
| III.1.J.ix | Tornado | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Provide information for residents to see the benefits of mitigation activities | Will begin at plan adoption and continue throughout life of plan | Less than \$200 per year for printing and/or resources | Completed |
| III.1.K.ii | Wildfire | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener | Pass local ordinances to require burn permits and restrict burning activities during dry periods. | Following adoption of plan | No anticipated costs associated with action | Completed |
| III.1.K.iii | Wildfire | St. Francis County OEM, County Judge, Mayors of Caldwell, Forrest City, Hughes, Madison, Palestine, Wheatley, Widener, School Boards of Forrest City, Hughes, Palestine-Wheatley, | Reduce damage potential to public buildings by maintaining a defensible space of 30 feet cleared from combustible materials | Twice a year or as needed during life of plan | Will use existing staff to help lower costs; may require application of safe chemicals to manage vegetation | Deferred |

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| | | Board of Directors Crowley's Ridge Technical Institute | | | | |
| III.2.A. | General Activities | St. Francis OEM and County Judge | Prepare MOUs for local veterinarians and veterinary facilities for transporting, boarding, and emergency care of pets during crisis | Immediately | Will vary depending on number of pets housed | Completed |
| III.2.B. | General Activities | Forrest City Area Humane Society | Coordinate with Forrest City Area Humane Society to provide pet owner education/about hazards and best responses | Immediately | No cost to | Completed |

SECTION 4

Mitigation Strategy

The St. Francis/Cross County Hazard Mitigation plan includes a mitigation strategy that provides the St. Francis/Cross County's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

The following capabilities describe what the County, Cities and School District may or may not have to implement and maintain mitigation efforts, are addressed in the existing authorities, policies, programs, and resources available to accomplish hazard mitigation.

Cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne each are different in terms of staffing, funding, policies and program giving them the ability to carry out their local hazard mitigation goals. Each city has the capability to be an active member in the NFIP, to pass mitigation ordinances for their local government, regulate and limit the development in wildfire hazard areas and flood prone areas through land use planning, implement retrofit construction plans, brace equipment, and provide emergency preparedness information to area residents through FEMA brochures.

St. Francis/Cross County, cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District would be dependent upon grant funding to assist with larger mitigation projects, such as safe rooms and heavy-duty generators to back up and maintain electrical power for critical facilities. The Cities would need assistance in financing drought communication and early warning systems, heating, and cooling centers.

St. Francis/Cross County would need to seek outside financial resources for the development of a Countywide flood inundation study. This study would benefit the cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District, for future land development. Funds would also be needed for flood inundation studies and conduct inspections, maintenance, and enforcement programs on high-risk dams in the County.

According to the Building Code Adoption Tracking Portal (BCAT) Cross County and St. Francis County do not have their own building codes, ordinances, or zoning requirements. Both Counties, however, operate in accordance with International Building Codes (IBC) as of 2021. The participating jurisdictions follow Arkansas state codes for building, plumbing, fire, and any other codes that may be required by the state of Arkansas.

4.1 Mitigation Goals and Objectives for Each Hazard

Based upon the results of the local and State risk assessments, the St. Francis/Cross County Hazard Mitigation Planning Team, with input from local jurisdictions and officials, developed hazard mitigation goals and objectives and selected those that were determined to be of greatest benefit. These goals and objectives represent what St. Francis/Cross County believes is a long-term vision for reduction and enhancement of mitigation capabilities:

- Goal 1. Reduce the potential for loss of life, injury and economic damage created by exposure to natural hazard for residents of St. Francis/Cross County due to natural disasters.
- Goal 2- 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.
- Goal 3- Seek grants for mitigation projects through the State and Federal funding.
- Goal 4- Protect existing properties from natural disasters.

4.2 Implementation of Mitigation Actions

The mitigation actions are prioritized based upon their effect on the overall risk to life and property. Ease of implementation, community and agency support and ease of obtaining funding. The County and participating jurisdictions have used the St. Francis/Cross County method to prioritize mitigation actions. This method has the benefit that the Mitigation actions are considered in discrete categories of Social, Technical, Administrative, Political, Economic and Environmental. Prioritization can therefore be made taking each of these categories into account, so that nothing is overlooked when considering which actions may be best for each jurisdiction to consider.

Criteria used for prioritization and review of mitigation actions based on St. Francis/Cross County.

| 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, and 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 and benefit cost issues were the predominant topics 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 Survey, 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 St. Francis/Cross County Office of Emergency Management (CCOEM) will be responsible for evaluating actions among competing actions. The Planning Team prioritized the list of mitigation actions by conducting a cost-benefit review. This review was conducted by; first considering the number of people who would be affected by a chosen project, determining the area the project would cover, considering how critical the structures were within in the project

area, and which structure were most critical, and finally how would it benefit the entire community. The OEM shall evaluate actions based on funding availability, comparative value to mitigation objectives, and consideration of economic benefits and environmental concerns of the communities. Actions are prioritized in three different categories: **High need for immediate action**, **Medium need for action**, **Low lacking in urgency**.

All St. Francis/Cross County actions are the responsibility of the director of St. Francis/Cross County Office of Emergency Management or County Judge. The Cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne actions are the responsibility of their mayors. The East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District will be the responsible of their School Board Administration.

The Responsible Agency for each mitigation action will identify resources. Their responsibility will be to examine resources from all levels of government. The responsible parties will integrate the requirements of the mitigation plan into other plans when appropriate. This also, includes funding and support for enacting and enforcing building codes and zoning ordinances, and developing public education programs to alert residents to risks and how they can reduce hazard losses. Plans will be made to earmark resources for implementing these actions.

Each jurisdiction and school district within the County that participated in the planning process has at least two actions that will benefit the jurisdiction.

For the purpose of developing the St. Francis/Cross County Hazard Mitigation Plan, mitigation actions are categorized into six groups;

- Actions that will keep problems from getting worse (Prevention).
- Actions that address individual buildings (Property protection)
- Actions that will inform the public (Public education and awareness)
- Actions that will protect natural resources (Natural resource protection)
- Actions that will protect emergency services before, during, and immediately after an occurrence (Emergency services protection)
- Actions that will control the hazard (Structural projects)

4.4 Mitigation Actions/Projects

Mitigation Actions

Purchase heavy -duty generators to back up and maintain electrical power for critical facilities, schools, and shelters to maintain power and water supply during disasters.

Associated Hazard: Earthquake, Extreme Heat, Flood, Thunderstorm, Tornado, Wildfire, Winter storms

Type of Action: Emergency Services Protection

Contribution to Mitigation Objective: Continuation of water service, and temperature control

Priority: High

Rationale of Priority: Past disasters

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial, cost varies on size and type of generator.

TimeLine: 5 Years

Projected Resources: Existing County, Local and School Resources and possible grant funds

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

School Boards of East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Construct safe rooms within new and existing public buildings, such as schools, libraries, and community centers.

Associated Hazard: Thunderstorm, Tornado

Type of Action: Structural Project

Contribution to Mitigation Objective: Prevent the loss of life by providing shelter during pre/post disasters.

Priority: High

Rationale of Priority: Prevents the loss of life during storms and also minimizes the effects post hazard events.

Ranked high due to past storm events

Addresses New or Existing buildings: New and Existing

Cost Benefit: Benefits outweigh cost. Possible grants for construction.

TimeLine: 5 Years

Projected Resources: HMGP funding

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

School Boards of East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Install hail resistant roofing and window coverings, shutters laminated glass in windowpanes with a focus on critical infrastructure.

Associated Hazard: Hail/Thunderstorm, Tornado

Type of Action: Property Protection

Contribution to Mitigation Objective: Seeks to protect critical facilities from hail damages

Priority: Medium

Rationale for Priority: Past hail events/ thunderstorms

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial, minimum cost to owner

TimeLine: 5 Years

Projected Resources: Existing County and Local Resources

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

School Boards of East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Protect exceptionally vulnerable populations from the impacts of severe weather events through identifying specific at-risk populations in the event of long-term power outages by establishing accessible heating and cooling centers.

Associated Hazard: Extreme Heat, Winter storms / Ice Storms, Thunderstorm Winds and Tornado

Type of Action: Structural Project

Contribution to Mitigation Objective: Prevent the loss of life by providing shelter during pre/post disasters.

Priority: High

Rationale of Priority: Prevents the loss of life during storms and minimizes the effects post hazard events. Ranked high due to past storm events

Addresses New or Existing buildings: Existing

Cost Benefit: Benefits outweigh cost. Possible grants for refurbishment

TimeLine: 2 Years

Projected Resources: HMGP funding

Responsible Party: Emergency Management, County and City Governments Offices

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

Use designed failure mode for power line design to allow line to fall or fail in small sections rather than as a complete system to enable faster repairs.

Associated Hazard: Wildfires, Winter Storms / Ice Storms, Tornado, Thunderstorm Winds

Type of Action: Prevention Action

Contribution to Mitigation Objective: Prevents strong winds and ice causing trees from falling on power lines creating power outages to homes, critical facilities, and communication systems.

Priority: High

Rationale of Priority: Past disasters

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial, cost to the owner of rights-of-way either County or City

TimeLine: 5 Years

Projected Resources: Existing County and Local Resources

Responsible Party: Local Utility Companies

Action adopted by: : St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

Purchase of all-hazard NOAA weather radios in all schools, city halls, churches, assisted living facilities, hospitals, nursing homes, day care facilities, churches, businesses, industries where large numbers of people congregate; provide information to public on importance of having and how to acquire.

Associated Hazard: Drought, Earthquake, Extreme Heat, Flooding, Thunderstorm, Tornado, Wildland Fire, Winter storms

Type of Action: Prevention

Contribution to Mitigation Objective: Protect lives by alerting congregations of people of impending disasters

Priority: High

Rationale of Priority: Past Disasters

Addresses New or Existing buildings: New and Existing

Cost Benefit: If action proves effective in influencing other to obtain radios, benefits will greatly outweigh cost. (NFIP consideration: CRS 610 Flood Warning Program)

TimeLine: 3 years

Projected Resources: Existing County, Local and School District Resources

Responsible Party:

County Judge and OEM of St. Francis/Cross County,
Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,
Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and
School Boards of East Arkansas Community College, Forrest City
School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,
Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School
District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Implement Weather Warning early telephone warning system designed to automatically deliver targeted hazard notifications for the immediate threats within moments of being issued by the National Weather Service (NWS) or other official source throughout the County.

Associated Hazard: Drought, Earthquake, Extreme Heat, Flooding, Thunderstorm, Tornado, Wildland Fire, Winter storms

Type of Action: Prevention

Contribution to Mitigation Objective: Prevents the loss of lives by alerting citizens by landline or cell phone of approaching storms by physical address

Priority: High

Rationale of Priority: Past storm events

Addresses New or Existing buildings: N/A

Cost Benefit: Highly Beneficial, cost to County.

TimeLine: 3 Years

Projected Resources: Existing County and Possible Outside Resources

Responsible Party: St. Francis/Cross County

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,
Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City
School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Brace equipment (such as mechanical equipment, chillers, and emergency generators) whose failure may disrupt the operation of a critical facility, such as hospitals and schools.

Associated Hazard: Flooding, Tornado, Thunderstorm Winds and Earthquakes

Type of Action: Non-Structural

Contribution to Mitigation Objective: Prevents damage to necessary operating equipment and injury to citizens

Priority: High

Rationale for Priority: Protection of critical operations equipment

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial, minimum cost

TimeLine: 5 Years

Projected Resources: Existing County, State and Local Resources

Responsible Party:

County Judge and OEM of St. Francis/Cross County,
Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,
Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne
School Boards of East Arkansas Community College, Forrest City
School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,

Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Apply window film to windows in public schools and public buildings as able to prevent shattering.

Hazard Associated: Earthquake, Thunderstorm winds, Tornados.

Type of Action: Prevention

Contribution to Mitigation Objective: Reduces the risk to injuries due to broken glass

Priority: Medium

Rationale for Priority: Thunderstorm winds and Tornados have been an issue several times in the past. There are possibilities for future Earthquake events.

Addresses New or Existing buildings: New and existing Cost

Benefit: Highly beneficial, at little cost.

TimeLine: 3 year

Projected Resources: County funds to develop plan. Possible grant funding.

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

School Boards of East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Create a data base within each fire district to track those individuals at high risk of death, such as the small children, elderly, shut-ins, homeless, and those requiring medical attention or medical equipment that require transportation to heating or cooling centers.

Hazard Associated: Drought, Extreme Heat, Winter/Ice Storms

Type of Action: Prevention

Contribution to Mitigation Objective: Reduces the risk to lives due extreme heat or winter/ice storms

Priority: High

Rationale for Priority: Extreme Heat and Winter/Ice Storms have created problems in the past with the lack of cooling equipment or lack of electricity during winter/ice storms.

Addresses New or Existing buildings: N/A

Cost Benefit: Highly beneficial, at little cost.

TimeLine: 1 year

Projected Resources: Little or no funding required

Responsible Party: St. Francis/Cross County OEM and County Fire Chiefs

Action adopted by: St. Francis/Cross County

Provide emergency preparedness and mitigation information and resource for extreme weather conditions through an active education outreach program with specific plans and procedures for at risk populations

Hazard Associated: Drought, Earthquake, Extreme Heat, Flash Flood/Flooding, Thunderstorms (winds, lightning, hail) Tornado, Wildfire, and Winter/Ice Storms

Type of Action: Public Education and Awareness

Contribution to Mitigation Objective: Prevent loss of life and property by preparing at risk population for possible future hazards.

Priority: Medium

Rationale for Priority: Action to inform the public prior to hazard events Addresses

New or Existing buildings: New and existing.

Cost Benefit: Highly beneficial, at little cost.

TimeLine: 1 year

Projected Resources: FEMA brochures and time

Responsible Party: St. Francis/Cross County Office of Emergency Services

Action adopted by: St. Francis/Cross County

Develop a Countywide drought communication plan and early warning system to facilitate timely communication of relevant information to officials, decision makers, school administration, emergency manager and the general public on how to conserve water and other pertinent information.

Hazard Associated: Drought

Type of Action: Prevention

Contribution to Mitigation Objective: Reduces the risk to lives due to water shortages

Priority: High

Rationale for Priority: Drought has been an issue several times in the past.

Addresses New or Existing buildings: New and existing

Cost Benefit: Highly beneficial, at little cost.

TimeLine: 1 year

Projected Resources: County funds to develop plan. Possible grant funding.

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

School Boards of East Arkansas Community College, Forrest City

School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Pass a County ordinance to prioritize or control water use, particularly for emergency situations in order to make more water available for firefighting.

Hazard Associated: Drought

Type of Action: Prevention

Contribution to Mitigation Objective: Reduces the risk due to water shortages

Priority: Medium

Rationale for Priority: Drought has been an issue several times in the past.

Addresses New or Existing buildings: New and existing

Cost Benefit: Highly beneficial, at no cost.

TimeLine: 1 year

Projected Resources: County funds to publish Ordinance

Responsible Party: St. Francis/Cross County Quorum Court

Action adopted by: St. Francis/Cross County

Establish and or maintain Memorandums of Understanding with adjacent communities designed to source additional sources of water or response to incidents affecting the county.

Hazard Associated: Drought

Type of Action: Prevention

Contribution to Mitigation Objective: Reduces the risk to lives due to water shortages

Priority: Medium

Rationale for Priority: Drought has been an issue several times in the past.

Addresses New or Existing buildings: New and existing

Cost Benefit: Highly beneficial, at little cost.

TimeLine: 1 year

Projected Resources: County funds to develop plan. Possible grant funding.

Responsible Party: St. Francis/Cross County Quorum Court

Action adopted by: St. Francis/Cross County

Create a seismic safety committee to provide policy recommendations evaluate and recommend changes in seismic safety standards and give an annual assessment of local and statewide implementation of seismic safety improvements

Hazard Associated: Earthquake

Type of Action: Prevention

Contribution to Mitigation Objective: Assist the risk of the hazard

Priority: High

Rationale for Priority:

Addresses New or Existing buildings: New and existing **Cost**

Benefit: Highly beneficial, at little cost.

TimeLine: 2 years

Projected Resources: County funds to develop plan.

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

School Boards of East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Create a seismic safety committee to provide policy recommendations evaluate and recommend changes in seismic safety standards and give an annual assessment of local and statewide implementation of seismic safety improvements

Hazard Associated: Earthquake

Type of Action: Prevention

Contribution to Mitigation Objective: Assist the risk of the hazard

Priority: High

Rationale for Priority:

Addresses New or Existing buildings: New and existing **Cost**

Benefit: Highly beneficial, at little cost.

TimeLine: 2 years

Projected Resources: County funds to develop plan.

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

School Boards of East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Establish school survey procedures and guidance documents to inventory structural and non-structural hazards in and around school buildings.

Hazard Associated: Earthquake,

Type of Action: Prevention

Contribution to Mitigation Objective: Actions that will keep problems from getting worse.

Priority: High

Rationale for Priority: Earthquake damage is possible

Addresses New or Existing buildings: New and existing **Cost**

Benefit: Highly beneficial, at little cost.

TimeLine: 1 year

Projected Resources: Little or no additional funding required

Responsible Party: School Districts

Action adopted by: Corning School District, Piggott School District, and Rector School District

Find alternate means to assign probability when no events have occurred.

Hazard Associated: Earthquake, Wildfire

Type of Action: Prevention

Contribution to Mitigation Objective: Help planning team and community to understand risk.

Priority: Low

Rationale for Priority: Earthquake, Wildfire understanding probability of event

Addresses New or Existing buildings: New and existing **Cost**

Benefit: NA

TimeLine: 5 year

Projected Resources: no additional funding required

Responsible Party: Planning Team

Action adopted by: St. Francis/Cross County

Pass Ordinance requiring all critical facilities to meet requirements of Executive Order 11988 and be built 1 foot above the 500-year flood elevation.

Associated Hazard: Flood Flash/Flood

Type of Action: Prevention

Contribution to Mitigation Objective: Protect Critical Facilities

Priority: High

Rationale for Priority: Past flooding events and prevent loss of life and property.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial at no cost

TimeLine : 1 Year

Projected Resources: Guidance from FEMA Resources/Publications FEMA p-259,345, B-797

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

Acquire properties that are located in flood zones that have been deemed Repetitive or Severe Repetitive Loss Properties through grant funding.

Associated Hazard: Flood Flash/Flood

Type of Action: Structural

Contribution to Mitigation Objective: Protects life and property

Priority: High

Rationale for Priority: Past flooding events and prevent loss of life and property.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial out ways cost

TimeLine: 3 Years

Projected Resources: Guidance from FEMA Resources/Publications FEMA

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

County and Local Road Departments implement retrofit construction plans to increase drainage or absorption capacities with detention and relief drains, extra culverts, and bridge modification where susceptible to flooding.

Associated Hazard: Flood Flash/Flooding

Type of Action: Prevention and Structural

Contribution to Mitigation Objective: Corrects current weaknesses and prevents any future structural damage.

Priority: High

Rationale for Priority: Protection of life

Addresses New or Existing buildings: N/A

Cost Benefit: Highly Beneficial. Benefit will outweigh any cost.

TimeLine: 3 Years

Projected Resources: Existing State, County and Local Resources

Responsible Party: County OEM, State Highway Department, County and City Road Departments.

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

Conduct countywide community NFIP workshops and for newly elected officials and public the National Flood Insurance Program Summary of Coverage FEMA F-679/November 2012.

Associated Hazard: Flood

Type of Action: Public Education and Awareness

Contribution to Mitigation Objective: Education residents on the need of flood insurance

Priority: High

Rationale to Priority: St. Francis/Cross County is prone to flooding.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial at no cost.

TimeLine: 1-2 years

Projected Resources: FEMA F-679 online free brochures

Responsible Party: St. Francis/Cross County OEM

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

Install surge protection, lightning protection devices on all communications infrastructure and critical facilities.

Associated Hazard: Lightning/Thunderstorm

Type of Action: Property Protection

Contribution to Mitigation Objective: Will guard critical communication equipment from lightning strikes.

Priority: High

Rationale of Priority: Past lightning events, and the need for operable communication equipment before, during and after disasters.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial, cost to owners of communications infrastructure and critical facilities.

TimeLine: 5 Years

Projected Resources: Existing County, Local and School District Resources

Responsible Party:

County Judge and OEM of St. Francis/Cross County,

Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

School Boards of East Arkansas Community College, Forrest City

School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Mitigate future losses by regulating development in wildfire hazard areas through land use planning and address density and quantity of development, as well as emergency access, landscaping and water supply.

Hazard Associated: Wildfire

Type of Action: Prevention

Contribution to Mitigation Objective: Reduces the risk of wildfire due to land use

Priority: High

Rationale for Priority: Prior wildfire events

Addresses New or Existing buildings: Existing

Cost Benefit: Highly beneficial at no cost.

TimeLine: 2 Years

Projected Resources: Publish notice in paper at minimum expense

Responsible Party: St. Francis/Cross County Quorum Court, City Councils, School Boards

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Implement a fuels management team using prescribed burning techniques to reduce hazardous vegetative fuels that threaten public safety and property on public lands and working with landowners on private land, and near essential infrastructure.

Hazard Associated: Wildland Fire

Type of Action: Prevention

Contribution to Mitigation Objective: Eliminates the fuel for wildland fires

Priority: low

Rationale for Priority: Proven to save lives and lessen property damage. Has experienced past wildfire events.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly beneficial, controlled burn would be under the direction of United States Forest Service and Arkansas Forest Service.

TimeLine: 5 years

Projected Resources: St. Francis/Cross County Fire Departments

Responsible Party: USFS or State Forestry to oversee, Fire Departments; St. Francis/Cross County Fire Departments assisting.

Action adopted by: St. Francis/Cross County

Provide public questionnaires and information concerning hazard mitigation for public engagement through various online media.

Hazard Associated: Drought, Earthquake, Extreme Heat, Flash Flood/Flooding, Thunderstorms (winds, lightning, hail) Tornado, Wildfire, and Winter/Ice Storms

Type of Action: Public Outreach

Contribution to Mitigation Objective: Education and Research

Priority: High

Rationale for Priority: Proven to save lives and lessen property damage and gather public understanding.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly beneficial, low to no costs.

TimeLine: 2 years

Projected Resources: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Responsible Party:

County Judge and OEM of St. Francis/Cross County,
Mayors of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,
Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne
School Boards of East Arkansas Community College, Forrest City
School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,
Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City
School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Disclosing the location of high-risk areas to buyers. ***Offering GIS hazard mapping online for residents and design professionals.***

Hazard Associated: Event, Earthquakes, and Flooding.

Type of Action: Prevention

Contribution to Mitigation Objective: Eliminates the fuel for wildland fires

Priority: Medium

Rationale for Priority: Proven to save lives and lessen property damage. Has experienced past wildfire events.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly beneficial, controlled burn would be under the direction of United States Forest Service and Arkansas Forest Service.

TimeLine: 5 Years

Projected Resources: Grant funding.

Responsible Party: County Judge and OEM of St. Francis/Cross County

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,
Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City
School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Disclosing the location of high-risk areas to buyers. ***Offering GIS hazard mapping online for residents and design professionals.***

Hazard Associated: Event, Earthquakes, and Flooding.

Type of Action: Prevention

Contribution to Mitigation Objective: Eliminates the fuel for wildland fires

Priority: Medium

Rationale for Priority: Proven to save lives and lessen property damage. Has experienced past wildfire events.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly beneficial, controlled burn would be under the direction of United States Forest Service and Arkansas Forest Service.

TimeLine: 5 Years

Projected Resources: Grant funding.

Responsible Party: County Judge and OEM of St. Francis/Cross County

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison,
Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne and East Arkansas Community College, Forrest City
School District, Cross County School District, Wynne School District, and Palestine-Wheatley School District

Conduct research regarding repetitive and severe repetitive loss properties within St. Francis/Cross County and the cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne

Associated Hazard: Flood

Type of Action: Public Education and Awareness

Contribution to Mitigation Objective: Education residents on the need of flood insurance

Priority: High

Rationale to Priority: St. Francis/Cross County is prone to flooding.

Addresses New or Existing buildings: New and Existing

Cost Benefit: Highly Beneficial at no cost.

TimeLine: 5 years

Projected Resources: FEMA F-679 online free brochures

Responsible Party: St. Francis/Cross County and City Floodplain Management

Action adopted by: OEM of St. Francis/Cross County

Conduct H&H research regarding possible flood zones that are in unmapped NFIP unincorporated areas of St. Francis/Cross County and the cities of Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, and Wynne.

Associated Hazard: Flood, Flash Flood, Dam Failure

Type of Action: Public education, awareness, and research.

Contribution to Mitigation Objective: Education residents on the need of flood insurance.

Priority: High

Rationale to Priority: St. Francis/Cross County is prone to flooding.

Addresses New or Existing buildings: New and Existing **Cost**

Benefit: Highly Beneficial and does cost.

TimeLine: 5 years

Projected Resources: Grant funding

Responsible Party: OEM of St. Francis/Cross County

Action adopted by: St. Francis/Cross County, Colt, Caldwell, Hughes, Palestine, Widener, Forrest City, Madison, Wheatley, Cherry Valley, Hickory Ridge, Parkin, Wynne.

Retrofit older bridges and dams to withstand damages in the event of an earthquake or other natural hazard to prevent collapsing or dam failure: Areas affected: St. Francis County, Cities of Caldwell, Forrest City, Madison

Associated Hazard: Flood, Flash Flood, Dam Failure

Type of Action: Construction

Contribution to Mitigation Objective: Retrofit Project.

Priority: High

Rationale to Priority: St. Francis/Cross County is prone to flooding and dam failure

Cost Benefit: Highly Beneficial/ Average Cost

TimeLine: 5 years

Projected Resources: Grant funding

Responsible Party: OEM of St. Francis/Cross County

Action adopted by: St. Francis/Cross County, Caldwell, Forrest City, Madison

SECTION 5

Acronyms

| | |
|----------|---|
| ADA | Average Daily Attendance |
| ADEM | Arkansas Department of Emergency Management |
| BCA | Benefit-Cost Analysis |
| BMPs | Best Management Practices |
| CCOEM | Clay County Office of Emergency Management |
| CFR | Code of Regulations |
| CRS | Community Rating System |
| DMA 2000 | Disaster Mitigation Act of 2000 |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| FIS | Flood Insurance Study |
| GIS | Geographic Information System |
| HMC | Hazard Mitigation Committee |
| HMGP | Hazard Mitigation Grant Program |
| IBC | Internal Building Code |
| IFR | Interim Final Rule |
| LEPC | Local Emergency Planning Committee |
| MOU | Memorandum of Understanding |
| NFIP | National Flood Insurance Program |
| PDM | Pre-Disaster Mitigation Program |
| PGA | Peak Ground Acceleration |
| SHMO | State Hazard Mitigation Officer |
| STAPLEE | Social, Technical, Administrative, Political, Legal, Economic |
| UCC | Uniform Construction Code |
| WUI | Wildland Urban Interface |

SECTION 6

Plan Adoption

Attached are approved resolutions the County, cities and school districts passed after FEMA approved the Clay County Hazard Mitigation Plan.

6.1 Resolutions

RESOLUTION NO. 79

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR THE TOWN OF CALDWELL, ARKANSAS.

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, the Town of Caldwell desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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

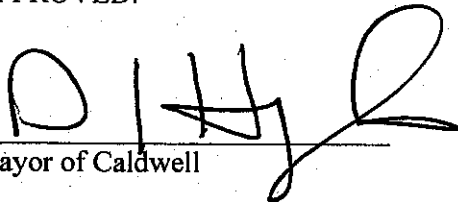
WHEREAS, to assist cities and counties in meeting this requirement, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Caldwell City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Jakk Jumper, 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.

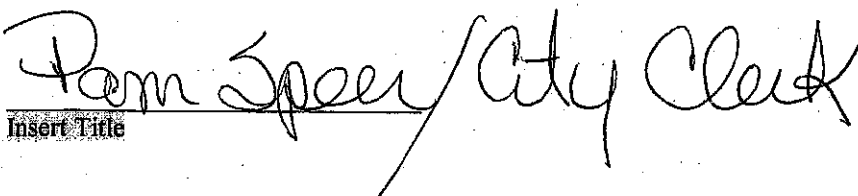
APPROVED and ADOPTED on this (21) day of (November), 2024.

APPROVED:



Mayor of Caldwell

ATTEST:



Insert Title

RESOLUTION NO. 6 of 2024

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

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

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, the City of Cherry Valley desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Cherry Valley City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

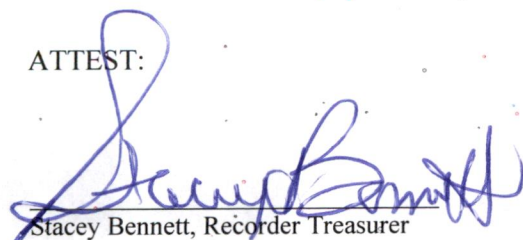
Appoints the Emergency Management Director, Jakk Jumper, to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action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

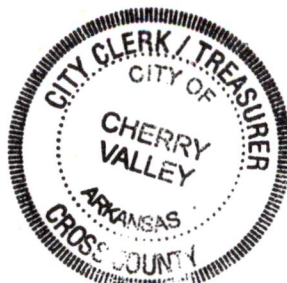
APPROVED and ADOPTED on this 21st day of November 2024.

APPROVED:


Mayor of Cherry Valley

ATTEST:


Stacey Bennett, Recorder Treasurer



CITY OF COLT, ARKANSAS
281 OLD MILITARY ROAD EAST
COLT, ARKANSAS 72326

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

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

RESOLUTION 2024-07

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

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

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Colt City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

CITY OF COLT, ARKANSAS
281 OLD MILITARY ROAD EAST
COLT, ARKANSAS 72326

Appoints the Emergency Management Director, Zakk Jumper, 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.

PASSED AND APPROVED ON THIS 12TH DAY OF NOVEMBER 2024.

APPROVED



TYLER MULLINS, MAYOR

ATTEST



CATHY COATS, CLERK



NOV 19 2024

RESOLUTION NO. 2024-4

CROSS COUNTY, ARKANSAS
BY Mary Beth Sanders COUNTY CLERK

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

**A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR CROSS COUNTY,
ARKANSAS.**

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, Cross 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 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Cross County Quorum Court hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Zakk Jumper, 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 18th day of November, 2024.

APPROVED:


Cross County Judge

ATTEST:


Cross County Clerk
Mary Beth Sanders

FILED FOR RECORD
11-19-2024 at 8A M.
Recorded in book 2024 Page 8
Mary Beth Sanders
Mary Beth Sanders
COUNTY & PROBATE CLERK
CROSS COUNTY, AR

Cross County School District

RESOLUTION NO. 1-2024-2025

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

A RESOLUTION OF THE CROSS COUNTY SCHOOL DISTRICT ADOPTING THE ST. FRANCIS COUNTY AND CROSS COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, St. Francis County and Cross 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 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Cross County School District hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

While content related to the Cross County School District may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the Cross County School District to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

APPROVED and ADOPTED on this 18th day of November, 2024, by a vote of:

6 in favor, 0 against, and 0 abstaining

APPROVED:

Dr. Nathan Morris
Print Name

[Signature]
Signature

ATTEST:

Derek Wood
Print Name

[Signature]
Signature

East Arkansas Community College

RESOLUTION NO. 2024-02

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

A RESOLUTION OF THE EAST ARKANSAS COMMUNITY COLLEGE ADOPTING THE ST. FRANCIS COUNTY AND CROSS COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, St. Francis County and Cross 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 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the East Arkansas Community College hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

While content related to the East Arkansas Community College may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the East Arkansas Community College to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

APPROVED and ADOPTED on this 19th day of November, 2024, by a vote of:

7 in favor, 0 against, and 0 abstaining

APPROVED:

Brent Howton, Board Chair
Print Name


Signature

ATTEST:

Cathie Cline, President
Print Name


Signature

RESOLUTION NO. 1240

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

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

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

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

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts.

NOW, THEREFORE, BE IT RESOLVED THAT the Forrest City City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Zakk Jumper, 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.

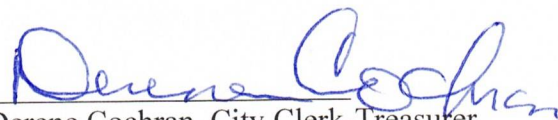
APPROVED and ADOPTED on this 4th day of December, 2024.

APPROVED:



Larry S. Bryant, Mayor

Attest:



Derene Cochran, City Clerk-Treasurer

Forrest City School District

RESOLUTION NO. (Insert Resolution Number)

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

A RESOLUTION OF THE FORREST CITY SCHOOL DISTRICT ADOPTING THE ST. FRANCIS COUNTY AND CROSS COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, St. Francis County and Cross 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 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE BE IT RESOLVED THAT the Forrest City School District hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

While content related to the Forrest City School District may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the Forrest City School District to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

APPROVED and ADOPTED on this (Insert Date) day of (Insert Month), 2024, by a vote of:

7 in favor, ____ against, and ____ abstaining

APPROVED:

Sandra Taylor
Print Name

A. Norman

ATTEST:

Sandra Taylor
Signature

Print Name

Signature

THE CITY OF HICKORY RIDGE

P.O. BOX 34

HICKORY RIDGE, ARKANSAS 72347-0034

PHONE (870)-697-2201

RESOLUTION NO. 2024-3-HR

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

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

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, the City of Hickory Ridge desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Hickory Ridge City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Jakk Jumper, 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 the 10th day of December 2024.

APPROVED:


Mayor of Hickory Ridge

ATTEST:


City Clerk of Hickory Ridge

City of Hughes

P.O. Box 145 * 202 Blackwood Street * Hughes, Arkansas 72348
Phone: (870) 339-2332 * Fax: (870) 339-3111 * E-Mail: city-of-hughes@sbcglobal.net

Lincoln E. Barnett, Mayor

Resolution No. 2024-05

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

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

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

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Hughes City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Jakk Jumper, 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 November, 2024.

ATTEST:
(SEAL)

Shelby Pulliam
Shelby Pulliam, City Clerk

Lincoln E. Barnett
Lincoln E. Barnett, Mayor

**CITY OF MADISON
RESOLUTION NO. 2024-005**

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

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

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

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

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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

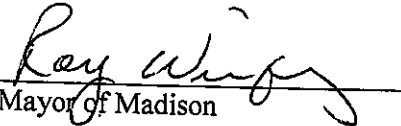
WHEREAS, to assist cities and counties in meeting this requirement, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Madison City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

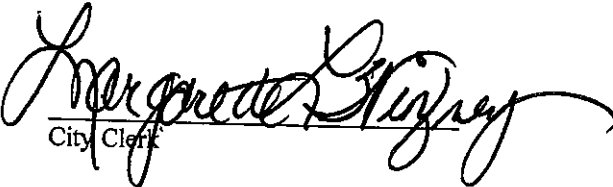
Appoints the Emergency Management Director, Jakk Jumper, to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action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

APPROVED and ADOPTED on this 13th day of November 2024.

APPROVED:


Mayor of Madison

ATTEST:


City Clerk

RESOLUTION NO. (2024-R-01)

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

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

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

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

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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

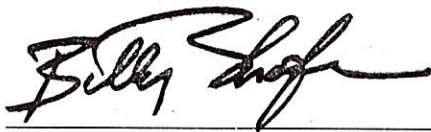
WHEREAS, to assist cities and counties in meeting this requirement, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Palestine City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Jakk Jumper, 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 12 day of November, 2024.

APPROVED:



Mayor of Palestine

Clerk/Recorder/Treasurer

Palestine-Wheatley School District

RESOLUTION NO. 1

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

A RESOLUTION OF THE PALESTINE-WHEATLEY SCHOOL DISTRICT ADOPTING THE ST. FRANCIS COUNTY AND CROSS COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, St. Francis County and Cross 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 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Palestine-Wheatley School District hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

While content related to the Palestine-Wheatley School District may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the Palestine-Wheatley School District to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.


APPROVED and ADOPTED on this **19th** day of **November, 2024**, by a vote of:

7 in favor, 0 against, and 0 abstaining

APPROVED:

Ryan Halbert

Print Name


Signature

ATTEST:

Tammy Roberts

Print Name


Signature

RESOLUTION NO. 11-12-2024-1

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

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

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

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

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Parkin City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Jakk Jumper, 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 12th day of November, 2024.

APPROVED:

Mayor of Parkin



ATTEST: 11-12-2024

Prenita White
Prenita White, City Clerk/Treasurer

RESOLUTION NO. 24-03

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR ST. FRANCIS COUNTY, ARKANSAS.

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, St. Francis 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 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

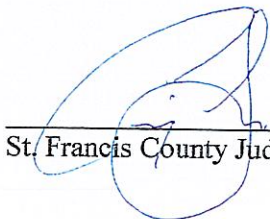
WHEREAS, to assist cities and counties in meeting this requirement, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the St. Francis County Quorum Court hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Zakk Jumper, 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 19th day of November, 2024.

APPROVED:



St. Francis County Judge

ATTEST:



St. Francis County, County Clerk

FILED

NOV 20 2024

**Brandi H. McCoy
County & Probate Clerk**

RESOLUTION NO. 24-R-03

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

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

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

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

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Wheatley City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Jakk Jumper, 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.

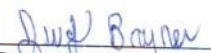
APPROVED and ADOPTED on this (14th) day of November), 2024.

APPROVED:



Mayor of Wheatley

ATTEST:



Recorder/Treasurer

RESOLUTION NO. 2024-1

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

A RESOLUTION ADOPTING THE HAZARD MITIGATION PLAN FOR THE TOWN OF WIDENER, ARKANSAS.

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, the Town of Widener desires to prepare and mitigate for such circumstances; and

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Widener City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

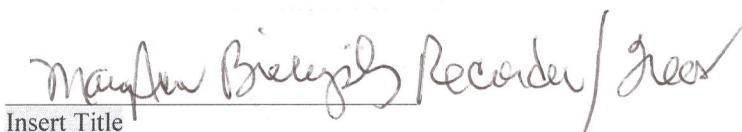
Appoints the Emergency Management Director, Jakk Jumper, to assure that the Hazard Mitigation Plan be reviewed at least annually and that any needed adjustment to the Hazard Mitigation Plan be developed and presented to the governing board for consideration; and agrees to take such other official action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

APPROVED and ADOPTED on this 18 day of November, 2024.

APPROVED:


Mayor of Widener

ATTEST:


Insert Title

RESOLUTION NO. 12-10-24A

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

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

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

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

WHEREAS, under the Disaster Mitigation Act of 2000, the United States Federal Emergency Management Agency 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

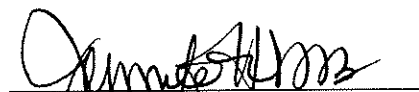
WHEREAS, to assist cities and counties in meeting this requirement, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Wynne City Council hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

Appoints the Emergency Management Director, Zakk Jumper, 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 10th day of December, 2024.

APPROVED:



Mayor of Wynne Jennifer Hobbs

ATTEST:



City Clerk, Emily Watts

Wynne School District

RESOLUTION NO.

St. Francis County / Cross County Multi-Jurisdiction Hazard Mitigation Plan

A RESOLUTION OF THE WYNNE SCHOOL DISTRICT ADOPTING THE ST. FRANCIS COUNTY AND CROSS COUNTY HAZARD MITIGATION PLAN

WHEREAS, certain areas of St. Francis County and Cross County, Arkansas, are subject to periodic flooding and other natural and man-caused hazards with the potential to cause damages to people's properties within the area; and

WHEREAS, St. Francis County and Cross 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 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, St. Francis County and Cross County, Arkansas, with the assistance of the East Arkansas Planning & Development District has initiated development of a multi-jurisdiction Hazard Mitigation Plan for the counties and all jurisdictions in the counties, specifically the cities and school districts;

NOW, THEREFORE, BE IT RESOLVED THAT the Wynne School District hereby adopts those portions of the Plan relating to and protecting its jurisdictional area against all hazards, (2024 - 2029); and

While content related to the Wynne School District may require revisions to meet the plan approval requirements, changes occurring after adoption will not require the Wynne School District to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

APPROVED and ADOPTED on this 11th day of November, 2024, by a vote of:

5 in favor, 0 against, and abstaining

APPROVED:

Stacie Schlenker Stacie Schlenker
Print Name Signature

ATTEST:

References:

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<https://stacker.com/arkansas/cross-county-ar/how-cross-county-ar-feels-about-climate-change>

<https://hazards.fema.gov/nri/map> <https://www.ncdc.noaa.gov/stormevents/>

<https://www.c2es.org/content/wildfires-and-climate-change/>