Southwest Arkansas Planning and Development District

# UNION COUNTY

## Multi-Jurisdictional Hazard Mitigation Plan

2026 Update | FINAL DRAFT — June 25, 2026

HMGP Grant FEMA-4441-DR-AR-0005

*Revised to meet FEMA Local Mitigation Planning Policy Guide (FP-206-21-0002, effective April 11, 2025)*

**Participating Jurisdictions**

Union County (Unincorporated) | Calion | El Dorado | Felsenthal | Huttig

Junction City | Norphlet | Smackover | Strong

El Dorado SD | Junction City SD | Parkers Chapel SD | Smackover-Norphlet SD | Strong-Huttig SD

**Prepared to meet:** FEMA Local Mitigation Planning Policy Guide (FP-206-21-0002, effective April 11, 2025) and the requirements of 44 CFR Part 201

**Public review draft posted:** September 18, 2026

**Public comment period:** September 18, 2026 through October 18, 2026 (30 calendar days)

> **NOTICE — PUBLIC REVIEW DRAFT**
>
> This is the pre-adoption Public Review Draft of the Union County Multi-Jurisdictional Hazard Mitigation Plan. It is posted for a 30-day public comment period as required by 44 CFR 201.6(b)(2). The public comment period runs from **September 18, 2026 through October 18, 2026**. Every resident, property owner, business owner, neighboring jurisdiction, agency, and interested party in Union County is invited to review the draft and submit written comments before the plan is finalized and adopted.
>
> **Where to view the plan.** The draft is posted online on the Southwest Arkansas PDD hazard-mitigation-plan website at **https://southwestar.org/hazard and https://unioncountyar.com**
>
> **How to comment.** Written comments may be submitted by any of the following methods:
>
> - **Email (preferred):** Blake Harrell, blake.harrell@arkansas.gov
>
> - **Mail:** Blake Harrell, Southwest Arkansas Planning and Development District, P.O. Box 767, Magnolia, AR 71754
>
> - **Phone / voice message:** (870) 234-4039
>
> **What happens next.** All comments received during the 30-day period will be reviewed by the planning committee and Union County OEM, and the plan will be revised as appropriate. The revised plan will then be submitted to the Arkansas Division of Emergency Management (ADEM) for state review and to FEMA Region 6 for federal approval, after which each participating jurisdiction will adopt the plan by resolution.
>
> **Items still open for local input.** The Union County OEM Coordinator returned confirmed NFIP floodplain-administrator names for Huttig, Norphlet, Smackover, and Strong in September 2026, along with firefighter counts for the Faircrest, Hibanks, Old Union, and Strong volunteer departments and one additional flash-flood road segment for Smackover (Old Camden Road) — all now incorporated in this draft. The only remaining adoption-stage item is additional flash-flood road segments for Calion, Huttig, Junction City, Norphlet, and Strong; those cities have been asked to submit any locally known recurring-flood road names during the 30-day public comment period, and any segments received will be incorporated in the final adopted plan.

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## SAMPLE ADOPTION RESOLUTION

**RESOLUTION NO. _____**

A RESOLUTION OF [JURISDICTION NAME] ADOPTING THE UNION COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN (2022)

WHEREAS the [governing body] recognizes the threat that natural hazards pose to people and property within its jurisdiction; and

WHEREAS [jurisdiction name] has participated in the development of the Union County Multi-Jurisdictional Hazard Mitigation Plan, hereby known as the Union County Multi-Jurisdictional Hazard Mitigation Plan (2022), in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS the Union County Multi-Jurisdictional Hazard Mitigation Plan (2022) identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in its jurisdiction from the impacts of future hazards and disasters; and

WHEREAS adoption by [governing body] demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Union County Multi-Jurisdictional Hazard Mitigation Plan (2022).

NOW THEREFORE, BE IT RESOLVED BY THE [GOVERNING BODY], ARKANSAS, THAT:

In accordance with [local ordinance/resolution procedure], the [governing body] adopts the Union County Multi-Jurisdictional Hazard Mitigation Plan (2022). Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

ADOPTED by a vote of [governing body] this _____ day of _____, 2022.

Mayor/County Judge/Superintendent: _____

Secretary/Clerk: _____

# SECTION 1: INTRODUCTION AND PLANNING PROCESS

## 1.1 Plan Introduction

Hazards are part of the world around us. Floods, tornadoes, winter storms, earthquakes, wildfires, and other hazardous events are inevitable. These natural phenomena cause damage to the ecological environment, the economy, and the people who live, work, and go to school throughout Union County.

While we cannot prevent these events from occurring, we can take deliberate steps to reduce the damage they cause. Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to life and property from a hazard event. It is the foundation of emergency management -- the work we do before a disaster so that when disaster comes, fewer people are hurt, fewer structures are damaged, and recovery is faster.

The Union County Multi-Jurisdictional Hazard Mitigation Plan is a planning tool that guides Union County and its municipalities and school districts in identifying risks, building local capacity, and implementing projects that reduce vulnerability over time. When a community has a current, FEMA-approved hazard mitigation plan, it gains access to FEMA's Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance (FMA) program, and Building Resilient Infrastructure and Communities (BRIC) grant funding. These programs have provided billions of dollars to Arkansas communities for flood elevation projects, safe rooms, stormwater drainage systems, and other mitigation investments.

This plan covers all of unincorporated Union County and the municipalities of Calion, El Dorado, Felsenthal, Huttig, Junction City, Norphlet, Smackover, and Strong. It also includes the El Dorado, Junction City, Norphlet, Parkers Chapel, Smackover, and Strong-Huttig School Districts.

Union County's hazard history makes this plan more than a compliance exercise. The county has received 20 federal disaster declarations since 1968 -- 12 Major Disaster Declarations and 8 Emergency Declarations -- covering flooding, tornadoes, winter storms, and hurricanes. The most recent declarations were EM-3627 (April 2025, severe storms and tornadoes) and EM-3636 (January 2026, severe winter storm), confirming that the natural hazard threat to Union County is active and ongoing.

## 1.2 Planning Goals

The Union County Hazard Mitigation Planning Committee adopted the following goals for this plan:

**Goal 1:** Decrease the potential for death, injury, and economic damage caused by natural hazards for all residents of Union County.

**Goal 2:** Create coordination frameworks that encourage all levels of government and public and private organizations to undertake mitigation activities and use mitigation strategies in the post-disaster recovery process.

**Goal 3:** Maximize access to state and federal grant funding for mitigation projects across all participating jurisdictions.

**Goal 4:** Protect existing and future properties, infrastructure, and critical facilities from natural hazard damage.

These goals are aligned with the Arkansas State Hazard Mitigation Plan (2023) and are detailed with measurable objectives in Section 4.1.

## 1.3 Purpose and Authority

Union County, with the assistance of Southwest Arkansas Planning and Development District (Southwest Arkansas PDD), initiated the Hazard Mitigation Plan update process using funding from HMGP grant FEMA-4441-DR-AR-0005. Southwest Arkansas PDD authored and coordinated the plan. The Union County Office of Emergency Management and Southwest Arkansas PDD worked collaboratively to engage the county, cities, school districts, and public throughout the planning process.

This plan is developed pursuant to the Disaster Mitigation Act of 2000 (DMA 2000), which established requirements for state and local hazard mitigation plans as a condition of receiving post-disaster federal hazard mitigation funding. The DMA 2000 requirements are codified at 44 CFR Part 201.

## 1.4 Parts of the Plan

The Union County Hazard Mitigation Plan is organized into the following sections to meet FEMA requirements under 44 CFR Part 201:

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

## 1.5 Planning Process and Meeting Documentation

The following table documents all planning activities that led to the development of this hazard mitigation plan update.

| Meeting / Activity | Date | Location | Primary Attendees | Key Topics Addressed |
|---|---|---|---|---|
| Organizational Meeting and Risk Assessment | October 23, 2019 | Union County Courthouse, El Dorado | County Judge Mike Loftin; OEM Bobby Braswell; Mayors of Calion, El Dorado, Felsenthal, Huttig, Junction City, Norphlet, Smackover, Strong; Superintendents of EDSD, JCSD, NSD, | Risk assessment review; hazard identification and prioritization; initial mitigation strategy discussion; public hearing held same date |

| | | | | |
|---|---|---|---|---|
| | | | PCSD, SSD, SHSD | |
| Data Collection and Capabilities Assessment | October 2019 – July 2022 (ongoing) | Phone, email, and written questionnaire | Union County OEM; mayors and superintendents of all participating jurisdictions | Capabilities assessment questionnaires distributed by Southwest Arkansas PDD; responses collected via phone and email throughout the planning period; critical infrastructure data compiled from jurisdiction submissions |
| Mitigation Actions and Plan Finalization | July 7, 2022 | Union County Courthouse, El Dorado | County Judge Mike Loftin; OEM Bobby Braswell; Mayor of Calion Bill Yutzy; Mayor of El Dorado Veronica Smith-Creer; Mayor of Felsenthal Linda Newbury; Mayor of Huttig Tony Cole; Mayor of Junction City Steve Williams; Mayor of Norphlet Jim Crotty; Mayor of Smackover Bobby Neal; Mayor of Strong Daryell Howell; Superintendents: EDSD Ron Carruth, JCSD Robby Lowe, NSD Jason Black, PCSD John Gross, SSD Jason Black, SHSD Kimberly Thomas; Fire Chief El Dorado Chad Mosby; Sheriff Ricky Roberts | Final mitigation action list reviewed and approved; capabilities assessment finalized; previous action status reviewed |
| Public Comment -- El Dorado City Council | November 10, 2022 | El Dorado City Hall | General public, El Dorado City Council | Draft plan presented; press release in local newspaper; nine additional flood road segments added |
| Public Comment -- Smackover City Council | November 14, 2022 | Smackover City Hall | General public, Smackover City Council | Draft plan presented |
| Public Comment -- Felsenthal City Council | November 15, 2022 | Felsenthal City Hall | General public, Felsenthal City Council | Draft plan presented; Eagle Tram Road flooding concern |

| | | | | |
|---|---|---|---|---|
| | | | | raised and incorporated |
| Capability Assessment Update Survey | November 2025 | Written questionnaire distributed by Southwest Arkansas PDD | Mayors of all 9 participating cities and Union County Judge | Updated capability tables (storm/erosion/flood plain management, building codes, zoning, subdivision, land use plan, elevation certificates, utility providers); staff positions; improvement priorities. Returned by 5 jurisdictions (Huttig, Union County, El Dorado, Smackover, Calion); 3 returns contained substantive capability data and improvement narratives that are incorporated into Section 2.5. Signed questionnaires on file at Southwest Arkansas PDD. |

## Current Participating Officials (as of June 2026)

The 2026 plan revision was prepared with the following currently-serving officials. Where these differ from the names appearing in historical planning meeting records (Section 1.5, October 2019 and July 2022), the meeting records preserve the officials of record at those meetings.

| Jurisdiction | Office | Current Official (2026) |
|---|---|---|
| Union County | County Judge | Mike Loftin |
| Union County | OEM Coordinator | Bruce Goff |
| Union County | Sheriff | Charlie Phillips (elected 2026) |
| City of Calion | Mayor | Kenneth Anders |
| City of El Dorado | Mayor | Paul Choate |
| City of Felsenthal | Mayor | Theresa Howard |
| City of Huttig | Mayor | Benny Ford Jr. |
| City of Junction City | Mayor | Sharon Williams |
| City of Norphlet | Mayor | Dennis Dumas |
| City of Smackover | Mayor | Donald Brock |

| | | |
|---|---|---|
| City of Strong | Mayor | Daryell Howell |
| El Dorado School District | Superintendent | James Tucker |
| Junction City School District | Superintendent | Melanie Mason |
| Parkers Chapel School District | Superintendent | Jana L. Young |
| Smackover-Norphlet School District | Superintendent | Douglas Smith |
| Strong-Huttig School District | Superintendent | Veronica Perkins |

*Sources: Southwest Arkansas PDD Clients-Grid roster (June 2026); Arkansas Department of Emergency Management LEMC directory (Aug 2025); Arkansas Department of Education FY26 Superintendent Contact List; Arkansas Sheriffs Association (June 2026). The school-district roster reflects the 2024 consolidation of Norphlet and Smackover into the Smackover-Norphlet School District; the prior plan's six districts have become five.*

## 1.6 Involvement of Local Governments

All participating jurisdictions were engaged in the planning process from the beginning. Each jurisdiction provided a representative on the planning committee. Jurisdictions whose representative could not attend a meeting were represented by the Union County OEM and later provided required information via phone and email.

**County Judge and OEM:** Provided overall coordination, critical infrastructure data, and multi-jurisdictional risk information. County Judge Mike Loftin and the planning committee jointly determined mitigation strategies and priorities.

**Mayors:** Each mayor provided jurisdiction-specific hazard data, capabilities information, road flooding lists, and input on mitigation action priorities.

**Superintendents:** Each superintendent provided information about hazards affecting school campuses, emergency operations plan status, and input on safe room and shelter needs.

**Fire Chief:** Fire Chief Chad Mosby (El Dorado) provided mitigation action recommendations for wildfire and severe storm hazards.

**Sheriff:** (Former) Sheriff Ricky Roberts provided information on road flooding locations reported by the public and hazard-related emergency calls countywide.

## 1.7 Stakeholder Outreach

In addition to the core planning committee, the following stakeholders were contacted by email, phone, and (for the participating cities and Union County) a written capability assessment questionnaire during the planning period. The written questionnaire (distributed November 2025) functioned as a targeted stakeholder survey: five of nine participating cities returned it, three with substantive responses, and the substantive returns are documented in Section 2.5. All other stakeholders were given the opportunity to participate through email and phone outreach. Responses are documented in the table below.

| Stakeholder | Type | How Contacted | Participated |
|---|---|---|---|
| South Arkansas Regional Hospital, El Dorado | Healthcare | Email | No response |
| Union County Emergency Medical Services | Emergency Services | Email | Yes (via OEM) |
| Entergy Arkansas | Electric Utility | Email | No response |
| Summit Gas / CenterPoint Energy | Gas Utility | Email | No response |
| Windstream / Lumen Technologies | Telecom | Email | No response |
| El Dorado Chamber of Commerce | Business | Email | No response |
| Murphy USA / Murphy Oil | Major Employer | Email | No response |
| Union County Farm Bureau | Agriculture | Email | No response |
| Felsenthal National Wildlife Refuge | Natural Resources | Email | No response |
| Bradley County OEM | Neighboring County | Email | No response |
| Ouachita County OEM | Neighboring County | Email | No response |
| Columbia County OEM | Neighboring County | Email | No response |
| Ashley County OEM | Neighboring County | Email | No response |
| Arkansas Department of Transportation District 6 | State Transportation | Email | No response |
| Arkansas Forestry Commission | Wildfire / Natural Resources | Email | No response |
| Arkansas Natural Resources Commission (ANRC) | Floodplain / NFIP | Email | No response |

## 1.8 Neighboring Community Involvement

Neighboring counties were notified of the planning process and given the opportunity to participate. Union County borders Bradley County (north), Ouachita County (northwest), Calhoun County (northwest), Columbia County (west), and Ashley County (east). Representatives from neighboring counties were invited to planning committee meetings. Outreach was conducted by email and phone. Stakeholders and neighboring county representatives who did not respond to outreach are noted as \"No response.\" Non-response by invited stakeholders does not constitute a planning deficiency; all parties listed were given a documented opportunity to participate in accordance with 44 CFR 201.6(b)(2). Outreach documentation is maintained on file at the Southwest Arkansas Planning and Development District office and the Union County OEM and is available for ADEM review.

## 1.9 Public Involvement

The public was engaged through multiple opportunities across the planning cycle:

**October 23, 2019 — public hearing at the Union County Courthouse.** Notice was posted one week in advance. No public comments were received at the 2019 hearing, but the meeting served as the formal opening of the public-involvement process.

**November 10, 2022 — El Dorado City Council meeting.** Public notice was provided through a press release published in the El Dorado News-Times in advance. Posting notices were placed at public locations throughout the county. The El Dorado meeting produced the most substantive public input: citizens and council members raised questions about flood conditions in specific parts of El Dorado, and as a direct result nine flood-prone road segments in El Dorado were added to the plan's flood hazard documentation. These segments are listed in Section 3.7.

**November 14, 2022 — Smackover City Council meeting.** Draft plan presented; no substantive comments received.

**November 15, 2022 — Felsenthal City Council meeting.** The Eagle Tram Road flooding concern was raised by Felsenthal residents and is now documented and addressed through Mitigation Action #8 (Eagle Tram Road Flood Mitigation).

**November 2025 — Capability Assessment Update Survey.** A written questionnaire was distributed to all 9 participating cities and the Union County Judge by Southwest Arkansas PDD. Five jurisdictions returned the questionnaire (Huttig, Union County, El Dorado, Smackover, Calion); three returns contained substantive capability data that is incorporated into Section 2.5. All signed questionnaires are on file at the Southwest Arkansas PDD office and are available for ADEM review.

**Combined public-involvement record.** The four city- and county-level meetings and the November 2025 targeted stakeholder survey listed above, together with the 30-day pre-adoption public review period described below, satisfy the public-comment requirements of 44 CFR 201.6(b)(1) for a multi-jurisdictional plan. Every participating jurisdiction has a documented opportunity to comment on the draft plan during the pre-adoption public review period, and all comments received will be addressed in the final adopted plan.

**Pre-adoption public comment period.** A 30-day pre-adoption public comment period is being conducted from **September 18, 2026 through October 18, 2026**. The draft plan is posted online for public review on the Southwest Arkansas PDD hazard-mitigation website at https://southwestar.org/hazards and Union County's website at https://unioncountyar.gov. Written comments may be submitted to Blake Harrell, Southwest Arkansas Planning and Development District, by email at blake.harrell@arkansas.gov (preferred), by mail to P.O. Box 767, Magnolia, Arkansas 71754, or by voice message at (870) 234-4039. The posting notice, all comments received during the window, and how each comment was addressed will be documented in the final adopted plan.

**Community input carried into the strategy.** Substantive public input received during the planning process has been directly incorporated into the mitigation strategy. The November 10, 2022 El Dorado City Council meeting produced nine documented flash-flood corridors that are now the basis of Mitigation Action #4 (Stormwater Drainage Improvements — El Dorado Flash Flood Corridors) and Mitigation Action #11 (El Dorado Stormwater Master Plan). The November 15, 2022 Felsenthal City Council meeting produced the Eagle Tram Road flooding concern that is now the basis of Mitigation Action #8 (Eagle Tram Road Flood Mitigation — Felsenthal). The November 2025 Capability Assessment Update Survey (five returned questionnaires: Huttig, Union County, El Dorado, Smackover, Calion) produced the updated per-jurisdiction

capability tables in Section 2.5, including confirmed floodplain administrator status, building-code discussion, and utility-provider updates for the responding jurisdictions.

## 1.10 Review of Existing Plans and Technical Documents

The planning committee reviewed the following existing plans and technical documents during plan development:

| Document | How Used in This Plan |
|---|---|
| Arkansas State Hazard Mitigation Plan, 2023 Update (ADEM) | Aligned county hazard profiles with state-identified hazards; county goals connected to the six Arkansas State HMP goals |
| Union County Emergency Operations Plan | Identified critical facilities; aligned mitigation actions with existing response capabilities |
| Southwest Arkansas PDD Comprehensive Economic Development Strategy (CEDS) | Disaster resilience and economic development priorities; mitigation actions tied to CEDS infrastructure goals |
| FEMA Flood Insurance Rate Maps (FIRMs), Union County, AR | Identified SFHA boundaries; confirmed floodplain footprints for each jurisdiction |
| NOAA Storm Events Database, Union County, AR (2000-2025) | Primary data source for historical hazard occurrence, probability, and damage estimates |
| FEMA National Inventory of Dams (NID) | Identified dam locations, classifications, and ownership; accessed January 2026 |
| U.S. Census Bureau, 2020 Decennial Census and American Community Survey | Population, housing unit, and demographic data for all jurisdictions |
| FEMA National Risk Index (NRI), Union County, AR | Expected Annual Loss estimates for each hazard (see Appendix D) |
| USACE Vicksburg District -- Ouachita River Structures | Information on Felsenthal Lock and Dam and HK Thatcher Lock and Dam |
| NWS Advanced Hydrologic Prediction Service (AHPS) | Flood stage data for Ouachita River at Felsenthal (FELA4) and Camden (CAMA4) |
| USGS Earthquake Hazards Program | Historical earthquake catalog, Union County, 1950-2025 |
| USDA Forest Service / wildfirerisk.org | Wildfire risk mapping data for Union County |
| SCIPP Simple Planning Tool for Climate Hazards, v2.0 (2024) | Official hazard definitions and planning tool guidance for Arkansas; cited throughout Section 3 |
| OpenFEMA Disaster Declarations Summaries v2 | Complete federal disaster declaration history for Union County, 1968-2026 |

### Element A Summary (A1-a / A1-b Compliance Status)

The planning process and public involvement record documented in this Section 1 satisfy the requirements of Elements A1-a (Planning Process, 44 CFR 201.6(c)(1)) and A1-b (Public Involvement, 44 CFR 201.6(b)(1)). Documentation includes three planning committee meetings (October 23, 2019; ongoing October 2019 – July 2022 data collection; July 7, 2022 finalization); five public-comment or targeted-outreach events (October 23, 2019 public hearing; November 10, 2022 El Dorado City Council; November 14, 2022 Smackover City Council; November 15, 2022 Felsenthal City Council; November 2025 written capability assessment survey with five returns); and a 30-day pre-adoption public review period (September 8, 2026 – October 8, 2026) posted online at the Southwest Arkansas PDD hazard-mitigation website (https://southwestar.org/hazards).

Substantive public input received during the planning process has been carried directly into Mitigation Actions #4, #8, and #11 and into the per-jurisdiction capability tables in Section 2.5. Documentation of outreach, sign-in sheets, questionnaire returns, and press releases is maintained on file at the Southwest Arkansas Planning and Development District office (P.O. Box 767, Magnolia, AR 71754) and the Union County OEM office (Union County Courthouse, El Dorado) and is available for ADEM review.

# SECTION 2: PLANNING AREA AND RESOURCES

## 2.1 General Geography

Union County is located in south-central Arkansas and encompasses approximately 1,039 square miles (725 square miles of land area). The county seat is El Dorado, the largest city in the planning area. Union County is bounded by Bradley County to the north, Columbia County to the west, Ouachita County to the northwest, Calhoun County to the northwest, and Ashley County to the east.

The county's landscape is predominantly rural and forested, with agriculture (cattle, row crops, timber) and petroleum production playing major roles in the local economy. Major population centers are concentrated in El Dorado, with smaller communities distributed throughout the county.

The county's topography ranges from low-lying river bottomlands along the Ouachita River (elevations as low as 65 feet above sea level near Felsenthal) to gently rolling uplands reaching 361 feet at Huttig. The Ouachita River enters Union County from the northwest, flows generally southward through the county, and exits into Ashley County at the Felsenthal National Wildlife Refuge. Smackover Creek, a major tributary with a 411-square-mile drainage area, flows through the northern and central portions of the county before joining the Ouachita River near Smackover.

**2020 Census Data:** Union County's total population was 39,054, a decrease from 41,639 in 2010. The county is 47.9% urban and 52.1% rural. The median age is 41.4 years. There are 18,599 housing units in the county, with 13.0% vacant. Of occupied housing units, 70.4% are owner-occupied.

## 2.2 Social Vulnerability and Vulnerable Populations

The FEMA National Risk Index (NRI, December 2025) rates Union County's overall **Social Vulnerability as Very High** and its **Community Resilience as Relatively Moderate**, even though its modeled overall Expected Annual Loss rating is Very Low. The low loss rating mainly reflects the county's small population (39,054) and modest building stock, NOT a low frequency of hazards — NOAA Storm Events records 311 heat-wave events, 247 thunderstorm-related events, 37 ice/winter-storm events, 37 drought months, and 25 tornado events for the county. The combination of real hazard exposure, very high social vulnerability, and moderate resilience means residents here are less able to prepare for, respond to, and recover from disasters than residents of a wealthier or larger community. This is central to the case for mitigation investment in Union County, and it cuts across every hazard profiled in Section 3 rather than belonging to any single one.

The U.S. Census Bureau 2020 Decennial Census and the American Community Survey 2018–2022 5-year estimates supply the demographic indicators most relevant to a whole-community vulnerability analysis. The table below summarizes the key SVI-style indicators for Union County.

| Indicator | Union County | Why it matters for hazards |
|---|---|---|
| Total population (2020 Census) | 39,054 | Baseline for all per-capita exposure calculations |
| Population change 2010–2020 | -6.2% (decline of 2,585) | Population loss reduces local tax base for mitigation investment |

| | | |
|---|---|---|
| Persons age 65 and older (ACS) | 19.4% | Mobility, medical, heat/cold and outage risk |
| Persons under age 5 (ACS) | 6.1% | Infant-specific extreme heat/cold risk |
| Persons with a disability (ACS, under 65) | 13.6% | Evacuation and sheltering needs |
| Persons in poverty (ACS) | 19.4% | Less ability to prepare or rebuild |
| Median household income (ACS) | $43,950 | Below state median ($52,123) |
| Mobile and manufactured homes (ACS) | ~22% of housing units | Extreme wind, tornado, and ice vulnerability |
| Households with no vehicle (ACS) | ~7.8% | Evacuation difficulty |
| Speaks English less than well (ACS) | ~2.1% | Warning and outreach barriers |
| Racial and ethnic minority (2020 Census) | ~43% | Potential language and access barriers |

*Source: U.S. Census Bureau 2020 Decennial Census; American Community Survey 2018–2022 5-year estimates. CDC/ATSDR Social Vulnerability Index 2022 tract-level analysis follows below.*

Several patterns matter for mitigation. Roughly one in five housing units in Union County is a manufactured or mobile home, the housing type most likely to be destroyed by tornado, severe wind, and ice loads — this directly amplifies the Tornado, Severe Thunderstorm Winds, and Ice Storm profiles, and the 2005 F3 tornado at Junction City (2 deaths, 13 injuries) passed through a rural area with manufactured housing. Union County's older-adult share (19.4%) is above the national 16.8% average and is the population most at risk during the multi-day power outages typical of the county's ice storms, the December 2000 ice storm caused $40M in damage and multi-day outages, and EM-3636 (January 2026) reinforced this exposure. The combination of a 19.4% poverty rate and a 7.8% carless-household share concentrates evacuation difficulty and recovery friction in the same neighborhoods. Felsenthal (pop. 51) is the extreme case: a tiny, isolated, carless-prone community with two access roads (Eagle Tram Road floods regularly) and no local emergency response capability. These findings are carried into the per-jurisdiction vulnerability narratives in Section 3 and into the mitigation actions in Section 4 (warming and cooling centers, school safe rooms, NOAA Weather Radios, backup generators, manufactured-home anchoring, and targeted public outreach).

The CDC/ATSDR Social Vulnerability Index (SVI) 2022 confirms and localizes the NRI county-level picture above. The SVI ranks every U.S. census tract from 0 to 1 on 16 social factors grouped into four themes: socioeconomic status; household characteristics (age, disability, single-parent households); racial and ethnic minority status; and housing type and transportation. Union County contains 12 census tracts. Four tracts rank in the upper third of U.S. tracts for overall vulnerability — Census Tract 9509 (El Dorado SW / downtown) at the 95.7th national percentile, Tract 9510 (El Dorado S / Mount Holly) at 87.3rd, Tract 9506 (El Dorado N) at 77.5th, and Tract 9508 (El Dorado SE) at 76.3rd. The four most-vulnerable tracts all cover the City of El Dorado and its immediate surroundings.

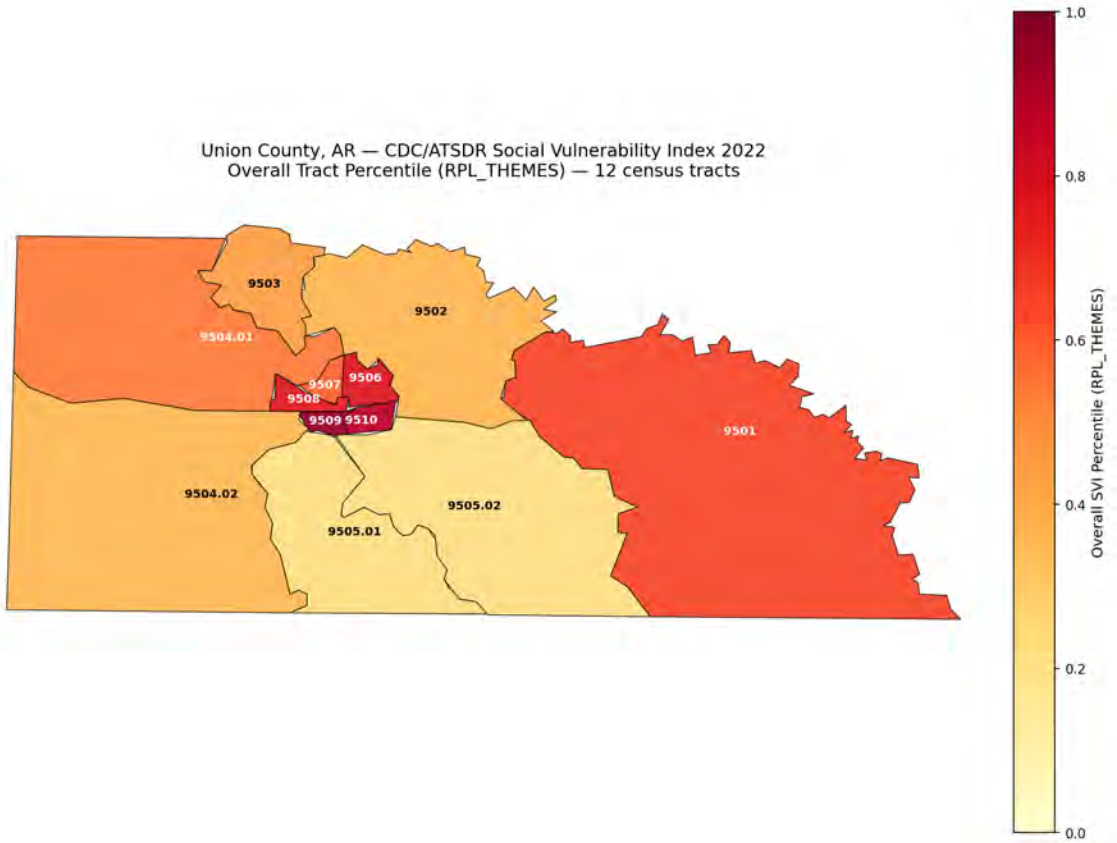


*Figure 2. CDC/ATSDR Social Vulnerability Index (2022) overall percentile (RPL_THEMES) by census tract for Union County. The four El Dorado tracts (9506, 9508, 9509, 9510) rank above the 75th national percentile. Rural west and south Union County tracts (9505.01, 9505.02) rank in the lowest quartile.*

| Tract | Location | Overall SVI pctile | Pop. | 65+ % | Disability % | Below 150% poverty % | Mobile homes % | No vehicle % | Racial/ethnic minority % | Top theme driver |
|---|---|---|---|---|---|---|---|---|---|---|
| 9509 | El Dorado SW / downtown | **95.7** | 2,455 | 13.3 | 13.7 | 50.9 | 5.1 | 14.3 | 77.6 | Housing/Transportation (99) |
| 9510 | El Dorado S / Mt. Holly | **87.3** | 4,215 | 15.1 | 20.2 | 39.8 | 9.0 | 10.8 | 78.4 | Housing/Transportation (93) |
| 9506 | El Dorado N | **77.5** | 3,615 | 16.0 | 14.4 | 28.3 | 8.0 | 9.0 | 52.1 | Household Characteristics (79) |
| 9508 | El Dorado SE | **76.3** | 3,140 | 18.8 | 15.5 | 34.5 | 3.0 | 7.9 | 37.3 | Housing/Transportation (84) |
| 9501 | rural NE/E Union | 65.0 | 2,893 | 21.5 | 17.4 | 27.2 | 32.0 | 3.7 | 55.3 | Socioeconomic (75) |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9507 | El Dorado central | 59.5 | 4,609 | 17.8 | 15.0 | 15.8 | 4.3 | 4.8 | 42.4 | Housing/ Transportation (80) |
| 9504.01 | Norphlet area | 53.6 | 2,293 | 15.5 | 15.6 | 37.3 | 43.0 | 6.0 | 24.2 | Socioeconomic (58) |
| 9503 | Smackover area | 44.3 | 2,636 | 22.1 | 20.5 | 26.8 | 22.6 | 3.2 | 29.0 | Household Characteristics (64) |
| 9502 | rural N Union | 36.6 | 3,529 | 20.3 | 14.8 | 22.9 | 24.2 | 1.8 | 14.9 | Household Characteristics (74) |
| 9504.02 | NW Union | 35.7 | 3,467 | 20.7 | 21.1 | 22.3 | 26.8 | 0.3 | 30.1 | Racial/Ethnic Minority (47) |
| 9505.01 | W Union / Parkers Chapel | 22.0 | 3,167 | 16.8 | 10.0 | 23.7 | 41.2 | 3.0 | 11.7 | Household Characteristics (48) |
| 9505.02 | W Union | 21.8 | 2,796 | 23.4 | 17.0 | 27.4 | 34.6 | 0.0 | 11.1 | Household Characteristics (72) |

*Source: CDC/ATSDR Social Vulnerability Index 2022 (ACS 2018–2022 5-year estimates). Higher percentile = more vulnerable. Bold = above 75th national percentile.*

Several patterns matter for mitigation. **El Dorado downtown and south (Tracts 9509 and 9510)** combine the county's highest overall SVI percentiles with the highest carless-household shares (14.3% and 10.8%) and the highest racial/ethnic minority shares (77.6% and 78.4%). These two tracts concentrate evacuation and warning challenges, particularly for tornado and ice-storm power-outage scenarios. **Manufactured-housing exposure clusters in rural tracts** — Tract 9504.01 (Norphlet area, 43.0%), Tract 9505.01 (Parkers Chapel, 41.2%), and Tract 9505.02 (W Union, 34.6%) carry the highest mobile-home shares despite lower overall SVI rankings — these are the high-exposure neighborhoods for the Tornado, Severe Thunderstorm Winds, and Ice Storm profiles. **Older-adult population is spread evenly** (13–23% across all tracts), so outage-vulnerability mitigation needs to be distributed countywide rather than concentrated in one area. **Poverty is highest in southern El Dorado** (Tract 9509 at 50.9%, Tract 9510 at 39.8%) — low household economic resilience compounds every hazard impact in these tracts. These tract-level patterns are referenced in the per-jurisdiction vulnerability narratives in Section 3 and inform the priority order of Mitigation Actions #3 (school safe rooms), #5 (generator backup), #6 (manufactured home anchoring), and #14 (warming centers / public education). Full tract-level data and methodology are in `Data Pulls/SVI_SocialVulnerability_UnionCounty.md`.

## 2.3 NFIP Participation

The National Flood Insurance Program (NFIP) provides federally backed flood insurance to property owners in communities that adopt and enforce floodplain management regulations. All participating jurisdictions in Union County, except Junction City, are active NFIP members.

### Union County

| Field | Data |
|---|---|
| NFIP Status | Member -- Regular Program |
| Community ID (CID) | 050205 |
| Date Joined NFIP | December 13, 1977 |
| 2020 Population | 39,054 (countywide) |
| Floodplain Manager | Bruce Goff, Union County OEM Coordinator |
| Repetitive Loss Properties | None documented |
| Current FIRM Effective Date | September 28, 2007 |

Union County is in good standing with the NFIP. Union County OEM Coordinator Bruce Goff serves as the floodplain administrator, responsible for issuing floodplain development permits and determining substantial damage and substantial improvement (SD/SI) thresholds. Structures meeting the SD/SI threshold (damage or improvement cost equal to 50% or more of pre-event market value) must be brought into full compliance with current floodplain management regulations, including elevation to base flood elevation plus applicable freeboard. The current effective FIRM for Union County September 28, 2007 has been formally adopted by the Union County Quorum Court.

### City of Calion

| Field | Data |
|---|---|
| NFIP Status | Member -- Regular Program |
| Community ID (CID) | 050206 |
| Date Joined NFIP | April 12, 1974 |
| 2020 Population | 438 |
| Floodplain Manager | Water Superintendent; Roy Dyson |
| Repetitive Loss Properties | None |
| Current FIRM Effective Date | September 28, 2007 |

Calion is in good standing with the NFIP. The water superintendent serves as floodplain manager. The city monitors construction in the SFHA and stays current on regulatory changes through the Arkansas Floodplain Management Association. The current effective FIRM for Calion September 28, 2007 has been formally adopted by the City Council.

### City of El Dorado

| Field | Data |
|---|---|
| NFIP Status | Member -- Regular Program |
| Community ID (CID) | 050207 |
| Date Joined NFIP | May 3, 1974 |
| 2020 Population | 17,826 |
| Floodplain Manager | Water Superintendent; Building Official Kirby Craig |
| Repetitive Loss Properties | None |
| Current FIRM Effective Date | September 28, 2007 |

El Dorado is in good standing with the NFIP. As the largest city in the planning area, El Dorado has the most developed floodplain management infrastructure, including zoning and subdivision management. Elevation certificates are prepared by private surveyors. Building Official Kirby Craig serves as the floodplain administrator and enforces SD/SI requirements under the city's adopted NFIP ordinance. The current effective FIRM for El Dorado September 28, 2007 has been formally adopted by the El Dorado City Council.

### City of Felsenthal

| Field | Data |
|---|---|
| NFIP Status | Member -- Regular Program |
| Community ID (CID) | 050574 |
| Date Joined NFIP | June 19, 1985 |
| 2020 Population | 51 |
| Floodplain Manager | Mayor Theresa Howard |
| Repetitive Loss Properties | None |
| Current FIRM Effective Date | September 28, 2007 |

Felsenthal is in good standing with the NFIP. Given the community's size and its location within the Ouachita River floodplain, NFIP participation is particularly critical. Residents in Felsenthal's flood-prone areas rely on NFIP flood insurance as their primary financial protection against flood loss. The Mayor serves as floodplain administrator and determines SD/SI compliance under the 50% threshold. The current effective FIRM for Felsenthal September 28, 2007 has been formally adopted by the City Council.

### City of Huttig

| Field | Data |
|---|---|
| NFIP Status | Member -- Regular Program |
| Community ID (CID) | 050208 |
| Date Joined NFIP | May 24, 1974 |
| 2020 Population | 448 |

| | |
|---|---|
| Floodplain Manager | Water Superintendent Kevin Osgood |
| Repetitive Loss Properties | None |
| Current FIRM Effective Date | September 28, 2007 |

Huttig is in good standing with the NFIP. Water Superintendent Kevin Osgood serves as the designated floodplain administrator (confirmed by Union County OEM Coordinator Bruce Goff, September 2026). The city's NFIP-compliant floodplain management ordinance requires that all new construction and substantial improvements in the Special Flood Hazard Area meet or exceed current NFIP minimum building standards. The current effective FIRM for Huttig (CID 050208) September 28, 2007 has been formally adopted by the City Council.

### City of Junction City

Junction City does not currently participate in the NFIP. This is addressed fully in Section 2.4.

### City of Norphlet

| Field | Data |
|---|---|
| NFIP Status | Member -- Regular Program |
| Community ID (CID) | 050356 |
| Date Joined NFIP | April 4, 1975 |
| 2020 Population | 642 |
| Floodplain Manager | Mayor Dennis Dumas |
| Repetitive Loss Properties | None |
| Current FIRM Effective Date | September 28, 2007 |

Norphlet is in good standing with the NFIP. Mayor Dennis Dumas serves as the designated floodplain administrator (confirmed by Union County OEM Coordinator Bruce Goff, September 2026) and determines SD/SI compliance under the 50% threshold. The current effective FIRM for Norphlet September 28, 2007 has been formally adopted by the City Council.

### City of Smackover

| Field | Data |
|---|---|
| NFIP Status | Member -- Regular Program |
| Community ID (CID) | 050209 |
| Date Joined NFIP | October 26, 1973 |
| 2020 Population | 1,665 |
| Floodplain Manager | Public Works Director Jason Waxley |
| Repetitive Loss Properties | None |

| | |
|---|---|
| Current FIRM Effective Date | September 28, 2007 |

Smackover is in good standing with the NFIP. Smackover is one of the oldest NFIP participants in the planning area, having joined in October 1973. Public Works Director Jason Waxley serves as the designated floodplain administrator (confirmed by Union County OEM Coordinator Bruce Goff, September 2026). Smackover maintains an NFIP-compliant floodplain ordinance and enforces SD/SI compliance under the 50% threshold. The current effective FIRM for Smackover (CID 050209) September 28, 2007 has been formally adopted by the City Council.

### City of Strong

| Field | Data |
|---|---|
| NFIP Status | Member -- Regular Program |
| Community ID (CID) | 050210 |
| Date Joined NFIP | June 28, 1974 |
| 2020 Population | 453 |
| Floodplain Manager | Mayor Daryell Howell |
| Repetitive Loss Properties | None |
| Current FIRM Effective Date | September 28, 2007 |

Strong is in good standing with the NFIP. Mayor Daryell Howard serves as the designated floodplain administrator (confirmed by Union County OEM Coordinator Bruce Goff, September 2026). The mayor identified the northeast side of town near the sewer pond as susceptible to flooding — a specific infrastructure vulnerability documented in the flood hazard profile. Strong maintains an NFIP-compliant floodplain ordinance and enforces SD/SI compliance under the 50% threshold. The current effective FIRM for Strong (CID 050210) September 28, 2007 has been formally adopted by the City Council.

## 2.4 NFIP Non-Participation: Junction City

Junction City does not currently participate in the NFIP. This is the only jurisdiction in the planning area that is not an NFIP member.

Non-participation in the NFIP has two primary consequences for Junction City:

9. **Residents cannot purchase federally backed flood insurance.** Without NFIP flood insurance availability, homeowners and businesses in Junction City bear the full financial risk of flood damage.
10. **The city is ineligible for certain FEMA pre-disaster grant programs**, including the Flood Mitigation Assistance (FMA) program, while it remains a non-participant.

Junction City has experienced three documented flood events since 1996. Smackover Creek, which flows through or adjacent to the city, is the primary flood hazard. With a 2020 population of 681 (the only jurisdiction in the planning area to have grown since 2010), the non-participation gap is increasing in significance. Mitigation Action #12 in Section 4 provides a specific action plan for bringing Junction City into

NFIP compliance. As of the May 2026 plan revision, Junction City has not initiated NFIP enrollment. (Confirmed Union County OEM 6/25/26: no enrollment steps taken since 2022.)

**Note for school districts:** All five school districts are not eligible to participate in the NFIP, as schools are not eligible for NFIP membership. This is standard practice statewide and is not a compliance gap.

## 2.5 Capability Assessment by Jurisdiction

### Union County

| Capability | Status |
|---|---|
| Stormwater Management | Yes |
| Stream Management | Yes |
| Erosion Management | Yes |
| Floodplain Management | Yes |
| Zoning Management | No |
| Building Codes | Yes — Arkansas State Building Code (2021 IBC with Arkansas amendments; Arkansas Fire Prevention Code); state code administered locally |
| Subdivision Management | Yes |
| Land Use Plan | Yes |
| Elevation Certificates | Yes |
| Electric Utilities | Entergy |
| Water Utilities | Cities; Felsenthal Rural Water Services; El Dorado Water |
| Wastewater Treatment | Cities; Felsenthal Wastewater; City of El Dorado |
| Gas Utilities | Summit / CenterPoint |
| Telephone Services | Windstream, Verizon, AT&T, Telocix |

Union County's primary capability strengths are its stormwater and floodplain management programs, managed by the OEM (Bruce Goff). Per the November 2025 County Judge capability return, the county also confirms erosion management, subdivision management, land use plan, and elevation certificate capabilities. Staff positions on the county side include: County Judge's Administrative Assistant, Emergency Management Coordinator, and Union County Highway personnel. Tax revenue is generated through sales tax, state turnback, and property tax; resolutions are passed through the Quorum Court; budget items go through the Finance Committee and Quorum Court. The county benefits from Southwest Arkansas PDD grant writing services.

**Building Code Discussion (C1-a):** All participating jurisdictions in Union County adopt and enforce the Arkansas State Building Code, which is based on the 2021 International Building Code (IBC) with Arkansas-specific amendments adopted by the Arkansas Fire Prevention Commission. Jurisdictions without dedicated building officials (Calion, Felsenthal, Huttig, Junction City, Norphlet, Strong) rely on the state code administered through the mayor's office or water superintendent. El Dorado's Building Official Kirby Craig

administers the local code for the county's largest jurisdiction. Smackover administers the state code at the city level. School construction is subject to Arkansas Department of Education facility standards. No participating jurisdiction has adopted locally enhanced building codes beyond the state minimum.

The county's capability improvement path includes: (1) completing NFIP elevation certificates for structures in SFHA areas; (2) exploring a stormwater management ordinance for the unincorporated county; and (3) pursuing Community Rating System (CRS) classification in future plan cycles to provide premium discounts for NFIP policyholders.

### City of Calion

| Capability | Status |
|---|---|
| Stormwater Management | Yes |
| Stream Management | No |
| Erosion Management | Yes |
| Floodplain Management | Yes |
| Zoning Management | No |
| Building Codes | Yes — Arkansas State Building Code (2021 IBC with Arkansas amendments) |
| Subdivision Management | No |
| Land Use Plan | No |
| Elevation Certificates | FEMA |

Calion is a small city (438 residents) with limited staff capacity. The water superintendent serves dual roles as floodplain manager. Calion plans to integrate the Hazard Mitigation Plan into its current Emergency Operations Plan.

### City of El Dorado

| Capability | Status |
|---|---|
| Stormwater Management | Yes |
| Stream Management | Yes |
| Erosion Management | Yes |
| Floodplain Management | Yes |
| Zoning Management | Yes |
| Building Codes | Yes — Arkansas State Building Code (2021 IBC with Arkansas amendments); enforced locally by Building Official Kirby Craig |
| Subdivision Management | Yes |
| Land Use Plan | Yes |
| Elevation Certificates | No; prior plan stated Yes in error) |

| | |
|---|---|
| Flood Insurance Claims | Yes |

El Dorado has the most comprehensive municipal capability in the planning area. El Dorado now has a Land Use Plan in place and reports historical Flood Insurance Claims experience. Capability improvement path: (1) Continue staff training (continued education identified by the Mayor as the city's stated improvement focus); (2) Pursue elevation certificates for structures in the nine identified flash flood corridors; (4) Explore Community Rating System (CRS) participation. El Dorado's tax revenue is generated through Sales Tax; budget amendments are approved through the City Council via the City Attorney.

### City of Felsenthal

| Capability | Status |
|---|---|
| Stormwater Management | Yes |
| Stream Management | No |
| Erosion Management | Yes |
| Floodplain Management | Yes |
| Zoning Management | No |
| Building Codes | No |
| Subdivision Management | No |
| Land Use Plan | No |
| Elevation Certificates | Yes |

Felsenthal is the smallest incorporated community in the planning area (51 residents). Given the community's extreme size limitation and its location within the Ouachita River floodplain, Felsenthal's most critical improvement is developing a community-specific flood warning and evacuation protocol that accounts for Eagle Tram Road flooding.

### City of Huttig

| Capability | Status |
|---|---|
| Stormwater Management | Yes |
| Stream Management | No |
| Erosion Management | No |
| Floodplain Management | Yes — NFIP-compliant ordinance in effect |
| Zoning Management | No |
| Building Codes | Yes — Arkansas State Building Code (2021 IBC with Arkansas amendments); state code |
| Subdivision Management | No |
| Land Use Plan | No |

| | |
|---|---|
| Elevation Certificates | No |
| Flood Insurance Claims | No |

Huttig is a small city (448 residents) located at the highest elevation in the planning area (361 feet). Staff positions reported in the capability return: Mayor, Water/Sewer Superintendent, Recreation/Trees. Utilities: Electric — Entergy; Water — City; Wastewater — City; Gas — CenterPoint; Telephone — AT&T. Tax revenue is generated through Sales Tax; resolutions and budget items go through City Council. Capability improvement focus identified by the Mayor: grant writing and education. Capability improvement path: (1) Confirm NFIP floodplain ordinance is current; (2) Pursue ANRC NFIP training for the Mayor or water superintendent; (3) Develop grant-writing capacity in coordination with Southwest Arkansas PDD.

### City of Junction City

| Capability | Status |
|---|---|
| Stormwater Management | Yes |
| Stream Management | Yes |
| Erosion Management | No |
| Floodplain Management | Yes (limited, no NFIP) |
| Zoning Management | No |
| Building Codes | No |
| Subdivision Management | No |
| Land Use Plan | No |
| Elevation Certificates | Yes |

Junction City (681 residents) is the only jurisdiction in the planning area not participating in the NFIP. The city's most critical capability improvement is NFIP enrollment, which requires adopting a local floodplain management ordinance and designating a floodplain administrator. Capability improvement path: (1) Contact ANRC to initiate NFIP enrollment; (2) Adopt an NFIP-compliant floodplain management ordinance; (3) Designate a floodplain administrator; (4) Obtain elevation certificates for structures in Smackover Creek floodplain.

### City of Norphlet

| Capability | Status |
|---|---|
| Stormwater Management | Yes |
| Stream Management | Yes |
| Erosion Management | No |
| Floodplain Management | Yes |

| | |
|---|---|
| Zoning Management | No |
| Building Codes | No |
| Subdivision Management | No |
| Land Use Plan | No |
| Elevation Certificates | Yes |
| Electric Utilities | SwepCo |
| Water Utilities | Norphlet Water Utility |
| Wastewater Treatment | Norphlet Wastewater Utility |
| Natural Gas | Summit Utilities |
| Telephone Services | Walnut Hill |

Norphlet is a small city (642 residents) with limited staff. Mayor Dennis Dumas serves as the designated floodplain administrator). Capability improvement path: Ensure floodplain ordinance is current; pursue ANRC NFIP training for the new Mayor as floodplain administrator.

### City of Smackover

| Capability | Status |
|---|---|
| Stormwater Management | Yes |
| Stream Management | No |
| Erosion Management | No |
| Floodplain Management | Yes — NFIP-compliant ordinance in effect; Public Works Director Jason Waxley serves as floodplain administrator |
| Zoning Management | Yes |
| Building Codes | Yes — Arkansas State Building Code (2021 IBC with Arkansas amendments; Arkansas Fire Prevention Code); state code administered locally |
| Subdivision Management | No |
| Land Use Plan | No |
| Elevation Certificates | Yes |

Smackover (approximately 1,665 residents) has a moderate municipal capability including stormwater management and zoning. Public Works Director Jason Waxley serves as the designated floodplain administrator (confirmed by Union County OEM Coordinator Bruce Goff, September 2026). Capability improvement path: (1) Confirm floodplain ordinance is current given proximity to the Ouachita River and HK Thatcher Lock and Dam; (2) Provide training for the Public Works Director as floodplain administrator.

### City of Strong

| Capability | Status |
|---|---|

| | |
|---|---|
| Stormwater Management | Yes |
| Stream Management | Yes |
| Erosion Management | No |
| Floodplain Management | Yes — NFIP-compliant ordinance in effect; Mayor Daryell Howard serves as floodplain administrator |
| Zoning Management | No |
| Building Codes | No |
| Subdivision Management | No |
| Land Use Plan | No |
| Elevation Certificates | Yes |

Strong (453 residents) is located at 98 feet elevation in northern Union County. Mayor Daryell Howard serves as the designated floodplain administrator (confirmed by Union County OEM Coordinator Bruce Goff, September 2026). The mayor identified the northeast side of town near the sewer pond as susceptible to flooding. Capability improvement path: (1) Confirm floodplain ordinance is current; (2) Conduct an assessment of the sewer pond area flood vulnerability.

### School Districts

All five school districts maintain Emergency Operations Plans with active shooter, fire drill, and tornado drill protocols. School districts are not eligible for NFIP participation.

| School District | EOP | Active Shooter Plan | Fire Drill | Tornado Drill | Grant Writer |
|---|---|---|---|---|---|
| El Dorado SD | Yes | Yes | Yes | Yes | Yes (on staff) |
| Junction City SD | Yes | Yes | Yes | Yes | No (assigns internally) |
| Parkers Chapel SD | Yes | Yes | Yes | Yes | No |
| Smackover-Norphlet SD | Yes | Yes | Yes | Yes | No |
| Strong-Huttig SD | Yes | Yes | Yes | Yes | No |

## 2.6 Critical Infrastructure

### Fire Protection

Fire protection in Union County is provided by one career municipal department (El Dorado Fire Department / Advanced Life Support) plus 14 volunteer departments scattered across the unincorporated county and the smaller cities. The El Dorado Fire Department/ALS operates four stations with approximately 55 personnel and provides career-staffed coverage for the City of El Dorado and adjacent areas. Outside El Dorado city limits, fire and severe-weather response in Union County depends entirely on volunteer departments. The

Arkansas state GIS Fire Stations layer lists 18 station records for the county, the locations of which are shown below.

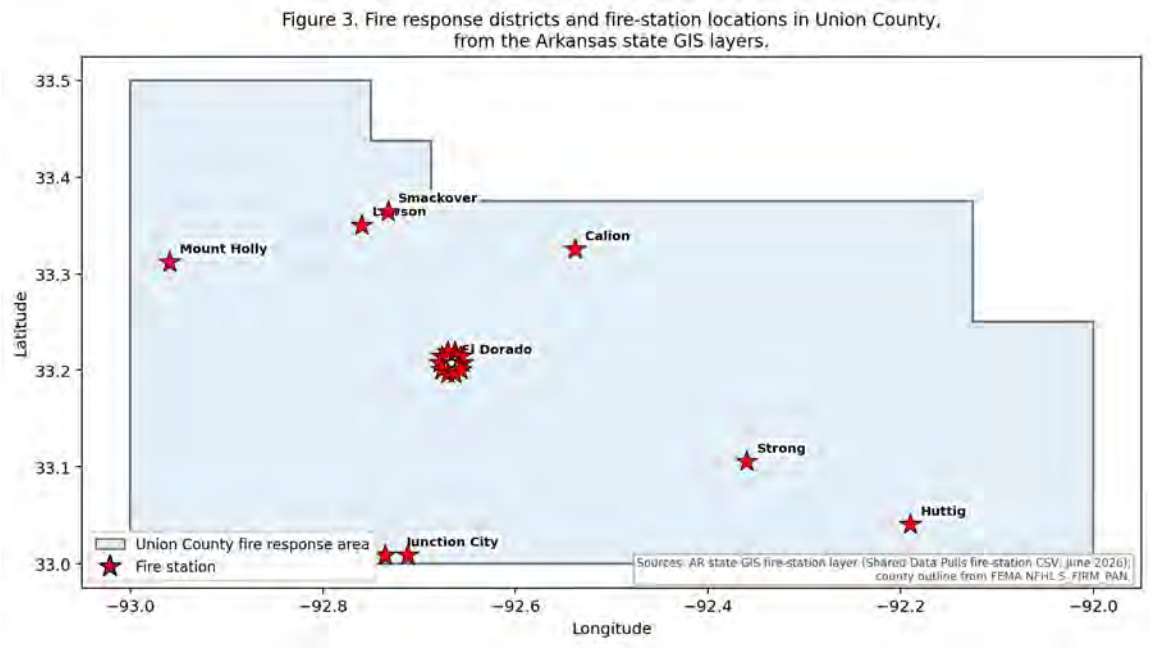


*Figure 1. Fire stations and fire-response area in Union County, from the Arkansas state GIS Fire Stations layer. The City of El Dorado has the only career fire department in the county; the remaining 14 active departments are volunteer.*

| Fire Department / Station | Service Area | Type | Owner | Stations | Firefighters |
|---|---|---|---|---|---|
| El Dorado Fire Department / Advanced Life Support | El Dorado (city) — main | Career | Municipal | 4 | 55 |
| Cairo Volunteer Fire Station | Cairo / rural northeast Union | Volunteer | Rural | 1 | 20 |
| Calion Volunteer Fire Department | Calion | Volunteer | Municipal | 1 | 20 |
| Faircrest Volunteer Fire Department | Faircrest / west El Dorado area | Volunteer | Rural | 1 | 19 |
| Hibanks Volunteer Fire Department | Hibanks / north-central Union | Volunteer | Rural | 1 | 14 |
| Huttig Volunteer Fire Department | Huttig | Volunteer | Municipal | 1 | 26 |
| Junction City Volunteer Fire Department | Junction City | Volunteer | Municipal | 1 | 23 |
| Lawson-Urbana Volunteer Fire Department | Lawson / Urbana (north Union) | Volunteer | Rural | 1 | 18 |
| Mount Holly Volunteer Fire | Mount Holly | Volunteer | Rural | 1 | 14 |

| | | | | | |
|---|---|---|---|---|---|
| Department | | | | | |
| Norphlet Volunteer Fire Department | Norphlet | Volunteer | Municipal | 2 | 23 |
| Old Union Volunteer Fire Department | Old Union / rural west Union | Volunteer | Rural | 1 | 23 |
| Parkers Chapel Volunteer Fire Department | Parkers Chapel / south of El Dorado | Volunteer | Rural | 1 | 25 |
| Smackover Volunteer Fire Department | Smackover | Volunteer | Municipal | 1 | 38 |
| Strong Volunteer Fire Department | Strong | Volunteer | Municipal | 1 | 16 |
| Three Creeks Volunteer Fire Department | Three Creeks / southwest Union | Volunteer | Rural | 1 | 22 |

*Source: Arkansas state GIS Fire Stations layer (gis.arkansas.gov FeatureServer/21), retrieved June 2026 via the SWAPDD pre-built fire-station extract for the 12-county region. Firefighter counts for Faircrest (19), Hibanks (14), Old Union (23), and Strong (16) were confirmed by Union County OEM Coordinator Bruce Goff in September 2026;*

Two points stand out for mitigation planning. First, while the City of El Dorado has the only career fire department in the planning area, every other jurisdiction in the county relies on volunteer fire response — response times are constrained by volunteer availability, distance, and equipment, especially in the rural districts (Cairo, Faircrest, Hibanks, Lawson-Urbana, Mount Holly, Old Union, Parkers Chapel, Three Creeks). Second, this rural footprint is the same area that carries the highest wildfire exposure (timber and pine forest in the north and west of the county) and the highest manufactured-housing concentration vulnerable to wind, tornado, and ice. Hardening these volunteer departments through apparatus, equipment, water supply (tankers and dry hydrants), and recruitment and retention support is a recurring mitigation need.

### Hospitals and Healthcare

South Arkansas Regional Hospital is the only hospital in the planning area, located in El Dorado. It serves Union County and neighboring counties and must remain operational during all disaster events.

### Law Enforcement and Jails

The Union County Sheriff's Office, led by **Sheriff Charlie Phillips**, and the county detention facility are located in El Dorado. The El Dorado Police Department, led by Chief Ricky Roberts, serves the county seat. Other municipal police departments include the Calion Police Department (Chief Chasity Gipson) and the Norphlet Police Department (Chief David Crowder); Smackover and Strong maintain police departments without a chief currently named in the SWAPDD roster, and Felsenthal, Huttig, and Junction City rely on Sheriff coverage. Detention populations are a special-needs group during a disaster because they cannot self-evacuate and must be sheltered in place or relocated under guard.

### Schools

Schools represent the largest single concentration of vulnerable populations during school hours. Campuses are located in El Dorado, Junction City, Norphlet, Parkers Chapel, Smackover, and Strong. Tornado and severe storm events during school hours represent the highest life-safety risk scenario.

### Utility Infrastructure

Electrical service is provided by Entergy Arkansas for most of the planning area, and SwepCo serves portions of Norphlet. Overhead distribution lines throughout the rural county are vulnerable to wind, ice, and tornado damage. Extended power outages affect all aspects of community function, including hospital operations, water treatment, wastewater treatment, and communications. The January 2026 winter storm (EM-3636) and the December 2000 ice storm (EM-3159 / DR-1354) both demonstrated the county's vulnerability to multi-day power outages from ice loading on overhead lines.

Water utilities in the planning area include municipal water systems for each incorporated city. Felsenthal Rural Water Services serves rural areas near Felsenthal.

### Transportation Infrastructure

Highway 167 and Highway 82 are the primary arterial routes through Union County. Arkansas Highway 7 and Highway 15 serve northern and eastern portions of the county. Eagle Tram Road in Felsenthal is a critical vulnerability -- it is one of two access routes to the community and floods regularly during Ouachita River high-water events.

### Manufactured Housing Concentrations

Manufactured housing communities and scattered manufactured homes throughout the rural county represent a critical vulnerable population for tornado, severe storm, and winter storm hazards. The county's rural areas have a significantly higher proportion of manufactured housing than urban areas, and these structures are highly susceptible to wind and ice damage.

## Critical Facilities and Estimated Replacement Values

The Southwest Arkansas Planning and Development District compiled a planning-level replacement-value estimate for each critical facility in the Union County planning area. These values are engineering-planning estimates used to communicate the scale of protection priority; they are NOT appraisals and do not substitute for insurable-value determinations. Values were developed using four estimating methods, applied per facility type:

- **(A) Square footage × RS Means unit cost, adjusted to Arkansas:** used for schools, government buildings, hospitals, police / detention, and long-term-care facilities. RS Means national unit costs are multiplied by an Arkansas location factor of ~0.86.
- **(B) Apparatus-bay count × unit cost:** used for volunteer fire stations where square-footage data is unavailable. Default of three bays × ~1,200 sq ft per bay at the AR-adjusted fire-station rate; individual bay counts should be confirmed from photos or site visits.

- **(C) Licensed-bed count × unit cost:** used for nursing and assisted-living facilities. Bed counts are drawn from the Arkansas Department of Human Services long-term-care licensing record; ~500 sq ft per bed at the AR-adjusted long-term-care rate.
- **(D) Component / documented cost build-up:** used for water and wastewater systems. Above-ground critical structures only (wells, treatment plants, elevated storage, lift stations, WWTP). Values are documented project-cost estimates, not depreciated book value.

The table below lists every critical facility in the Union County planning area with its jurisdiction, facility type, and estimated replacement value. Values are rounded to the nearest dollar. Facilities with an "Override RCN" from the workbook (water and wastewater systems) use component-cost estimates; all other values are calculated from sq-ft × AR-adjusted RS Means unit cost or bay/bed-count × unit cost.

| # | Facility | Jurisdiction | Facility Type | Estimated Replacement Value |
|---|---|---|---|---|
| 1 | El Dorado - Union County Courthouse | El Dorado | Government / City Hall / Office | $14,512,500 |
| 2 | Union County Sheriff's Office & Detention | El Dorado | Police / Sheriff / Detention | $6,127,500 |
| 3 | El Dorado Police Department | El Dorado | Police / Sheriff / Detention | $2,451,000 |
| 4 | El Dorado City Hall | El Dorado | Government / City Hall / Office | $2,902,500 |
| 5 | Smackover City Hall | Smackover | Government / City Hall / Office | $1,128,750 |
| 6 | Norphlet City Hall | Norphlet | Government / City Hall / Office | $1,128,750 |
| 7 | Junction City City Hall | Junction City | Government / City Hall / Office | $1,128,750 |
| 8 | Strong City Hall | Strong | Government / City Hall / Office | $1,128,750 |
| 9 | Huttig City Hall | Huttig | Government / City Hall / Office | $1,128,750 |
| 10 | South Arkansas Regional Hospital | El Dorado | Hospital (general/regional) | $160,605,000 |
| 11 | Oak Ridge Health and Rehabilitation | El Dorado | Long-Term Care / Nursing | $25,155,000 |
| 12 | The Springs of El Dorado | El Dorado | Long-Term Care / Nursing | $17,049,500 |
| 13 | Hudson Memorial Nursing Home | El Dorado | Long-Term Care / Nursing | $15,093,000 |
| 14 | Timberlane Health and Rehabilitation | El Dorado | Long-Term Care / Nursing | $14,813,500 |
| 15 | Courtyard Rehabilitation and Health Center | El Dorado | Long-Term Care / Nursing | — |
| 16 | El Dorado School District | El Dorado | Public School (K-12) | $61,920,000 |

| | | | | |
|---|---|---|---|---|
| 17 | Smackover-Norphlet School District | Smackover | Public School (K-12) | $27,520,000 |
| 18 | Parkers Chapel School District | El Dorado | Public School (K-12) | $20,640,000 |
| 19 | Junction City School District | Junction City | Public School (K-12) | $18,920,000 |
| 20 | Strong-Huttig School District | Strong | Public School (K-12) | $17,200,000 |
| 21 | Cairo Volunteer Fire Station | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 22 | Calion Volunteer Fire Department | Calion | Fire Station (rural volunteer) | $712,080 |
| 23 | El Dorado Fire Department/ Advanced Life Support | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 24 | El Dorado Fire Station 2 | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 25 | El Dorado Fire Station 3 | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 26 | El Dorado Fire Station 4 | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 27 | Faircrest Volunteer Fire Department | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 28 | Hibanks Volunteer Fire Department | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 29 | Huttig Volunteer Fire Department | Huttig | Fire Station (rural volunteer) | $712,080 |
| 30 | Junction City Volunteer Fire Department | Junction City | Fire Station (rural volunteer) | $712,080 |
| 31 | Lawson-Urbana Volunteer Fire Department | Lawson | Fire Station (rural volunteer) | $712,080 |
| 32 | Mount Holly Volunteer Fire Department | Mount Holly | Fire Station (rural volunteer) | $712,080 |
| 33 | Norphlet Volunteer Fire Station | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 34 | Old Union Volunteer Fire Department | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 35 | Parkers Chapel Volunteer Fire Department | El Dorado | Fire Station (rural volunteer) | $712,080 |
| 36 | Smackover Volunteer Fire Station | Smackover | Fire Station (rural volunteer) | $712,080 |
| 37 | Strong Volunteer Fire Department | Strong | Fire Station (rural volunteer) | $712,080 |
| 38 | Three Creeks Volunteer Fire Department | Junction City | Fire Station (rural volunteer) | $712,080 |
| 39 | El Dorado Water/Wastewater System | El Dorado | Water / Wastewater | $41,700,000 |
| 40 | Smackover Water/Wastewater System | Smackover | Water / Wastewater | $4,800,000 |
| | **TOTAL — Union County Planning Area** | | | **$469,870,690** |

*Source: Southwest Arkansas PDD Critical Facility Replacement Value workbook — Union_County_Critical_Facility_Replacement_Values.xlsx (September 2026). RS Means national unit costs, Arkansas location factor ~0.86. Long-term-care bed counts from Arkansas DHS licensing record. Water and wastewater component estimates are above-ground critical structures only; distribution/collection systems are not included. Individual sq-ft, bay counts, and bed counts marked in the workbook as "Estimate — verify" should be reconciled with each jurisdiction's tax-appraisal portal and site records at the next annual plan review. Values are planning-level and do not substitute for insurable-value or actuarial-appraisal determinations.*

### Highest-value protection priorities and per-jurisdiction concentration.

Roughly $430.4 million (91.6 percent) of the total planning-area replacement value concentrates within the City of El Dorado, reflecting El Dorado's role as the county's medical, government, and educational hub. South Arkansas Regional Hospital alone accounts for $160.6 million and is the single highest-value critical facility in the planning area — any prolonged hospital shutdown from a disaster event would have county-wide consequences. Five long-term-care facilities in El Dorado carry a combined ~$72 million in replacement value and house the county's most medically fragile populations, who are especially exposed to power loss during winter-storm and severe-thunderstorm outage events (see Sections 3.8 and 3.11). The five public school districts carry a combined ~$146 million in replacement value and represent the largest single concentration of vulnerable populations during school hours — this ties directly to Mitigation Action #3 (School Safe Rooms), the highest life-safety priority in the plan (see Sections 3.9 and 4.4). The El Dorado and Smackover water/wastewater systems together carry ~$46.5 million in above-ground critical infrastructure; loss of either system would drive service disruption across multiple communities. Outside El Dorado, the highest-value single facility is the Smackover-Norphlet School District at ~$27.5 million, and the Smackover Water/Wastewater System at ~$4.8 million. This concentration pattern is why the per-jurisdiction vulnerability narratives in Section 3 (Rule #1 — no uniform-risk statements) place the highest structural loss exposure in El Dorado while placing the highest per-unit population and manufactured-housing exposure in the rural county and the smaller cities.

## 2.7 Vulnerable Housing (Structure-Level Analysis)

The Social Vulnerability picture in Section 2.2 is drawn at the census-tract scale. To locate the county's most vulnerable housing at the individual-structure scale, the Southwest Arkansas Planning and Development District analyzed the USACE National Structure Inventory (NSI 2022), which carries a record for every building in the county with its occupancy type, replacement value, flood zone, and estimated nighttime occupancy. Each of Union County's 14,561 residential structures was tagged to its jurisdiction using the effective Union County FIRM political-area boundaries (DFIRM 05139C), then flagged on four measures:

- **(1) Manufactured / mobile housing —** NSI occupancy type RES2, the housing type most likely to be destroyed by tornado, severe thunderstorm wind, and ice loading, and most likely to shift off its piers in a felt earthquake.
- **(2) Low-value site-built housing —** residences in the bottom quintile of structure value (≤ $106,365 as of NSI 2022), excluding RES2. This is a conservative proxy for older or smaller structures that may lack current-code hazard resistance.
- **(3) Flood-exposed residences —** structures whose NSI firmzone field is in the Special Flood Hazard Area (Zones A, AE, AO, AH, A99, V, VE).

- **(4) Elderly-occupied residences —** structures with a resident aged 65 or older estimated to be present at night (NSI pop2amo65 > 0), the population least able to evacuate a floodplain, ride out a multi-day winter outage, or repair wind damage without assistance.

Countywide, 1,279 of Union County's 14,561 residential structures — 8.8 percent — are NSI-flagged manufactured or mobile homes. The 2018–2022 American Community Survey (ACS Table B25024) reports 3,830 mobile-home housing units countywide, or 20.5 percent of all housing units. The NSI structure count is a conservative floor (only stand-alone manufactured units that Bing's building-footprint layer resolved), while the ACS housing-unit share is the fuller count; both are reported because they answer different questions (where manufactured homes are physically located vs. how many households live in them). Manufactured-home replacement-value exposure is approximately $89.3 million (NSI). Of the county's 14,561 residential structures, 720 sit in the mapped Special Flood Hazard Area and 150 of those are manufactured homes — the double-exposure population most at risk during a flood event.

### Table 2.7-1 — Vulnerable Housing by Jurisdiction (NSI 2022)

| Jurisdiction | Total res. | Manufactured | % MH | Low-value | In SFHA | MH in SFHA |
|---|---|---|---|---|---|---|
| City of El Dorado | 6,964 | 262 | 3.8% | 1,809 | 103 | 11 |
| Unincorporated Union County | 5,486 | 713 | 13.0% | 469 | 197 | 36 |
| City of Smackover | 713 | 37 | 5.2% | 62 | 27 | 2 |
| City of Strong | 256 | 42 | 16.4% | 83 | 8 | 2 |
| City of Norphlet | 251 | 25 | 10.0% | 21 | 1 | 0 |
| City of Huttig | 248 | 53 | 21.4% | 87 | 0 | 0 |
| City of Junction City | 247 | 46 | 18.6% | 8 | 0 | 0 |
| Town of Felsenthal | 201 | 71 | 35.3% | 78 | 201 | 71 |
| City of Calion | 195 | 30 | 15.4% | 40 | 183 | 28 |
| **Union County Planning Area** | **14,561** | **1,279** | **8.8%** | **2,657** | **720** | **150** |

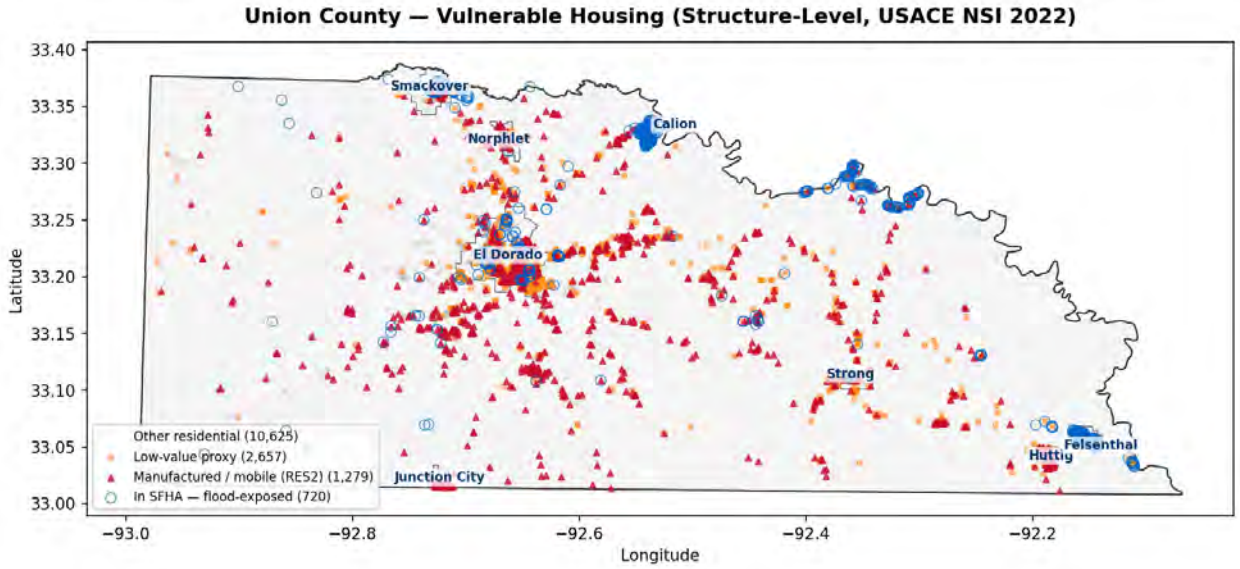


*Figure 2.7-1. Vulnerable housing in Union County at the structure level (USACE National Structure Inventory 2022). Red triangles are manufactured homes (RES2); orange squares are low-value site-built residences (bottom-quintile value); blue rings mark*

*residences in the mapped Special Flood Hazard Area. Manufactured housing concentrates in Felsenthal, Huttig, Junction City, Strong, and Calion at the small-town scale, and in the unincorporated county by absolute count.*

### What the pattern means for Union County's hazards

The manufactured-housing exposure is not evenly distributed. Manufactured homes make up 35.3 percent of residences in Felsenthal, 21.4 percent in Huttig, 18.6 percent in Junction City, 16.4 percent in Strong, and 15.4 percent in Calion — every incorporated city except El Dorado, Smackover, and Norphlet exceeds the countywide 8.8 percent share. Unincorporated Union County carries the largest absolute count at 713 manufactured units (13.0 percent). By contrast, only 3.8 percent of El Dorado's 6,964 residential structures are manufactured. This is why the Tornado, Severe Thunderstorm Wind, Ice Storm, and Earthquake profiles in Section 3 place the highest per-unit life-safety weight on the small towns and the rural county rather than on El Dorado, even though El Dorado carries the largest total population and the largest total replacement-value exposure (see Section 2.6, Critical Facilities and Estimated Replacement Values).

Flood exposure is even more concentrated: the Town of Felsenthal is essentially entirely within the mapped SFHA (201 of 201 residences), and 71 of those are manufactured homes — the highest double-exposure concentration in the planning area and the direct evidence base for Mitigation Action #8 (Eagle Tram Road Flood Mitigation). Calion sits with 183 of 195 residential structures in the SFHA (28 of which are manufactured), Unincorporated Union County has 197 residences in the SFHA (36 manufactured), and El Dorado has 103 residences in the SFHA (11 manufactured, primarily along the flash-flood corridors identified at the November 10, 2022 El Dorado City Council meeting).

Bridge exposure adds a transportation-vulnerability overlay. The FHWA National Bridge Inventory (2024) records 289 bridges in Union County, all over water. Six carry deficiency flags: three in poor condition (minimum component rating ≤ 4) and three scour-critical (item 113 rating ≤ 3). The specific deficient bridges are along US 82 over Lapile Creek (1931), US 82B over Union Pacific Railroad and Jackson Street in El Dorado (1935), AR-7 southbound over Smackover Relief and Smackover Creek (1974), a county road overpass at US 82 near the western county line (1978), and AR-172 over a creek (1986). These bridges are the transportation choke-points during any flood event and are catalogued for the Flooding profile in Section 3.7.

A full jurisdiction-by-jurisdiction breakdown of housing units, manufactured shares, and neighbor-county comparison, together with the tract-level manufactured-homes bar chart, MH-percentage choropleth, and SVI overall-percentile choropleth, is provided in
**Appendix F — Housing Vulnerability (standalone document, delivered alongside the plan).**

*Source: USACE National Structure Inventory (NSI 2022), tagged to jurisdiction via the effective Union County FIRM (DFIRM 05139C) political-area boundaries; U.S. Census Bureau American Community Survey 2018–2022 Table B25024 (Units in Structure); FHWA National Bridge Inventory 2024. "Composite vulnerable" = manufactured or bottom-quintile structure value.*

# SECTION 3: HAZARD IDENTIFICATION AND RISK ASSESSMENT

## 3.1 Jurisdiction Vulnerability Baseline

The following table establishes the baseline profile for each jurisdiction. Population figures are from the 2020 U.S. Census. This data is the foundation for all per-jurisdiction vulnerability narratives throughout Section 3.

**Table 3.1 -- Union County Planning Area: Jurisdiction Profile**

| Jurisdiction | 2020 Pop. | 2010 Pop. | Change | Area (sq mi) | Elevation | Mfg. Housing Risk | NFIP Status | CID |
|---|---|---|---|---|---|---|---|---|
| Union County (uninc.) | ~19,000 est. | ~20,000 est. | -5% | ~680 | 65-361 ft | High (rural) | Member | 050205 |
| Calion | 438 | 494 | -11% | 1.33 | 89 ft | Moderate | Member | 050206 |
| El Dorado | 17,826 | 18,884 | -6% | 16.21 | 269 ft | Low-Moderate | Member | 050207 |
| Felsenthal | 51 | 152 | -66% | 1.66 | 82 ft | High | Member | 050574 |
| Huttig | 448 | 597 | -25% | 0.96 | 361 ft | High | Member | 050208 |
| Junction City | 681 | 581 | +17% | 1.14 | 194 ft | High | NOT MEMBER | N/A |
| Norphlet | 642 | 844 | -24% | 2.04 | 180 ft | High | Member | 050356 |
| Smackover | 1,665 | 1,865 | -11% | 4.35 | 121 ft | Moderate | Member | 050209 |
| Strong | 453 | 558 | -19% | 1.11 | 98 ft | High | Member | 050210 |

**School Districts:**

| District | Approx. Enrollment | Primary Campus Location | Jurisdiction | Superintendent (FY26) |
|---|---|---|---|---|
| El Dorado School District | ~3,800 | El Dorado | El Dorado | Supt. James Tucker |
| Junction City School District | ~700 | Junction City | Junction City | Supt. Melanie Mason |
| Parkers Chapel School District | ~600 | El Dorado (rural) | Unincorporated | Supt. Jana L. Young |
| Smackover-Norphlet School District | ~1,100 | Smackover / Norphlet | Smackover / Norphlet | Supt. Douglas Smith |
| Strong-Huttig School District | ~500 | Strong / Huttig | Strong / Huttig | Supt. Veronica Perkins |

**National Risk Index (NRI) Data -- Union County, AR**

The following Expected Annual Loss (EAL) figures are from the FEMA National Risk Index (NRI) for Union County, Arkansas (hazards.fema.gov/nri). Union County's overall NRI Risk Score is 53.88 (Relatively Low) with a total Expected Annual Loss of **$12,600,026.96** annually across all hazards.

| Hazard (NRI Category) | Expected Annual Loss | NRI Rating |
|---|---|---|
| Inland Flooding | $4,862,520.78 | Relatively Low |
| Ice Storm | $1,856,413.42 | **Very High** |
| Tornado | $1,780,703.59 | Relatively Low |
| Heat Wave | $1,398,804.56 | Relatively Low |
| Earthquake | $930,214.85 | Relatively Low |
| Strong Wind | $882,381.66 | Relatively Moderate |
| Lightning | $291,765.17 | Relatively Low |
| Hail | $230,428.56 | Relatively Low |
| Cold Wave | $176,427.69 | Relatively Low |
| Hurricane | $138,659.82 | Relatively Low |
| Winter Weather | $20,392.70 | Relatively Low |
| Drought | $21,576.37 | Very Low |
| Wildfire | $8,848.45 | Very Low |
| Landslide | $889.32 | Very Low |
| **TOTAL** | **$12,600,026.96** | Relatively Low (Overall) |

**Key NRI Finding:** Ice Storm carries the only "Very High" NRI rating in Union County's entire hazard profile. At $1,856,413.42 in Expected Annual Loss, it is validated by the December 12, 2000 ice storm that caused $40,000,000 in recorded property damage in a single event -- the largest loss event in Union County's modern recorded history (NOAA Storm Events Database). Flooding is the single highest-dollar EAL hazard at $4,862,520.78, representing 38.6% of the county's total NRI Expected Annual Loss.

Note on Heat Wave: The planning committee chose not to profile extreme heat as a standalone hazard in this plan cycle. Documented rationale: Union County's population skews adult and working-age; South Arkansas Regional Hospital provides 24-hour heat-illness medical response; the Union County Health Unit and City of El Dorado operate public cooling centers during extreme heat advisories; air conditioning is the standard residential protective measure across the rural and urban county; and natural hazard grant funding through HMGP and BRIC has more direct application to the county's structural hazards (tornado safe rooms, flood drainage, dam inundation studies). Extreme heat emergency response is addressed under the Union County Emergency Operations Plan. The planning committee will revisit extreme heat profiling during the next five-year plan update. (Full rationale in Section 3.2.)

Full NRI data is provided in Appendix D.

## 3.2 Hazard Identification and Prioritization

The Union County Hazard Mitigation Planning Committee identified and reviewed all natural hazards applicable to the planning area. The following hazards were selected for full profiling based on historical occurrence, documented damage, and the potential for future losses:

**Profiled Hazards (Full A-G Analysis):**

11. Dam Failure
12. Drought
13. Earthquake
14. Flooding (Riverine and Flash Flooding)
15. Thunderstorms and Severe Storms
16. Tornado
17. Wildfire
18. Winter Storms

**Hazards Considered but Not Profiled:**

*Extreme Heat:* The planning committee reviewed extreme heat as a potential hazard for formal profiling. Union County's summer temperatures regularly exceed 95°F, with NOAA records showing temperatures above 100°F during drought years. The FEMA National Risk Index reports a Heat Wave Expected Annual Loss of $1,398,804.56 for Union County — the 4th-highest EAL in the county's hazard profile.

The committee determined that extreme heat is not profiled as a standalone hazard in this plan cycle for the following documented reasons: (1) Union County's population is predominantly adult and working-age, with lower proportions of the highest-heat-vulnerable populations (elderly 65+ and infants under 2) than state averages; (2) South Arkansas Regional Hospital provides 24-hour medical response for heat illness; (3) the Union County Health Unit and City of El Dorado operate public cooling centers during extreme heat advisories; (4) the county's rural residential pattern means air conditioning is the primary protective measure, and no public building stock improvements are required; and (5) natural hazard grant funding through HMGP and BRIC has more direct application to the county's structural hazards (tornado safe rooms, flood drainage, dam inundation studies). Extreme heat emergency response is addressed under the Union County Emergency Operations Plan. The planning committee will revisit extreme heat profiling during the next five-year plan update.

*Landslide:* Union County's relatively flat to gently rolling terrain does not present significant landslide or mass movement hazard. No landslide events have been recorded in the county. The NRI landslide EAL is $889.32, the lowest in the county profile.

*Coastal/Tsunami:* Not applicable. Union County is an inland county.

*Pandemic:* Public health emergencies are addressed through the Union County Emergency Operations Plan and Arkansas Department of Health protocols and are outside the scope of this natural hazard mitigation plan.

**Hazard Prioritization Summary:**

Probability definitions used in the summary table below: **Very High** = >90% chance in any given year; **High** = 50–90% chance in any given year; **Moderate** = 10–50% chance in any given year; **Low** = <10% chance in any given year. See individual hazard profiles in Sections 3.4–3.11 for quantitative probability calculations (events per year, annualized rates).

| Hazard | Probability | Magnitude | Geographic Extent | Warning Time | Overall Priority |
|---|---|---|---|---|---|
| Flooding | High | High | Partial to Significant | Long to Short | **Very High** |
| Tornado | High | High | Partial | Short | **Very High** |
| Thunderstorm/Severe Storm | Very High | Moderate | Countywide | Short | **High** |
| Winter Storm | High | Moderate | Countywide | Long | **High** |
| Dam Failure | Low | Very High | Partial | Short | **High** |
| Drought | Moderate | Moderate | Countywide | Long | **Moderate** |
| Earthquake | Low | Moderate | Countywide | None | **Moderate** |
| Wildfire | Low | Moderate | Partial | Moderate | **Moderate** |

## 3.3 Risk Assessment Methodology

For each profiled hazard, the planning committee conducted a risk assessment following the FEMA Local Mitigation Planning Handbook structure. The seven-element structure (A through G) was applied:

- **A: Description** -- What is this hazard and how does it cause damage?
- **B: Location and Extent** -- Where does this hazard occur and what is its maximum potential magnitude?
- **C: Previous Occurrences** -- What documented events have occurred in the planning area?
- **D: Probability of Future Events** -- How likely is a future event?
- **E: Vulnerability and Impact by Jurisdiction** -- Which specific assets, populations, and facilities in each jurisdiction are at risk, and how does vulnerability differ across jurisdictions?
- **F: Estimated Potential Loss** -- What is the estimated economic and life-safety impact of a future event?
- **G: Data Deficiency** -- What data gaps limit the risk assessment?

Hazard definitions and descriptions throughout Section 3 are drawn from the SCIPP Simple Planning Tool for Climate Hazards, v2.0 (2024), produced by the Southern Climate Impacts Planning Program (SCIPP) at the University of Oklahoma. Each hazard's Description sub-section opens with the SCIPP-cited definition (NWS, USGS, USSD, or AMS as the original source) followed by SCIPP's descriptive paragraph(s) and a Union County-specific application paragraph. Suggested citation: SCIPP, 2024: Simple Planning Tool for Climate Hazards, v 2.0. Southern Climate Impacts Planning Program, University of Oklahoma. Available online at https://scipp.ncdc.noaa.gov/.

**Primary Data Sources:**

- NOAA Storm Events Database (2000-2025), Union County, Arkansas
- FEMA Flood Insurance Rate Maps (FIRMs), Union County
- FEMA National Risk Index (NRI), Union County, AR
- U.S. Census Bureau, 2020 Decennial Census
- USGS Earthquake Hazards Program, 1950-2025
- USDA wildfirerisk.org
- NWS Advanced Hydrologic Prediction Service (AHPS), gauges FELA4 and CAMA4

- FEMA National Inventory of Dams (NID), accessed January 2026
- OpenFEMA Disaster Declarations Summaries v2, Union County (FIPS 05139)
- Union County OEM and local knowledge

## 3.4 Dam Failure

### A. Description

**Catastrophic type of failure characterized by the sudden, rapid, and uncontrolled release of impounded water or the likelihood of such an uncontrolled release. It is recognized that there are lesser degrees of failure and that any malfunction or abnormality outside the design assumptions and parameters that adversely affect a dam's primary function of impounding water is properly considered a failure. These lesser degrees of failure can progressively lead to or heighten the risk of a catastrophic failure. They are, however, normally amenable to corrective action (USSD 2018).**

Dams help address the complex challenge of controlling and distributing water. They have been recognized as a key water management practice dating back to early civilizations of the Americas, ancient Egypt, and China. As water is a part of the hydrologic cycle, dams work to conserve water through reservoirs to prohibit flow back to the ocean. With the advancement of civilization and a growing population, water withheld in such reservoirs are an integral part of society and is a necessary source for energy, drinking water, irrigation practices, etc. Dams also protect areas of development and civilization from floods through flood control measures. Dam safety and maintenance standards have increased over time. (SCIPP, 2024)

In Union County, the FEMA National Inventory of Dams (NID) lists 18 dams. These range from a privately owned earthen impoundment with a High Hazard Potential classification (Arnoname 55, AR00605, the county's only HHPD) to two federal USACE-operated lock and dam structures rated as Significant Hazard (Felsenthal Lock and Dam, H.K. Thatcher Lock and Dam). The remaining 15 are Low Hazard structures. The High Hazard Potential dam requires a detailed profile under 2025 FEMA standards; the Significant Hazard federal structures are addressed in aggregate, and the Low Hazard dams are acknowledged collectively.

### B. Location and Extent

#### *High Hazard Potential Dam: Arnoname 55*

The only High Hazard Potential (HHPD) dam in Union County is Arnoname 55 (NID Federal ID: AR00605). Its classification as "High" means failure could result in probable loss of human life, making it the highest-priority dam infrastructure in the planning area.

| Field | Value |
|---|---|
| NID Federal ID | AR00605 |
| Dam Name | Arnoname 55 |
| County | Union County, Arkansas |
| Owner | Olinkraft Inc. |
| Owner Type | Private |
| Primary Dam Type | Earthen |

| | |
|---|---|
| Primary Purpose | Recreation |
| Additional Purpose | Water Supply |
| Year Completed | 1924 |
| NID Height | 10 feet |
| NID Storage | 170 acre-feet |
| Hazard Potential Classification | **High** |
| Condition Assessment | Not Rated |
| EAP Status | Not Required |
| Last Inspection Date | No record on file |
| Inspection Frequency | No data |
| State Regulated | No |
| State Jurisdictional | No |
| Federal Involvement | None |
| Coordinates | Not recorded in NID |

**Data Limitations (HHPD2-b):** No inspection history is on record in the NID. The dam's condition is rated "Not Rated" -- meaning no structural condition assessment is available in the public record. Arnoname 55 falls outside state regulatory jurisdiction and has no federal oversight. No coordinates, dam length, spillway type, or drainage area are recorded. Under FEMA's 2025 policy (HHPD2-b), the plan may document data deficiencies in lieu of actual structural data where such data is not publicly available. The data gaps listed above are explicitly cited as the data deficiency for this hazard profile. In accordance with 44 CFR Part 61, Appendix A(1), Article 5, and the 2025 Local Mitigation Planning Policy Guide (HHPD2-b), this plan documents the identified data deficiencies for Arnoname 55 in lieu of actual structural and inundation data, as such data is not available in any public record at the time of plan preparation. The Union County OEM will contact Olinkraft Inc. within six months of plan adoption to request available structural data and will incorporate any findings into the annual review record.

**Jurisdiction exposure for Arnoname 55:** The dam's private recreational and water supply impoundment means that in the event of failure, the downstream inundation footprint would need to be assessed. Given its 10-foot height and 170 acre-foot storage, downstream flooding could affect rural areas in its immediate drainage corridor. A downstream inundation study has not been completed.

### *Significant Hazard Dams: USACE-Operated Structures*

Two federally operated lock and dam structures on the Ouachita River carry a Significant Hazard classification. They are regulated under federal dam safety programs and do not fall under state jurisdiction. Detailed profiling is not required for basic plan approval -- a brief acknowledgment is appropriate.

| Dam | NID ID | Operator | Hazard | Location |
|---|---|---|---|---|
| Felsenthal Lock and Dam | AR01514 | USACE, Vicksburg District | Significant | Southern Union County, near Columbia/Union |

| | | | | |
|---|---|---|---|---|
| | | | | County line |
| H.K. Thatcher Lock and Dam | AR01515 | USACE, Vicksburg District | Significant | Central Union County, between Smackover and El Dorado |

**Felsenthal Lock and Dam:** Normal pool is approximately 65 feet above mean sea level. Flood stage at the NWS upper gauge (FELA4) is 79 feet; flood stage at the USACE lower gauge (CZ503DD8, at river mile 226.9) is 70 feet (NGVD29 datum). The record crest at the upper gauge is 85.43 feet, recorded March 11, 2018 -- approximately 20 feet above normal pool. This event caused significant riverine flooding throughout the lower Ouachita River corridor without constituting a structural dam failure, demonstrating that extreme precipitation alone can drive pool levels to life-threatening elevations at Felsenthal. The USACE Vicksburg District maintains these structures under the federal dam safety program with regular safety inspections.

**USACE Vicksburg District gauge data (Ouachita River @ Felsenthal Lock & Dam, Lower, station CZ503DD8):** Flood stage at this gauge is 70.00 ft (NGVD29 datum); the gauge sits at river mile 226.9 upstream from the mouth of the Black River. In calendar year 2021, the river exceeded flood stage on multiple occasions, with the highest reading of **76.96 ft on March 13, 2021** — approximately 7 ft above flood stage. Stage readings remained above 70 ft for approximately 17 days during March 2021, and additional April 2021 readings of 73.60 ft were recorded. While these 2021 readings did not approach the March 2018 record of 85.43 ft at the upper FELA4 gauge, they confirm that the Ouachita River at Felsenthal exceeds flood stage on a recurring (multi-year) basis even outside major storm events. The 2021 stage record is documented in the USACE Vicksburg District Water Control Center daily stage report (CZ503DD8, 2021 calendar year). Felsenthal residents and infrastructure along Eagle Tram Road remain exposed to repeated multi-day flood-stage exceedances of this magnitude.

**HK Thatcher Lock and Dam:** Located in central Union County, this structure impounds the Ouachita River in the Smackover area. It is also USACE-operated under the federal dam safety program.

For structural data on USACE structures, contact the USACE Vicksburg District. A full inundation zone study under failure conditions has not been completed for either USACE structure.

### *Low Hazard Dams (15 structures, aggregate)*

The following 15 dams in Union County carry a Low Hazard classification, meaning failure would result in no probable loss of human life. These structures are located in non-populated pasture or forested areas:

Lock and Dam No. 6, Lock and Dam No. 8, Anthony Lake Dam, Arnoname 50, Lake Calion Dam, Sowell Lake Dam, Lewis Lake Dam, Harris Lake Dam, Lake Lisbon Dam, Harper Reservoir Dam, Lake Wingfield No. 1, Lake Wingfield No. 2, Lake Wingfield No. 3, J.S. New's Dam (Arnoname 49), Arnoname 56.

By definition, failure of Low Hazard dams results in no probable loss of human life. These structures require no detailed profiling.

**Summary:**

- Total NID-listed dams: 18
- High Hazard Potential (detailed profile required): 1 -- Arnoname 55 (AR00605)

- Significant Hazard (federal structures, brief acknowledgment): 2 -- Felsenthal Lock and Dam; HK Thatcher Lock and Dam
- Low Hazard (aggregate acknowledgment only): 15

### *Levee Systems*

Union County does not contain any USACE-cataloged federal levee systems. A query of the USACE National Levee Database (NLD) for Union County returned zero levee-system records at the time of plan preparation. The FEMA National Flood Hazard Layer (NFHL) for Union County identifies three minor levee centerline features (two around Calion Lake and one along Lapile Creek) that were noted during the county's flood insurance study; none carry a published owner, accreditation status, construction date, or protected area or population in the NFHL S_LEVEE layer, and none rise to the level of a USACE-cataloged levee system. Levee failure is not profiled as a distinct hazard scenario for Union County because there are no formal levee systems whose failure would produce a documented protected-area inundation event. Where a formal levee system exists in a neighboring jurisdiction and its failure would affect the Ouachita River corridor within Union County, that risk is captured under the dam-failure and flooding profiles (Sections 3.4 and 3.7) rather than as a separate levee-failure profile.

## C. Previous Occurrences

No dam failure events have been recorded in Union County. The Felsenthal Lock and Dam experienced a significant pool elevation of 85.43 feet in March 2018, approximately 20 feet above the normal pool of 65 feet. This event caused riverine flooding throughout the lower Ouachita River corridor but did not constitute a structural dam failure. The event demonstrates that extreme precipitation can drive pool levels well above normal operating range and that Felsenthal -- at an elevation of approximately 82 feet -- can be reached by pool levels without any structural failure occurring.

## D. Probability of Future Events

Due to no recorded dam failure events, probability cannot be calculated from historical data. The USACE maintains the two Significant Hazard structures with regular federal safety inspections. Arnoname 55 (High Hazard) has no inspection record, no condition assessment, and no state or federal regulatory oversight -- representing an unknown but potentially elevated risk. The probability of a catastrophic dam failure is considered Low for the USACE structures and Unknown/Indeterminate for Arnoname 55 given the complete absence of inspection data.

## E. Vulnerability and Impact by Jurisdiction

**Felsenthal (Pop. 51, Elev. 82 ft):** Felsenthal is the most dam-failure-vulnerable community in the planning area and in all of Southwest Arkansas PDD's 12-county region. The town sits at approximately 82 feet elevation directly adjacent to the Felsenthal Lock and Dam. The March 2018 high-water event demonstrated that the pool can already exceed Felsenthal's ground elevation (85.43 ft pool vs. 82 ft town elevation) under extreme but non-failure conditions. A structural failure at Felsenthal Lock and Dam would produce immediate and severe inundation with virtually no warning time. Eagle Tram Road -- one of only two access routes into Felsenthal -- floods during routine high-water events; dam failure would render both routes impassable, completely isolating all 51 residents. The community has no local emergency response capability

and is entirely dependent on external resources. Pre-event evacuation is the only viable life-safety response for Felsenthal residents in a dam failure scenario.

**Smackover (Pop. 1,665, Elev. 121 ft):** Smackover is located in proximity to the HK Thatcher Lock and Dam on the Ouachita River. Areas adjacent to the Ouachita River floodplain in Smackover could experience inundation under a failure scenario. The city's elevation of 121 feet provides a buffer, but the precise inundation boundary under failure conditions is unknown without a formal inundation study. Smackover's municipal water infrastructure along the Ouachita River corridor would be at risk.

**Union County (Unincorporated):** Rural areas along the Ouachita River corridor between Smackover and the southern county line would face the greatest geographic exposure to dam failure inundation. Rural residents in manufactured housing in the Ouachita River bottom land would have limited warning time and limited self-evacuation capability. Emergency access routes along Highway 82 and Highway 7 in the Ouachita corridor would be affected.

**El Dorado (Pop. 17,826, Elev. 269 ft):** El Dorado sits approximately 10-15 miles upstream from the HK Thatcher Lock and Dam at a significantly higher elevation. Direct inundation risk from a dam failure at Thatcher is low. However, South Arkansas Regional Hospital -- the county's only hospital -- depends on regional transportation corridors that could be compromised during a dam failure and associated flooding event.

**Calion (Pop. 438, Elev. 89 ft), Huttig (Pop. 448, Elev. 361 ft), Junction City (Pop. 681, Elev. 194 ft), Norphlet (Pop. 642, Elev. 180 ft), Strong (Pop. 453, Elev. 98 ft):** These communities are located away from the primary Ouachita River dam inundation corridor and face lower direct risk from dam failure at either USACE structure. Regional highway closures caused by downstream flooding could affect emergency access and school bus routes.

**School Districts:** School campuses are not located within the documented Ouachita River SFHA. Bus routes in the Ouachita River bottom land could be disrupted by dam failure-related flooding.

## F. Estimated Potential Loss

Due to the absence of inundation zone studies for the USACE structures and structural data for Arnoname 55, a quantified loss estimate cannot be provided at this time. This is an identified data deficiency addressed by Mitigation Action #1. The FEMA NRI incorporates dam failure risk within its Inland Flooding EAL of $4,862,520.78 for Union County. See Appendix D.

## G. Data Deficiency

Three categories of data deficiency apply to this hazard:

19. **Arnoname 55:** No inspection history, no condition assessment, no coordinates, no inundation zone study. The dam falls outside all state and federal regulatory jurisdiction. Data deficiency documented per HHPD2-b.
20. **USACE Structures:** Downstream inundation zone studies have not been completed for either Felsenthal Lock and Dam or HK Thatcher Lock and Dam under failure conditions. Contact the USACE Vicksburg District for any available inundation modeling.

21. **Emergency Action Plans:** No EAP exists for Arnoname 55 (EAP Status: Not Required per current NID classification). The absence of an EAP means there is no pre-scripted notification sequence for downstream communities. Mitigation Action #1 addresses these deficiencies directly.

### Element G: High Hazard Potential Dams (HHPD1-HHPD4)

This subsection satisfies Element G of the FEMA Local Mitigation Planning Policy Guide, required for eligibility under FEMA's High Hazard Potential Dam (HHPD) Rehabilitation Grant program. Union County contains one High Hazard Potential dam: Arnoname 55 (AR00605).

**HHPD1 — Coordination and information sharing.** The planning committee identified and characterized the single High Hazard Potential dam using the authoritative USACE National Inventory of Dams record for AR00605, documented in the field table in Section 3.4 B above. Arnoname 55 is owned by Olinkraft Inc. (private owner) and falls outside state and federal regulatory jurisdiction; the dam is not currently monitored under the Arkansas Dam Safety Program or any federal safety inspection program. The Union County OEM will initiate coordination with Olinkraft Inc. within six months of plan adoption to request available structural data, EAP status, and any private inspection records. Downstream jurisdictions and property owners in the dam's estimated inundation corridor will be identified through the inundation study procured under Mitigation Action #1 and notified through the coordination process.

**HHPD2 — Risk and vulnerability (to and from the dam), methodology, and limitations.** Arnoname 55 is classified High Hazard because a failure is expected to threaten life downstream. Risk from the dam is the flood surge that a structural failure would send into rural areas in the immediate drainage corridor. Risk to the dam is aging infrastructure combined with the absence of any inspection history: the 1924 earthen structure has no condition assessment on record, no EAP required in the NID, and no last inspection date on file. Methodology: per-jurisdiction vulnerability is expressed through the narrative in Section 3.4 E and the loss estimate in Section 3.4 F. **Data limitations under HHPD2-b (documented per policy):** no downstream inundation mapping, no structural condition assessment, no coordinates on file, no dam length or spillway data, and no drainage-area computation. In accordance with 44 CFR Part 61, Appendix A(1), Article 5, and the 2025 Local Mitigation Planning Policy Guide (HHPD2-b), this plan documents these identified data deficiencies for Arnoname 55 in lieu of actual structural and inundation data, as such data is not available in any public record at the time of plan preparation.

**HHPD3 — Goal to reduce HHPD vulnerability.** Reducing the risk posed by Arnoname 55 (the county's only High Hazard Potential dam) and by the two Significant Hazard USACE structures (Felsenthal Lock and Dam, HK Thatcher Lock and Dam) is addressed under Goal 1 (Life Safety — Protect Human Life from Natural Hazards) and Goal 4 (Infrastructure Resilience — Protect Critical Facilities and Infrastructure) in Section 4.1. Goal 4, Objective 4B specifically commits to complete inundation zone studies for the Felsenthal Lock and Dam and HK Thatcher Lock and Dam within five years, and Objective 4C commits to develop a dam-failure emergency action plan in coordination with the USACE and the owner of Arnoname 55.

**HHPD4 — Actions, prioritization criteria, and responsible party.** The plan carries Mitigation Action #1 (Dam Inundation Studies, Section 4.4): the Union County OEM (lead), Southwest Arkansas PDD (technical support), the USACE Vicksburg District, and Olinkraft Inc. (Arnoname 55 owner) will coordinate to (a) complete downstream inundation zone studies for the Felsenthal Lock and Dam and HK Thatcher Lock and Dam under failure conditions; (b) request Arnoname 55 structural data, condition assessment, and Emergency Action Plan from Olinkraft Inc.; and (c) integrate dam-failure inundation exposure into future annual plan-review

cycles. Prioritization criteria applied to Mitigation Action #1: dam hazard-potential classification (High priority for Arnoname 55; Significant for USACE structures), documented life-safety exposure (Felsenthal's 51 residents at 82 ft ground elevation vs. the March 2018 pool crest of 85.43 ft), and grant-funding eligibility (FEMA HHPD Rehabilitation Grant program for High Hazard Potential dam work; USACE Section 205 for the federal structures). The action is Priority: High with a 5-year time frame. Responsible party lead: Union County OEM Coordinator (Bruce Goff).

## 3.5 Drought

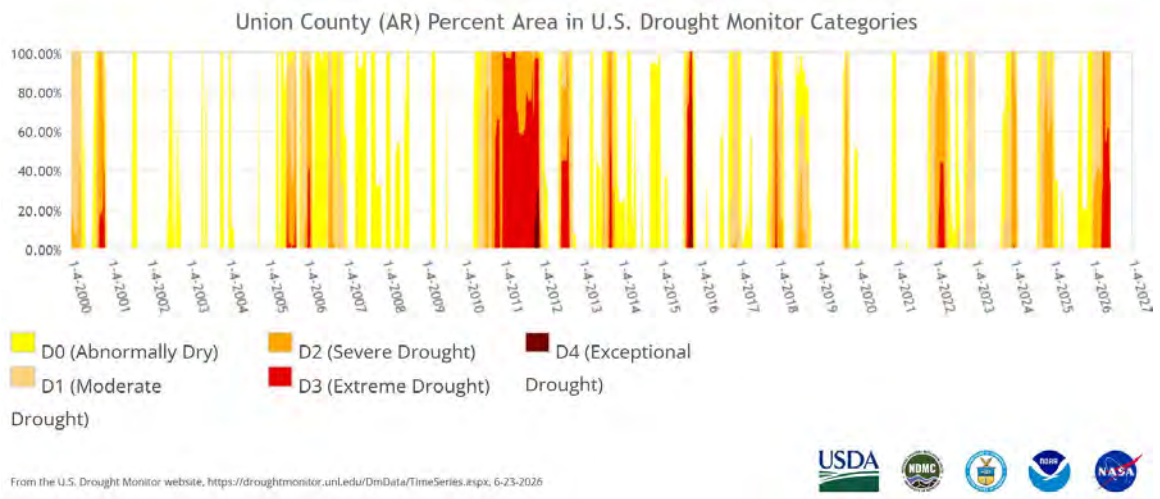


*Figure 2. U.S. Drought Monitor time series for Union County, 2000–2025. Bars show weekly percent of county area at each drought severity (D0–D4); the 2012 exceptional drought (D4) is the most severe event in the period of record. (Source: NOAA NCEI / U.S. Drought Monitor via SCIPP.)*

### A. Description

**A deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area (NWS 2009).**

Drought impacts vary based on the duration and intensity of the event. A few dry weeks may affect crops and lawns, while droughts lasting months or years may significantly impact large water resources. At its extreme, nearly decade-long droughts may lead to farm and business foreclosures and mass migration. Some conditions that may lead to drought development include a large-scale, stationary high-pressure system which inhibits precipitation, feedback from dry soils accelerating warming of the air, La Niña which displaces jet streams, or large-scale ocean circulations in the Pacific and Atlantic Oceans. Droughts may happen in any location and at any time of year. Impacts often become severe more quickly for drought occurring during the summer, when evaporative loss is high; however, slower-evolving droughts in the fall and winter can have tremendous economic impacts on winter crops and livestock. Droughts are more frequent in areas where annual evaporation may exceed annual precipitation.

Drought is rated by the weekly U.S. Drought Monitor on a scale from D0 (abnormally dry) to D4 (exceptional drought). D0 occurs, on average, in any given location about 21-30% of the time. D1, moderate drought, occurs on average 11-20% of the time, or roughly once every 5-10 years. D2, severe drought, occurs 6-10% of the time, or about every 10-20 years. D3, extreme drought, occurs 3-5% of the time, and D4, exceptional

drought, occurs 0-2% of the time, or about every 50 years. Severity is based upon a variety of drought indicators, impacts, and input from local experts. (SCIPP, 2024)

In Union County, drought is a countywide hazard with no geographic boundary within the planning area. All participating jurisdictions are subject to drought conditions when below-normal precipitation persists. The most significant drought in Union County's recent history was the 2012 exceptional drought (D4), with additional significant periods recorded in 2017–2018, 2022, and 2024. Rural communities with small water systems lack supply redundancy and are particularly vulnerable during extended drought events.

## B. Location and Extent

Drought is a countywide hazard with no geographic boundary within the planning area. All jurisdictions are subject to drought conditions when below-normal precipitation persists. Palmer Drought Severity Index (PDSI) values below -2.0 indicate moderate drought; values below -3.0 indicate severe drought. The most significant drought in Union County's recent history was the 2012 drought, characterized as an exceptional drought (D4).

## C. Previous Occurrences

NOAA Storm Events Database records 37 drought months for Union County across the 2000-2025 period. Significant drought periods include:

| Period | Drought Classification | Duration | Documented Impact |
|---|---|---|---|
| 2024 | Moderate to Severe (D2) | 2-4 months | Agricultural stress; increased wildfire risk |
| 2022 | Severe Drought (D2) | 3-5 months | Agricultural losses; low streamflows |
| 2017-2018 | Moderate to Severe (D1-D2) | 4-8 months | Streamflow reductions; agricultural impacts |
| 2012-2013 | Exceptional Drought (D4) | 8-12 months | Agricultural losses statewide; most severe recent drought |
| 2010-2011 | Extreme Drought (D3) | 3-6 months | Crop losses; water conservation orders in portions of southern Arkansas |

Union County and south-central Arkansas experience drought conditions (D1 or above) in approximately 20-30% of years based on the 2000-2025 record.

## D. Probability of Future Events

- Probability of at least a moderate drought (D2) in any 5-year period: High (approximately 70-80%)
- Probability of an exceptional drought (D4) in any 5-year period: Low (approximately 15-20%)
- Overall annual drought probability: Moderate

## E. Vulnerability and Impact by Jurisdiction

Drought affects all jurisdictions, but vulnerability differs significantly based on land use, water supply infrastructure, and economic dependence on agriculture.

**Union County (Unincorporated):** The unincorporated county faces the highest drought vulnerability. Approximately 52.1% of county residents live in rural areas relying on private wells, rural water systems, and surface water sources directly affected by drought conditions. Union County's agricultural economy -- including livestock, row crops, and timber production -- makes drought the most economically damaging of the county's non-structural hazards. Rural residents on private wells may face water quality problems as aquifer levels drop during extended drought. The county's approximately 680 square miles of rural and forested land also faces increased wildfire risk during drought conditions, particularly in Wildland-Urban Interface zones in the southern and western portions of the county near the Felsenthal National Wildlife Refuge.

**El Dorado (Pop. 17,826):** El Dorado's municipal water system is less immediately vulnerable to drought than rural areas. However, extended drought could stress the water supply sources serving the El Dorado system. South Arkansas Regional Hospital and other critical facilities maintain public water service but would be affected by a regional water supply crisis. El Dorado's status as the regional economic center means that drought-related agricultural disruption throughout the county has downstream effects on the city's tax base and service-sector employment.

**Felsenthal (Pop. 51):** Felsenthal is a small community with limited municipal water infrastructure. Drought conditions affecting the Ouachita River system could create water quality and supply challenges. The community's small size and limited resources mean there is essentially no redundancy in water supply.

**Calion (Pop. 438, Elev. 89 ft):** Located along the Ouachita River floodplain in northern Union County, Calion's water supply could be affected during extended drought when Ouachita River levels drop significantly. The city's limited staff capacity means drought response coordination falls to the water superintendent and county OEM.

**Huttig (Pop. 448), Junction City (Pop. 681), Norphlet (Pop. 642), Smackover (Pop. 1,665), Strong (Pop. 453):** These smaller communities operate independent municipal water systems. Their drought vulnerability is primarily related to water source reliability and distribution system pressure maintenance. School campuses in each of these communities face potential closure if water service is interrupted. Communities drawing from surface water sources are more immediately affected than those using groundwater wells.

**School Districts:** School districts rely on municipal water service in their respective jurisdictions. Extended drought resulting in water service interruption would require school closure. School districts do not have independent water supply capabilities.

While the entire planning area is at risk from the economic effects of drought, rural areas, small communities, and agricultural operations face earlier and more severe drought impacts than urbanized areas with established water system infrastructure.

## F. Estimated Potential Loss

The 2012 drought caused an estimated $2.86 billion in agricultural losses statewide in Arkansas (USDA). County-level loss attribution is not available from NOAA Storm Events Database for drought. Agricultural losses in Union County during significant drought years are estimated in the millions of dollars, but specific damage totals are not readily available from public data sources. The FEMA NRI reports an Expected Annual

Loss for drought of **$21,576.37** (Very Low NRI rating). This relatively low figure reflects that drought impacts are primarily agricultural and economic rather than structural, and the NRI building loss model significantly underrepresents agricultural losses. Union County's actual agricultural drought exposure, as evidenced by the 2012 exceptional drought (D4) affecting the entire county, exceeds the NRI figure substantially.

### G. Data Deficiency

Specific quantified loss data for drought events in Union County is limited. NOAA Storm Events Database does not record individual drought events with dollar figures for Union County. A more precise loss estimate would require cooperation with the Union County Farm Service Agency (FSA) to obtain agricultural disaster payment data.

## 3.6 Earthquake

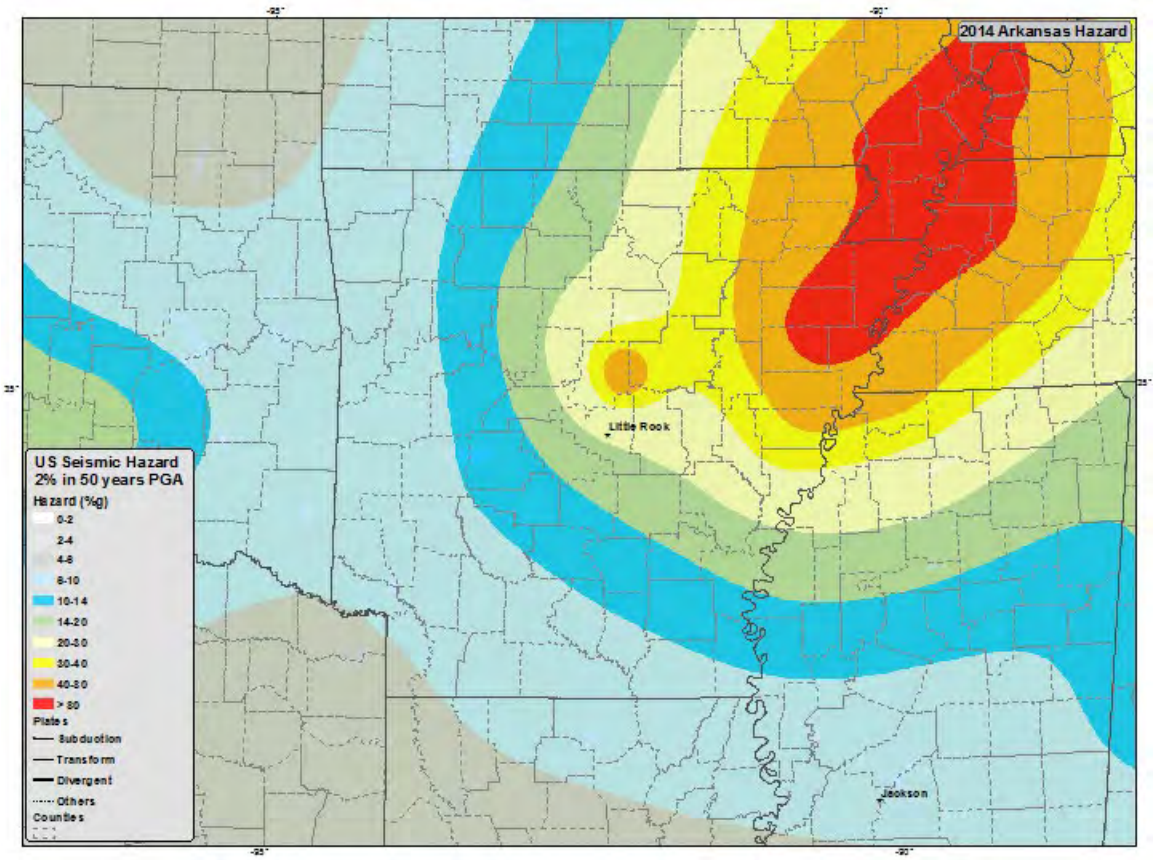


*Figure 3. Arkansas seismic hazard — peak ground acceleration with 2% probability of exceedance in 50 years (USGS 2014). Union County in south-central Arkansas is in a lower-acceleration zone than the New Madrid Seismic Zone in northeast Arkansas, but a regional NMSZ event remains the planning-basis seismic risk.*

### A. Description

**A sudden slip on a fault, with resulting ground shaking and radiated seismic energy caused by the slip, or by volcanic or magmatic activity, or other sudden stress changes in the earth (USGS 2018).**

Earthquakes occur from the sudden release of stress in the Earth's crust. Stress is built up by the motion of tectonic plates. Stress may also be built up through the injection of fluids. During an earthquake, rocks on either side of a fault line move either horizontally or vertically. This movement creates three types of waves: Primary, Secondary, and Rayleigh waves. Primary waves spread outward from the epicenter (source of the fracture) as compression, like a spring. Secondary waves vibrate at right angles to the direction of travel; these are the most damaging. Rayleigh, or surface, waves move vertically, giving an undulating motion. While strong earthquakes are not common in Arkansas, the state is positioned over the New Madrid fault line. An earthquake caused by the New Madrid fault, situated in the Mississippi Valley, would greatly impact Arkansas. Earthquake intensity is measured on the Moment Magnitude Scale. Each point represents a 10-fold increase in the wave amplitude and a 32-times increase in energy release. (SCIPP, 2024)

In Union County, the planning area lies within the regional influence of the New Madrid Seismic Zone (NMSZ), one of the most seismically active regions in the continental United States, capable of producing earthquakes of magnitude 7.0 or greater. The USGS earthquake catalog for Union County documents 13 events of magnitude 2.0 or greater since 1950, with the largest being a magnitude 3.2 event near Junction City in 1994. No damaging earthquake events have been recorded in Union County. Some induced seismicity may be associated with historical oil and gas operations near El Dorado, but the primary planning-basis seismic risk is a regional NMSZ scenario event.

Earthquake intensity at a specific location is described using the Modified Mercalli Intensity (MMI) scale:

- **MMI V (Moderate):** Felt by nearly everyone; some dishes and windows broken
- **MMI VI (Strong):** Felt by all; furniture moved; slight damage in ordinary buildings
- **MMI VII (Very Strong):** Slight to moderate damage in well-built ordinary buildings
- **MMI VIII (Severe):** Considerable damage in ordinary substantial buildings; collapse of poorly built structures
- **MMI IX (Violent):** Great damage in substantial buildings; buildings shifted off foundations

## B. Location and Extent

Union County is not located within the primary NMSZ fault zone. Based on USGS seismic hazard mapping, the probability of ground shaking at a level capable of causing structural damage is lower in Union County than in northwest or northeast Arkansas communities closer to the NMSZ. However, localized seismic activity has been recorded within or immediately adjacent to Union County since at least 1950.

The most significant determinant of earthquake damage in Union County is the interaction of seismic ground motion with local soil conditions. The Ouachita River floodplain and alluvial soil deposits in western and southern Union County are susceptible to liquefaction during strong ground shaking, which can amplify structural damage beyond what would be expected from bedrock motion alone.

A magnitude 7.0 or greater NMSZ event would produce significant ground shaking throughout the region, with the potential for structural damage to unreinforced masonry and older commercial buildings throughout the county.

## C. Previous Occurrences

Based on USGS Earthquake Hazards Program data (bounding box: 33.0°N-33.4°N, 92.0°W-92.9°W; minimum magnitude M2.0; period 1950-2025), 13 earthquake events of M2.0 or greater have been recorded in or near

Union County. The maximum recorded magnitude is M3.2 (1994, near Junction City). No damaging events are on record. All events are well below M4.0, the threshold generally associated with structural damage.

**Events 2000-2025 (6 events):**

| Date | Magnitude | Location | Depth |
|---|---|---|---|
| 2001-03-03 | M3.0 | 2 km SSE of El Dorado | 5.0 km |
| 2001-12-17 | M2.8 | 3 km WSW of El Dorado | 10.0 km |
| 2007-05-16 | M3.0 | 5 km SW of Calion | 5.0 km |
| 2019-04-19 | M2.1 | 7 km ESE of El Dorado | 6.9 km |
| 2020-02-24 | M2.8 | 12 km ENE of Junction City | 14.3 km |
| 2020-05-11 | M2.8 | 13 km SSE of El Dorado | 11.8 km |

**Events 1950-1999 (7 events):**

| Date | Magnitude | Location | Depth |
|---|---|---|---|
| 1994-06-10 | M3.2 | 4 km E of Junction City | 5.0 km |
| 1983-12-09 | M3.0 | 6 km W of El Dorado | 1.9 km |
| 1997-01-09 | M2.8 | 6 km E of El Dorado | 5.0 km |
| 1997-12-24 | M2.6 | 7 km W of El Dorado | 5.0 km |
| 1989-02-05 | M2.4 | 10 km W of El Dorado | 5.0 km |
| 1983-12-10 | M2.2 | 6 km SSW of Norphlet | 9.1 km |
| 1987-08-11 | M2.0 | 18 km WNW of Junction City | 5.0 km |

**Note on induced seismicity:** Several events cluster near El Dorado and Junction City, both in major oil-producing areas of Union County. Shallow depths (1.9-10 km) near active oil and gas fields suggest some events may be induced seismicity associated with injection or extraction operations, rather than purely tectonic activity.

## D. Probability of Future Events

Using the historical record of 13 events (M2.0+) over 75 years (1950-2025):

- Average recurrence: approximately one event every 5.8 years
- Probability of at least one M2.0+ event in any given year: approximately 17%
- Probability of a damaging event (MMI VII or above) from a local source: Low
- Probability of significant damage from a major NMSZ event (once per 500 years): approximately 0.2% per year

The overall probability of a locally damaging earthquake is Low. The primary planning risk scenario is a major NMSZ event rather than a locally generated quake.

## E. Vulnerability and Impact by Jurisdiction

**El Dorado (Pop. 17,826, 16.21 sq mi):** El Dorado has the highest earthquake vulnerability among participating jurisdictions due to its concentration of older buildings and critical facilities. The city's historic commercial district along Main Street and South Washington Avenue includes brick masonry construction -- common in early-20th-century oilfield-era development -- that is particularly susceptible to cracking and partial collapse during moderate seismic events. South Arkansas Regional Hospital is a critical facility with specialized equipment and patient populations that would be disproportionately affected by structural damage or extended utility outages. The two county correctional facilities in El Dorado house concentrated populations requiring specialized emergency protocols. A moderate NMSZ event (M6.0+) generating MMI VI-VII shaking in El Dorado could damage unreinforced masonry structures in the downtown commercial district and older residential neighborhoods.

**Union County (Unincorporated):** Rural areas are predominantly single-family residential with a high proportion of manufactured housing. Manufactured homes on pier foundations are vulnerable to lateral seismic forces. While individual structures may suffer damage, the distributed nature of rural development reduces the likelihood of concentrated casualties. Utility infrastructure -- overhead power lines, rural water distribution lines, and above-ground gas distribution serving the county's oil and gas fields -- is susceptible to damage from moderate seismic activity.

**Smackover (Pop. 1,665, Elev. 121 ft):** Smackover's built environment includes older brick commercial structures from the oil boom era of the early 20th century. These unreinforced masonry buildings are among the most seismically vulnerable in the planning area. Utility infrastructure including the municipal water system and older gas distribution lines serving the Smackover area are at elevated risk from ground shaking.

**Calion (Pop. 438, Elev. 89 ft):** Calion's alluvial soil location along the Ouachita River floodplain increases liquefaction risk during a strong seismic event. Shallow-foundation structures in Calion are more susceptible to ground movement during shaking.

**Felsenthal (Pop. 51), Huttig (Pop. 448), Junction City (Pop. 681), Norphlet (Pop. 642), Strong (Pop. 453):** These communities consist primarily of single-family wood-frame residential structures, which are generally more seismically resilient than unreinforced masonry. However, older brick civic and commercial buildings in communities like Norphlet face elevated risk. The manufactured-housing share is materially higher in these small cities than countywide — Felsenthal 35.3 percent (71 of 201 residences), Huttig 21.4 percent (53 of 248), Junction City 18.6 percent (46 of 247), Strong 16.4 percent (42 of 256), and Norphlet 10.0 percent (25 of 251), against a countywide 8.8 percent NSI RES2 share — and unanchored manufactured units can shift off their piers or blocking even in weak ground motion, so a felt New Madrid Seismic Zone event would concentrate its non-structural damage in these small-city and rural populations. Utility infrastructure including water towers, above-ground gas distribution, and overhead electrical systems across all communities is susceptible to damage from moderate seismic activity.

**School Districts:** School campuses with pre-1990 construction may be more vulnerable than newer facilities built to current International Building Code standards. All school districts should have earthquake response protocols integrated into their emergency operations plans.

## F. Estimated Potential Loss

No property damage from earthquake events has been recorded in Union County in the historical record. The NOAA Storm Events Database shows $0 in recorded property damage. The FEMA NRI reports an Expected Annual Loss for earthquake of **$930,214.85** (Relatively Low NRI rating). This notable figure reflects the NRI's incorporation of the NMSZ regional risk scenario rather than local seismicity alone, underscoring the importance of maintaining earthquake-resilient construction standards for new critical facilities.

### G. Data Deficiency

Detailed soil liquefaction mapping for the Ouachita River floodplain area has not been completed for Union County. Building inventory data by construction type (wood frame vs. masonry) is not available at the jurisdiction level. These gaps limit the precision of the loss estimate for earthquake events.

## 3.7 Flooding

**NFHL Per-Jurisdiction Flood Exposure (FEMA NFHL DFIRM 05139C, effective December 9, 2013):** The following table summarizes Special Flood Hazard Area (SFHA, 1% annual chance / 100-year floodplain) exposure for each NFIP-participating community in Union County, computed by intersecting the FEMA NFHL `S_FLD_HAZ_AR` polygons with the FEMA `S_POL_AR` community polygons in Arkansas State Plane South projection (EPSG:3433).

| Jurisdiction | NFIP CID | Total Area (sq mi) | SFHA Area (sq mi) | SFHA Acres | % in SFHA |
|---|---|---|---|---|---|
| Town of Felsenthal | 050574 | 1.64 | 1.64 | 1,049 | **100.0%** |
| City of Calion | 050206 | 1.17 | 1.03 | 656 | **87.6%** |
| City of Smackover | 050209 | 4.35 | 1.33 | 854 | 30.7% |
| City of Strong | 050210 | 1.62 | 0.49 | 315 | 30.5% |
| Union County (unincorporated) | 050205 | 1,027.4 | 240.3 | 153,765 | 23.4% |
| City of Huttig | 050208 | 0.89 | 0.19 | 123 | 21.6% |
| City of El Dorado | 050207 | 16.22 | 1.26 | 805 | 7.7% |
| City of Norphlet | 050356 | 2.04 | 0.13 | 86 | 6.6% |
| City of Junction City | 050336 | 1.09 | 0.01 | 5 | 0.7% |
| **Countywide (all 9 communities)** | — | **1,056.4** | **246.3** | **157,659** | **23.3%** |

*Source: FEMA National Flood Hazard Layer (NFHL) DFIRM 05139C, effective December 9, 2013; SFHA polygons filtered to FEMA 1% annual chance zones (A, AE, AH, AO, A99, V, VE). Of 152 total flood polygons in the NFHL, 82 are SFHA (49 Zone A approximate study + 33 Zone AE detailed study). Computed in Arkansas State Plane South (EPSG:3433, US survey feet). Full data pull: `Data Pulls/NFHL_FloodExposure_UnionCounty.md`. Full FIRM panel set: Appendix C.*

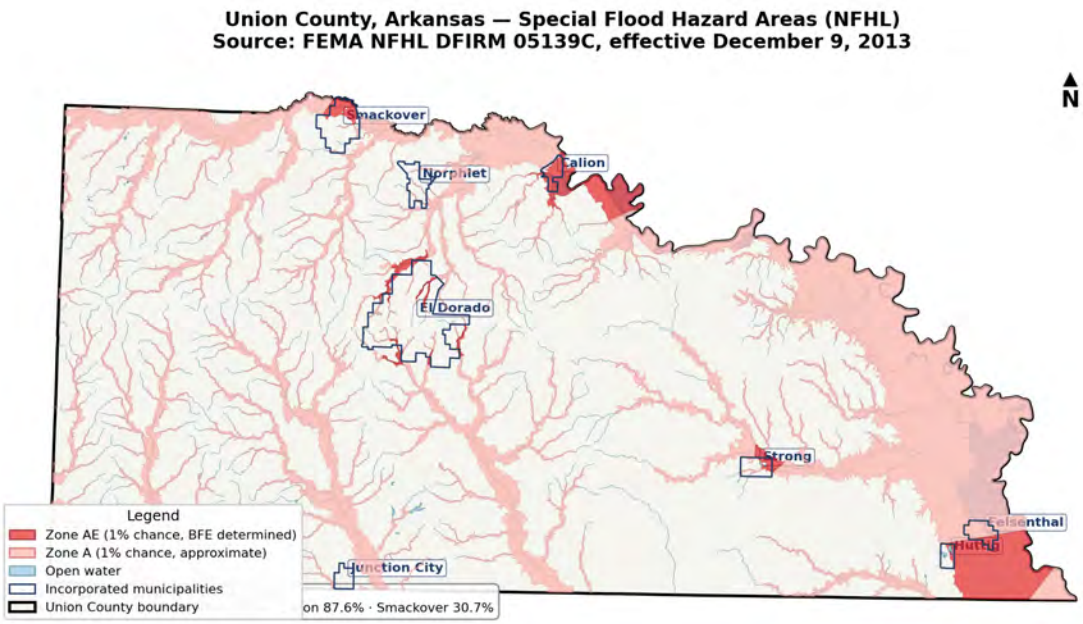


*Figure 9. Union County Special Flood Hazard Area (SFHA) overview map. Flooded zones (light blue) follow the Ouachita River corridor through the western and southern county, Smackover Creek through the north-central county, and unstudied tributary corridors. The Town of Felsenthal lies entirely within the SFHA; Calion is 87.6% in the SFHA.*

**Top three most flood-exposed jurisdictions** (carried into the per-jurisdiction vulnerability narrative in Section 3.7-E):

- **Town of Felsenthal — 100.0% in SFHA (1,049 acres).** The entire mapped municipal area sits in the Ouachita River / Felsenthal pool floodplain. This NFHL finding confirms what the March 2018 pool record (85.43 ft vs. 82 ft town elevation) and the 2021 multi-day flood-stage exceedances already demonstrate.
- **City of Calion — 87.6% in SFHA (656 acres).** Nearly all of Calion lies within the Ouachita River 1% annual chance floodplain.
- **City of Smackover — 30.7% in SFHA (854 acres).** Smackover Creek's 411-square-mile drainage produces the SFHA exposure in Smackover.

## A. Description

**Heavy rainfall is rain with a rate of accumulation exceeding a specific value that is geographically dependent (AMS 2012). Flooding is any high flow, overflow, or inundation by water which causes or threatens damage (NWS 2009).**

Heavy rainfall is a subjective term, but is rain falling at a rate more than the underlying surface can handle, causing runoff, inundation of low-lying areas, and flooding. This may include short-duration thunderstorms lasting a few hours or rainfall accumulating over several days. Flooding is the result of heavy rainfall but also the underlying surface. The rate of infiltration (how quickly it is absorbed by the soil), how quickly runoff reaches the creeks and rivers, if there had been prior rainfall, if the ground is frozen, and other local factors affect runoff and flooding. Consequently, a rainfall of a given rate and amount may cause flooding in one circumstance but not in another. Flooding is most likely in low-lying areas, along the edges of water bodies (ponds, lakes, rivers), and over impermeable surfaces (such as streets and parking lots). Primary causes include slow-moving thunderstorms and storms that track over a location in rapid succession, or tropical

systems. Flash flooding may occur with intense thunderstorms while river flooding usually requires rainfall accumulated over a longer duration.

Rainfall accumulations may be compared against previous occurrences through the concept of "return-period values." This is a statistical assessment of the frequency with which similar amounts have been recorded in the past at a specific location. These return periods, such as 1 in 25 years (a 4% chance of occurring in any given year), are not predictive tools — a large event occurring in the recent record does not prevent another similar or larger event occurring shortly after. Also, if heavy rainfall has already occurred, stormwater retention systems may be filled to capacity allowing a smaller event to cause flooding impacts similar to a much larger event. (SCIPP, 2024)

In Union County, two distinct types of flooding require separate mitigation approaches.

**Riverine (overbank) flooding** is primarily associated with the Ouachita River and its major tributaries, including Smackover Creek (411-square-mile drainage area). These events typically develop over 24 to 72 hours, providing moderate warning time. The March 2018 high-water event reached 85.43 feet at the Felsenthal Lock and Dam gauge (FELA4), approximately 20 feet above the normal pool of 65 feet, and demonstrated that the Ouachita River pool can reach the ground elevation of Felsenthal (82 ft) without any structural failure.

**Flash flooding** is rapid-onset flooding caused by intense, localized rainfall that exceeds the capacity of streams, culverts, and stormwater drainage systems. Flash flooding typically develops within minutes to a few hours of heavy rainfall, providing limited warning time. According to the Union County OEM, flash flooding in the county is triggered when rainfall exceeds 4.0 inches in a one-hour period. Nine specific El Dorado road segments experience regular flash flooding and are documented in Section 4.

## B. Location and Extent

**Riverine Flood Locations:**

The primary riverine flood area follows the Ouachita River floodplain in western and southern Union County. FEMA Flood Insurance Rate Maps (FIRMs) document the Special Flood Hazard Area (SFHA) along the Ouachita River and Smackover Creek. The current effective FIRM for Union County and each participating community is September 28, 2007, referenced in the Section 2.2 NFIP tables.

NWS Flood Stage Reference Data:

- **Felsenthal Lock and Dam gauge (NWS ID: FELA4):** Flood stage 79 feet. Record crest: **85.43 feet** (March 11, 2018). Normal pool: approximately 65 feet.
- **Ouachita River at Camden, AR (upstream reference gauge, NWS ID: CAMA4):** Flood stage 26 feet. This upstream gauge provides advance warning for downstream Union County flooding, typically 24-48 hours in advance.

Flood Severity Classification (per NWS and Union County OEM):

- Minor Flooding: Less than 2 inches of rain per hour; minimal property damage; some road closures
- Moderate Flooding: 2.0 to 3.9 inches of rain per hour; structures and roads near streams partially covered; some evacuations may be necessary
- Major Flooding: 4.0 or more inches of rain per hour; extensive road and structure inundation; significant evacuations required

**Flash Flood Locations:**

Based on information provided by the Union County OEM, police, and sheriff, and collected at the November 10, 2022 El Dorado City Council public meeting, the following roads and locations experience regular flash flooding:

- **El Dorado:** South Washington Ave. and Locust Street; 19th Street and Tanglewood Drive; Crawford Street; Magnolia Drive and College Avenue; College Avenue and Crestwood Drive; Hillsboro Road; 1600 block of Junction City Road; Timberlane and Mount Holly; Claremont Drive
- **Felsenthal:** Eagle Tram Road (one of two primary access routes; flooding isolates the entire community)
- **Smackover:** Old Camden Road (confirmed by Union County OEM Coordinator Bruce Goff, September 2026)

*Note: recurring flash-flood road segments for Calion, Huttig, Junction City, Norphlet, and Strong were requested from the participating municipalities during the September 2026 Public Review Draft cycle. Additional segments received during or after the public comment period will be incorporated in the final adopted plan.*

## C. Previous Occurrences

NOAA Storm Events Database records **59 flood and flash flood events** across 35 event days in Union County from 2000 through 2025, with total documented property damage of approximately $2,970,000. Notable locations include Newell, Smackover, El Dorado, and Strong.

Union County's federal disaster declaration history confirms flooding as the most federally declared hazard in the county. Of the county's 20 federal disaster declarations (1968-2026), 9 involve flooding or severe storms with flooding:

- DR-254 (1969), DR-375 (1973), DR-437 (1974), DR-865 (1990), DR-907 (1991), DR-1176 (1997), DR-1363 (2001), DR-1845 (2009), DR-1861 (2009)

The most recent flooding-related declaration was **EM-3627 (April 5, 2025)**, covering severe storms, tornadoes, and flooding. This declaration was active at the time of plan revision.

**Major Flood Events:**

- March 2018: Ouachita River at Felsenthal Lock and Dam reached record stage of 85.43 feet, approximately 20 feet above normal pool of 65 feet. Significant riverine flooding throughout the lower Ouachita corridor. Eagle Tram Road in Felsenthal flooded, isolating the community.

| Jurisdiction | Flood Events (2000-2025) | Documented Property Damage |
|---|---|---|
| Newell, Smackover, El Dorado, Strong | Primary reported locations | $2,970,000 total |
| Felsenthal | Recurring; Eagle Tram Road flooding documented | Included in total |
| All other jurisdictions | Additional events likely unreported | Included in total |

## D. Probability of Future Events

Using 59 events over 25 years (2000-2025):

- Frequency: 2.36 events per year
- Probability: 100% -- at least one flood event can be expected in any given year

Flooding has a probability of occurrence of 100% annually. The planning emphasis is on reducing damage severity, not preventing occurrence.

## E. Vulnerability and Impact by Jurisdiction

**Union County (Unincorporated):** The unincorporated county faces the highest overall flood vulnerability due to its large geographic area, extensive Ouachita River floodplain, rural road network with numerous low-water crossings and culverts, and high proportion of manufactured housing. Rural roads including Highway 364, Highway 129, and numerous county roads in the Ouachita River bottom land are subject to overbank flooding. Manufactured housing in rural areas is particularly vulnerable -- these structures typically sit on pier foundations that provide inadequate resistance to floodwater. Approximately 52.1% of county residents live in rural areas served only by county roads that may become impassable during flood events. The Felsenthal National Wildlife Refuge in southern Union County provides natural flood storage, but upstream pressure has reduced absorption capacity over time.

**El Dorado (Pop. 17,826, Elev. 269 ft):** El Dorado sits at a relatively high elevation of 269 feet, providing significant protection from riverine flooding. However, the city's aging stormwater infrastructure creates localized flash flood conditions during intense rainfall events. The OEM and police identified nine specific road segments that experience regular flash flooding: South Washington Ave. and Locust Street; 19th Street and Tanglewood Drive; Crawford Street; Magnolia Drive and College Avenue; College Avenue and Crestwood Drive; Hillsboro Road; 1600 block of Junction City Road; Timberlane and Mount Holly; Claremont Drive. These locations represent areas where the stormwater drainage network is undersized for current development. South Arkansas Regional Hospital, the county courthouse, and El Dorado School District campuses are not in documented SFHA areas, but access routes to these critical facilities may be compromised during major flash flood events. El Dorado is a member of the NFIP (CID 050207) with no repetitive loss properties on record.

**Felsenthal (Pop. 51, Elev. 82 ft):** Felsenthal is the most flood-vulnerable incorporated community in the planning area. The town sits at 82 feet elevation within the documented Ouachita River floodplain. The March 2018 high-water event brought the Felsenthal Lock and Dam pool to 85.43 feet -- 3.43 feet above the town's elevation -- causing significant flooding without a structural dam failure. Eagle Tram Road, one of only two routes into Felsenthal, floods regularly during Ouachita River high-water events, potentially isolating the community for days. With a population of 51 and no local emergency response capability, Felsenthal depends entirely on Union County OEM and regional resources. Felsenthal is a member of the NFIP (CID 050574, joined June 19, 1985).

**Calion (Pop. 438, Elev. 89 ft):** Calion is located at 89 feet elevation near the Ouachita River floodplain in northern Union County. The town's low elevation makes it susceptible to both riverine flooding from the Ouachita River and flash flooding from local drainage systems. Highway 7, the primary access route, could be affected during Ouachita River overbank events. Calion is a member of the NFIP (CID 050206, joined April 12, 1974).

**Smackover (Pop. 1,665, Elev. 121 ft):** Smackover Creek -- with a drainage area of 411 square miles -- passes through the northern portion of Smackover. During high-precipitation events, Smackover Creek can rise rapidly, affecting low-lying areas in the northern part of the city. **Old Camden Road** is the recurring flash-flood road segment reported by the Public Works Director as the location the city is most often responding to

(confirmed by Union County OEM Coordinator Bruce Goff, September 2026); mitigation of this segment (culvert / cross-drain upgrade or drainage-ditch improvement) is a priority local action for Smackover. The HK Thatcher Lock and Dam on the Ouachita River is located in proximity to Smackover, and dam pool management directly influences flood conditions in the area. Smackover is a member of the NFIP (CID 050209, joined October 26, 1973); Public Works Director Jason Waxley serves as the designated floodplain administrator.

**Junction City (Pop. 681, Elev. 194 ft):** Junction City lies along Smackover Creek and has experienced three documented flood events since 1996. Smackover Creek, which passes through or adjacent to the city, is subject to flash flooding during heavy rainfall events. Junction City is the ONLY jurisdiction in the planning area that does not participate in the NFIP. Residents cannot purchase federally backed flood insurance, and the city is ineligible for FEMA's FMA program. Mitigation Action #12 addresses this directly.

**Huttig (Pop. 448, Elev. 361 ft):** Huttig is located at the highest elevation of any incorporated city in the planning area at 361 feet. No flood events have been recorded for Huttig since 2000. The primary flood vulnerability is localized stormwater drainage rather than riverine flooding. As an NFIP member, Huttig maintains an NFIP-compliant floodplain ordinance (see Section 2.3 and 2.5).

**Norphlet (Pop. 642, Elev. 180 ft):** Norphlet sits at 180 feet elevation in central Union County. Local drainage channels and unnamed tributaries create flash flood conditions in low-lying portions of the city. Norphlet is a member of the NFIP (CID 050356, joined April 4, 1975).

**Strong (Pop. 453, Elev. 98 ft):** Strong is located at 98 feet elevation in northern Union County. The northeast side of town near the municipal sewer pond area is susceptible to flooding -- a specific infrastructure vulnerability that could lead to sewage contamination of floodwaters during significant events. Strong is a member of the NFIP (CID 050210, joined June 28, 1974).

**School Districts:** None of the school district campuses have been reported as located in FEMA-designated SFHA zones. Bus routes in low-lying areas may be affected during flood events, requiring route modifications or school closures.

**Repetitive Loss Properties:** According to records maintained by the Arkansas Natural Resources Commission (ANRC) and confirmed against FEMA NFIP repetitive loss property data, there are no designated Repetitive Loss (RL) or Severe Repetitive Loss (SRL) properties in any participating jurisdiction in Union County. This determination is reflected in the per-jurisdiction NFIP tables in Section 2.3. The planning committee will update this determination at each annual review and prior to the five-year plan update.

## F. Estimated Potential Loss

Documented property damage from 59 flood events between 2000 and 2025 totals approximately $2,970,000 (NOAA Storm Events Database). On an annualized basis, this represents approximately $118,800 per year in recorded flood damage. This figure is an undercount, as small-scale flash flood events frequently cause unrecorded damage. The FEMA NRI reports an Expected Annual Loss for Inland Flooding of **$4,862,520.78** (Relatively Low NRI rating), making flooding the single highest-dollar EAL hazard in Union County. Flooding represents 38.6% of the county's total NRI Expected Annual Loss. The NRI figure reflects full modeled flood exposure including unrecorded events and infrastructure damage.

## G. Data Deficiency

Flood inundation zone studies for failure conditions at the Felsenthal Lock and Dam and HK Thatcher Lock and Dam have not been completed (see Section 3.4). Depth grid data for the documented flash flood locations in El Dorado has not been compiled. An updated stormwater master plan for El Dorado has not been prepared. Mitigation Actions #1 and #11 address these deficiencies.

## 3.8 Thunderstorms and Severe Storms

### A. Description

Thunderstorms in Union County present three distinct hazards with separate SCIPP definitions: lightning, hail, and severe thunderstorm winds. Each is profiled below.

#### *Lightning*

**A visible electrical discharge produced by a thunderstorm. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud (NWS 2009).**

Lightning forms from charge separation within thunderstorms, usually cumulonimbus clouds. Lightning is essentially a large spark of static electricity, similar to touching a doorknob on a dry day (although much more powerful). Most lightning forms from streamers that work their way down from the charge centers of clouds toward the ground. When it gets close to the ground, a return stroke is initiated, which we see as a flash of light. Thunder is created by a shock wave from rapid heating of the air to 18,000 degrees — hotter than the surface of the sun. Lightning is capable of striking as far as 10 miles away from a storm. Lightning severity is not rated, although new detection systems allow accurate identification of lightning strikes allowing analysis of lightning frequency. (SCIPP, 2024)

In Union County, lightning is a common feature of every thunderstorm season and is the primary ignition source for lightning-caused structure fires and elevated wildfire risk during dry conditions.

#### *Hail*

**Showery precipitation in the form of irregular pellets or balls of ice more than 5 mm (0.2 inches) in diameter, falling from a cumulonimbus cloud (NWS 2009).**

Hail forms by the collision of supercooled drops — raindrops that are still liquid even though the air around them is below freezing. The hailstone grows, supported by the updraft, until it is too heavy to remain aloft. Stronger updrafts generally produce larger hail size. Because obtaining large hail sizes requires a strong updraft, the timing of large hail is related to the lifecycle of large cumulonimbus clouds, which peak in intensity during late afternoon and evening hours. Hail severity is rated by the diameter of the largest hailstones in a storm. Hail of 1-inch diameter or greater is considered severe. (SCIPP, 2024)

In Union County, severe hail accompanies the majority of significant thunderstorm events documented in the NOAA Storm Events Database. Hail is the most common driver of insured residential roof and vehicle damage during the thunderstorm season.

#### *Severe Thunderstorm Winds*

**High winds are defined as sustained non-convective wind speeds of 40 mph or greater lasting for 1 hour or longer, or gusts of 58 mph or greater for any duration. Severe thunderstorm winds are winds of 58 mph or greater when convection (i.e., thunderstorm) is present.**

High winds can occur with thunderstorms, but also with frontal passages and gradients between areas of high and low pressure. There are several types of wind events. Straight-line winds are thunderstorm winds that do not have rotation and are different from tornadic winds. Downdraft winds can also be damaging and are a small column of air that rapidly sinks toward the ground. Downbursts describe wind events that are caused by a strong downdraft within a thunderstorm. Microbursts are small concentrated downbursts that produce an outward burst of strong winds at or near the surface. Wind speeds and the effects can be measured by the Beaufort Wind Scale (NWS 2024), which ranges from 0 (calm winds) to 12 (hurricane-force winds). (SCIPP, 2024)

In Union County, severe thunderstorm winds are the most frequently occurring severe weather hazard, with documented straight-line wind damage to manufactured housing, overhead utility lines, and rural outbuildings across the planning area. Derecho-scale events (long-duration, widespread straight-line wind events) are possible during the spring and summer convective seasons.

## B. Location and Extent

Thunderstorm hazard is countywide with no geographic exclusions. Lightning strike density maps for Arkansas show Union County has a moderate to high density of cloud-to-ground lightning strikes annually (approximately 8-10 strikes per square kilometer per year). Severe thunderstorm risk is somewhat higher in open rural areas where large hail and wind can reach structures without mitigation from terrain or tree canopy.

## C. Previous Occurrences

NOAA Storm Events Database records **247 thunderstorm-related events** (thunderstorm wind, lightning, and hail) across 145 event days in Union County from 2000 through 2025, with total documented property damage of approximately $1,308,000, 0 deaths, and 2 injuries. This is the single highest event count of any hazard in the planning area.

| Event Type | Events (2000-2025) | Total Property Damage |
|---|---|---|
| Thunderstorm Wind | ~180 | ~$950,000 |
| Hail | ~57 | ~$300,000 |
| Lightning | ~10 | ~$58,000 |
| **Total** | **247** | **~$1,308,000** |

Note: Thunderstorm events that produce tornadoes are recorded separately in Section 3.9. Flash flooding associated with thunderstorms is recorded in Section 3.7.

## D. Probability of Future Events

Using the period of record from 2000-2025 (25 years, 247 events):

- Frequency: 9.88 events per year

- Probability of at least one thunderstorm event in any given year: 100%
- Probability of a severe thunderstorm event (winds 58 mph+, hail 1 inch+): Very High

Thunderstorm events are a certainty in any given year. The planning emphasis for this hazard is on reducing damage through structural improvements, early warning, and utility hardening.

## E. Vulnerability and Impact by Jurisdiction

**Union County (Unincorporated):** Rural areas face the highest thunderstorm vulnerability. Overhead electrical and communications infrastructure in rural Union County has limited redundancy and extended repair timelines compared to urban utility infrastructure. Volunteer fire departments serve rural Union County with longer response times to structure fires ignited by lightning. A high proportion of manufactured housing is particularly vulnerable to straight-line wind damage -- manufactured homes on pier foundations can be displaced or destroyed by winds well within the observed event profile. The large forested land area creates significant debris loading on power lines during wind events, causing outages that can last 24-72 hours in remote areas.

**El Dorado (Pop. 17,826):** El Dorado has aging infrastructure including older residential areas with tall tree canopy that creates power line hazards during thunderstorm events. The city has historically experienced power outages affecting South Arkansas Regional Hospital, the county jails, and water treatment facilities during severe thunderstorms. The hospital has backup generator capacity, but extended outages strain operations. El Dorado's concentration of commercial infrastructure -- including petroleum-industry facilities, the McNeill distribution corridor, and the downtown commercial district -- makes it the county's highest-dollar-value exposure for hail damage (roofing, vehicles, commercial equipment). Wind events affecting communication towers in or near El Dorado could disrupt emergency communications countywide.

**Felsenthal (Pop. 51):** Felsenthal's extreme isolation means thunderstorm-related power outages can persist for 24-72 hours without rapid utility response. The community has no local emergency response capability.

**Smackover (Pop. 1,665), Norphlet (Pop. 642), Calion (Pop. 438), Huttig (Pop. 448), Junction City (Pop. 681), Strong (Pop. 453):** These smaller communities have limited stormwater drainage capacity and aging housing stock. Volunteer fire departments serve every one of these communities (see Section 2.6, Fire Protection). Manufactured-housing exposure — the housing type most likely to be destroyed by straight-line thunderstorm wind and hail — is materially higher here than countywide: Huttig 21.4 percent, Junction City 18.6 percent, Strong 16.4 percent, Calion 15.4 percent, Norphlet 10.0 percent, Smackover 5.2 percent (versus the countywide 8.8 percent NSI RES2 share, see Section 2.7). Water-tower infrastructure in the small communities is also vulnerable to wind and ice loading from severe storms.

**School Districts:** School campuses represent the highest concentration of vulnerable populations during school hours. Roof and window damage from hail and wind is a documented concern for older school facilities. All school districts have tornado drill protocols; general severe thunderstorm protocols (shelter-in-place, lightning safety) should be integrated into all facility emergency plans.

## F. Estimated Potential Loss

Documented property damage from 247 thunderstorm events between 2000 and 2025 totals approximately $1,308,000 (NOAA Storm Events Database). On an annualized basis, this represents approximately $52,320 per year in documented thunderstorm damage -- likely a significant undercount. The FEMA NRI addresses

thunderstorm-related hazards across three categories: Strong Wind ($882,381.66, Relatively Moderate rating), Lightning ($291,765.17), and Hail ($230,428.56). Combined, the thunderstorm-related NRI Expected Annual Loss for Union County is approximately **$1,404,575.39**, making severe storms collectively the third-highest EAL hazard category after flooding and tornado. The Strong Wind NRI rating of Relatively Moderate aligns with Union County's high event count.

### G. Data Deficiency

Detailed damage data by jurisdiction is not consistently available for thunderstorm events. NOAA records some events at the county level rather than by specific jurisdiction. Lightning ignition data for structure fires is not maintained separately from general fire data.

## 3.9 Tornado

### A. Description

**A violently rotating column of air, usually pendant to a cumulonimbus, with circulation reaching the ground (NWS 2009).**

Tornadoes generally form from severe thunderstorms, particularly supercell thunderstorms — those that are isolated with unimpeded inflow of moisture and enhanced by wind shear. Tornadoes may also form along squall lines or in bands of storms associated with hurricanes. Tornadoes require moist air, instability (warm air rising), a source of lift such as a front, dryline, or heating, and wind shear (change in wind direction and speed with height). Tornadoes can occur at any time of the year and at any time of the day. Arkansas experiences an uptick in tornadoes in the spring, but they also see tornadoes in the fall and winter as the jet stream moves toward the south. Tornado intensity is rated by the damage they produce, on a scale from EF0 (weak) to EF5 (violent). Strong (EF2-EF3) and Violent (EF4-EF5) tornadoes account for only about one-third of all tornadoes, but 97% of fatalities and the vast majority of economic impacts. Tornadoes along squall lines and hurricane bands are more likely to be weak, although widespread severe straight-line winds may accompany these types of storms. (SCIPP, 2024)

In Union County, tornadoes are the most geographically focused and immediately destructive natural hazard. The planning area lies within "Dixie Alley," where nighttime and low-visibility tornado events are more common than in the traditional Plains tornado-belt. The January 12, 2005 F3 tornado at Junction City killed two people and injured 13, and the 2007 EF3 tornado caused additional damage in the area. The April 2025 tornado outbreak (EM-3627) further confirmed an active tornado threat in the county.

Tornado intensity in Union County is rated using the Enhanced Fujita (EF) scale:

| EF Scale | Wind Speed | Expected Damage |
|---|---|---|
| EF-0 | 65–85 mph | Light damage: minor roof damage, small broken branches |
| EF-1 | 86–110 mph | Moderate: roof surfaces stripped, mobile homes overturned |
| EF-2 | 111–135 mph | Considerable: roofs torn off well-constructed homes, mobile homes demolished |

| | | |
|---|---|---|
| EF-3 | 136–165 mph | Severe: entire stories removed from well-built homes, severe building damage |
| EF-4 | 166–200 mph | Devastating: well-built homes leveled |
| EF-5 | >200 mph | Incredible: strong frame structures leveled |

## B. Location and Extent

Tornado events can occur anywhere within Union County without geographic constraint. Union County lies within the region sometimes described as "Dixie Alley" -- the southeastern extension of Tornado Alley that includes Arkansas, Mississippi, Louisiana, and Alabama. Dixie Alley is characterized by a higher proportion of nighttime tornadoes and higher per-capita fatality rates compared to the traditional Tornado Alley. The most significant tornado risk period is spring (March through May), but Union County has experienced tornadoes in all seasons.

The most significant tornado events in the modern record are two events at Junction City:

- **January 12, 2005 (F3):** Junction City; 2 deaths, 13 injuries, $3,000,000 in property damage. No federal disaster declaration was issued for this event despite the deaths and injuries.
- **February 24, 2007 (EF3):** Junction City; confirmed EF3 at time of reclassification.

Additionally, the April 2025 severe storm outbreak that produced EM-3627 (April 5, 2025) directly affected Union County.

## C. Previous Occurrences

NOAA Storm Events Database records **25 tornado events** in Union County from 2000 through 2025, with total documented property damage of $6,035,000, 2 deaths, and 18 injuries.

| Date | Location | Scale | Deaths | Injuries | Damage |
|---|---|---|---|---|---|
| 11/26/2001 | El Dorado | F1 | 0 | 0 | -- |
| 12/18/2002 | Strong | F1 | 0 | 0 | -- |
| 12/18/2002 | Huttig | F0 | 0 | 0 | -- |
| 04/24/2003 | Junction City | F2 | 0 | 0 | -- |
| 04/29/2004 | Three Creeks | F1 | 0 | 0 | $200,000 |
| 01/12/2005 | Junction City | **F3** | **2** | **13** | **$3,000,000** |
| 02/24/2007 | Junction City | **EF3** | 0 | 5 | Significant |
| Additional events 2007-2025 | Various | EF0-EF2 | 0 | 0 | Various |
| April 2025 | Union County | See EM-3627 | See EM-3627 | See EM-3627 | See EM-3627 |

**Note on January 2005 event:** The F3 tornado that struck Junction City on January 12, 2005, killed 2 people and injured 13. Despite this severity, no federal disaster declaration was issued for Union County for this

event. This is the most lethal single natural hazard event in Union County's modern record and directly informs the priority placed on tornado safe rooms in this plan.

**Note on EM-3627 (April 2025):** The April 5, 2025 Emergency Declaration for severe storms, tornadoes, and flooding confirms that Union County's tornado threat remained active after plan preparation. The declaration covered Public Assistance. Details on specific damage totals from the April 2025 events were not yet available at plan revision.

## D. Probability of Future Events

Using 25 events over 25 years (2000-2025):

- Frequency: 1.0 event per year
- Probability of at least one tornado event in any given year: approximately 90%+
- Probability of an EF2 or greater event in any given year: approximately 10-15%

The probability of a tornado in any given year is High. The history of two EF3 events at Junction City alone demonstrates the county's exposure to significant-intensity events.

## E. Vulnerability and Impact by Jurisdiction

**Union County (Unincorporated):** Rural areas make up approximately 680 square miles of the planning area and include the highest concentration of manufactured housing in the county. Manufactured homes on pier foundations without ground anchoring are highly susceptible to EF-1 and above wind speeds. Rural residents often have limited access to below-grade shelters. Volunteer fire departments serve rural Union County with longer response times. The absence of outdoor warning sirens in most rural areas increases the risk of inadequate warning time for residents in remote locations.

**El Dorado (Pop. 17,826, 16.21 sq mi):** El Dorado is the county's most urbanized jurisdiction with the highest concentration of population, critical facilities, and commercial infrastructure. The city's historic commercial district includes older brick masonry structures vulnerable to EF-2 events. Critical facilities at elevated risk include South Arkansas Regional Hospital, county correctional facilities, long-term care facilities, and El Dorado School District campuses. A daytime EF-2 or greater tornado affecting El Dorado school campuses would be the planning area's most catastrophic tornado scenario. El Dorado's petroleum-related industrial facilities along the Highway 82 and Highway 7 corridors present additional hazard amplification risk from wind-driven debris during significant tornado events.

**Junction City (Pop. 681, Elev. 194 ft):** Junction City has the highest documented tornado history in the planning area with two separate EF3-equivalent events in 2005 and 2007, in addition to an F2 in 2003. The 2005 event killed 2 people and injured 13 -- making Junction City the county's highest-consequence tornado location. Despite its small size, Junction City's location near the intersection of Highways 167 and 82 places significant through-traffic at risk. The city's high proportion of manufactured housing increases per-unit vulnerability. The absence of a community safe room is the single most critical life-safety gap for Junction City.

**Calion (Pop. 438, 1.33 sq mi):** Calion has experienced 2 documented tornado events with $1.7 million in property damage. The community's small size means a single EF-1 or EF-2 event could substantially damage the entire community.

**Felsenthal (Pop. 51):** Felsenthal has experienced 4 documented tornado events with $1.5 million in recorded property damage -- the highest per-capita damage ratio in the planning area. A direct tornado strike would be catastrophic relative to the community's scale, and post-storm isolation (Eagle Tram Road flooding) would compound the emergency.

**Huttig (Pop. 448, Elev. 361 ft), Norphlet (Pop. 642), Smackover (Pop. 1,665), Strong (Pop. 453):** These communities each have school campuses that represent concentrations of students during school hours. No tornado safe rooms exist on any campus in these communities. Manufactured housing — the housing type most often destroyed even by EF1 tornado winds — makes up 21.4 percent of residences in Huttig, 16.4 percent in Strong, 10.0 percent in Norphlet, and 5.2 percent in Smackover (Section 2.7, Table 2.7-1), each above or at the countywide 8.8 percent NSI RES2 share. This structural-vulnerability pattern is the reason the highest per-unit tornado life-safety weight in Union County falls on the small-town populations and on manufactured-housing residents rather than on the county seat, even though El Dorado carries the largest absolute residential count.

**School Districts:** All five school districts have tornado drill procedures. The absence of below-grade or reinforced safe rooms at school facilities is the primary life-safety vulnerability in the planning area. Safe room construction is the highest life-safety priority mitigation action in this plan (Mitigation Action #3).

### F. Estimated Potential Loss

Documented property damage from 25 tornado events between 2000 and 2025 totals approximately $6,035,000 (NOAA Storm Events Database). On an annualized basis, this represents approximately $241,400 per year based on the 25-year record. The FEMA NRI reports an Expected Annual Loss for tornado of **$1,780,703.59** (Relatively Low NRI rating). The NRI's higher annualized figure reflects modeled future risk incorporating updated damage functions and is the more appropriate planning figure. Tornado represents 14.1% of the county's total NRI Expected Annual Loss.

### G. Data Deficiency

The most significant data gap is the absence of a safe room and storm shelter inventory for the planning area. This gap is addressed through Mitigation Action #3, which includes a shelter inventory as part of implementation.

## 3.10 Wildfire

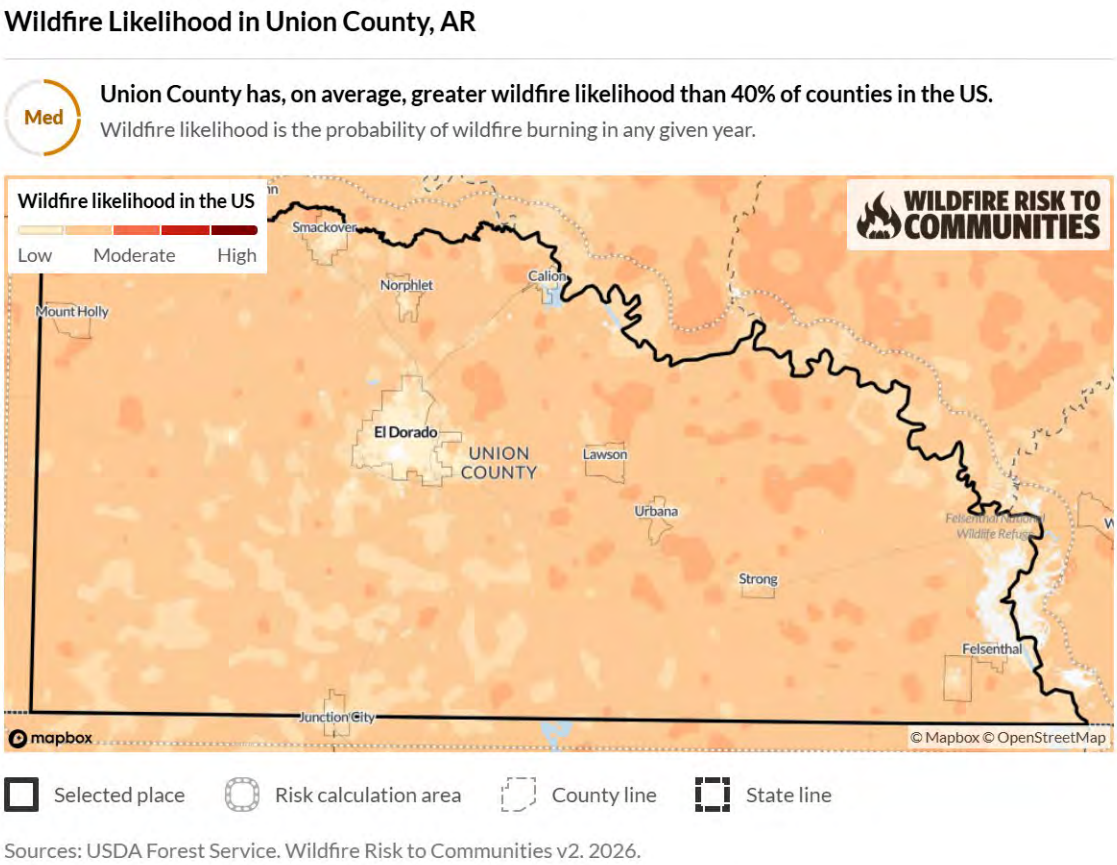


*Figure 5. USDA Wildfire Risk to Communities — Wildfire Likelihood in Union County, AR. The county exceeds the national average for wildfire likelihood, with the highest probabilities concentrated in the forested southern and western portions of the county.*

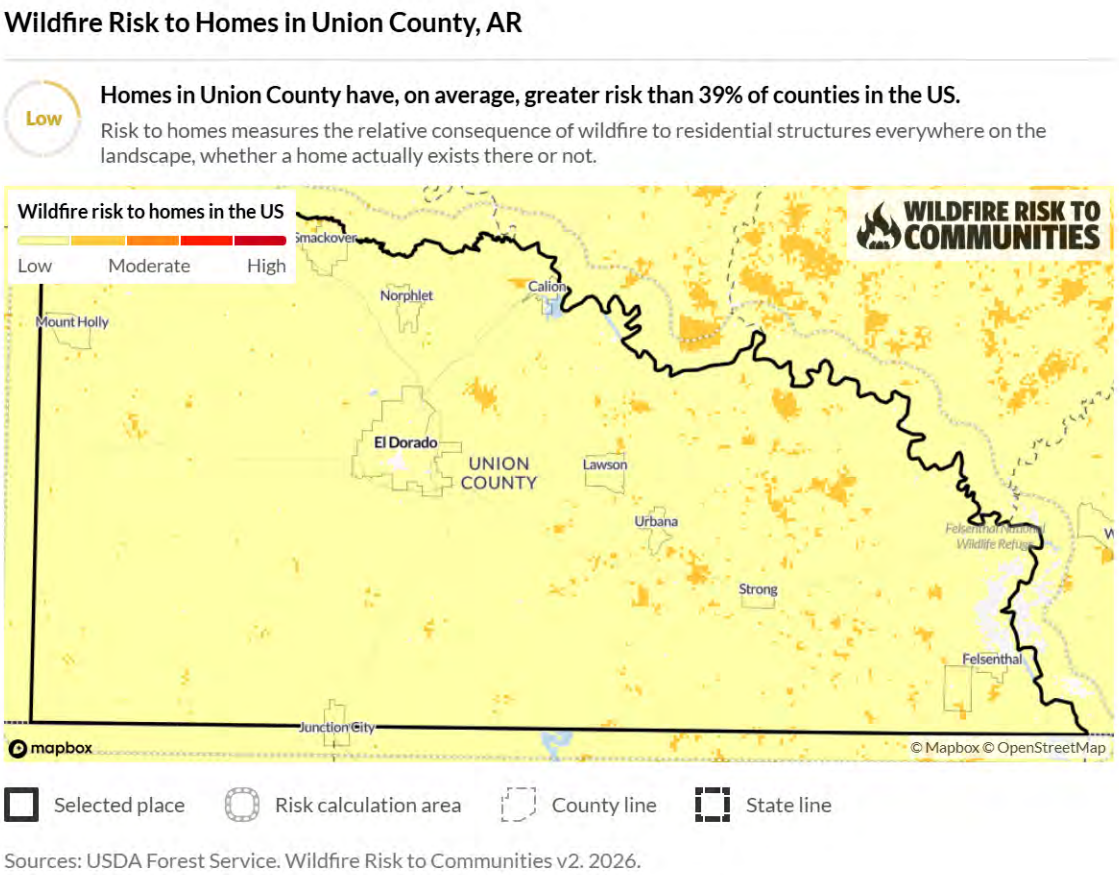


*Figure 6. USDA Wildfire Risk to Communities — Wildfire Risk to Homes in Union County. The risk-to-homes metric combines wildfire likelihood with housing density and exposure; concentrated areas include the WUI fringe around El Dorado and rural manufactured-housing communities.*

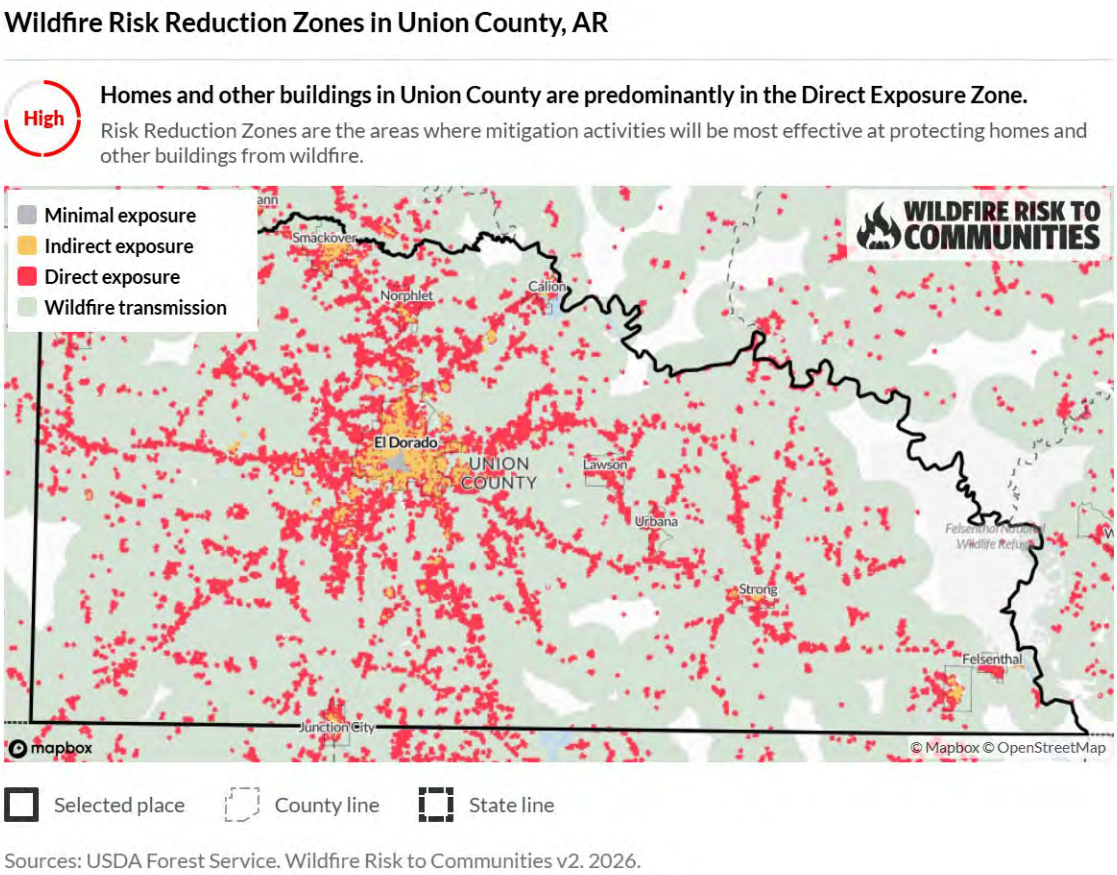


*Figure 7. USDA Wildfire Risk to Communities — Wildfire Risk Reduction Zones in Union County. These zones identify priority areas where fuel reduction, defensible space, and ignition-resistant construction would most effectively reduce risk to homes.*

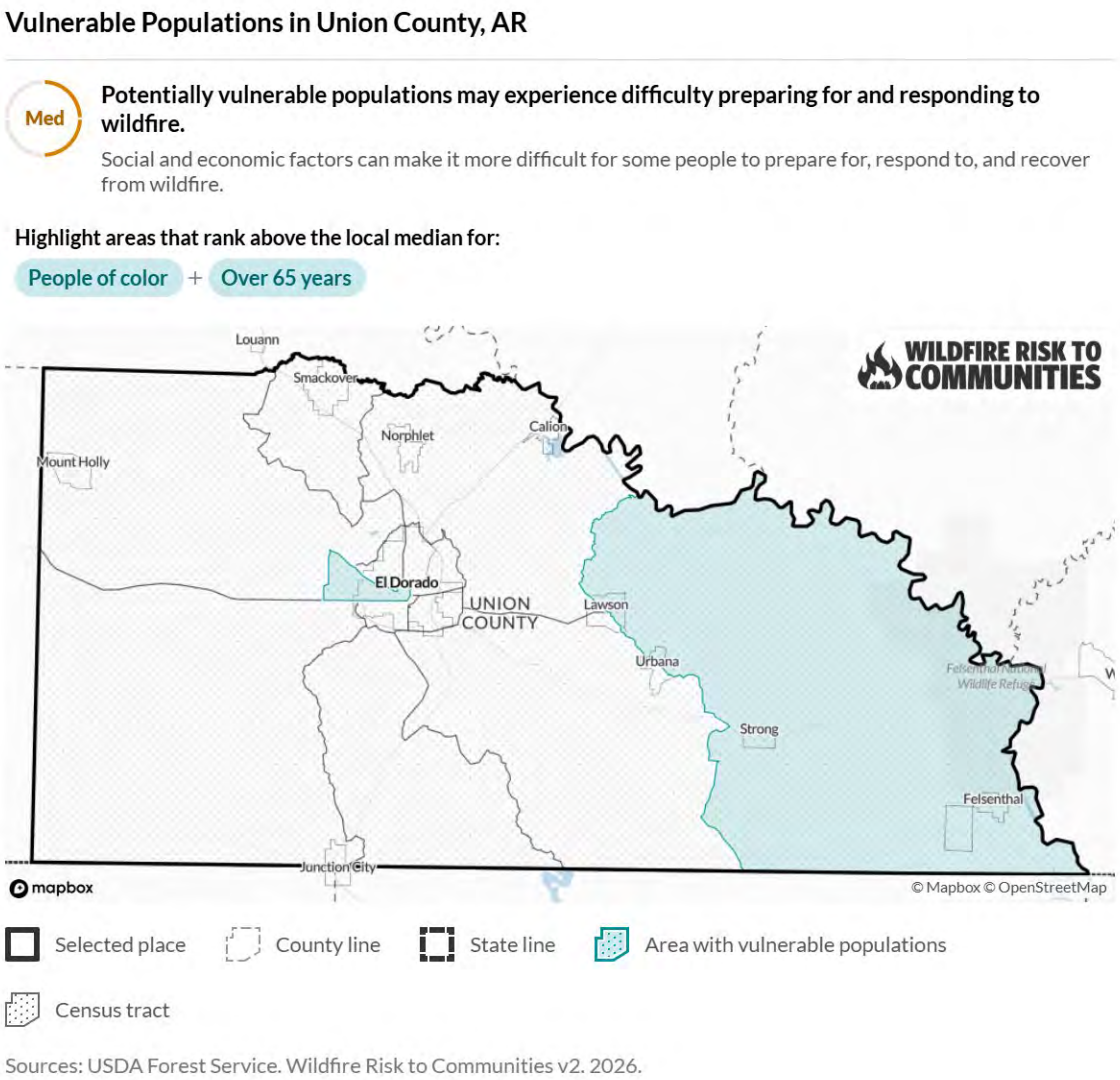


*Figure 8. USDA Wildfire Risk to Communities — Vulnerable Populations in Union County. Overlay of social-vulnerability factors with wildfire risk identifies neighborhoods where the population is least able to prepare, respond, or recover from a significant wildfire event.*

*Source: USDA Forest Service Wildfire Risk to Communities (wildfirerisk.org), accessed June 2026 for Union County, AR. These four maps establish a credible WUI exposure baseline despite the zero-event NOAA Storm Events count for Union County 2000–2025.*

## A. Description

**Any free burning uncontainable wildland fire not prescribed for the area which consumes the natural fuels and spreads in response to its environment (NWS 2009).**

Wildfires occur when weather conditions meet with sufficient fuel and an ignition source. Weather conditions include warm temperatures, low humidity, strong winds, and a period without precipitation allowing fuels to dry. Fuels are vegetation ranging from fine fuels such as grass and pine needles to large woody materials such as trees, dead and decaying logs, and organic material in the soil. Large woody materials are difficult to ignite; the presence of fine fuels allows fire to get started and become intense

enough to ignite larger materials. Ignition sources may be natural such as lightning or human-caused such as sparks from equipment, power transformers, a chain dragging behind a vehicle, or heat sources such as discarded cigarettes. Usually wildfires occur when the state experiences a drought, but they can still happen at any time. Fires are a common occurrence during a drought when dried vegetation provides fine fuels and warm, windy, dry days provide weather conditions that allow ignition and spread.

Fire danger is measured on a Burning Index scale, ranging from 0 to 110+. Values below 20 are considered low fire potential, 40-80 is high, and 110 or higher is extreme. The burning index combines potential energy release (fire intensity), flame length, and rate of spread. The National Weather Service issues Red Flag Warnings when weather conditions are favorable for ignition and spread of wildfires. Another popular index is the Keetch-Byrum Drought Index (KBDI), which considers weather and vegetation conditions. The scale ranges from 0 to 800; values below 200 indicate high fuel moisture making ignition unlikely; values above 600 are indicative of intense wildfire conditions with downwind spotting capability. (SCIPP, 2024)

In Union County, the primary wildfire risks are escaped controlled burns and lightning-ignited fires that spread into Wildland-Urban Interface (WUI) areas during drought or high-wind conditions. The Wildland-Urban Interface is the zone where human development meets undeveloped wildland vegetation. The county's 680 square miles of rural and forested land, all-volunteer rural fire departments, and recurring drought conditions (2012, 2017–2018, 2022, 2024) represent credible wildfire risk despite zero NOAA-recorded wildfire events from 2000–2025.

## B. Location and Extent

Wildfire risk in Union County is concentrated in Wildland-Urban Interface (WUI) areas — the rural and forested portions of the county where residential development, including manufactured homes, exists in or adjacent to forested land. Based on USDA wildfirerisk.org mapping data, Union County has a Very Low to Low overall wildfire hazard rating. Risk is highest in the southern and western portions of the county, including areas adjacent to and within the Felsenthal National Wildlife Refuge (Union/Columbia/Ashley County boundary), and in forested corridors along the Union/Bradley County line to the north. The most vulnerable WUI areas include rural manufactured housing communities in forested portions of the unincorporated county where volunteer fire response times exceed 15–20 minutes. The maximum credible wildfire event for planning purposes is an escaped prescribed burn or lightning-ignited fire during D3–D4 drought conditions (similar to the 2012 regional drought) spreading into WUI areas in the southern county. The Arkansas Forestry Commission maintains statewide fire reporting and may have additional county-level occurrence data not captured in the NOAA Storm Events Database.

## C. Previous Occurrences

NOAA Storm Events Database records **zero wildfire events** in Union County from 2000 through 2025, consistent with the county's Very Low NRI wildfire rating ($8,848.45 EAL). However, NOAA Storm Events undercounts wildfire because small fires fall below NOAA's reporting threshold. The Arkansas Department of Agriculture / Arkansas Forestry Division Fire-by-County records, which capture all responded-to wildfires regardless of size, document a different picture for Union County:

| Period | Fires | Acres |
|---|---|---|
| 2013 | 30 | 357 |

| | | |
|---|---|---|
| 2014 | 36 | 290 |
| 2015 | 41 | 263 |
| 2016 | 26 | 350 |
| 2017 | 26 | 229 |
| 2018 | 31 | 296 |
| 2019 | 18 | 87 |
| **Total 2013–2019** | **208** | **1,872** |

*Source: Arkansas Department of Agriculture, Arkansas Forestry Division — Fires by County, 2013–2019 (latest publicly-available compiled record at the time of plan preparation). Total represents 7 calendar years.*

Union County averaged approximately **30 wildfires and 268 acres burned per year** across the 2013–2019 period — small fires that did not reach NOAA reporting thresholds but represent real annual mitigation work for the county's volunteer fire departments. The 2012 exceptional drought also created elevated wildfire risk conditions across the entire planning area. The combination of the Forestry record (real ongoing fire activity), the rural and forested geography (680 sq mi), and the all-volunteer rural fire department structure confirms that wildfire is a credible recurring hazard despite the very low NRI EAL.

## D. Probability of Future Events

NOAA's Storm Events Database recorded zero wildfire events in Union County between 2000 and 2025. Because no events meeting the NOAA reporting threshold are recorded, a formal probability formula cannot be applied. The planning committee has determined that even a low-probability wildfire event would have significant consequences given the county's all-volunteer fire departments, its agricultural and timber economy, and the presence of rural manufactured housing communities in wooded areas. The 2012 drought and recurring drought periods (2017-2018, 2022, 2024) demonstrate that regional fire conditions can become extreme during prolonged dry periods.

## E. Vulnerability and Impact by Jurisdiction

**Union County (Unincorporated):** The unincorporated county has the highest wildfire vulnerability due to its extensive forested land, high proportion of manufactured homes in WUI areas, and reliance on volunteer fire departments with longer response times. Manufactured homes in wooded rural areas are more susceptible to ignition from embers and less defensible than site-built homes. Rural roads through forested areas may be blocked by fallen trees during fire events, complicating evacuation and emergency response.

**El Dorado (Pop. 17,826):** El Dorado's urban environment reduces direct wildfire risk. However, the city's southern and western edges, where development transitions to wooded or agricultural land, represent WUI exposure. El Dorado Fire Department is career-staffed and can respond more rapidly than rural volunteer departments. El Dorado's industrial and petroleum-related facilities create unique accelerant risk during fire events.

**Felsenthal (Pop. 51):** Surrounded by the Felsenthal National Wildlife Refuge, Felsenthal has significant wildfire exposure. The community's isolation and lack of local fire suppression capability means wildfire

response time is extended. Prescribed burns in the refuge create a minor risk of escape under extreme fire weather conditions.

**Calion, Huttig, Norphlet, Smackover, Strong, Junction City:** These communities have varying degrees of WUI interface. Communities with tree canopy adjacent to residential areas face structure ignition risk from wind-driven embers during extreme fire weather. Volunteer fire departments have wildland firefighting capability but limited equipment.

**School Districts:** School campuses are not typically located in high wildfire risk WUI areas. However, air quality from regional wildfire smoke could require school closure during significant fire events.

### F. Estimated Potential Loss

No documented wildfire property losses have been recorded in Union County via NOAA Storm Events Database. The FEMA NRI reports an Expected Annual Loss for wildfire of **$8,848.45** (Very Low NRI rating). The NRI figure should not be interpreted as meaning wildfire is not a concern -- preventive mitigation actions remain appropriate given the county's WUI exposure and volunteer fire department response times.

### G. Data Deficiency

Specific wildfire occurrence data for Union County is not comprehensively available from NOAA. The Arkansas Forestry Commission maintains separate fire records not fully integrated into this plan. Updated WUI maps have not been completed at the parcel level for Union County. A community wildfire protection plan (CWPP) developed with the Arkansas Forestry Commission is recommended for the next plan cycle.

## 3.11 Winter Storms

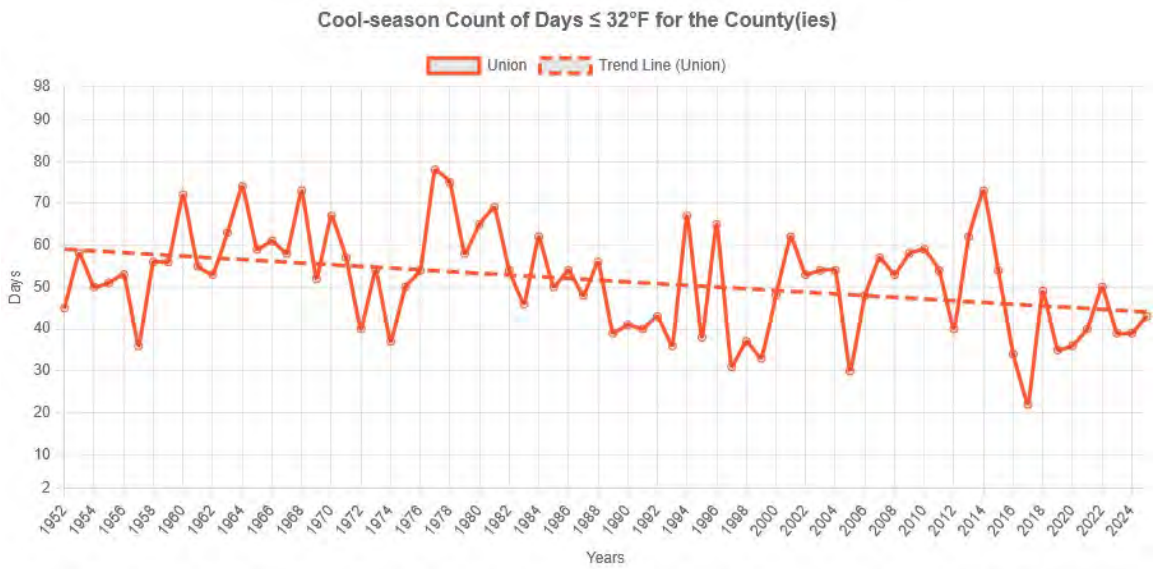


*Figure 4. Union County average annual freeze days (1895–2024 trend). Union County typically experiences 40–60 freeze days per year; trend has slightly declined over the period of record. Even years with few freeze days can produce damaging ice storms when Gulf moisture overrides shallow cold air. (Source: SCIPP / SRCC.)*

### A. Description

**A winter storm is a winter weather event that produces impactful accumulations of freezing rain (ice), sleet, and/or snow (NWS 2018).**

Winter storms may include heavy snowfall, blowing and drifting snow, high winds, extreme cold, or ice storms. Among the greatest hazards associated with winter storms are traffic accidents. The most extreme instance is a blizzard, which is defined as winds greater than 35 mph, visibility less than ¼ mile, lasting at least 3 hours. New snowfall is not necessary for a blizzard, and blowing snow can similarly obscure visibility. Winter storms are measured by snowfall accumulation or ice thickness. Winter storms occur in Arkansas between November and March and are usually created by large low-pressure systems moving rapidly across the country. In Arkansas, ice storms are a greater threat than blizzards. Access to moisture from the Gulf of Mexico falling over shallow cold air near the surface can produce ice accumulations of two inches or greater with tremendous damage to power distribution. (SCIPP, 2024)

In Union County, ice storms present the most significant winter weather hazard. Even modest ice accumulation of one-quarter inch on roads and power lines can cause hazardous driving conditions and widespread multi-day power outages across the planning area. Arkansas does not maintain the road treatment equipment and infrastructure standard in northern states, which makes Union County especially vulnerable to multi-day disruptions from ice events. The December 2000 ice storm (EM-3159 / DR-1354) caused $40,000,000 in documented property damage in a single event — the largest loss event in Union County's modern recorded history. The January 2026 winter storm (EM-3636) reinforced this vulnerability. The FEMA National Risk Index assigns Union County a **Very High** Ice Storm rating ($1,856,413 Expected Annual Loss), the only Very High rating in the county's entire hazard profile.

## B. Location and Extent

Winter storms are a countywide hazard, but per-jurisdiction impact varies significantly by road type, elevation, housing stock, and utility infrastructure age. The impact varies by road type -- ARDOT treats state highways as priority; secondary and county roads may remain untreated for extended periods following ice storms. Rural areas with longer distances from treatment equipment staging are most affected.

## C. Previous Occurrences

NOAA Storm Events Database records **37 winter storm events** across 35 event days in Union County from 2000 through 2025, with total documented property damage of **$40,000,000**. This figure is dominated by a single catastrophic event:

**December 12, 2000 Ice Storm:** This single event caused $40,000,000 in property damage -- the largest recorded loss event in Union County's modern natural hazard history. The storm caused widespread power outages and infrastructure damage across the county. The event was so severe it generated two separate federal disaster declarations: **EM-3159-AR** (Emergency Declaration, December 28, 2000) and **DR-1354-AR** (Major Disaster Declaration, December 29, 2000). The EM covered the emergency response phase; the DR covered major disaster recovery.

| Period | Event Type | Duration | Documented Impact |
|---|---|---|---|
| January 2026 | Winter Storm (EM-3636-AR) | 3-5 days | Power outages; road closures; county-wide emergency declaration |

| | | | |
|---|---|---|---|
| February 2021 | Winter Storm / Extreme Cold | 7-10 days | Widespread power outages; pipe freezing; extended rural isolation |
| 2010-2011 | Multiple ice events | Multiple days | Road closures; school closures; utility outages |
| December 2000 | **Catastrophic Ice Storm** | 3-4 days | **$40,000,000 property damage; EM-3159 + DR-1354** |
| January 1994 | Ice Storm (DR-1011) | Multiple days | Significant agricultural losses; tree damage; federal declaration |

**Federal Declarations for Winter Storms in Union County (4 total):**

- DR-1011-AR (February 28, 1994) -- Severe Winter Ice Storm
- EM-3159-AR (December 28, 2000) -- Severe Winter Ice Storm (emergency phase)
- DR-1354-AR (December 29, 2000) -- Severe Winter Ice Storm (recovery phase)
- EM-3636-AR (January 24, 2026) -- Severe Winter Storm (most recent)

## D. Probability of Future Events

Using the period of record from 2000-2025 (25 years, 37 events):

- Frequency: 1.48 events per year
- Probability of at least one winter weather event in any given year: Very High (approximately 90%+)
- Probability of a significant ice storm causing major power outages: Moderate (every 3-5 years based on recent history)

## E. Vulnerability and Impact by Jurisdiction

**Union County (Unincorporated):** Rural areas face the highest winter storm vulnerability. Rural roads maintained by the county have limited equipment for ice and snow removal and can become impassable for 24-72 hours following an ice storm. Residents in isolated rural areas -- including manufactured home communities -- may be without electricity for extended periods if ice accumulation brings down overhead power lines. Private water wells and above-ground supply lines at manufactured homes are highly susceptible to freezing. Agricultural operations, including cattle and poultry facilities in the eastern portion of the county and along the Ouachita River agricultural corridor, face significant losses during winter storms. The December 2000 ice storm ($40M in damage) is the reference event for worst-case rural impact.

**El Dorado (Pop. 17,826):** El Dorado has aging water distribution infrastructure with pipe segments at elevated freeze risk during extended cold periods. Power outages affecting the city's commercial district and South Arkansas Regional Hospital create immediate quality-of-life and public safety concerns. The hospital must maintain operations during extended power outages and ensure staff can safely access the facility during ice events -- a particular challenge along Highway 82 and 167 during major ice storms. El Dorado's concentration of petroleum facilities and above-ground storage tanks creates additional vulnerability during freeze events, including risk of line ruptures and product solidification in processing equipment.

**Felsenthal (Pop. 51):** Felsenthal faces high winter storm vulnerability due to its isolated location, limited municipal resources, and below-average housing stock condition. The community's primary road access

(Eagle Tram Road) is vulnerable to ice accumulation. With a population of 51 and no local emergency response capability, extended power outages during winter storms represent a genuine life-safety concern, particularly for elderly residents.

**Calion (Pop. 438, Elev. 89 ft):** Calion's older housing stock and limited municipal resources make it vulnerable to extended winter storm impacts. The city's proximity to the Ouachita River means road access could be compromised by ice and associated flooding simultaneously during major winter storm events.

**Huttig (Pop. 448, Elev. 361 ft):** Huttig sits at the highest elevation in the planning area, making it more susceptible to ice accumulation than lower-elevation communities. The combination of higher elevation, older housing stock with higher manufactured home density, and reliance on volunteer fire and limited municipal resources makes Huttig more vulnerable to ice storm impacts than its small size might suggest.

**Junction City (Pop. 681), Norphlet (Pop. 642), Strong (Pop. 453):** These smaller communities have limited winter storm response resources. Water supply infrastructure in small cities with older pipe systems is at elevated freeze risk. Small city budgets do not typically include winter storm equipment; these jurisdictions rely on ARDOT and county resources for road treatment. The higher proportion of manufactured housing in Huttig and Junction City increases freeze and wind damage risk.

**Smackover (Pop. 1,665):** Smackover has slightly more municipal capacity than very small cities but faces constraints on winter storm response. The city's older residential areas and aging utility infrastructure create freeze and damage risk. Manufactured housing accounts for 5.2 percent of Smackover's residential structures (NSI RES2) — below the countywide 8.8 percent share, but a documented ice-loading and pipe-freeze exposure for the ~37 manufactured units in the city (see Section 2.7).

**School Districts:** School closures during winter storms affect working parents and student schedules. Bus routes on rural and secondary roads represent the primary hazard for school transportation during winter events. All school districts have winter closure protocols. The most critical infrastructure risk is pipe freezing in older school buildings during extended cold periods -- a condition documented statewide during the February 2021 winter storm.

## F. Estimated Potential Loss

Documented property damage from 37 winter storm events between 2000 and 2025 totals approximately $40,000,000 (NOAA Storm Events Database), dominated by the single December 12, 2000 event. This is by far the largest single-event loss in Union County's recorded natural hazard history. The FEMA NRI reports winter-related Expected Annual Loss across three categories for Union County: Ice Storm (**$1,856,413.42, Very High** NRI rating), Cold Wave ($176,427.69), and Winter Weather ($20,392.70). Combined winter storm NRI Expected Annual Loss is approximately **$2,053,233.81**, making winter storms collectively the second-highest EAL hazard category after flooding.

The Very High Ice Storm NRI rating -- the only Very High rating in Union County's entire NRI profile -- is validated by the December 2000 event. This rating directly supports elevating winter storm mitigation (particularly generator backup and warming center programs) as high-priority actions.

## G. Data Deficiency

Agricultural loss data from winter storms is maintained by USDA FSA but was not integrated into this plan. Power outage duration data by jurisdiction is not publicly available from utility providers.

# SECTION 4: MITIGATION STRATEGY

## 4.1 Goals and Objectives

The Union County Hazard Mitigation Planning Committee adopted the following goals and measurable objectives to guide the county's long-term mitigation strategy. These goals are aligned with the Arkansas State Hazard Mitigation Plan (2023).

**Goal 1: Life Safety -- Protect Human Life from Natural Hazards**

*Aligns with Arkansas State HMP Goal 1: Reduce vulnerability to jurisdictions, infrastructure, and state-owned properties*

Objective 1A: Achieve at least 80% coverage of public buildings and school campuses in the planning area with accessible storm shelters or safe rooms within 10 years of plan adoption.

Objective 1B: Maintain 24/7 early warning notification system capability for all jurisdictions in the planning area.

Objective 1C: Ensure all participating jurisdictions have a current, tested emergency evacuation plan that accounts for flood, tornado, and winter storm scenarios.

**Goal 2: Property Protection -- Reduce Property Damage from Natural Hazards**

*Aligns with Arkansas State HMP Goal 2: Promote sustainable and disaster-resilient development; and Goal 6: Reduce the number of repetitive loss properties*

Objective 2A: Ensure all new construction in the Special Flood Hazard Area meets or exceeds current NFIP minimum building standards.

Objective 2B: Bring Junction City into full NFIP compliance within three years of plan adoption.

Objective 2C: Reduce structures subject to repetitive flood damage through elevation, acquisition, or floodproofing programs as funding becomes available.

Objective 2D: Ensure all participating jurisdictions have formally adopted the current effective FIRM.

**Goal 3: Grant and Funding Access -- Maximize Hazard Mitigation Funding Opportunities**

*Aligns with Arkansas State HMP Goal 3: Support mitigation grant opportunities for local governments*

Objective 3A: Maintain a current FEMA-approved hazard mitigation plan to ensure eligibility for HMGP, BRIC, and FMA programs.

Objective 3B: Identify and submit at least one HMGP or BRIC application within each five-year plan cycle.

Objective 3C: Assist all participating jurisdictions in identifying specific mitigation projects eligible for state and federal grant funding.

**Goal 4: Infrastructure Resilience -- Protect Critical Facilities and Infrastructure**

*Aligns with Arkansas State HMP Goal 1 (infrastructure); and Goal 5: Utilize latest technology to improve vulnerability assessments*

Objective 4A: Ensure all critical facilities in the planning area have backup power generation capacity within five years.

Objective 4B: Complete inundation zone studies for the Felsenthal Lock and Dam and HK Thatcher Lock and Dam within five years.

Objective 4C: Develop a dam failure emergency action plan in coordination with the U.S. Army Corps of Engineers and the owner of Arnoname 55.

## 4.2 Prioritization

All incorporated jurisdictions of Union County along with the school districts prioritized their mitigation strategies based on benefit to the community, total cost, and support from the community, practicality, and availability of funding. The planning committee discussed prioritization at the July 7, 2022 committee meeting.

Each jurisdiction provided mitigation strategies for each profiled hazard. Strategies were evaluated against the criteria above plus the documented hazard exposure, the size of the at-risk population or asset, and the alignment with the four plan goals. Actions that directly save lives or address documented FEMA compliance gaps were assigned Very High priority. Actions that address significant documented hazards with favorable benefit-cost characteristics were assigned High priority. Medium priority was assigned to actions providing meaningful risk reduction at moderate cost. Low priority was assigned to preventive measures with lower urgency.

As funding becomes available, each jurisdiction will weigh cost versus need and the amount of funding actually available to decide which action will be completed next. This approach satisfies 44 CFR 201.6(c)(3)(iii) by emphasizing the extent to which benefits are maximized in relation to associated costs, while incorporating other prioritization factors documented above.

Priority categories used in the Mitigation Action Matrix (Section 4.4):

- **Very High** — Directly save lives or address critical FEMA compliance gaps.
- **High** — Address significant documented hazards with favorable benefit-cost ratios.
- **Medium** — Provide meaningful risk reduction at moderate cost.
- **Low** — Preventive measures with lower urgency.

## 4.3 NFIP Compliance

All participating jurisdictions except Junction City are NFIP members in good standing. The following table documents NFIP compliance status for each participating jurisdiction.

| Jurisdiction | NFIP Status | CID | Date Joined | Rep. Loss Properties | SD/SI Process |
|---|---|---|---|---|---|
| Union County | Member | 050205 | Dec. 13, 1977 | None | OEM serves as floodplain administrator; structures at 50%+ threshold must meet current |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | ordinance standards |
| Calion | Member | 050206 | Apr. 12, 1974 | None | Mayor/floodplain administrator determines SD/SI compliance |
| El Dorado | Member | 050207 | May 3, 1974 | None | Building Official Kirby Craig; structures at or exceeding 50% substantial damage required to elevate to BFE |
| Felsenthal | Member | 050574 | Jun. 19, 1985 | None | Mayor determines SD/SI; limited administrative capacity |
| Huttig | Member | 050208 | May 24, 1974 | None | NFIP-compliant ordinance in effect; Water Superintendent Kevin Osgood serves as floodplain administrator and determines SD/SI at 50% threshold |
| Junction City | NOT MEMBER | N/A | N/A | N/A | N/A -- NFIP enrollment is Mitigation Action #12 |
| Norphlet | Member | 050356 | Apr. 4, 1975 | None | NFIP-compliant ordinance in effect; Mayor Dennis Dumas serves as floodplain administrator and determines SD/SI at 50% threshold |
| Smackover | Member | 050209 | Oct. 26, 1973 | None | NFIP-compliant ordinance in effect; Public Works Director Jason Waxley serves as floodplain administrator and determines SD/SI at 50% threshold |

| | | | | | |
|---|---|---|---|---|---|
| Strong | Member | 050210 | Jun. 28, 1974 | None | NFIP-compliant ordinance in effect; Mayor Daryell Howard serves as floodplain administrator and determines SD/SI at 50% threshold |

Each NFIP-participating jurisdiction has formally adopted the current effective FIRM (September 28, 2007) through ordinance or resolution. Specific FIRM effective dates are listed in the per-jurisdiction NFIP tables in Section 2.3.

### Junction City -- Special Note

Junction City does not currently participate in the NFIP. As a result:

- Residents of Junction City cannot purchase federally backed flood insurance through the NFIP.
- Junction City is not eligible for FEMA's Flood Mitigation Assistance (FMA) grant program while it remains a non-participant.
- Junction City lenders may require private flood insurance for properties in the SFHA at significantly higher cost than NFIP policies.

The planning committee acknowledges this gap and has included Mitigation Action #12 (Junction City NFIP Enrollment) as a Very High priority action. Southwest Arkansas PDD and ANRC will provide technical assistance to Junction City to initiate the enrollment process within six months of plan adoption.

## 4.4 Mitigation Action Matrix

The following matrix documents all mitigation actions identified by the Union County Hazard Mitigation Planning Committee. Each row represents one action and includes the prioritization rationale, cost-benefit characterization, time frame, responsible department, and adopting jurisdictions required by 44 CFR 201.6(c)(3)(iii) and (iv). Actions carried forward from the prior plan are documented in Section 5.3.

| Mitigation Action / Project | Associated Hazard | Rationale for Priority | Assigned Priority | New / Existing Buildings | Cost-Benefit | Time Frame | Administered / Responsible Department | Jurisdiction |
|---|---|---|---|---|---|---|---|---|
| 1. Dam Inundation Studies | Dam Failure, Flooding | No inundation study exists for either USACE structure. The March 2018 event at Felsenthal (85.43 ft pool, 20 ft above normal) demonstrated pool levels can exceed Felsenthal's 82 ft ground elevation without structural failure. Arnoname 55 (AR00605), the county's only HHPD, has no inspection record, no condition assessment, and no EAP. | High | New and Existing | Low-to-moderate cost; USACE technical assistance may be available at reduced or no cost; quantifies at-risk structures and supports positive BCA for future dam safety improvements. | 5 years | Union County OEM (lead); Southwest Arkansas PDD; USACE Vicksburg District; Olinkraft Inc. | Union County, Calion, El Dorado, Felsenthal, Huttig, Junction City, Norphlet, Smackover, Strong |
| 2. Early Warning Notification System | Dam Failure, Flooding, Tornado, Thunderstorm | Felsenthal's documented isolation during flood events (Eagle Tram Road flooding) and absence of a local warning system mean residents have no advance-warning mechanism. January 2005 F3 at Junction City killed 2 people partly due to limited rural warning time. EM-3636 (January 2026) confirmed ongoing winter storm impacts. (NOAA weather radio deployment confirmed by Union County OEM 6/25/26 — radios distributed to courthouse, EOC, and school campuses; expansion to fire stations and water plants carried forward as part of this action.) | High | New and Existing | Moderate cost; high life-safety benefit; FEMA BCA consistently positive for early warning systems in isolated communities. | 5 years | Union County OEM (lead); fire chiefs and mayors for local implementation. | Union County, Calion, El Dorado, Felsenthal, Huttig, Junction City, Norphlet, Smackover, Strong |
| 3. School Safe Rooms | Tornado, Severe Storm | The January 12, 2005 F3 at Junction City killed 2 people and injured 13. No safe rooms exist at JCSD, NSD, PCSD, SSD, or SHSD campuses. A school-day EF-2 or greater tornado would expose 500–3,800 students to direct hazard. The planning area lies in Dixie Alley, where nighttime and low-visibility tornadoes are more common. April 2025 events (EM-3627) confirm ongoing threat. | Very High | Existing (retrofitted safe rooms at existing campuses) | High upfront cost; FEMA BCA consistently shows 4:1 to 9:1 ratios for safe rooms in Dixie Alley communities. 75% federal / 25% local cost share via HMGP/BRIC. | 3–5 years | Southwest Arkansas PDD (grant writing); individual school districts (implementation); Union County OEM (coordination). | Union County, El Dorado, Felsenthal, Huttig, Junction City, Norphlet, Smackover, Strong (all 5 school districts) |
| 4. Stormwater Drainage Improvements — El Dorado | Flooding (Flash Flood) | Nine specific El Dorado road segments experience regular flash flooding documented through OEM and public comment at the November 10, 2022 city council meeting (S. Washington/Locust; 19th/Tanglewood; Crawford; Magnolia/College; College/Crestwood; Hillsboro; 1600 block Junction City Rd.; Timberlane/Mt. Holly; Claremont). Cumulative repetitive damage justifies BRIC infrastructure investment. | Medium | Existing buildings and public infrastructure | Moderate cost; positive BCA given repetitive damage history; BRIC infrastructure projects in this category typically show 2:1 to 4:1 ratios. | 3–5 years | City of El Dorado (lead); Southwest Arkansas PDD (grant writing); Union County OEM. | El Dorado |
| 5. Generator Backup for | Winter Storm, Tornado, | December 2000 ice storm caused $40,000,000 in damage and multi-day outages. EM-3636 (January | High | Existing critical | Moderate-to-high cost; high benefit for facilities | 3–5 years | Union County OEM (lead); individual | Union County, Calion, El Dorado, Felsenthal, |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Critical Infrastructure | Thunderstorm, Dam Failure | 2026) confirmed continued winter storm power outage risk. Very High NRI Ice Storm rating ($1,856,413 EAL) is the strongest quantitative signal in Union County's profile. South Arkansas Regional Hospital, county jails, and water/wastewater facilities must remain operational. (Generator status confirmed by Union County OEM 6/25/26 — EOC and South Arkansas Regional Hospital generators installed 2025; county jail generator installed; school campus, municipal water plant, and wastewater plant generators are deployment targets for this action.) | | facilities | with 24/7 operational requirements; South Arkansas Regional Hospital backup power shows very high BCA as sole hospital serving the planning area. | | facility operators; Southwest Arkansas PDD (grant writing). | Huttig, Junction City, Norphlet, Smackover, Strong |
| 6. Manufactured Home Anchoring Program | Tornado, Severe Storm, Winter Storm | Manufactured housing in rural Union County represents the highest per-unit risk of death or injury in tornado and severe wind events. EF-1 winds (86–110 mph) demolish unanchored manufactured homes. The 2005 Junction City F3 (2 deaths) passed through a rural area with manufactured housing. Huttig, Junction City, and Strong have high manufactured housing concentrations. | Medium | Existing manufactured homes | Low cost per structure ($1,000–$3,000 per unit for tie-down anchoring); high life-safety benefit; cost is a fraction of unit replacement value. | 3–5 years | Union County OEM; Southwest Arkansas PDD; Arkansas Mobile Home Commission. | Union County, Huttig, Junction City, Strong |
| 7. Flood-Prone Road Assessment and Elevation | Flooding | Rural roads with low-water crossings in the Ouachita River bottom land become impassable during flood events, cutting off emergency services and school bus routes. The unincorporated county's 680 square miles include numerous culverts sized to historical rainfall patterns that are now undersized given documented increases in flood frequency. | Medium | Public infrastructure | Moderate cost; positive BCA for frequently flooded crossings; BRIC infrastructure resilience projects for road crossings typically show positive ratios in areas with documented repetitive flooding. | 3–5 years | Union County (lead); ARDOT; Southwest Arkansas PDD. | Union County |
| 8. Eagle Tram Road Flood Mitigation — Felsenthal | Flooding, Dam Failure | Eagle Tram Road is one of only two access routes into Felsenthal. It floods regularly during Ouachita River high-water events and was confirmed impassable during the March 2018 event. Felsenthal has 51 residents and no local emergency response capability — any closure is a complete isolation event. A dam failure at Felsenthal Lock and Dam would close both routes. | Medium-High | Public infrastructure — critical access road | Moderate-to-high cost; high life-safety benefit given Felsenthal's complete dependence on road access; FEMA BCA supports positive ratios for access route improvements in isolated communities with documented exposure. | 3–5 years | City of Felsenthal; Union County OEM; ARDOT; Southwest Arkansas PDD. | Felsenthal, Union County |
| 9. Drought Preparedness and Water Conservation Planning | Drought | Union County experienced D4 exceptional drought in 2012 and additional significant drought periods in 2017–2018, 2022, and 2024. Rural communities with small water systems have no redundancy. Mutual aid agreements between water systems would provide emergency supply options during drought-related outages. | Medium | New and Existing | Low cost (planning action); high benefit given recurring drought exposure; FEMA-eligible mitigation activity. | 3 years | Union County OEM (lead); Southwest Arkansas PDD; ANRC. | Union County, Calion, El Dorado, Felsenthal, Huttig, Junction City, Norphlet, Smackover, Strong |
| 10. Wildfire Community Protection Planning (CWPP) | Wildfire | Zero NOAA-recorded wildfire events in Union County 2000–2025 supports a low overall rating, but the county's 680 square miles of rural and forested land, all-volunteer rural fire departments, and recurring drought conditions (2012, 2017– | Low-Medium | Existing development in WUI areas | Low cost (planning action); facilitates future grant eligibility for higher-cost wildfire mitigation projects; AFC partnership provides | 2–3 years | Union County OEM; Arkansas Forestry Commission; Southwest Arkansas PDD. | Union County |

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| | | 2018, 2022, 2024) represent credible future risk. A CWPP would formalize the risk assessment and improve access to wildfire-specific HMGP and BRIC funding. | | | technical assistance at no cost. | | | |
| 11. El Dorado Stormwater Master Plan | Flooding (Flash Flood) | El Dorado has nine documented flash flood corridors identified through OEM, law enforcement, and public comment. Without a comprehensive stormwater master plan, the city cannot systematically prioritize and fund improvements. A master plan is the prerequisite for BRIC applications for stormwater infrastructure projects. | Medium | Public stormwater infrastructure | Low cost (planning action, $50,000–$150,000); enables higher-cost infrastructure improvements with positive BCAs downstream. | 2–3 years | City of El Dorado; Southwest Arkansas PDD. | El Dorado |
| 12. Junction City NFIP Enrollment | Flooding | Junction City is the only jurisdiction in the planning area not participating in the NFIP. Smackover Creek flows through or adjacent to Junction City and has caused three documented flood events since 1996. Population 681 (the only jurisdiction to grow 2010–2020); the non-participation gap is increasing. Residents cannot purchase federally backed flood insurance, and the city is ineligible for FMA. The 2005 F3 and 2007 EF3 tornadoes demonstrate disproportionate hazard exposure. (Confirmed by Union County OEM 6/25/26 — Junction City has NOT initiated NFIP enrollment since the 2022 plan preparation; enrollment remains the Very High Priority action #12 in this update.) | Very High | New and Existing | Very low cost (administrative); very high benefit through restored FMA eligibility and resident access to flood insurance; FMA funding ratios can reach 100% federal for SRL properties. | 3 years | Southwest Arkansas PDD (coordination lead); City of Junction City; ANRC. | Junction City |
| 13. Earthquake Awareness and Building Code Review | Earthquake | Union County has no recorded damaging earthquakes, but the NRI earthquake EAL of $930,215 reflects NMSZ regional risk. Unreinforced masonry structures in El Dorado's historic commercial district are the primary structural vulnerability. Building code review and awareness training are low-cost preventive actions. | Low | New construction | Very low cost (administrative); long-term benefit in ensuring seismic resilience for new critical facilities. | 1–2 years | Union County OEM; Southwest Arkansas PDD. | Union County, El Dorado |
| 14. Winter Storm Public Education and Warming Center Program | Winter Storm | The Very High NRI Ice Storm rating ($1.86M EAL), the December 2000 catastrophic ice storm ($40M damage), EM-3636 (January 2026), and the February 2021 winter storm all demonstrate significant winter storm vulnerability. Manufactured home residents and elderly populations in isolated rural areas are at highest risk during extended power outages. | Low-Medium | Existing residential structures — manufactured homes, elderly housing | Low cost; high benefit for vulnerable populations; HMGP-eligible activity. Estimated $10,000–$50,000 for program development. | 3 years | Union County OEM (lead); mayors; Southwest Arkansas PDD. | Union County, Calion, El Dorado, Felsenthal, Huttig, Junction City, Norphlet, Smackover, Strong |
| 15. Comprehensive Emergency Operations Plan Integration | All Profiled Hazards | FEMA requires integration of the HMP into existing planning mechanisms. Multiple participating jurisdictions have outdated EOPs that do not reference the current HMP. El Dorado School District and Union County OEM integration are specifically noted as priority items. (Confirmed Union County OEM 6/25/26 — no updates have been made to the Union County EOP or to any participating school district's EOP in reference to this 2026 HMP at the time of plan adoption. Cross- | Low | All | Very low cost (administrative); ensures HMP and EOP are mutually supporting documents. | 1–2 years | Union County OEM (lead); all participating jurisdictions. | Union County, Calion, El Dorado, Felsenthal, Huttig, Junction City, Norphlet, Smackover, Strong (all 5 school districts) |

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| | | reference is planned for the next EOP revision cycle.) | | | | | | |

# SECTION 5: PLAN UPDATE

## 5.1 Changes in Hazard-Prone Area Development

Since the 2009 Union County Hazard Mitigation Plan, the following changes in the planning area's hazard-prone development and community profile have occurred:

**Population changes:** Union County's overall population declined from 41,639 (2010) to 39,054 (2020), a 6.2% decrease. Most participating jurisdictions lost population, with the notable exception of Junction City, which grew from 581 to 681 residents (17.2% increase). The growth in Junction City -- the only non-NFIP jurisdiction -- increases the significance of Mitigation Action #12 (NFIP enrollment). Felsenthal lost 66% of its population (152 to 51 residents) between 2010 and 2020, reducing life-safety risk exposure but intensifying the community's vulnerability to any significant hazard event given its reduced capacity to self-sustain emergency response.

**Flood events since 2009:** NOAA Storm Events Database records 33 flood or flash flood events in Union County between 2009 and 2025, with $2,970,000 in documented property damage. The March 2018 Ouachita River high-water event (85.43 ft at Felsenthal Lock and Dam gauge) is the most significant flood event since the previous plan and directly informed the addition of Eagle Tram Road flood mitigation as Mitigation Action #8.

**Tornado events since 2009:** Twenty-two tornado events were recorded in Union County between 2009 and 2025. The April 2025 severe storm outbreak (EM-3627) resulted in a federal Emergency Declaration, confirming the tornado threat remains active.

**Winter storm events since 2009:** Significant ice storm events occurred in the winters of 2010-2011, 2021, and January 2026 (EM-3636). The January 2026 event was the most recent federal declaration in the county's history at the time of plan revision.

**Dam inventory:** The NID inventory for Union County, accessed January 2026, confirms 18 dams in the county. The single High Hazard Potential dam -- Arnoname 55 (AR00605) -- was identified as requiring detailed profiling under 2025 standards. This was not adequately addressed in the 2009 plan.

## 5.2 Changes in Community Priorities

The planning committee identified the following shifts in community priorities and structure since the prior plan:

**School district consolidation:** Smackover School District and Norphlet School District consolidated into the Smackover-Norphlet School District (current FY26 Arkansas Department of Education roster), reducing the number of participating school districts from six to five. All campuses (Smackover and Norphlet) remain operational; the district is now under a single Superintendent (Douglas Smith).

**Sheriff transition:** Sheriff Ricky Roberts (in office at the time of the July 2022 planning meeting) has since been succeeded by Sheriff Charlie Phillips (elected 2026). Ricky Roberts now serves as Chief of the El Dorado Police Department.

**Hospital rename:** Warner Brown Hospital is now operating as South Arkansas Regional Hospital. The hospital remains the only hospital in the planning area, located in El Dorado.

**OEM transition:** OEM Coordinator Bobby Braswell (in office at the time of the prior planning meetings) has been succeeded by Bruce Goff (current OEM Coordinator).

- **School safe rooms** moved from a planning-phase consideration to the highest-priority life-safety action, directly informed by the January 2005 F3 deaths at Junction City and the active tornado threat demonstrated by EM-3627 (April 2025).
- **Winter storm generator backup** elevated in priority, informed by the Very High NRI ice storm rating ($1,856,413.42 EAL) and extended power outage events in 2021 and January 2026.
- **Junction City NFIP enrollment** elevated to Very High priority given the city's population growth and continued non-participation.
- **Dam failure risk** elevated and more clearly documented under 2025 FEMA standards, with Arnoname 55 now properly profiled as a High Hazard Potential dam.
- **Felsenthal isolation** more thoroughly documented given the March 2018 high-water event and the community's continued population decline.

## 5.3 Status of Previous Mitigation Actions

The following table documents the status of all fourteen (14) mitigation actions from the previously approved Union County Hazard Mitigation Plan, as confirmed by Union County OEM Coordinator Bruce Goff in a signed status checklist dated June 9, 2026. Status definitions: **Completed** = action was accomplished; **In Progress** = underway but not finished; **Deferred (carry fwd)** = not done; carried into 2026 plan; **Deleted (removed)** = dropped from 2026 plan.

| # | Prior-Plan Action | Status | Notes (confirmed by Bruce Goff, OEM, 6/9/26) |
|---|---|---|---|
| 1 | Do an inundation study (Dam Failure / Flooding) | Deferred — carried forward | No formal inundation study has been commissioned 2016–2025. Contact made with Felsenthal in 2023; no new information on buildings at risk. Outreach to Olinkraft Inc. (Arnoname 55 owner) status: unknown. Carried forward as 2026 Action #1. |
| 2 | Early warning system (Dam Failure / Flooding) | Completed | Outdoor warning siren installed at the Felsenthal town hall in 2022. The Union County Sheriff's app provides an additional notification channel countywide. |
| 3 | Establish a warming center (Winter Storm) | In Progress | The Salvation Army facility in El Dorado operates as a designated warming and cooling center. Union County is currently working |

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| | | | with the El Dorado Chamber of Commerce to identify additional center locations. |
| 4 | Implement burn bans, burn permits, restrict burning (Wildfire) | Completed | Union County has enacted approximately 12 burn bans since 2016. The City of El Dorado maintains standing burn ordinances and a permit system, and issues its own bans by ordinance. The County Judge issues county-level burn bans as recommended by the Arkansas Forestry Division. |
| 5 | Water conservation ordinances (Drought / Wildfire) | Completed | Union County has a Conservation Board and has installed water-monitoring stations throughout the county to track aquifer water-table levels. The county self-taxed to install a river water-supply line serving industrial users, conserving aquifer water for residential and municipal use. |
| 6 | Install low-flow faucets and showerheads in critical infrastructures, public buildings, and schools (Drought) | Deferred — carried forward | Low-flow or limited-flow fittings have been installed at the Union County Courthouse, the EOC (in the Warner Brown building), and the Sheriff's Office. Status at school campuses and municipal buildings is unknown. Carried forward. |
| 7 | Stormwater drainage ordinances (Flooding) | Deferred — carried forward | Specific stormwater ordinance adoption by Calion, Huttig, Junction City, Norphlet, Smackover, or Strong since the prior plan is unknown to the OEM. El Dorado's stormwater management is documented separately in 2026 Action #11. Carried forward. |
| 8 | Place NOAA weather radios in public buildings (Earthquake / Flooding / Tornado / Thunderstorm / | Deferred — carried forward | NOAA weather radio deployment to County courthouse, EOC, school campuses, fire stations, |

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| | Winter Storm) | | water plants, and city halls is unknown; no documented deployment record exists at the OEM level. Carried forward as part of 2026 Action #2. |
| 9 | Tree-trimming program to reduce wind damage (Thunderstorm / Tornado / Winter Storms) | In Progress | County roadways are being maintained through ongoing tree-trimming and dead-tree removal by contractors and county road workers. Coverage is limited to county ROW; utility-line ROW (Entergy, SwepCo) is handled by the respective utilities. No additional formal program exists countywide. |
| 10 | Educational materials on home/building renovations (multi-hazard) | Deferred — carried forward | Printed handout material is available at the OEM office. Active distribution program is limited; carried forward as 2026 Action #14 (combined with Winter Storm Public Education). |
| 11 | Acquire generators for critical infrastructure (multi-hazard) | Deferred — carried forward | EOC and Warner Brown Hospital generator installed in 2025. County jail generator installed (date unknown). Status of generators at school campuses, municipal water plants, and wastewater plants is unknown. Carried forward as 2026 Action #5. |
| 12 | Build safe rooms at schools / public buildings (Tornado / Thunderstorm) | Deferred — carried forward | No known safe rooms built in Union County during the prior plan period. No HMGP or BRIC safe-room applications were submitted. Elevated to Very High Priority in 2026 plan as Action #3. |
| 13 | Create a FireWise Program (Wildfire) | Deferred — carried forward | Status of any FireWise outreach with the Arkansas Forestry Division or local fire departments is unknown. No Union County community has formally applied for FireWise USA recognition. Carried forward as part of 2026 Action #10 (Community Wildfire |

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| | | | Protection Planning). |
| 14 | Create defensible space around critical infrastructures and schools (Wildfire) | Completed | Defensible-space clearing is being performed around critical facilities and schools on a monthly basis (or as needed) per the OEM. |

*Source: Bruce Goff (Union County OEM Coordinator), "Union County HMP — Prior Plan Action Status Checklist (E2-b)," signed 6/9/26. Original signed document on file at the Southwest Arkansas PDD office.*

**Summary:** Of the 14 prior-plan actions, **4 are Completed** (early warning system, burn bans, water conservation, defensible space); **2 are In Progress** (warming center, tree-trimming); and **8 are Deferred and carried forward** into the 2026 plan as updated mitigation actions. None were Deleted. The high incidence of "unknown" inventory items (NOAA radio deployment, generator coverage at schools/water plants, stormwater-ordinance adoption status, FireWise outreach) is itself a documented capability gap that the 2026 plan addresses through Action #2 (Early Warning Notification System), Action #5 (Generator Backup), Action #11 (El Dorado Stormwater Master Plan), and Action #10 (Community Wildfire Protection Planning).

## 5.4 Integration with Other Planning Mechanisms (Forward-Looking, D3-c)

Each participating jurisdiction has identified the following integration steps to incorporate this Hazard Mitigation Plan into its existing planning mechanisms during the 2026–2031 plan cycle.

**Union County (Unincorporated):** The Union County OEM will incorporate HMP goals and mitigation action priorities into the next update of the Union County Emergency Operations Plan. The county will use this HMP as the planning basis for any HMGP or BRIC grant applications submitted following a federal disaster declaration. The county's capital improvement programming will reference HMP Mitigation Actions #1, #5, and #7 for infrastructure investment prioritization.

**City of El Dorado:** El Dorado will incorporate the nine documented flash flood corridors (Section 3.7) and Mitigation Actions #4 and #11 into its capital improvement program. The Building Official will reference this HMP when evaluating permit applications in SFHA areas. El Dorado will update its EOP at the next revision cycle to cross-reference this HMP. The city's emergency management coordinator will provide annual status reports to the planning committee.

**Cities of Calion, Felsenthal, Huttig, Junction City, Norphlet, Smackover, and Strong:** Each city will incorporate relevant mitigation actions into the next update of its Emergency Operations Plan or equivalent emergency response protocols. Each city's designated floodplain administrator will use this HMP as a reference document when issuing floodplain development permits. Southwest Arkansas PDD will assist each city in identifying applicable mitigation actions when federal grant opportunities arise.

**El Dorado School District:** The District will cross-reference Mitigation Action #3 (school safe rooms) in its facility master planning and will reference this HMP in the next EOP update.

**Junction City, Norphlet, Parkers Chapel, Smackover, and Strong-Huttig School Districts:** Each district will incorporate safe room planning (Mitigation Action #3) into its facility improvement planning and EOP update

cycle. Southwest Arkansas PDD will assist districts in preparing HMGP applications for safe room funding following eligible disaster declarations.

**Supporting Regional and State Documents:**

- **Arkansas State Hazard Mitigation Plan (2023):** County goals and hazard profiles align with the six Arkansas State HMP goals. The county's FEMA-4441-DR-AR-0005 HMGP funding supports this plan update.
- **Southwest Arkansas PDD Comprehensive Economic Development Strategy (CEDS):** The CEDS identifies disaster resilience as a regional priority. Mitigation actions for infrastructure, economic facilities, and transportation are consistent with CEDS goals.
- **FEMA Flood Insurance Rate Maps (FIRMs):** All NFIP-participating jurisdictions have formally adopted the current effective FIRM (see Section 2.2 and Section 4.3).

This plan is designed to complement, not replace, existing jurisdiction-level planning documents. Integration will be reviewed annually as part of the plan maintenance process described in Section 6.

## 5.5 Documentation of Plan Integration (Backward-Looking, E2-c)

The 2009 Union County Hazard Mitigation Plan was incorporated into existing planning mechanisms as follows :

**Union County Emergency Operations Plan:** The county EOP was updated to cross-reference the 2009 HMP following plan adoption. Hazard profiles from the 2009 plan informed the county's emergency response planning during the plan cycle. (Confirmed Union County OEM 6/25/26 — Blake will follow up on specific EOP revision dates with the County and each school district in Section 5.5; no updates have been made to any EOP in reference to this HMP at the time of adoption.)

**NFIP Compliance:** All NFIP-participating jurisdictions maintained active floodplain management programs consistent with the previous plan's NFIP objectives throughout the plan cycle. Junction City's NFIP non-participation was identified in the  plan as a priority action and remains unresolved — this gap is addressed in this update as Very High Priority Mitigation Action #12.

**Capital Improvement Planning:** El Dorado used the  HMP as a reference document for stormwater improvement programming. Specific stormwater drainage improvements at documented flood locations were partially funded during the plan cycle.

**School EOPs:** All five school districts updated Emergency Operations Plans at least once during the  period. Tornado and severe storm protocols documented in school EOPs are consistent with the 2009 HMP's identified tornado risk. (Per Union County OEM 6/25/26 — no school district EOP has been updated to reference this 2026 HMP; updates planned for the next revision cycle of each district's EOP.)

**Mitigation Grant Applications:** Hazard Mitigation funding was available under DR-1744-AR, DR-1845-AR, and DR-1861-AR during the plan cycle

The plan acknowledges that several  plan actions were not completed, primarily due to lack of HMGP funding and the expiration of the  plan before projects could be initiated. These actions are carried forward in this update with updated rationale and improved data.

# SECTION 6: PLAN MAINTENANCE

## 6.1 Monitoring, Evaluating, and Updating the Plan

The Union County Hazard Mitigation Plan will be monitored, evaluated, and updated as follows:

**Monitoring:** The Union County OEM, with assistance from Southwest Arkansas PDD, will track the implementation status of each mitigation action annually. Progress will be assessed against the timelines established in Section 4.4.

**Evaluation:** An annual review will assess whether new hazard events, demographic changes, or community priorities warrant revision of hazard profiles or mitigation actions before the five-year update cycle.

**Updating:** The plan will be formally updated every five years in compliance with 44 CFR 201.6(d)(3). The next required update is due five years from the date of FEMA approval. Plan updates will incorporate:

- Updated NRI data from hazards.fema.gov/nri
- Updated NOAA Storm Events data for the planning period
- Any new or updated FEMA disaster declarations for Union County
- Updated population and demographic data from the next Census Bureau data release
- Status updates on all mitigation actions

## 6.2 Annual Review Process

The Union County OEM will convene an annual review meeting each April (Confirmed Union County OEM 6/25/26 — April is the established annual review month.) with representatives from each participating jurisdiction and Southwest Arkansas PDD. The annual review will address:

22. Status of all mitigation actions -- any completed, in progress, or newly initiated
23. Any new hazard events or federal declarations since the last review
24. Any changes in jurisdiction capabilities or NFIP compliance status
25. Any grant applications submitted or funded since the last review

Meeting minutes from each annual review will be maintained by the Union County OEM and made available to ADEM upon request.

## 6.3 Five-Year Re-evaluation

The five-year re-evaluation will constitute a full plan update, including:

- A new public participation process as required by 44 CFR 201.6(b)(1)
- Updated hazard profiles incorporating any new data sources or changes in hazard conditions
- Updated capability assessments for each participating jurisdiction
- Review and update of all mitigation actions
- Documentation of progress on all actions from this plan cycle
- Formal adoption by all participating jurisdictions

## 6.4 Incorporation into Existing Planning Mechanisms

As part of the plan maintenance process, each participating jurisdiction will incorporate the hazard mitigation goals and priorities of this plan into its Emergency Operations Plan, Capital Improvement Program, and any master plans or comprehensive plans adopted during the plan cycle. Southwest Arkansas PDD will assist jurisdictions in identifying specific points of integration during each annual review.

## 6.5 Continuous Public Involvement

Public involvement in the plan maintenance process will include:

- Annual posting of the plan update status on the Union County website and Southwest Arkansas PDD website
- Public comment opportunity at each annual review meeting
- Press releases to local media when significant hazard events occur or when major mitigation actions are completed or funded
- Inclusion of hazard mitigation information in any community newsletter or public communications distributed by participating jurisdictions

# SECTION 7: ACRONYMS

| Acronym | Definition |
|---|---|
| ADEM | Arkansas Division of Emergency Management |
| AHPS | Advanced Hydrologic Prediction Service (NWS) |
| ANRC | Arkansas Natural Resources Commission |
| ARDOT | Arkansas Department of Transportation |
| BCA | Benefit-Cost Analysis |
| BFE | Base Flood Elevation |
| BRIC | Building Resilient Infrastructure and Communities |
| CEDS | Comprehensive Economic Development Strategy |
| CID | Community Identifier (NFIP) |
| CRS | Community Rating System (NFIP) |
| DMA 2000 | Disaster Mitigation Act of 2000 |
| EAL | Expected Annual Loss (NRI) |
| EAP | Emergency Action Plan (dam) |
| EF | Enhanced Fujita Scale |
| EOP | Emergency Operations Plan |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Map |
| FMA | Flood Mitigation Assistance |
| HHPD | High Hazard Potential Dam |
| HMGP | Hazard Mitigation Grant Program |
| HMP | Hazard Mitigation Plan |
| MMI | Modified Mercalli Intensity |
| NID | National Inventory of Dams |
| NFIP | National Flood Insurance Program |
| NMSZ | New Madrid Seismic Zone |
| NOAA | National Oceanic and Atmospheric Administration |
| NRI | National Risk Index |
| NWS | National Weather Service |
| OEM | Office of Emergency Management |
| PDSI | Palmer Drought Severity Index |
| SCIPP | Southern Climate Impacts Planning Program |

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| SFHA | Special Flood Hazard Area |
| SD/SI | Substantial Damage / Substantial Improvement |
| Southwest Arkansas PDD | Southwest Arkansas Planning and Development District |
| STAPLEE | Social, Technical, Administrative, Political, Legal, Economic, Environmental |
| USACE | U.S. Army Corps of Engineers |
| USGS | U.S. Geological Survey |
| WUI | Wildland-Urban Interface |

# SECTION 8: PLAN ADOPTION

This section will contain the signed adoption resolutions from each participating jurisdiction following plan approval by FEMA and ADEM. Adoption resolutions are required from:

- Union County (County Judge)
- City of Calion
- City of El Dorado
- City of Felsenthal
- City of Huttig
- City of Junction City
- City of Norphlet
- City of Smackover
- City of Strong
- El Dorado School District (Supt. James Tucker)
- Junction City School District (Supt. Melanie Mason)
- Parkers Chapel School District (Supt. Jana L. Young)
- Smackover-Norphlet School District (Supt. Douglas Smith)
- Strong-Huttig School District (Supt. Veronica Perkins)

Sample adoption resolution language is provided in the front matter of this plan.

# APPENDIX A: DATA SOURCES AND REFERENCES

| Source | Description | Access |
|---|---|---|
| NOAA Storm Events Database | Historical storm events for Union County, 2000-2025 | ncdc.noaa.gov/stormevents |
| FEMA National Risk Index (NRI) | Expected Annual Loss data for Union County | hazards.fema.gov/nri |
| FEMA National Inventory of Dams (NID) | Dam inventory, Union County, AR; accessed January 2026 | nid.sec.usace.army.mil |
| OpenFEMA Disaster Declarations Summaries v2 | Complete federal disaster declaration history for Union County (FIPS 05139), 1968-2026 | fema.gov/openfema-data-page/disaster-declarations-summaries-v2 |
| USGS Earthquake Hazards Program | USGS earthquake catalog for Union County, M2.0+, 1950-2025 | earthquake.usgs.gov |
| NWS Advanced Hydrologic Prediction Service (AHPS) | Flood stage data, gauges FELA4 (Felsenthal Lock and Dam) and CAMA4 (Ouachita at Camden) | water.weather.gov/ahps |
| U.S. Census Bureau | 2020 Decennial Census; American Community Survey | census.gov |
| SCIPP Simple Planning Tool for Climate Hazards, v2.0 | Hazard definitions and planning tool guidance for Arkansas | southernclimate.org/resources/tools/simple-planning-tool |
| Arkansas State Hazard Mitigation Plan (2023) | ADEM statewide hazard mitigation plan | adem.arkansas.gov |
| USDA wildfirerisk.org | Wildfire risk mapping for Union County | wildfirerisk.org |
| Arkansas Natural Resources Commission (ANRC) | NFIP participation status for Union County jurisdictions | anrc.arkansas.gov |

# APPENDIX B

## Flood Zone Maps - Union County, Arkansas

*Effective FIRM: Countywide DFIRM 05139C, effective December 9, 2013*

## Heavy Rainfall and Flooding

**Data Limitations.** Flood Insurance Rate Maps (FIRMs) identify Special Flood Hazard Areas based on the data available when the study was performed. The effective Union County FIRM panels carry an effective date of December 9, 2013, and reflect the flood study and base mapping of that time. FIRMs do not show every flood-prone area: many of the county's small creeks, low-water crossings, and rural drainages are unstudied or shown only as approximate Zone A with no Base Flood Elevation. Areas mapped outside the regulatory floodplain can and do flood, particularly from flash flooding, urban drainage backups, and backwater effects of the Ouachita River behind Felsenthal Lock & Dam. These maps should be used alongside local knowledge of where flooding actually occurs, and updated Base Level Engineering data should be incorporated as it becomes available.

### Definition and Description

**Heavy rainfall is rain with a rate of accumulation exceeding a specific value that is geographically dependent (AMS 2012). Flooding is any high flow, overflow, or inundation by water which causes or threatens damage (NWS 2009).**

Heavy rainfall is rain falling faster than the underlying surface can absorb it, causing runoff and the inundation of low-lying areas. Whether a given rainfall causes flooding depends on the rate of infiltration, how quickly runoff reaches creeks and rivers, whether the ground is already saturated, and other local factors. Flooding is most likely in low-lying areas, along the edges of water bodies, and over impermeable surfaces such as streets and parking lots. Flash flooding occurs with intense thunderstorms, while river (riverine) flooding usually requires rainfall accumulated over a longer duration, or upstream releases. Rainfall and flooding are greatest in spring, summer, and fall; tropical systems from the Gulf of Mexico can produce among the highest rainfall rates in the state.

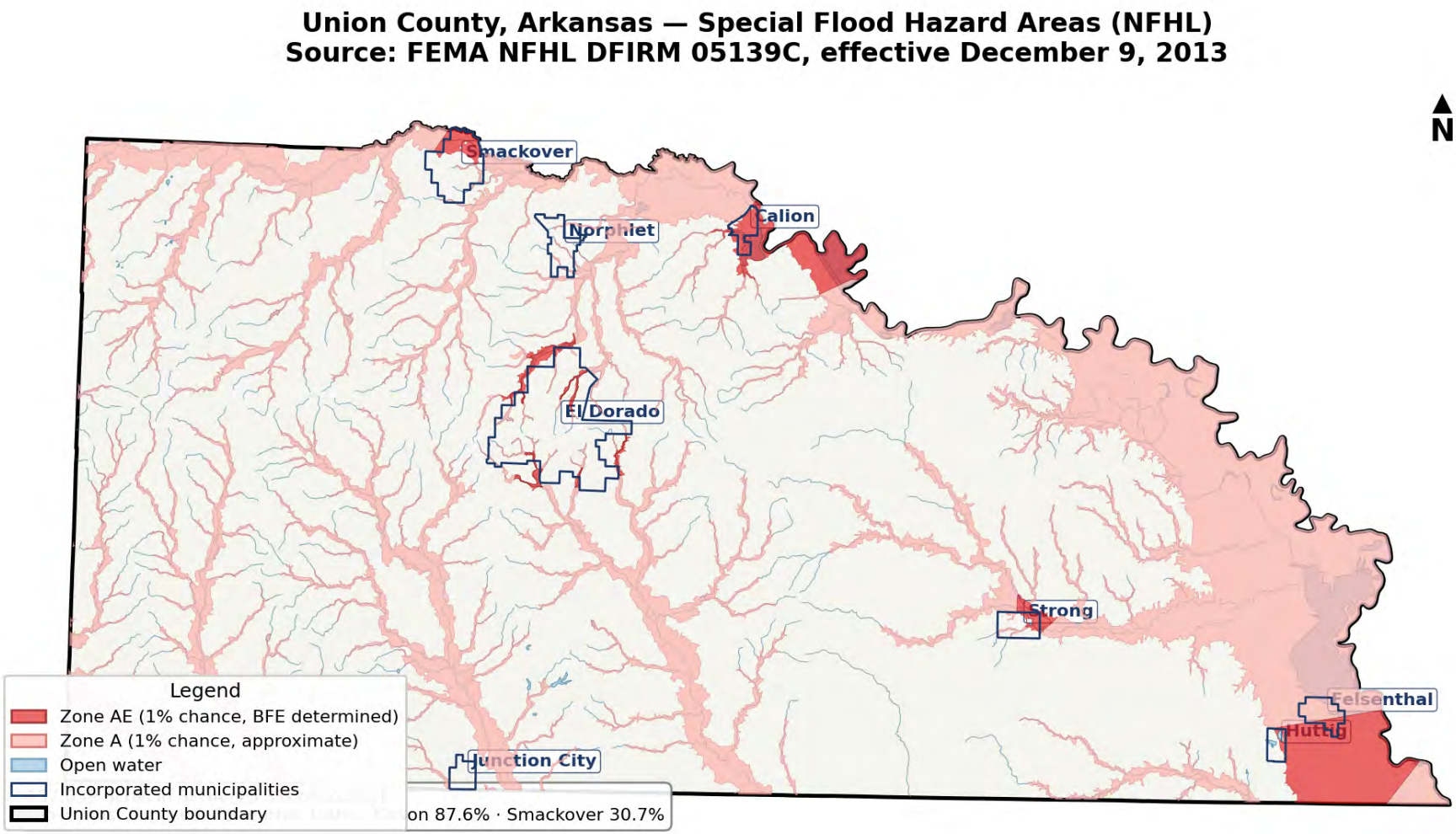
### Application to Union County

Union County's flood risk is dominated by the Ouachita River system. The Ouachita River forms the eastern boundary of the county, and the Felsenthal Lock & Dam (USACE, river mile 437) creates a navigation pool that backs water through the Felsenthal National Wildlife Refuge and up the Saline River. Felsenthal and Calion are the most flood-exposed communities in the county: NFHL analysis shows 100% of the Town of Felsenthal and approximately 88% of the City of Calion lie within the 1% annual chance Special Flood Hazard Area. Smackover (Smackover Creek), Strong (Boggy Bayou tributaries), and Huttig (Saline River backwater) also

have significant SFHA exposure. El Dorado, Norphlet, and Junction City have only small portions of their incorporated area in the SFHA, concentrated along urban tributaries.

The maps that follow show the effective FIRM coverage for the county and the panels covering each participating municipality. The complete set of effective FIRM panels for Union County (DFIRM 05139C, effective December 9, 2013) is maintained by the Union County Floodplain Administrator and is available through the FEMA Map Service Center (msc.fema.gov). All nine participating jurisdictions are currently in good standing with the National Flood Insurance Program.

## Union County SFHA Overview Map




*Union County SFHA overview prepared from FEMA NFHL S_FLD_HAZ_AR (Special Flood Hazard Areas) and S_POL_AR (community boundaries), DFIRM 05139C effective December 9, 2013. Zone AE (1% annual chance, BFE determined) shown in dark red; Zone A (1% annual chance, approximate study) shown in light red. Source: FEMA NFHL; Southwest Arkansas PDD analysis.*

## Union County FIRM Index

**MAP REPOSITORIES**

(Map available for reference only, not for distribution.)

CALION, CITY OF
2476 Champagnolle Road
El Dorado, Arkansas 71730

EL DORADO, CITY OF:
City of El Dorado Public Works
204 North West Street
El Dorado, Arkansas 71730

FELSENTHAL, TOWN OF:
2476 Champagnolle Road
El Dorado, Arkansas 71730

HUTTIG, CITY OF:
2476 Champagnolle Road
El Dorado, Arkansas 71730

NORPHLET, CITY OF:
2476 Champagnolle Road
El Dorado, Arkansas 71730

SMACKOVER, CITY OF:
Smackover City Hall
201 East Seventh Street
Smackover, Arkansas 71762

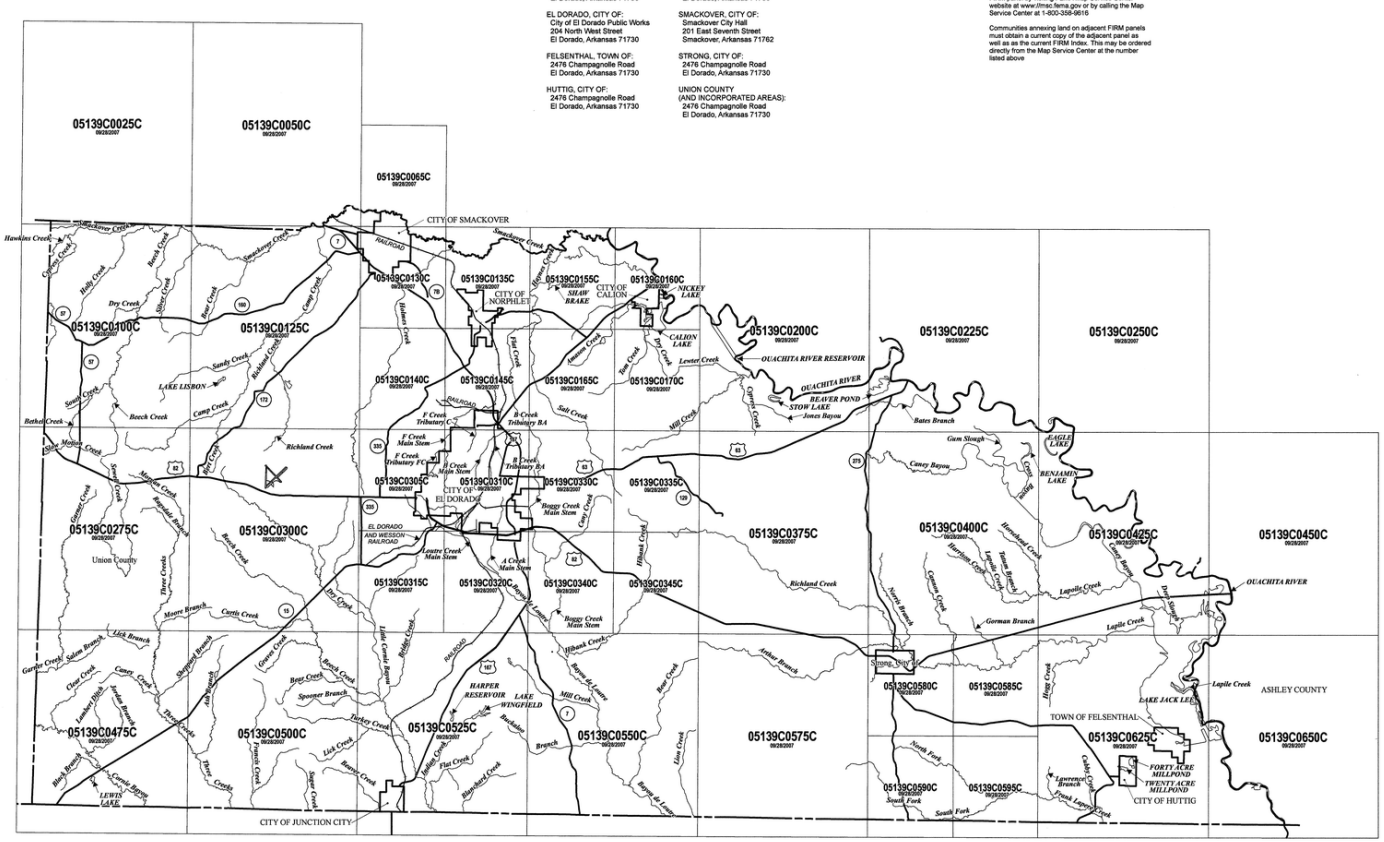
STRONG, CITY OF:
2476 Champagnolle Road
El Dorado, Arkansas 71730

UNION COUNTY
(AND INCORPORATED AREAS):
2476 Champagnolle Road
El Dorado, Arkansas 71730

**MAP DATES**

This FIRM Index displays the map date for each FIRM panel at the time that this Index was printed. Because this Index may not be distributed to the affected communities in subsequent revisions, users may determine the current map date for each FIRM panel by visiting FEMA Map Service Center website at www.fmsc.fema.gov or by calling the Map Service Center at 1-800-358-9616

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as as the current FIRM Index. This may be ordered directly from the Map Service Center at the number listed above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05139C0475C
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05139C0575C
05139C0580C
05139C0585C
05139C0590C
05139C0595C
05139C0625C
05139C0650C
CITY OF SMACKOVER
CITY OF NORPHLET
CITY OF CALION
CITY OF EL DORADO
Union County
OUACHITA RIVER RESERVOIR
OUACHITA RIVER
BEAVER POND
STOW LAKE
Jones Bayou
CALION LAKE
NICKEY LAKE
SILAM BRAKE
LAKE LISBON
Richland Creek
Bates Branch
Gum Slough
Caney Bayou
EAGLE LAKE
BENJAMIN LAKE
EL DORADO AND WESSON RAILROAD
Lostre Creek Main Stem
A Creek Main Stem
Boggy Creek Main Stem
HARPER RESERVOIR
LAKE WINGFIELD
Gorman Branch
Lapile Creek
Hog Creek
LAKE JACK LEE
TOWN OF FELSENTHAL
ASHLEY COUNTY
FORTY ACRE MILLPOND
TWENTY ACRE MILLPOND
CITY OF HUTTIG
LEWIS LAKE
CITY OF JUNCTION CITY
Hawkins Creek
Bethel Creek
Beech Creek
Camp Creek
Sandy Creek
Dry Creek
Holly Creek
Bear Creek
Caney Creek
Smackover Creek
Salt Creek
Mill Creek
Tate Creek
Lester Creek
Garrett Creek
Hickory Creek
Bayou de Loutre
Bear Creek
Flat Creek
Blackland Creek
Hillback Creek
Arthur Branch
North Fork
South Fork
Lawrence Branch
Cedar Creek
Dead Lagoon Creek
Sparrow Branch
Thrasher Creek
Lick Creek
Moore Branch
Curtis Creek
Garrett Creek
Salem Branch
Clay Creek
Camp Creek
Lumber Branch
Jones Branch
Black Branch
Corsica Bayou
Dixie Creek
Little Cypress Bayou
Bodcaw Creek
Flat Creek
Mill Creek
Buckhorn Branch
Little Creek
Hillback Creek
Bear Creek
Hog Creek
Lapile Creek
Gorman Branch
Caney Bayou
Bates Branch
Richland Creek
Lake Lisbon
Sandy Creek
Beech Creek
Camp Creek
Bethel Creek
Hawkins

## NOTES TO USERS

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

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

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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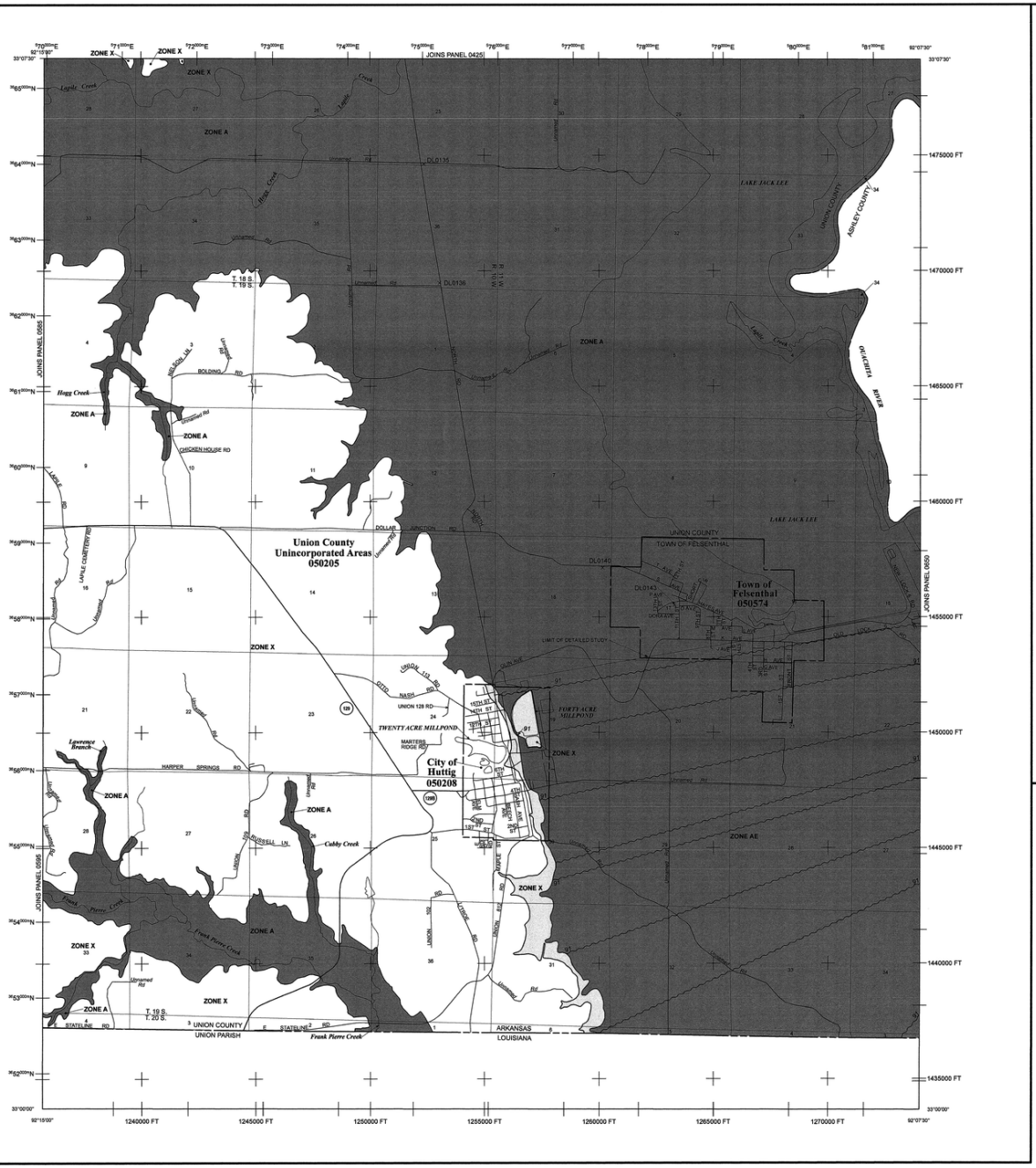


## LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4725000mE 6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15 5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

500 0 500 1,000 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0625C**

# FIRM

**FLOOD INSURANCE RATE MAP**
**UNION COUNTY, ARKANSAS**
**AND INCORPORATED AREAS**

**PANEL 625 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| FELSENTHAL, TOWN OF | 050574 | 0625 | C |
| HUTTIG, CITY OF | 050208 | 0625 | C |
| UNION COUNTY | 050205 | 0625 | C |

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

**MAP NUMBER**
**05139C0625C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

## NOTES TO USERS

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OTHER FLOOD AREAS

| | |
|---|---|
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| | |
|---|---|
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MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0160C**

# FIRM

**FLOOD INSURANCE RATE MAP**

**UNION COUNTY, ARKANSAS**

**AND INCORPORATED AREAS**

**PANEL 160 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CALION, CITY OF | 050206 | 0160 | C |
| UNION COUNTY | 050205 | 0160 | C |

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**MAP NUMBER**
**05139C0160C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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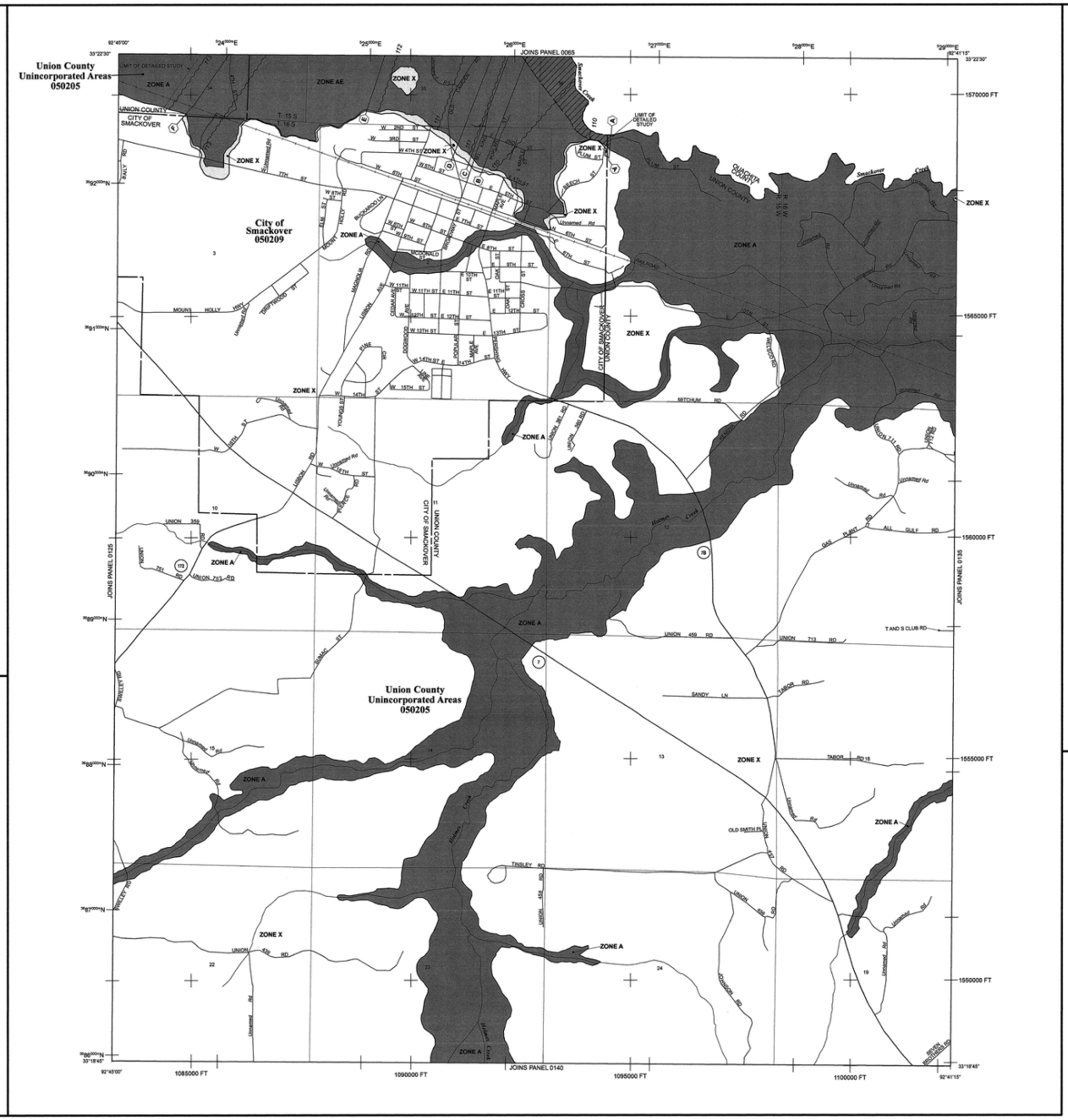
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




## LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4°22'000"E 6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15 5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 X | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

MAP SCALE 1" = 1000'

500 0 500 1,000 1,500 2,000 FEET
150 0 150 300 450 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0130C

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 130 OF 650**
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| SMACKOVER, CITY OF | 050209 | 0130 | C |
| UNION COUNTY | 050205 | 0130 | C |

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

**MAP NUMBER**
**05139C0130C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

## NOTES TO USERS

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

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

**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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

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

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

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

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

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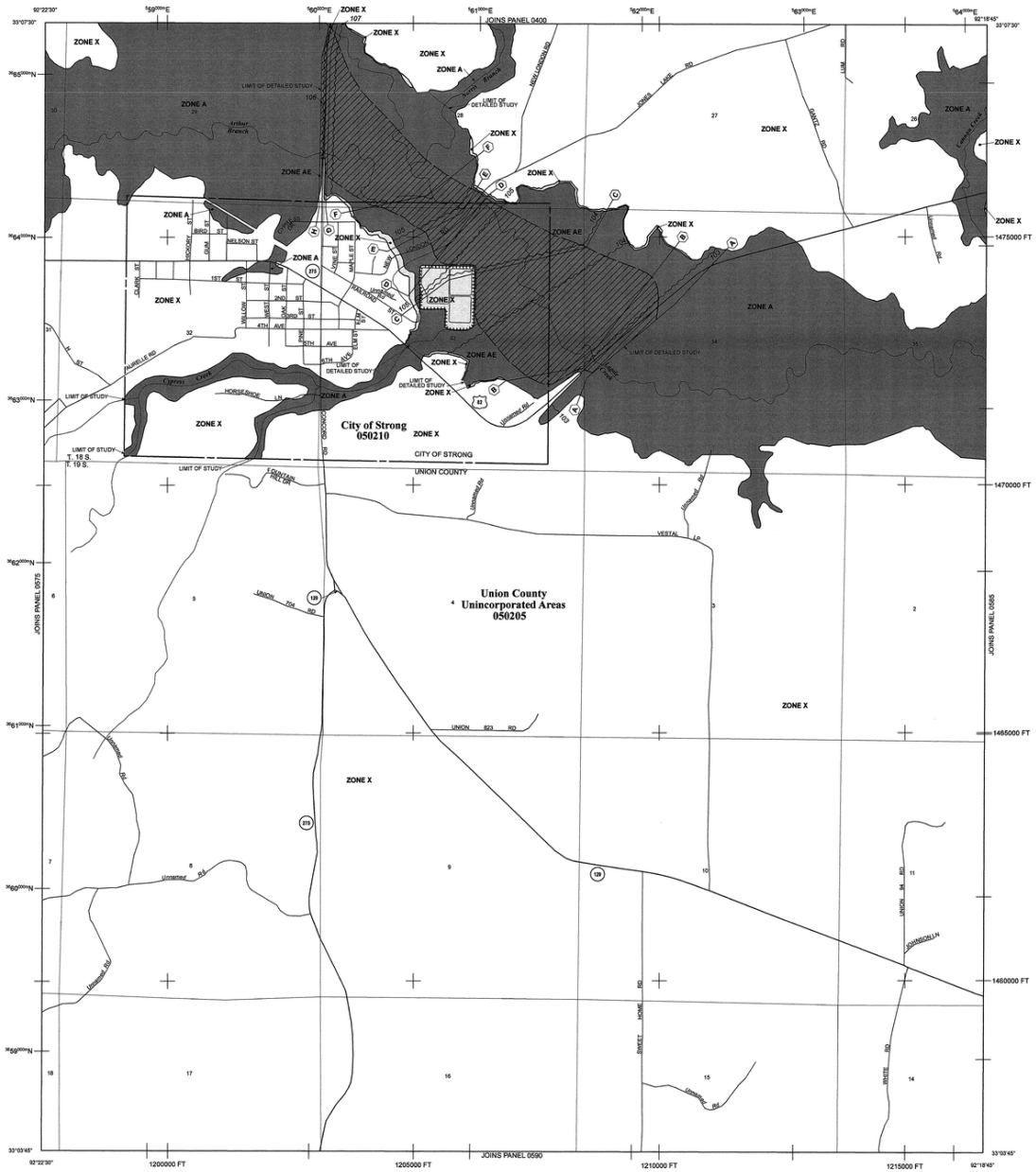


## LEGEND

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

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

| | |
|---|---|
| **ZONE A** | No Base Flood Elevation determined. |
| **ZONE AE** | Base Flood Elevations determined. |
| **ZONE AH** | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
| **ZONE AO** | Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined. |
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| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4729000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET
250 0 250 500 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0580C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
## AND INCORPORATED AREAS

**PANEL 580 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| STRONG, CITY OF | 050210 | 0580 | C |
| UNION COUNTY | 050205 | 0580 | C |

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

**MAP NUMBER**
**05139C0580C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

## NOTES TO USERS

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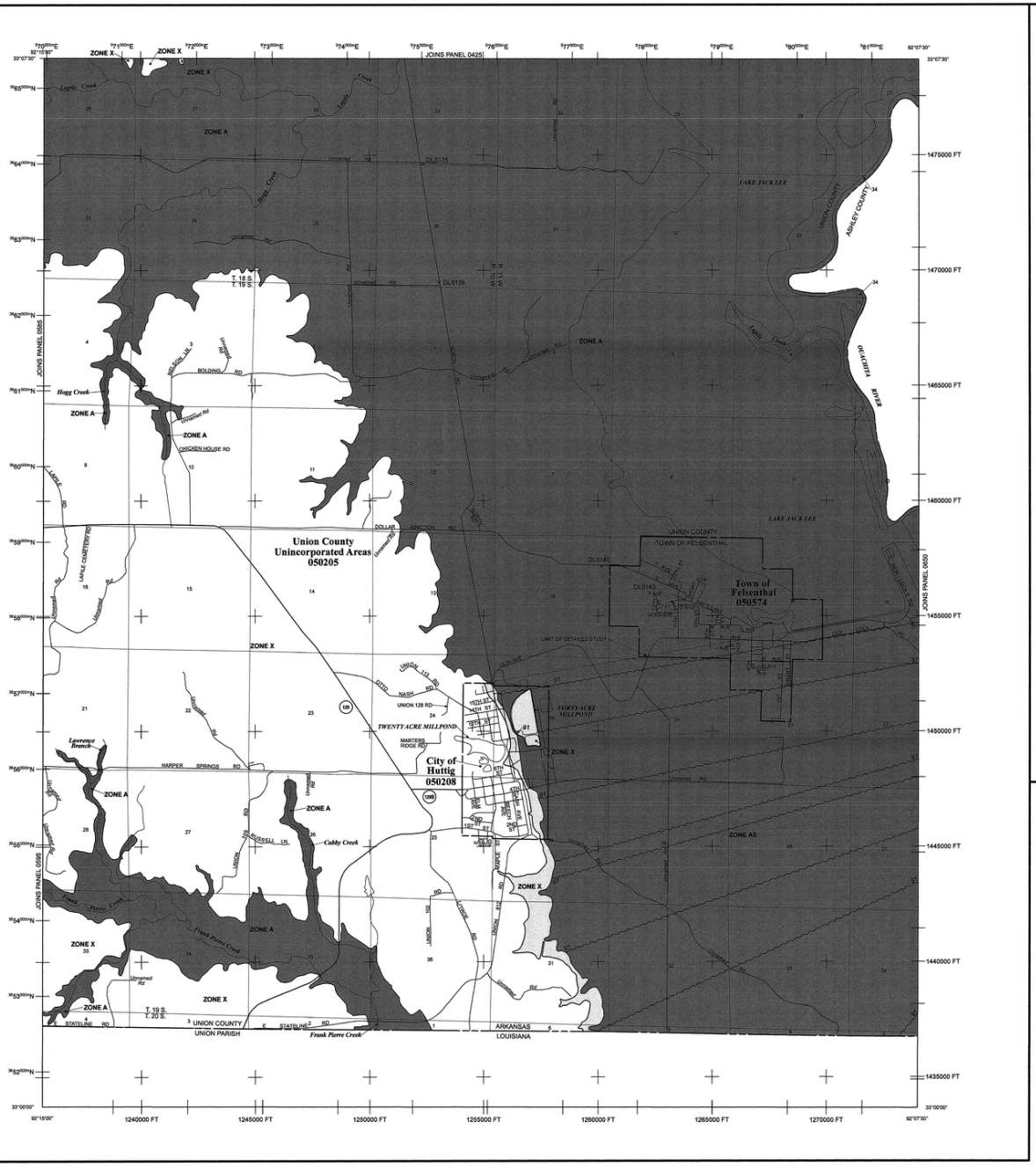


## LEGEND

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| | |
|---|---|
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| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
|---|---|
| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
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| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4725000mE 6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15 5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

500 0 500 1,000 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0625C**

# FIRM

**FLOOD INSURANCE RATE MAP**
**UNION COUNTY, ARKANSAS**
**AND INCORPORATED AREAS**

**PANEL 625 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| FELSENTHAL, TOWN OF | 050574 | 0625 | C |
| HUTTIG, CITY OF | 050208 | 0625 | C |
| UNION COUNTY | 050205 | 0625 | C |

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

**MAP NUMBER**
**05139C0625C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

## NOTES TO USERS

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**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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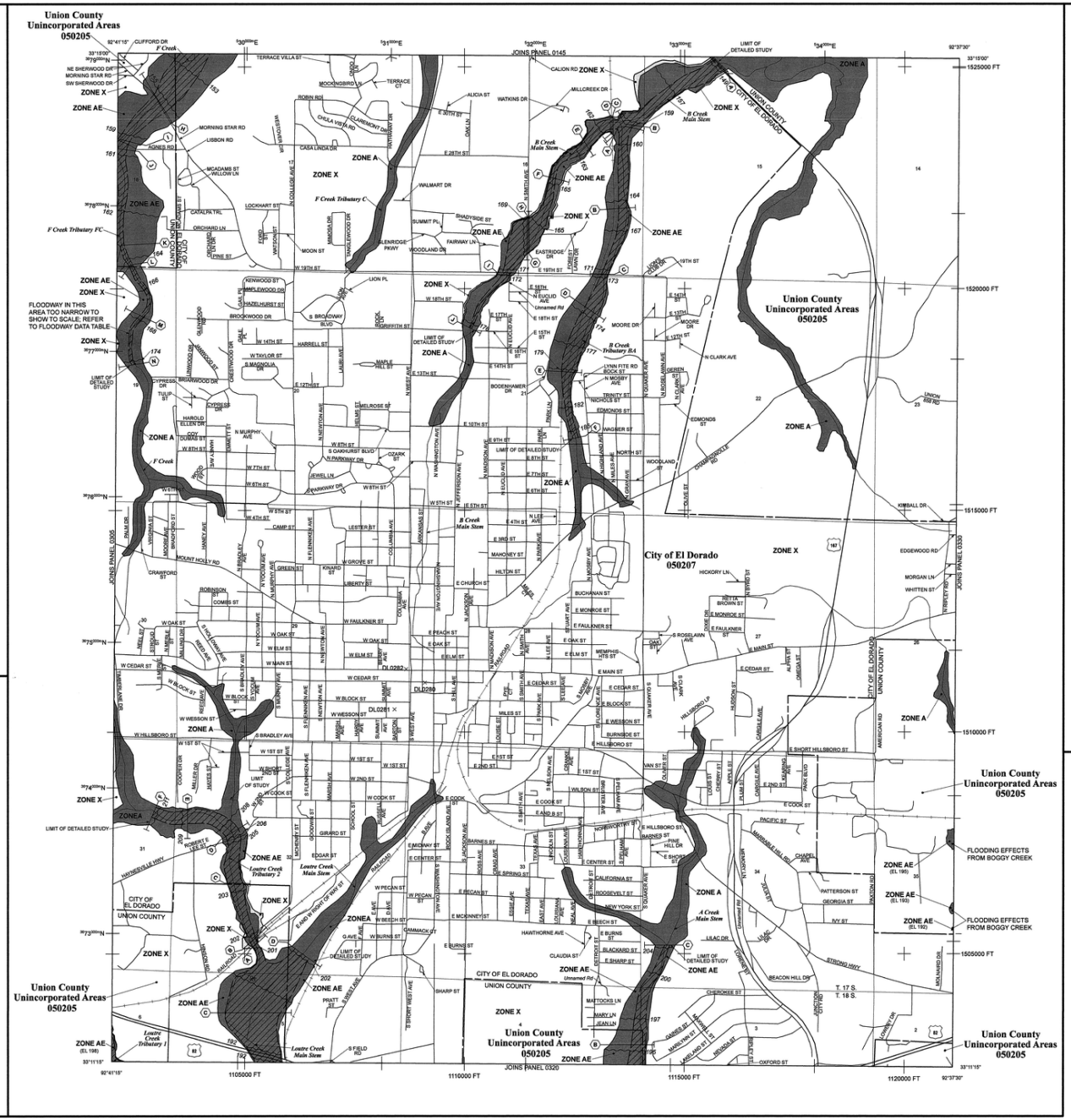
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




## LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE 6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15 5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0310C

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
## AND INCORPORATED AREAS

**PANEL 310 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL DORADO, CITY OF | 050207 | 0310 | C |
| UNION COUNTY | 050205 | 0310 | C |

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

**MAP NUMBER**
**05139C0310C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

## NOTES TO USERS

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

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

**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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

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

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

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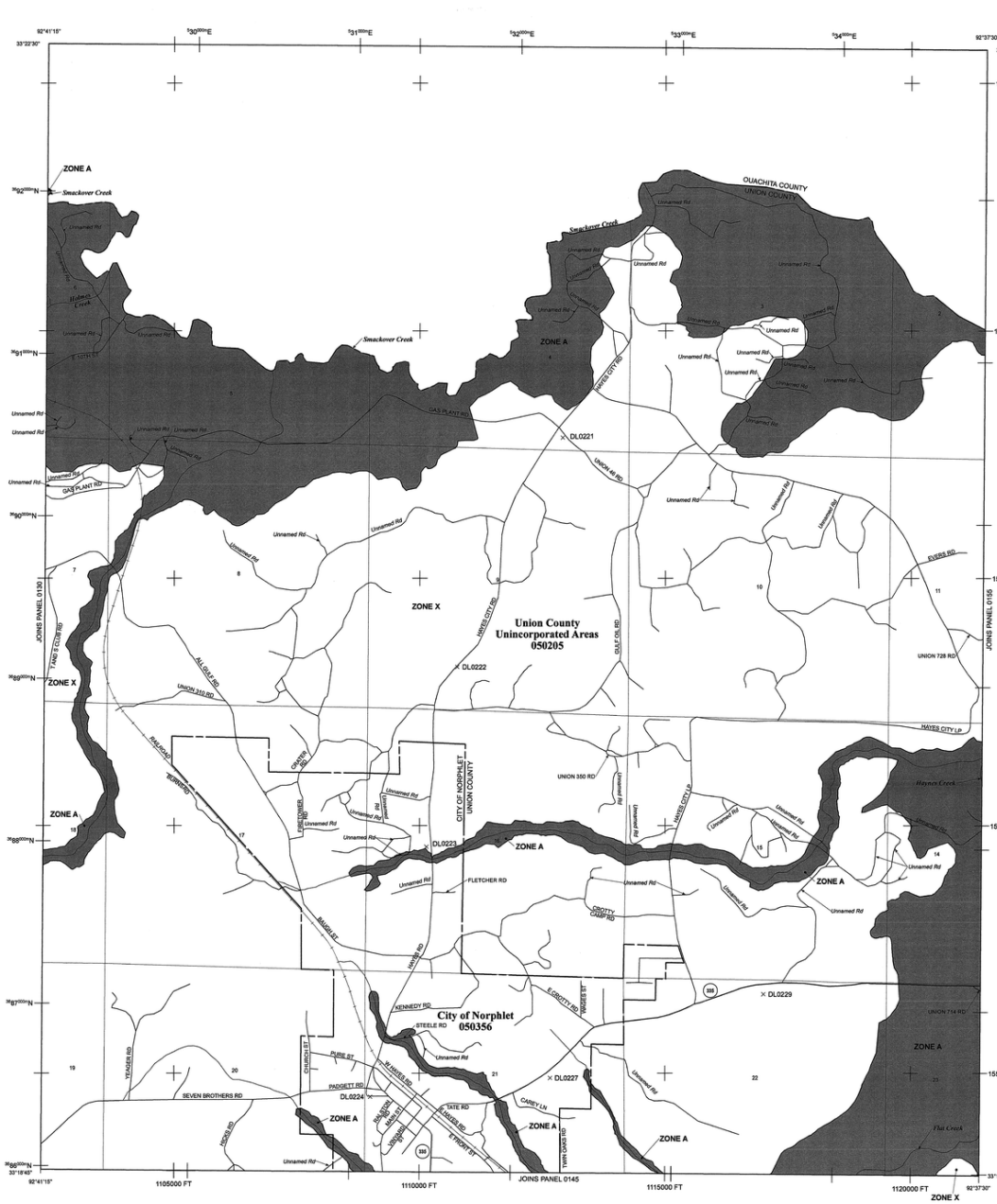


## LEGEND

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4279000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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MAP SCALE 1" = 1000'

500 0 500 1,000 1,500 2,000 FEET
250 0 250 500 750 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0135C

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
## AND INCORPORATED AREAS

**PANEL 135 OF 650**
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| NORPHLET, CITY OF | 050356 | 0135 | C |
| UNION COUNTY | 050205 | 0135 | C |

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

**MAP NUMBER**
**05139C0135C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

## NOTES TO USERS

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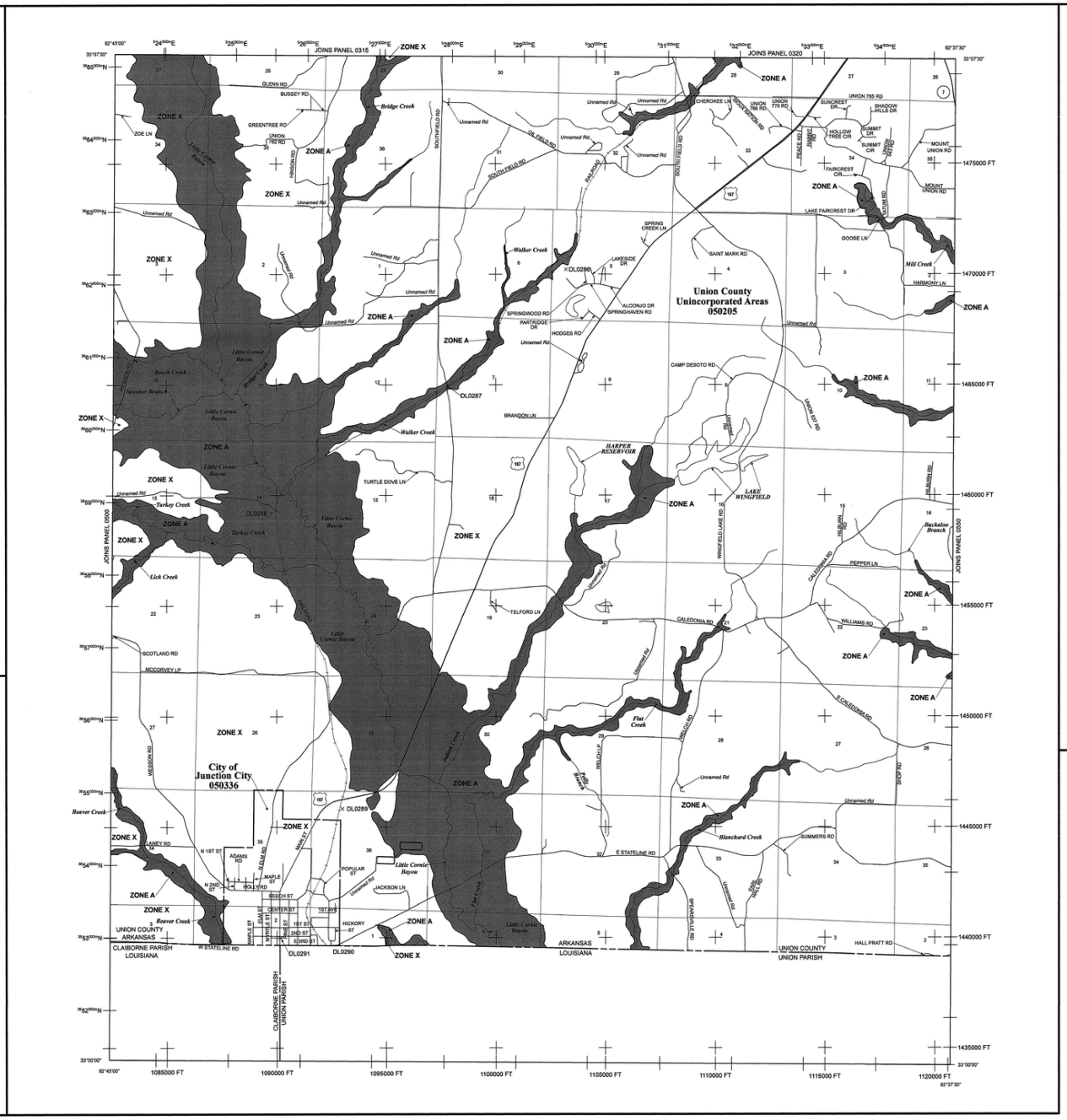


## LEGEND

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| | |
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| **ZONE AR** | Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event. |
| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
|---|---|
| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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| | |
|---|---|
| | Floodplain boundary |
| | Floodway boundary |
| | Zone D boundary |
| | CBRS and OPA boundary |
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| 513 | Base Flood Elevation line and value; elevation in feet* |
| (EL 987) | Base Flood Elevation value where uniform within zone; elevation in feet* |

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
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| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4279000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 303), Lambert projection |
| DX5510 | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET
400 0 400 1,200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0525C

# FIRM

**FLOOD INSURANCE RATE MAP**
**UNION COUNTY, ARKANSAS**
**AND INCORPORATED AREAS**

**PANEL 525 OF 650**
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| JUNCTION CITY, CITY OF | 050336 | 0525 | C |
| UNION COUNTY | 050205 | 0525 | C |

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

**MAP NUMBER**
**05139C0525C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

# NOTES TO USERS

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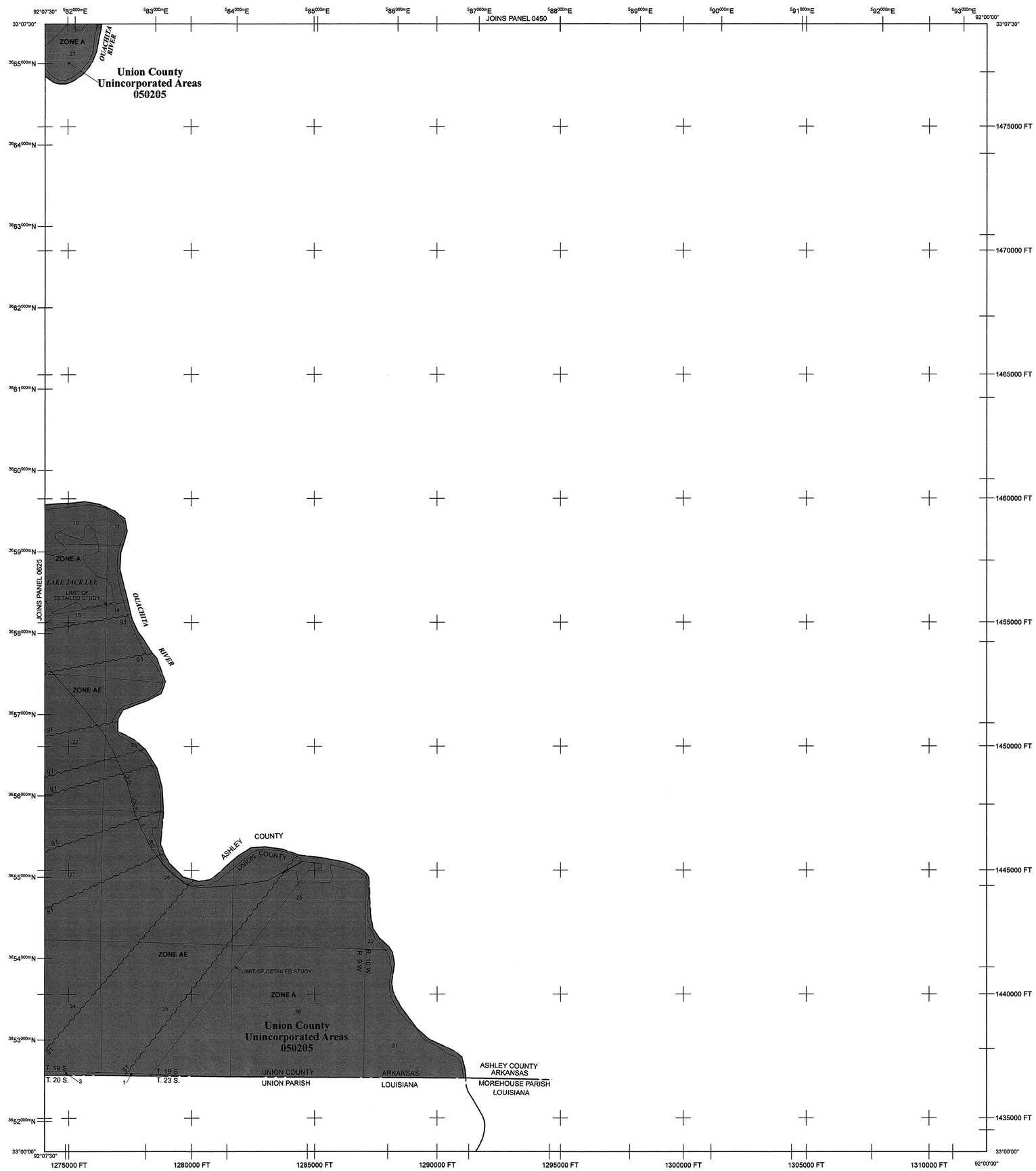
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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| | Floodplain boundary |
| | Floodway boundary |
| | Zone D boundary |
| | CBRS and OPA boundary |
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| 513 | Base Flood Elevation line and value; elevation in feet* |
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* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

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| A — A | Cross section line |
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| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
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| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0650C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

## AND INCORPORATED AREAS

**PANEL 650 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0650 | C |

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

**MAP NUMBER**
**05139C0650C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

## MAP REPOSITORIES

(Map available for reference only, not for distribution.)

CALION, CITY OF
2476 Champagnolle Road
El Dorado, Arkansas 71730

EL DORADO, CITY OF:
City of El Dorado Public Works
204 North West Street
El Dorado, Arkansas 71730

FELSENTHAL, TOWN OF:
2476 Champagnolle Road
El Dorado, Arkansas 71730

HUTTIG, CITY OF:
2476 Champagnolle Road
El Dorado, Arkansas 71730

NORPHLET, CITY OF:
2476 Champagnolle Road
El Dorado, Arkansas 71730

SMACKOVER, CITY OF:
Smackover City Hall
201 East Seventh Street
Smackover, Arkansas 71762

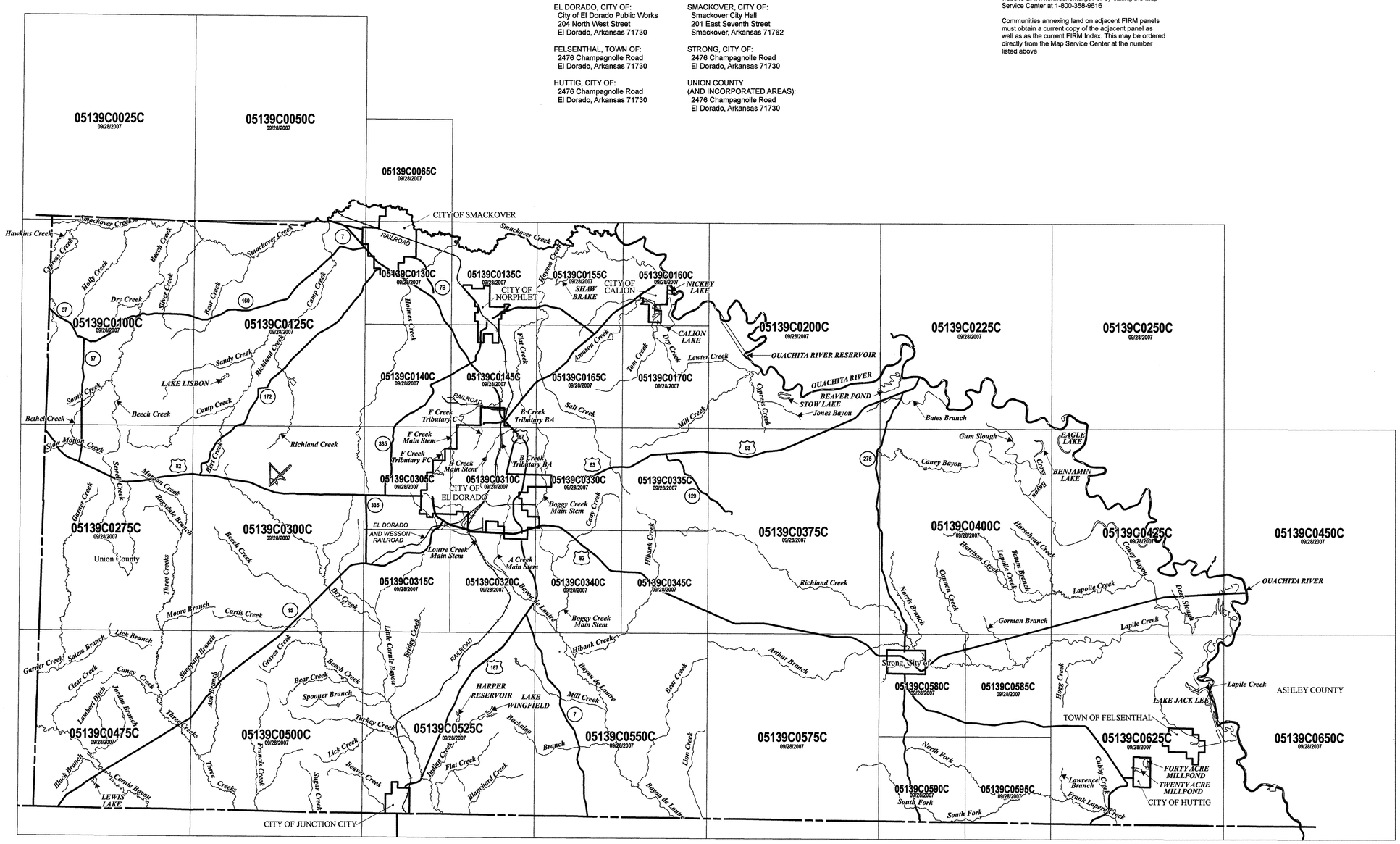
STRONG, CITY OF:
2476 Champagnolle Road
El Dorado, Arkansas 71730

UNION COUNTY
(AND INCORPORATED AREAS):
2476 Champagnolle Road
El Dorado, Arkansas 71730

## MAP DATES

This FIRM Index displays the map date for each FIRM panel at the time that this Index was printed. Because this Index may not be distributed to the affected communities in subsequent revisions, users may determine the current map date for each FIRM panel by visiting FEMA Map Service Center website at www://msc.fema.gov or by calling the Map Service Center at 1-800-358-9616

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as as the current FIRM Index. This may be ordered directly from the Map Service Center at the number listed above




## NOTE TO USER

Future revisions to this FIRM Index will only be issued to communities that are located on FIRM panels being revised. This FIRM Index therefore remains valid for FIRM panels dated September 28, 2007 or earlier. Please refer to the "MOST RECENT FIRM PANEL DATE" column in the Listing of Communities table to determine the most recent FIRM index date for each community.

## LISTING OF COMMUNITIES

| COMMUNITY NAME | COMMUNITY NUMBER | LOCATED ON PANEL(S) | INITIAL NFIP MAP DATE | INITIAL FIRM DATE | MOST RECENT FIRM PANEL DATE |
|---|---|---|---|---|---|
| CALION, CITY OF | 050206 | 0160 | April 12, 1974 | July 2, 1980 | September 28, 2007 |
| EL DORADO, CITY OF | 050207 | 0145, 0305, 0310, 0320, 0330 | May 3, 1974 | November 15, 1979 | September 28, 2007 |
| FELSENTHAL, TOWN OF | 050574 | 0625 | December 13, 1977 | June 19, 1985 | September 28, 2007 |
| HUTTIG, CITY OF | 050208 | 0625 | May 24, 1974 | June 4, 1980 | September 28, 2007 |
| JUNCTION CITY, CITY OF | 050336 | 0525 | April 18, 1975 | April 18, 1975 | September 28, 2007 |
| NORPHLET, CITY OF | 050356 | 0135, 0145 | July 11, 1975 | June 1, 1987 | September 28, 2007 |
| SMACKOVER, CITY OF | 050209 | 0065, 0125, 0130 | October 26, 1973 | July 2, 1980 | September 28, 2007 |
| STRONG, CITY OF | 050210 | 0580 | June 28, 1974 | April 1, 1981 | September 28, 2007 |
| UNION COUNTY, AND INCORPORATED AREAS | 050205 | 0025, 0050, 0065, 0100, 0125, 0130, 0135, 0140, 0145, 0155, 0160, 0165, 0170, 0200, 0225, 0250, 0275, 0300, 0305, 0310, 0315, 0320, 0330, 0335, 0340, 0345, 0375, 0400, 0425, 0450, 0475, 0500, 0525, 0550, 0575, 0580, 0585, 0590, 0595, 0625, 0650 | December 13, 1977 | March 1, 1987 | September 28, 2007 |

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

MAP INDEX

# FIRM

FLOOD INSURANCE RATE MAP

UNION COUNTY, ARKANSAS

AND INCORPORATED AREAS

# MAP INDEX

PANELS PRINTED: 25, 50, 65, 100, 125, 130, 135, 140, 145, 155, 160, 165, 170, 200, 225, 250, 275, 300, 305, 310, 315, 320, 330, 335, 340, 345, 375, 400, 425, 450, 475, 500, 525, 550, 575, 580, 585, 590, 595, 625, 650

MAP NUMBER
05139CIND0A

EFFECTIVE DATE
SEPTEMBER 28, 2007

Federal Emergency Management Agency

# NOTES TO USERS

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

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**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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

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

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

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| **ZONE A** | No Base Flood Elevation determined. |
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FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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|---|---|
| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

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| | |
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| | Floodplain boundary |
| | Floodway boundary |
| | Zone D boundary |
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| 513 | Base Flood Elevation line and value; elevation in feet* |
| (EL 987) | Base Flood Elevation value where uniform within zone; elevation in feet* |

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
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| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
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| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
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EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0585C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 585 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0585 | C |

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**MAP NUMBER**
**05139C0585C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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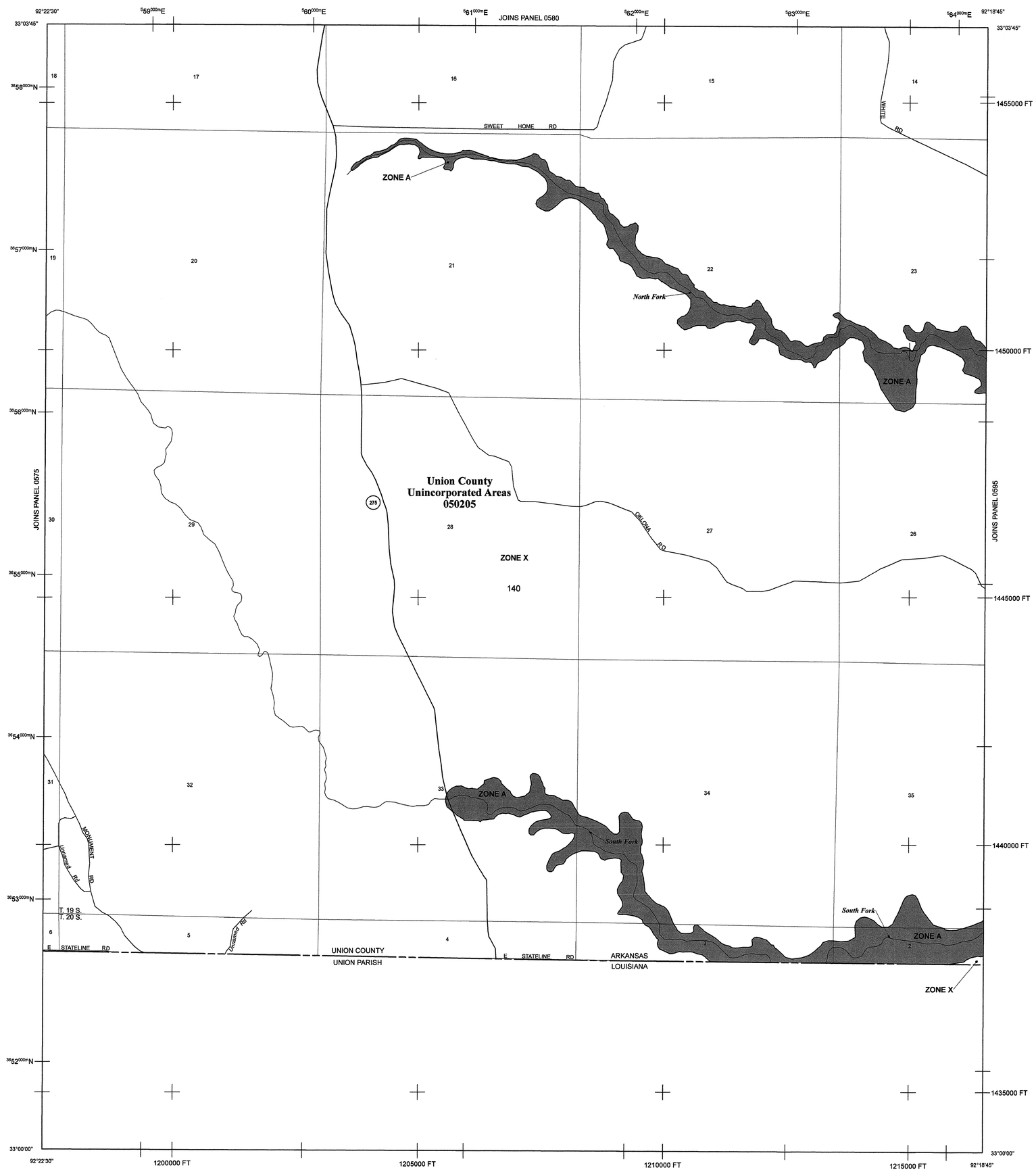


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| | Floodway boundary |
| | Zone D boundary |
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| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0590C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

## AND INCORPORATED AREAS

**PANEL 590 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0590 | C |

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

**MAP NUMBER**
**05139C0590C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

# NOTES TO USERS

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

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

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Silver Spring, Maryland 20910
(301) 713-3191

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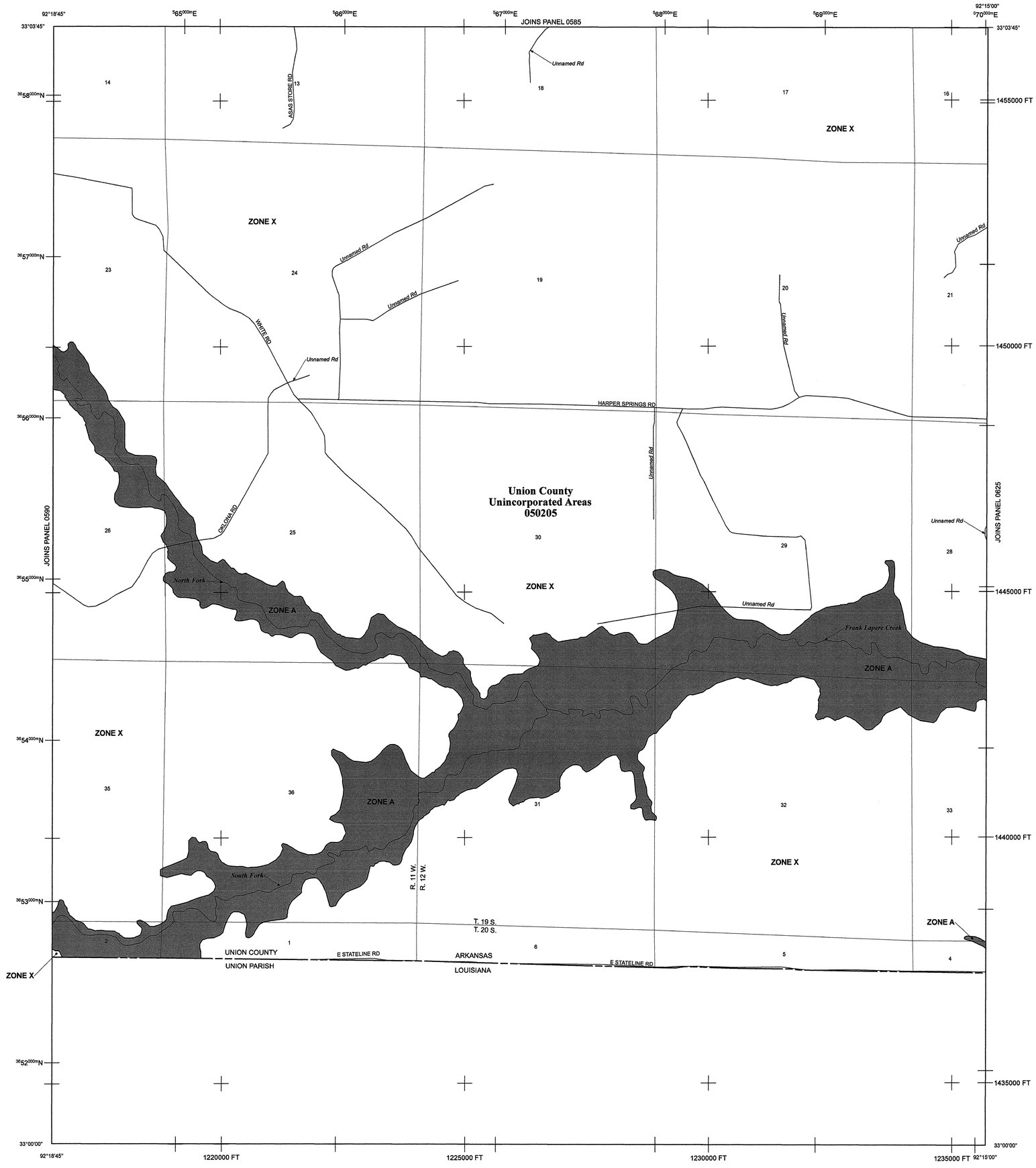


# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0595C**

# FIRM

## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 595 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0595 | C |

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

**MAP NUMBER**
**05139C0595C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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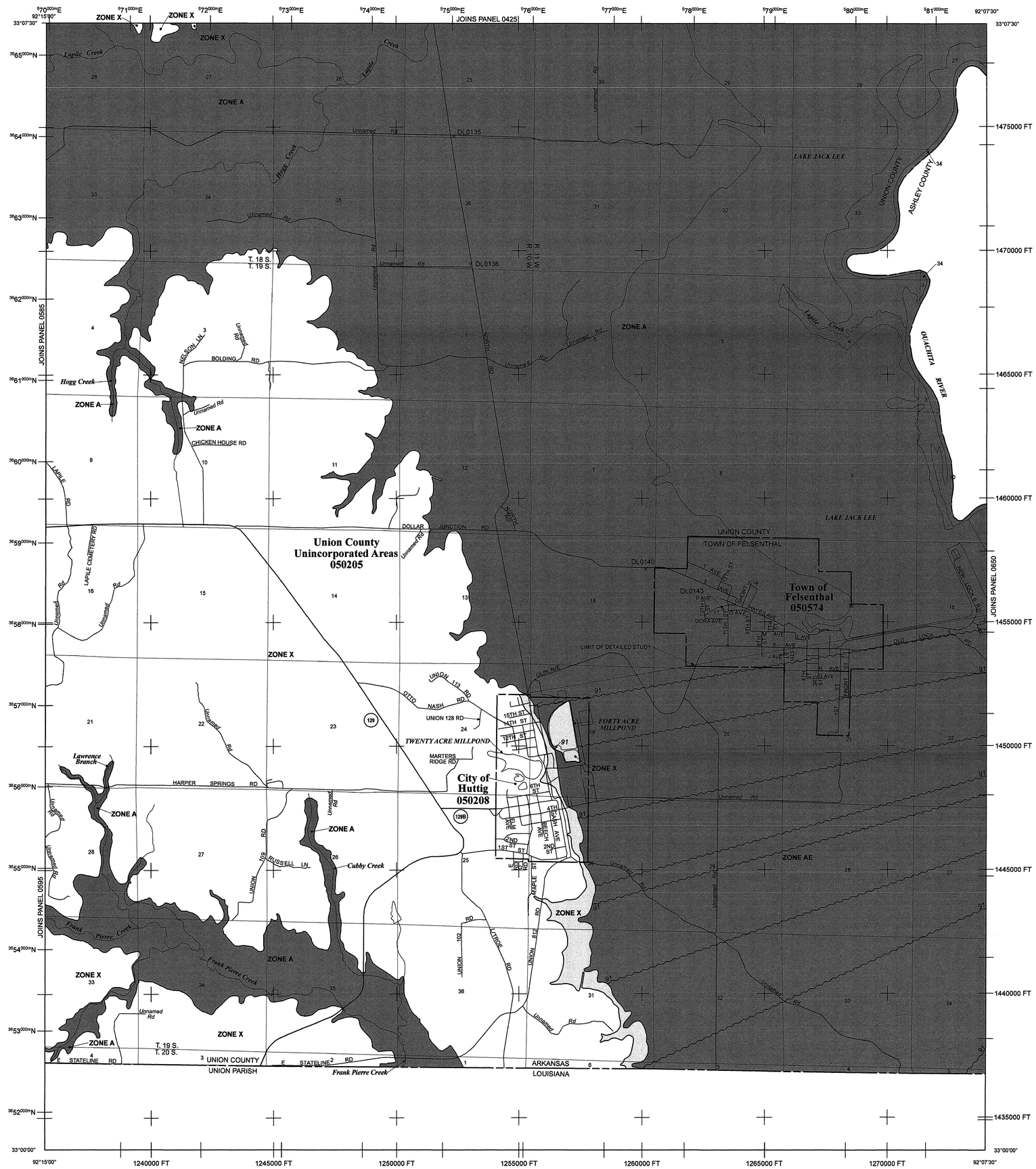


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

| | |
|---|---|
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| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0625C**

# FIRM

## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 625 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| FELSENTHAL, TOWN OF | 050574 | 0625 | C |
| HUTTIG, CITY OF | 050208 | 0625 | C |
| UNION COUNTY | 050205 | 0625 | C |

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

**MAP NUMBER**
**05139C0625C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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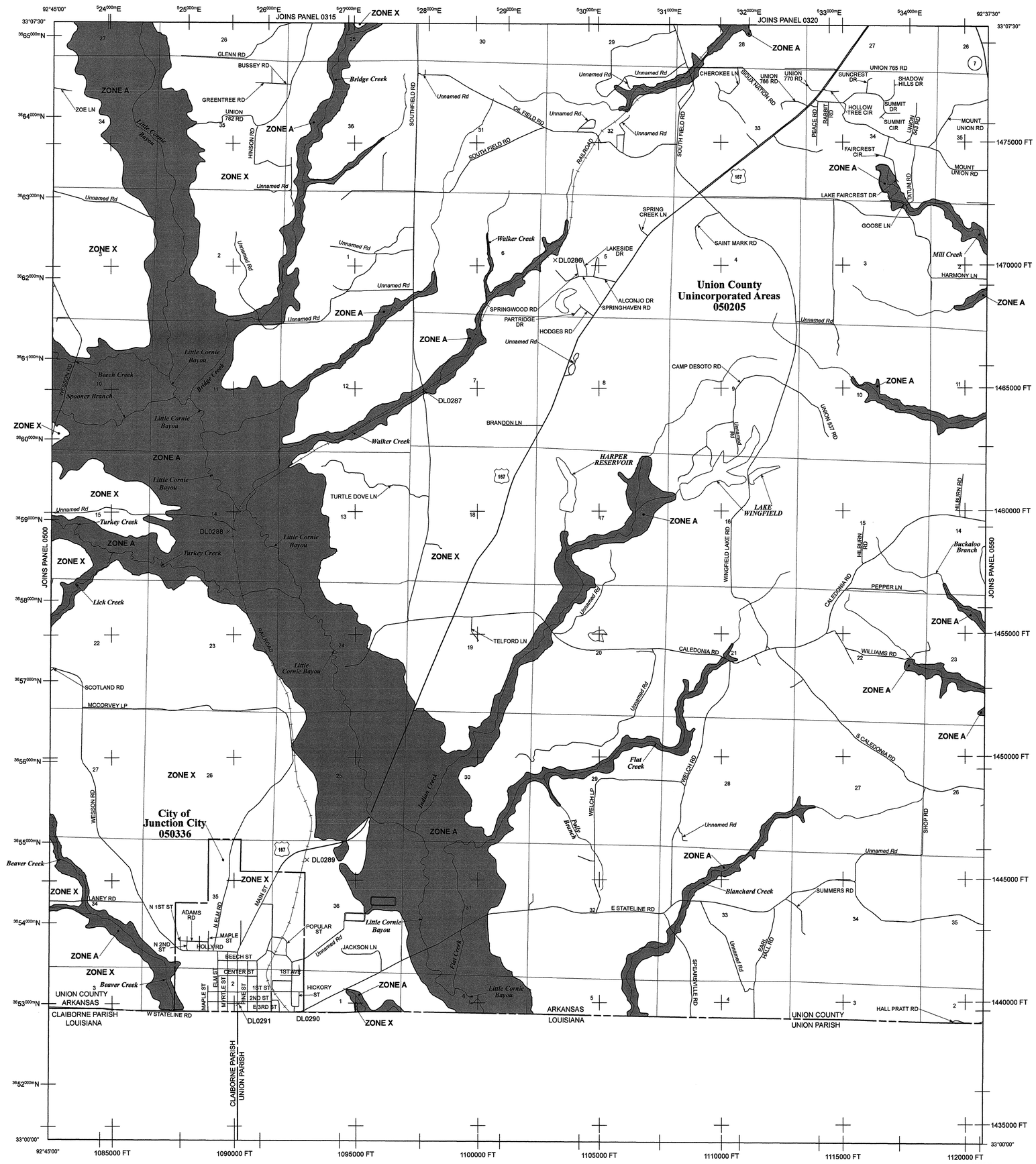


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

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OTHER AREAS

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OTHERWISE PROTECTED AREAS (OPAs)

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MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0525C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 525 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| JUNCTION CITY, CITY OF | 050336 | 0525 | C |
| UNION COUNTY | 050205 | 0525 | C |

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**MAP NUMBER**
**05139C0525C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

# NOTES TO USERS

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(301) 713-3191

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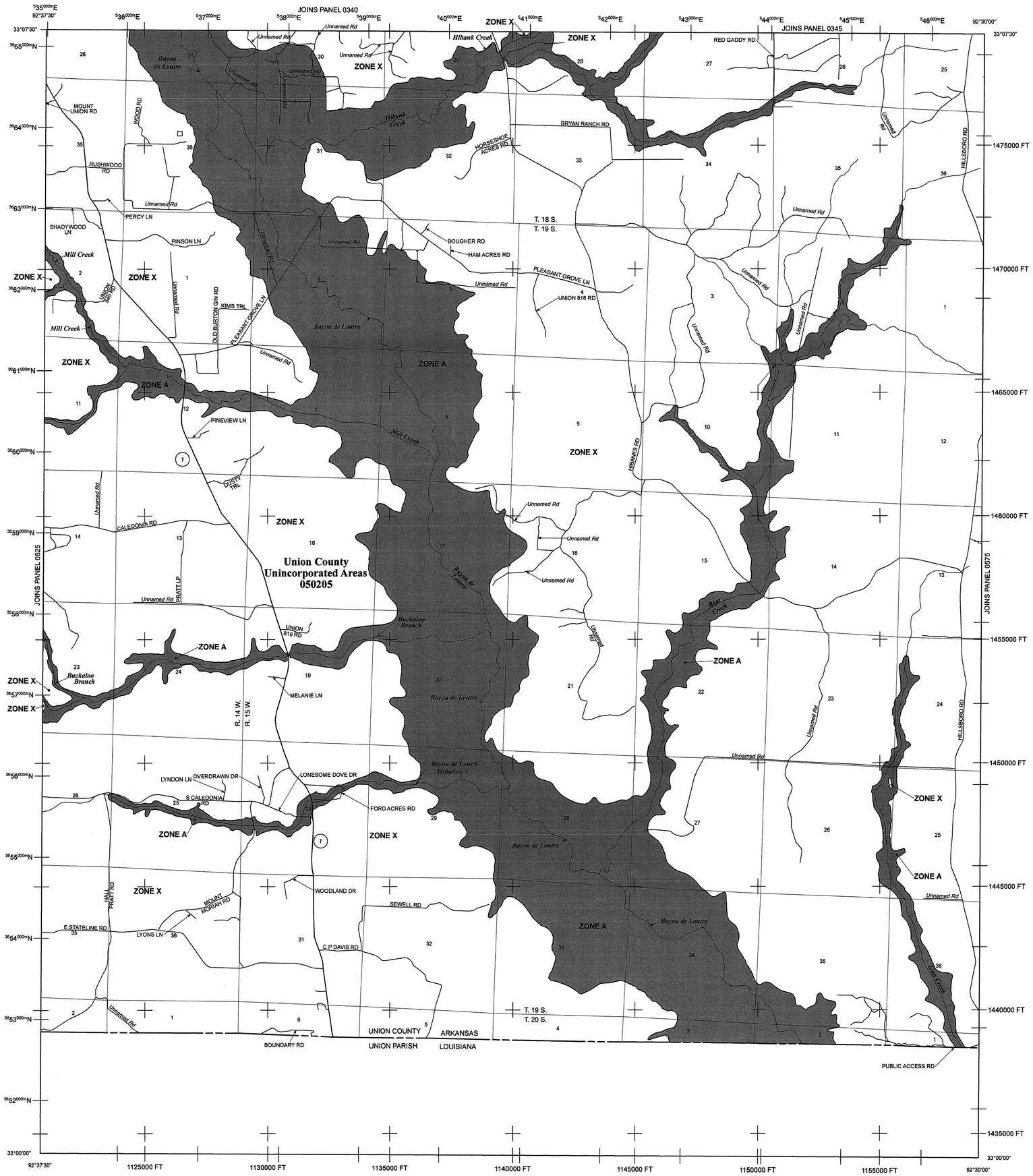


# LEGEND

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

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

| | |
|---|---|
| **ZONE A** | No Base Flood Elevation determined. |
| **ZONE AE** | Base Flood Elevations determined. |
| **ZONE AH** | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
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| **ZONE AR** | Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event. |
| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0550C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 550 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0550 | C |

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

**MAP NUMBER**
**05139C0550C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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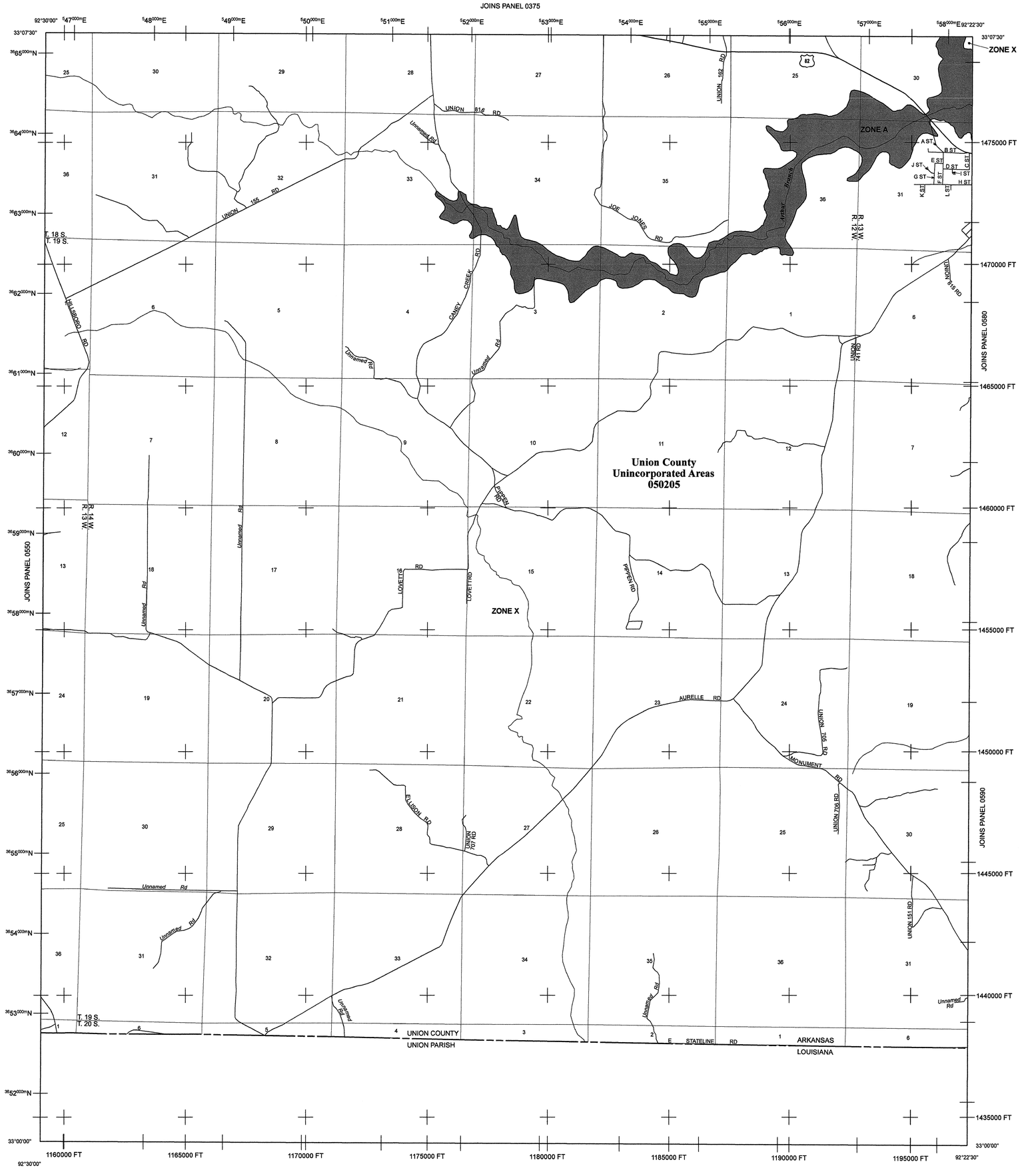


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FLOOD INSURANCE RATE MAP
September 28, 2007

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1,000 0 1,000 2,000 3,000 4,000 FEET
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NFIP
NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0575C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 575 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0575 | C |

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**MAP NUMBER**
**05139C0575C**

**EFFECTIVE DATE**
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**Federal Emergency Management Agency**

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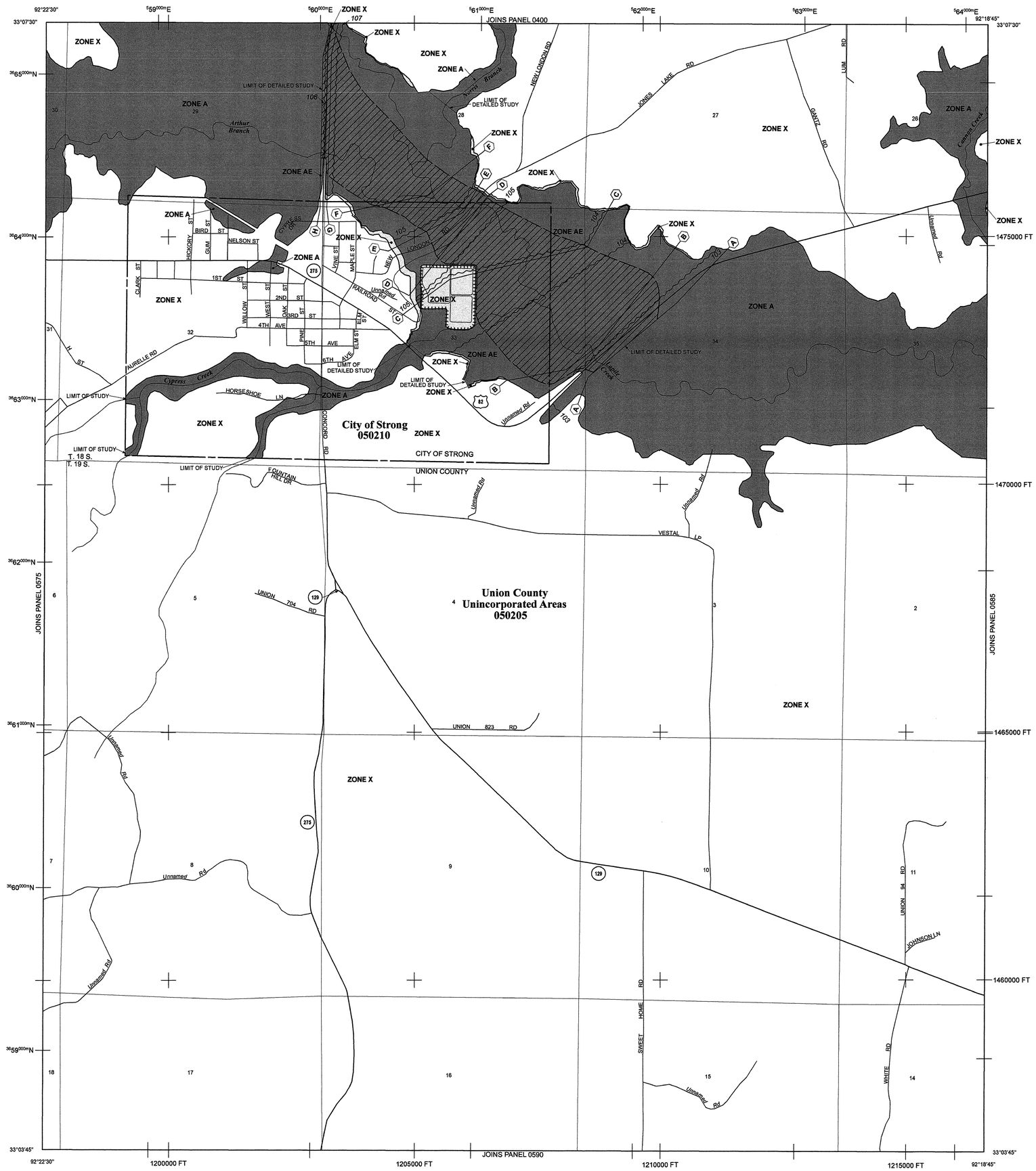


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OTHER FLOOD AREAS

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September 28, 2007

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500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0580C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 580 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| STRONG, CITY OF | 050210 | 0580 | C |
| UNION COUNTY | 050205 | 0580 | C |

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**EFFECTIVE DATE**
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Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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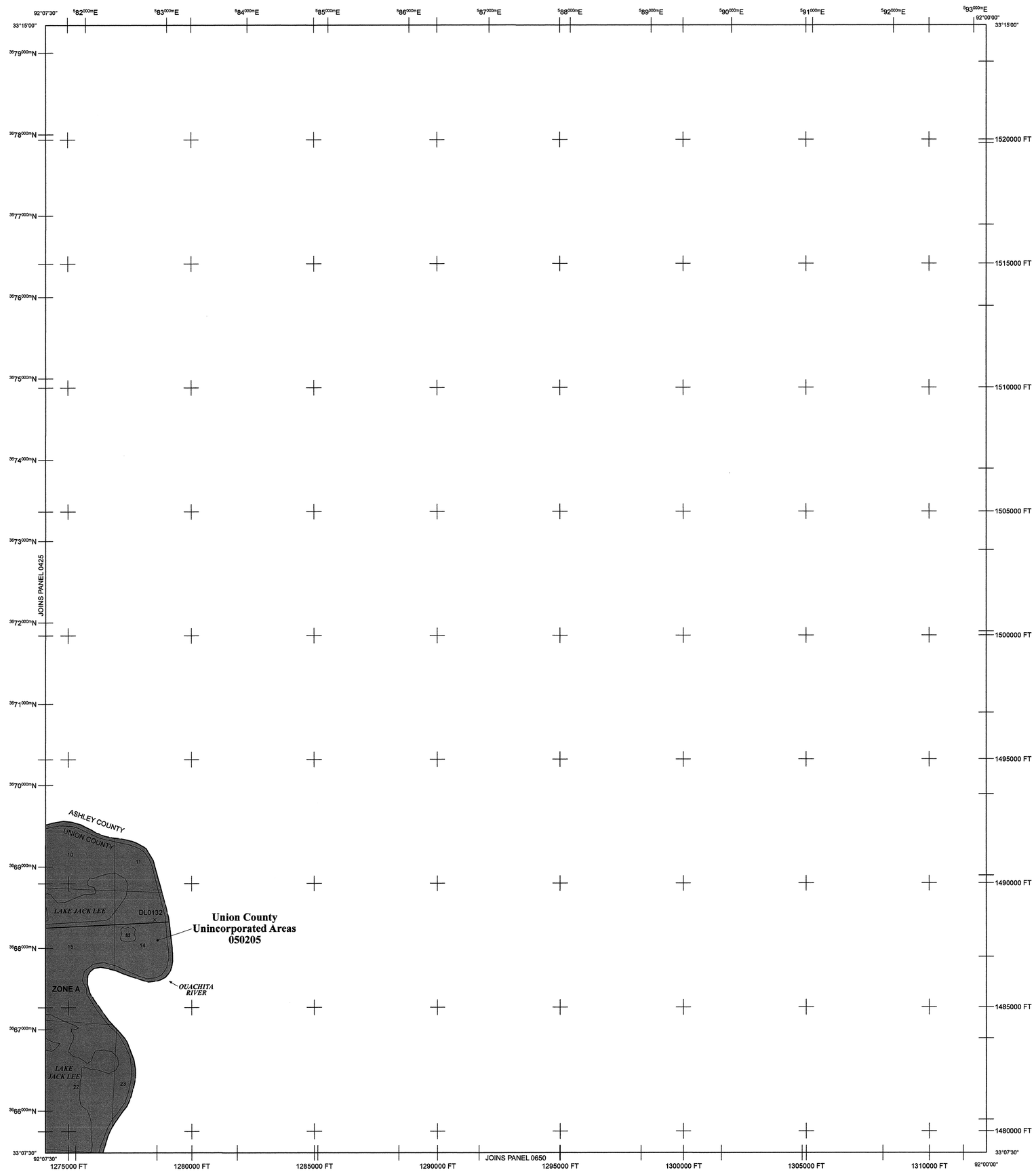


# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| • M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0450C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

## AND INCORPORATED AREAS

**PANEL 450 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0450 | C |

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

**MAP NUMBER**
**05139C0450C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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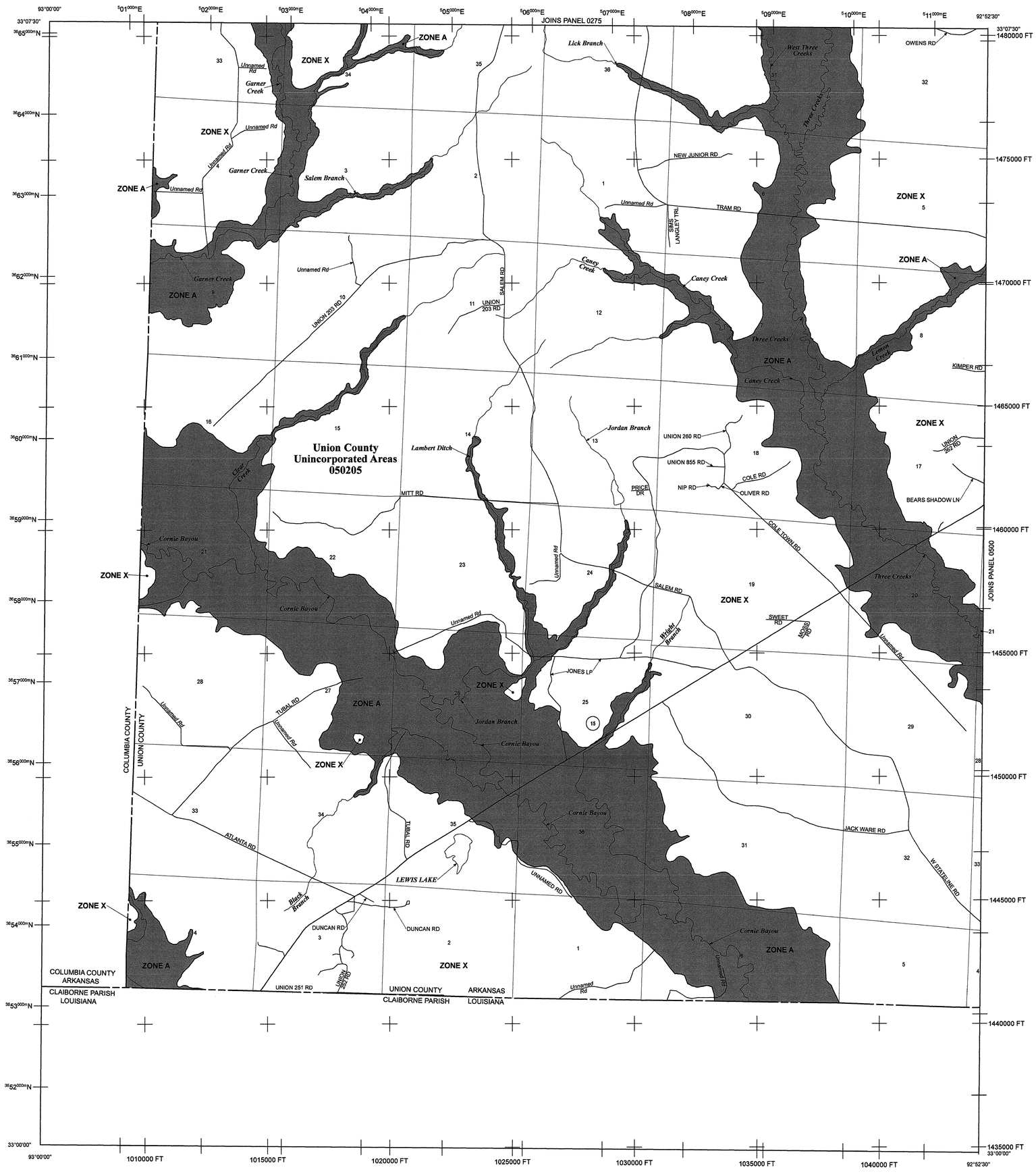


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MAP REPOSITORY
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EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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1,000 0 1,000 2,000 3,000 4,000 FEET
600 0 600 1,200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0475C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 475 OF 650**
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0475 | C |

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**MAP NUMBER**
**05139C0475C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**
**Federal Emergency Management Agency**

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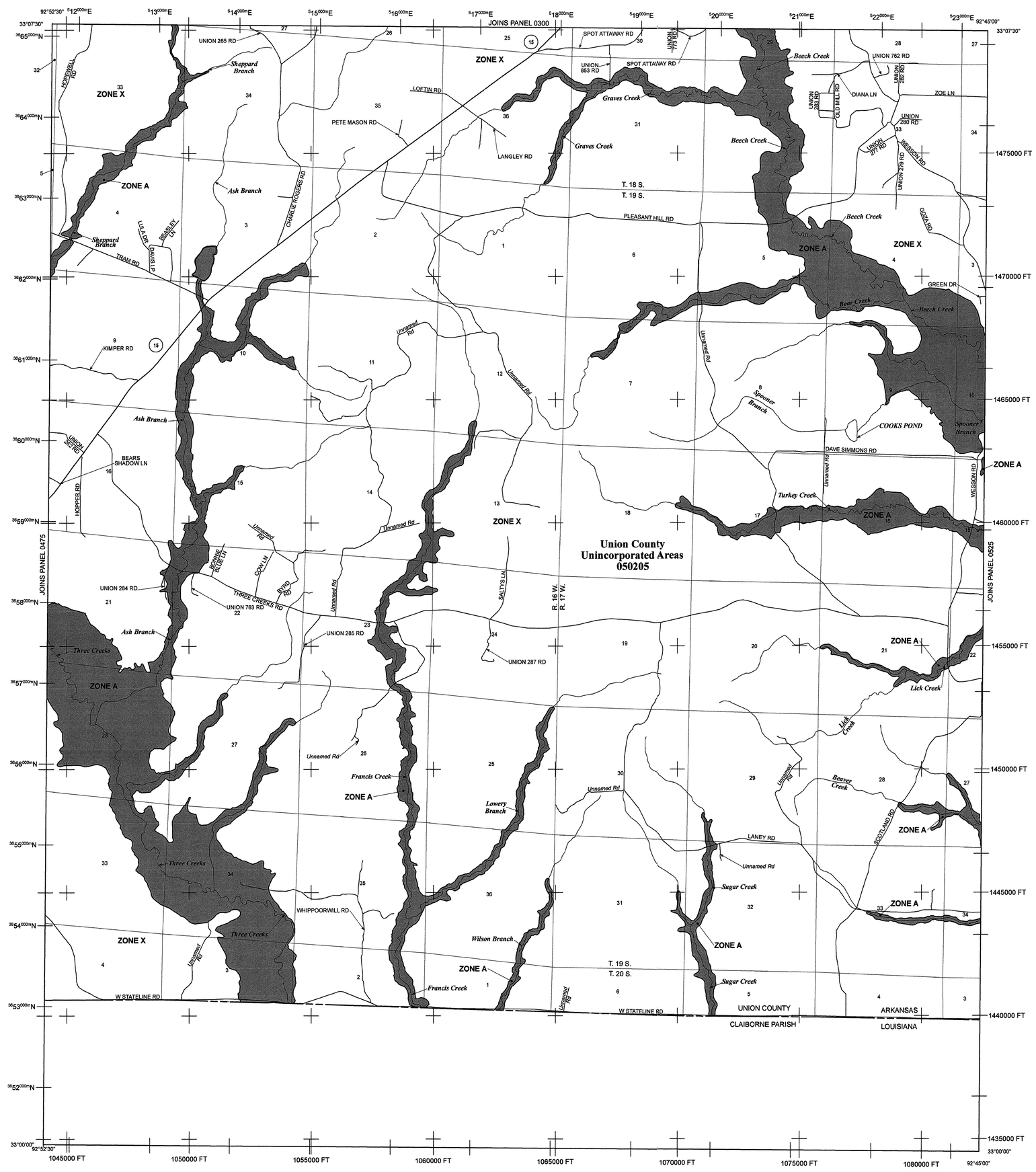


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OTHER FLOOD AREAS

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Refer to listing of Map Repositories on Map Index

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September 28, 2007

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1,000 0 1,000 2,000 3,000 4,000 FEET

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0500C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 500 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0500 | C |

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**EFFECTIVE DATE**
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Silver Spring Metro Center
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Silver Spring, Maryland 20910
(301) 713-3191

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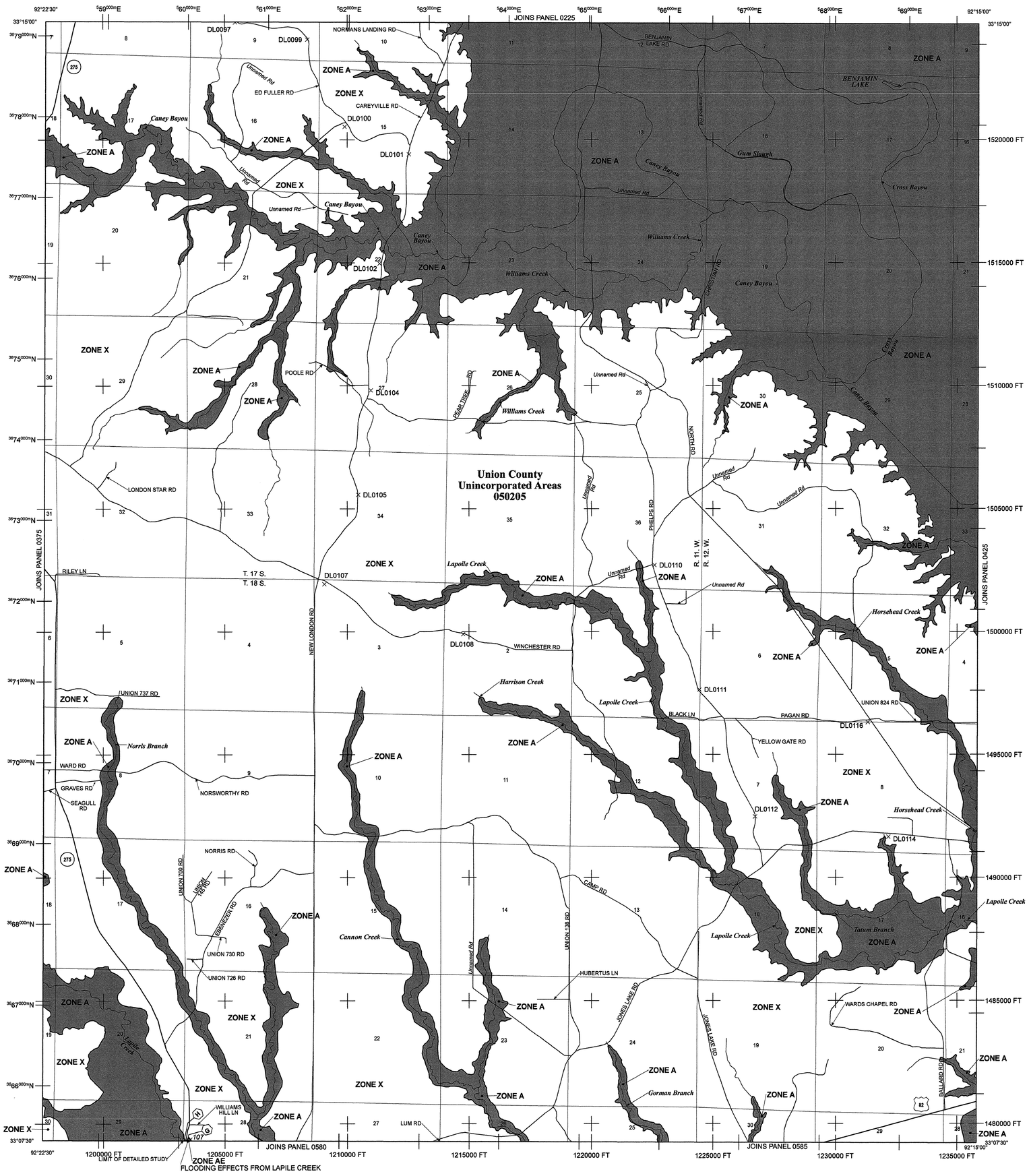


# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET
600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0400C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 400 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0400 | C |

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

**MAP NUMBER**
**05139C0400C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

# NOTES TO USERS

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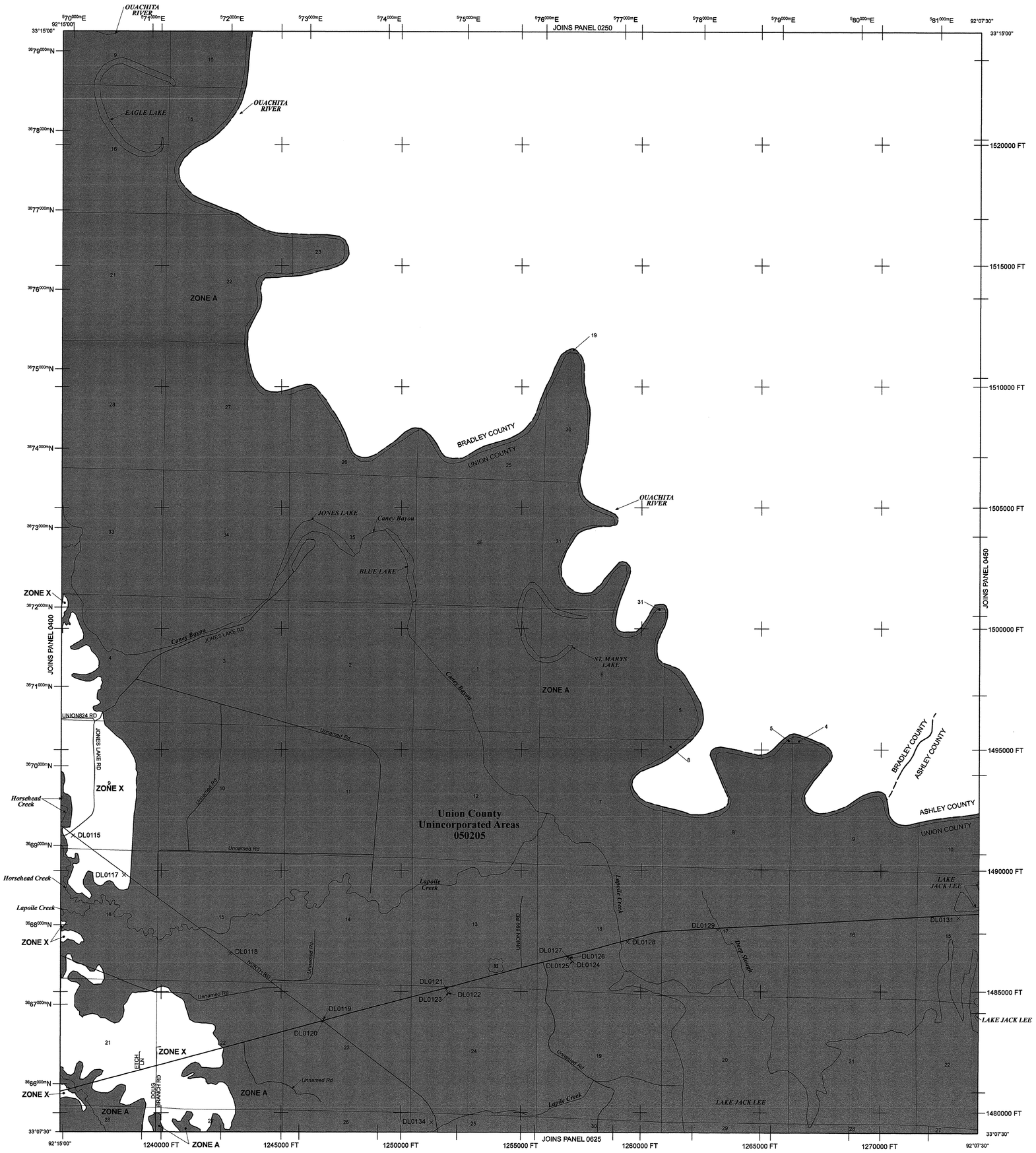


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
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OTHERWISE PROTECTED AREAS (OPAs)

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| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 475000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0425C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 425 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0425 | C |

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

**MAP NUMBER**
**05139C0425C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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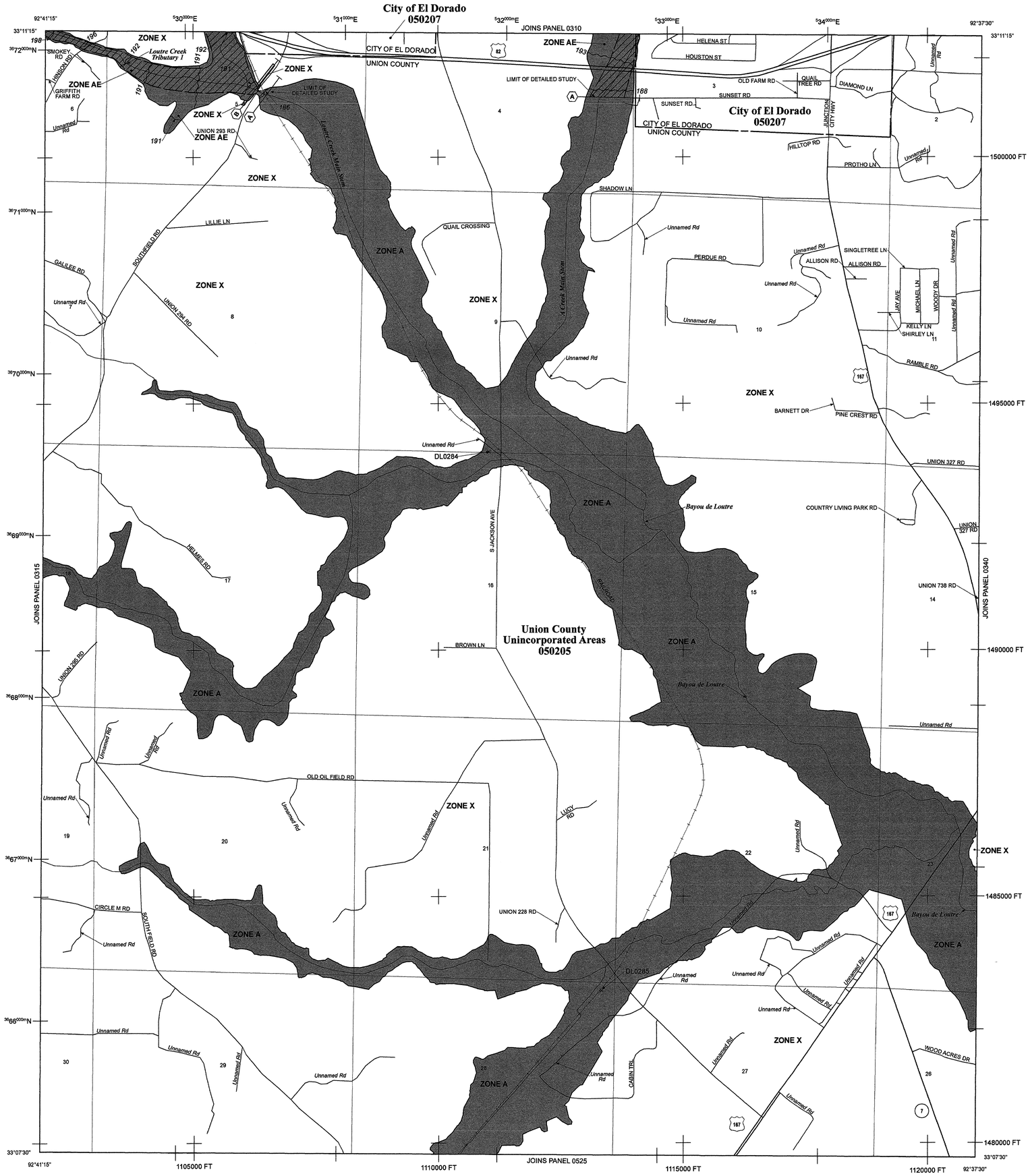


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

| | |
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OTHER AREAS

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MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
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September 28, 2007

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0320C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 320 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL DORADO, CITY OF | 050207 | 0320 | C |
| UNION COUNTY | 050205 | 0320 | C |

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**MAP NUMBER**
**05139C0320C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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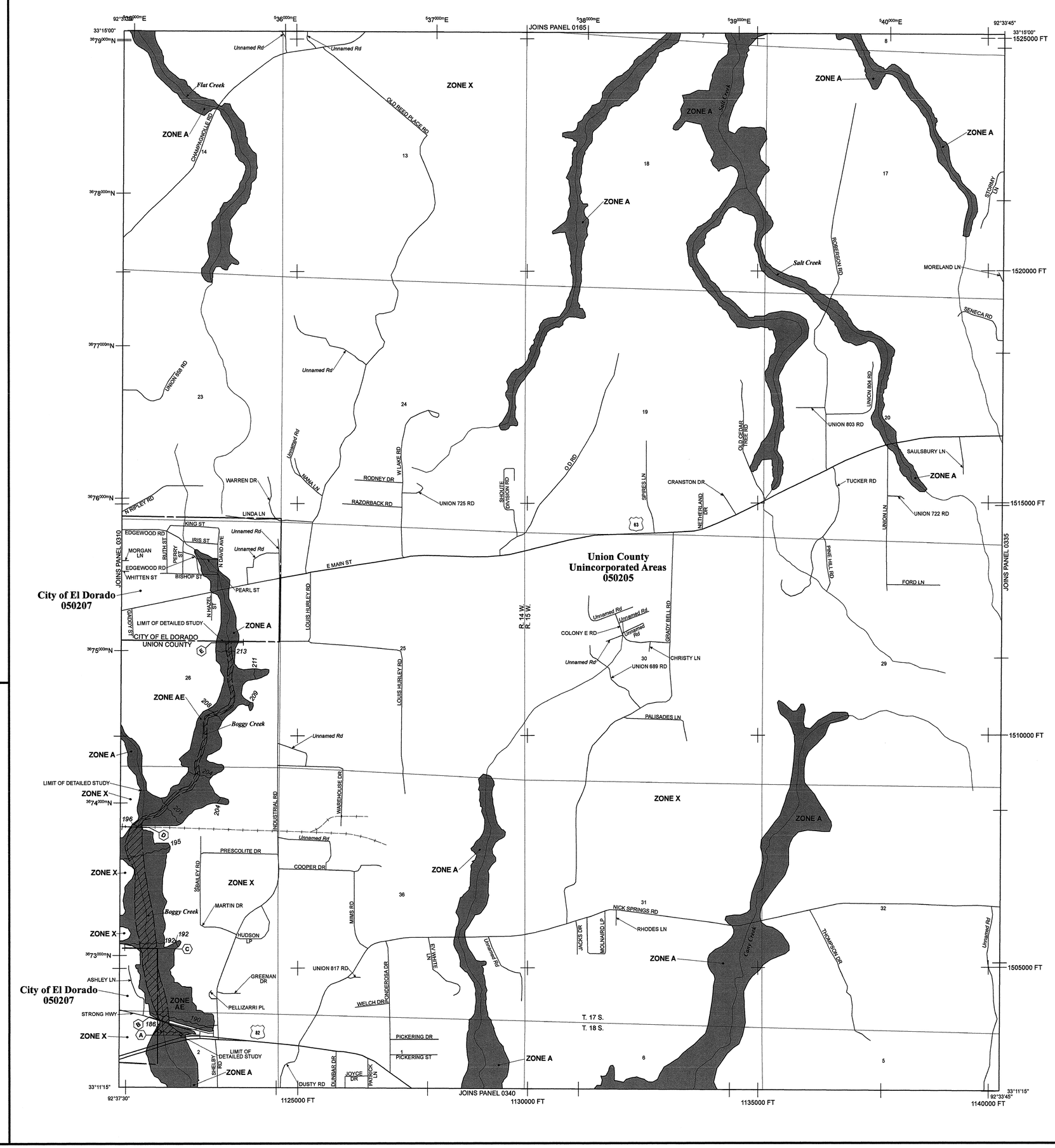


# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0330C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 330 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL DORADO, CITY OF | 050207 | 0330 | C |
| UNION COUNTY | 050205 | 0330 | C |

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

**MAP NUMBER**
**05139C0330C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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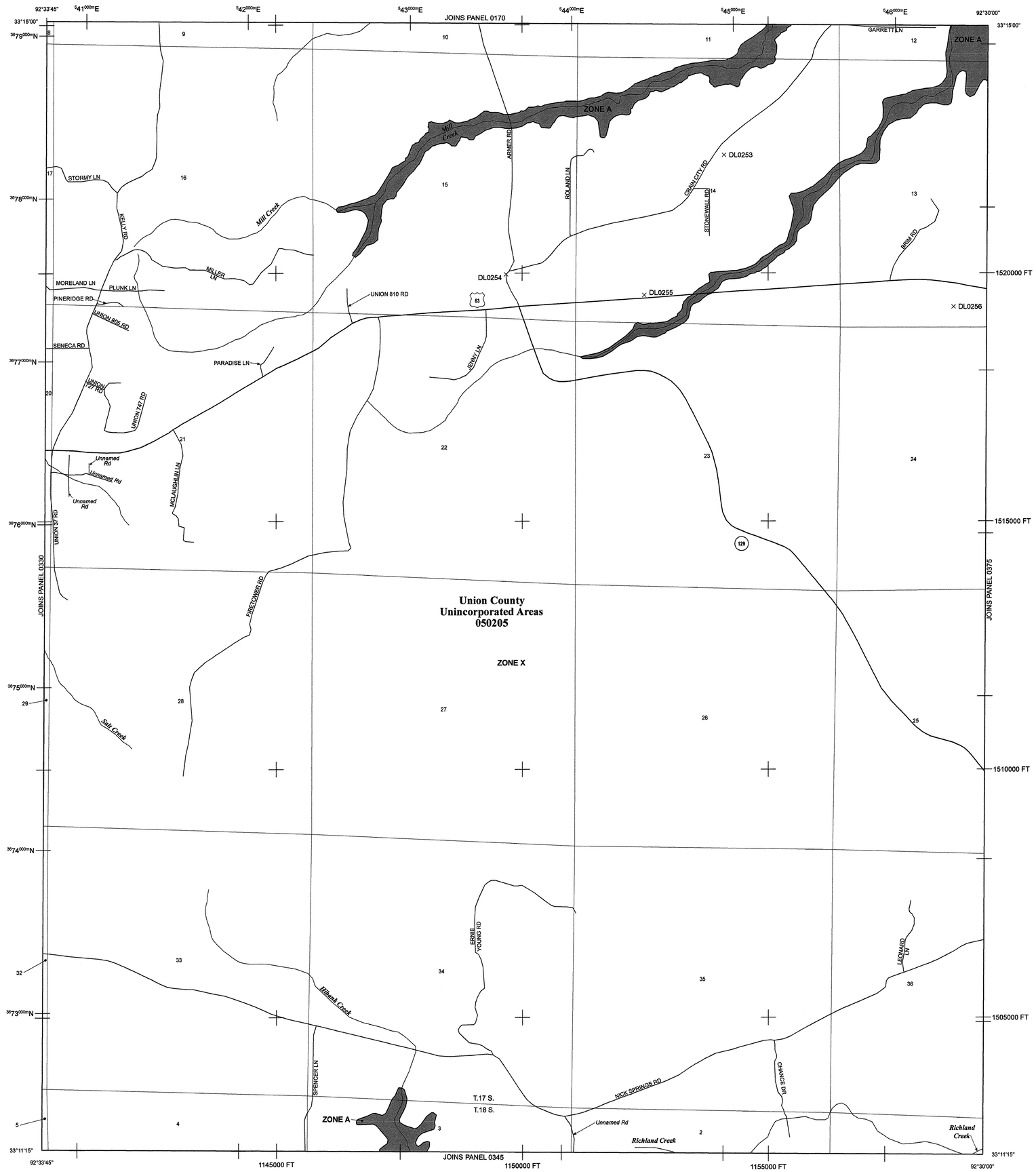


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

| | |
|---|---|
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MAP REPOSITORY
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EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0335C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 335 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0335 | C |

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**MAP NUMBER**
**05139C0335C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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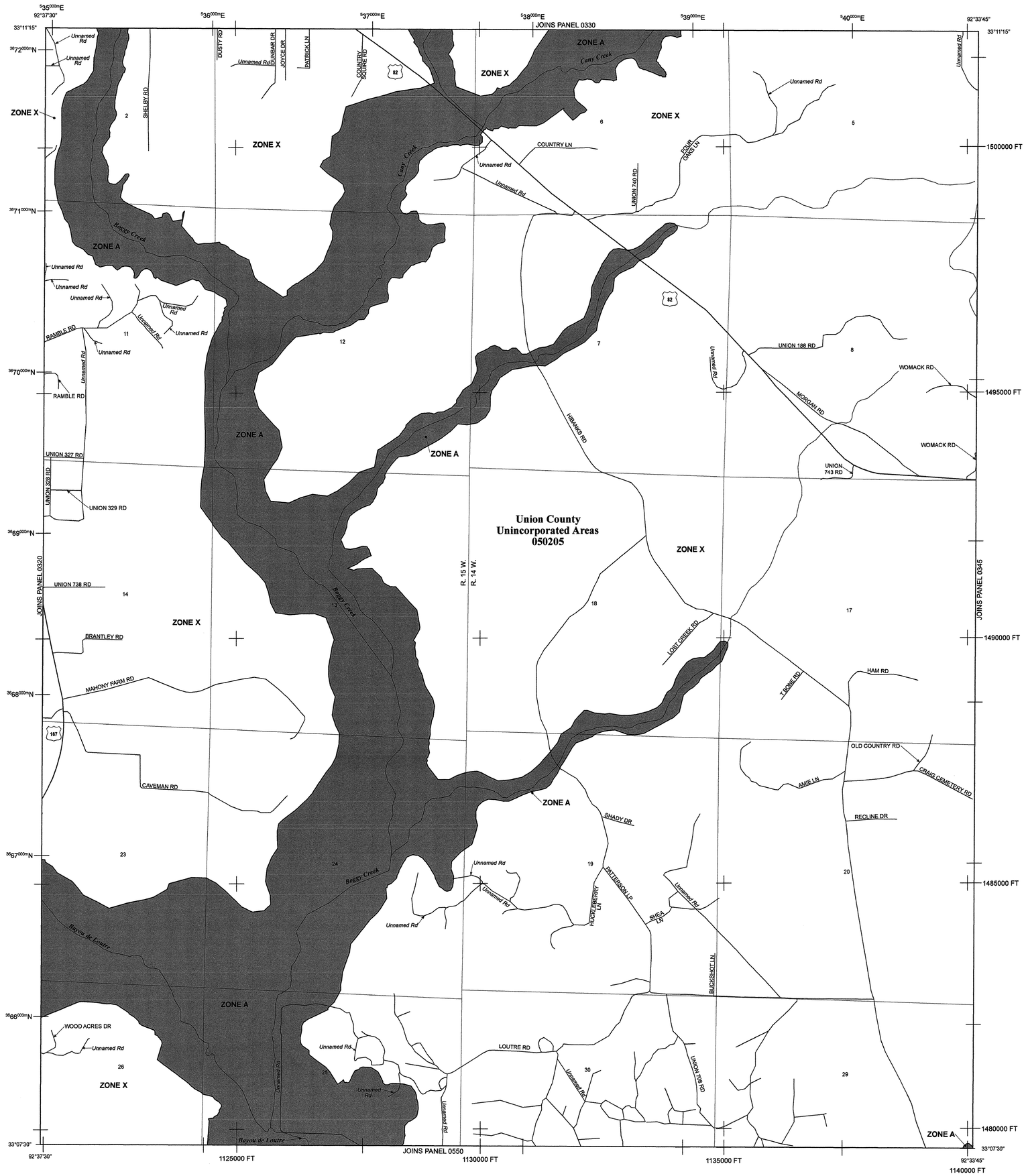


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

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Refer to listing of Map Repositories on Map Index

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September 28, 2007

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500 0 500 1,000 1,500 2,000 FEET

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NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0340C**

# FIRM

## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 340 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0340 | C |

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**MAP NUMBER**
**05139C0340C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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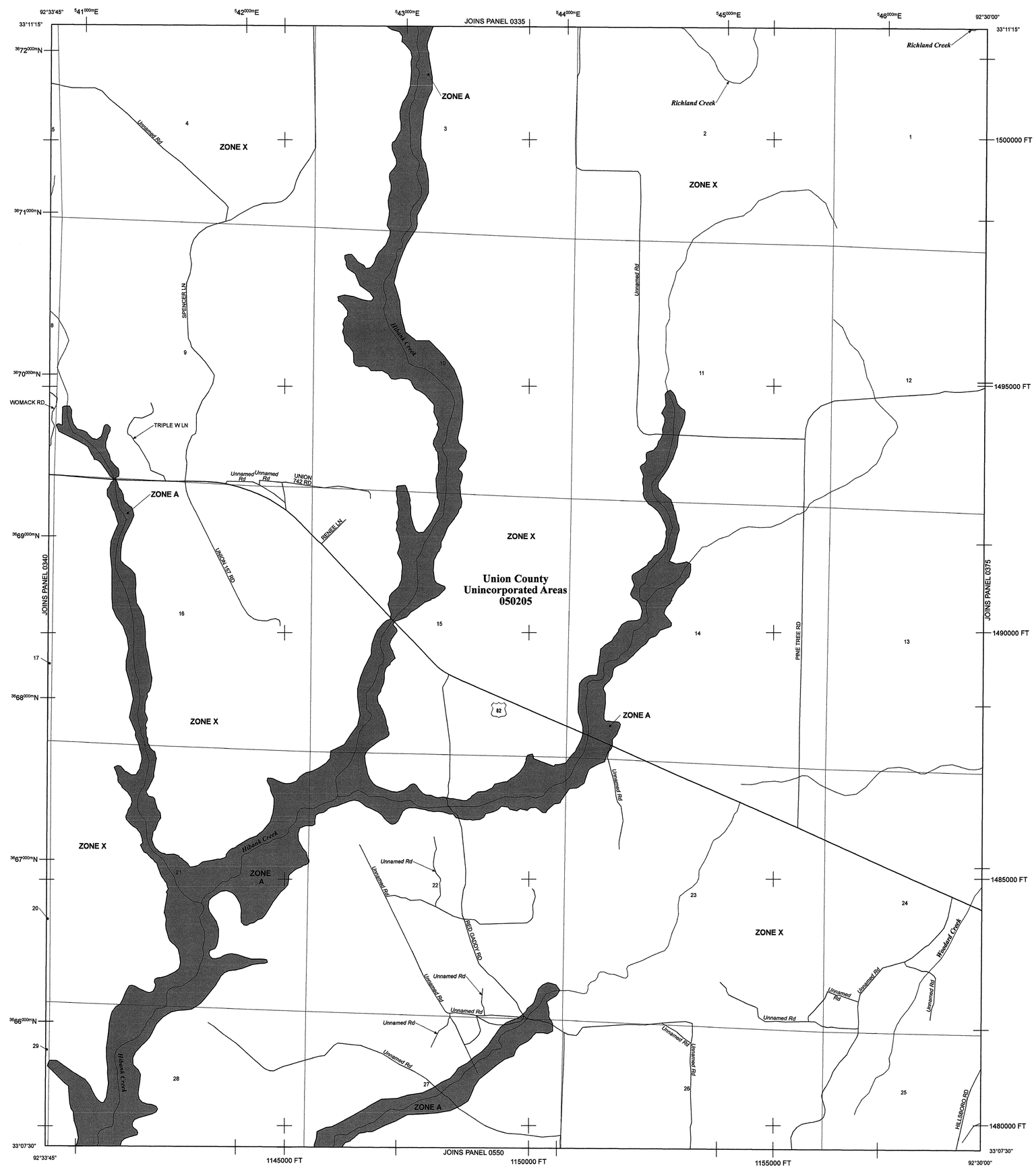


# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0345C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 345 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0345 | C |

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

**MAP NUMBER**
**05139C0345C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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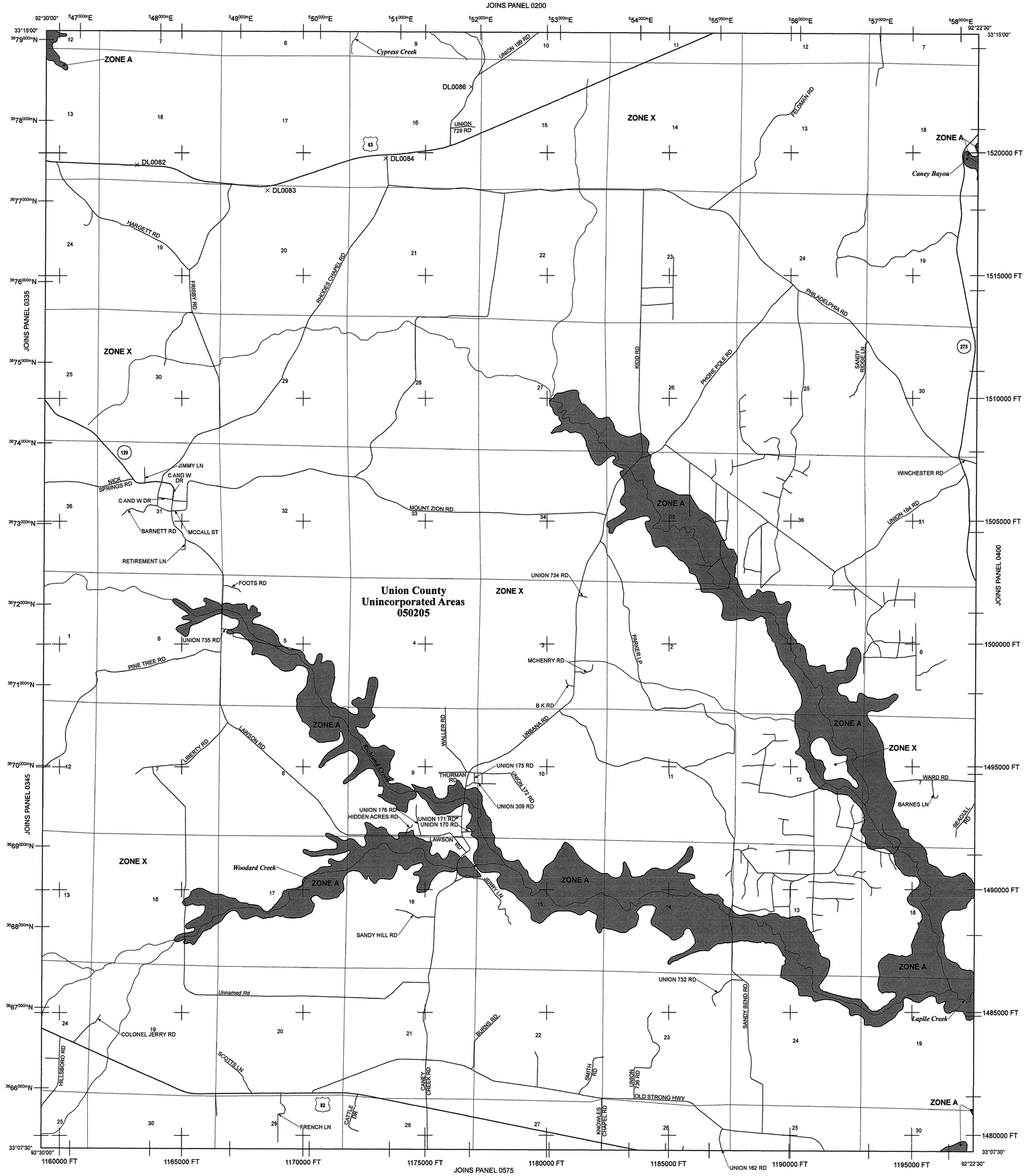


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OTHER FLOOD AREAS

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MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0375C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 375 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0375 | C |

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**MAP NUMBER**
**05139C0375C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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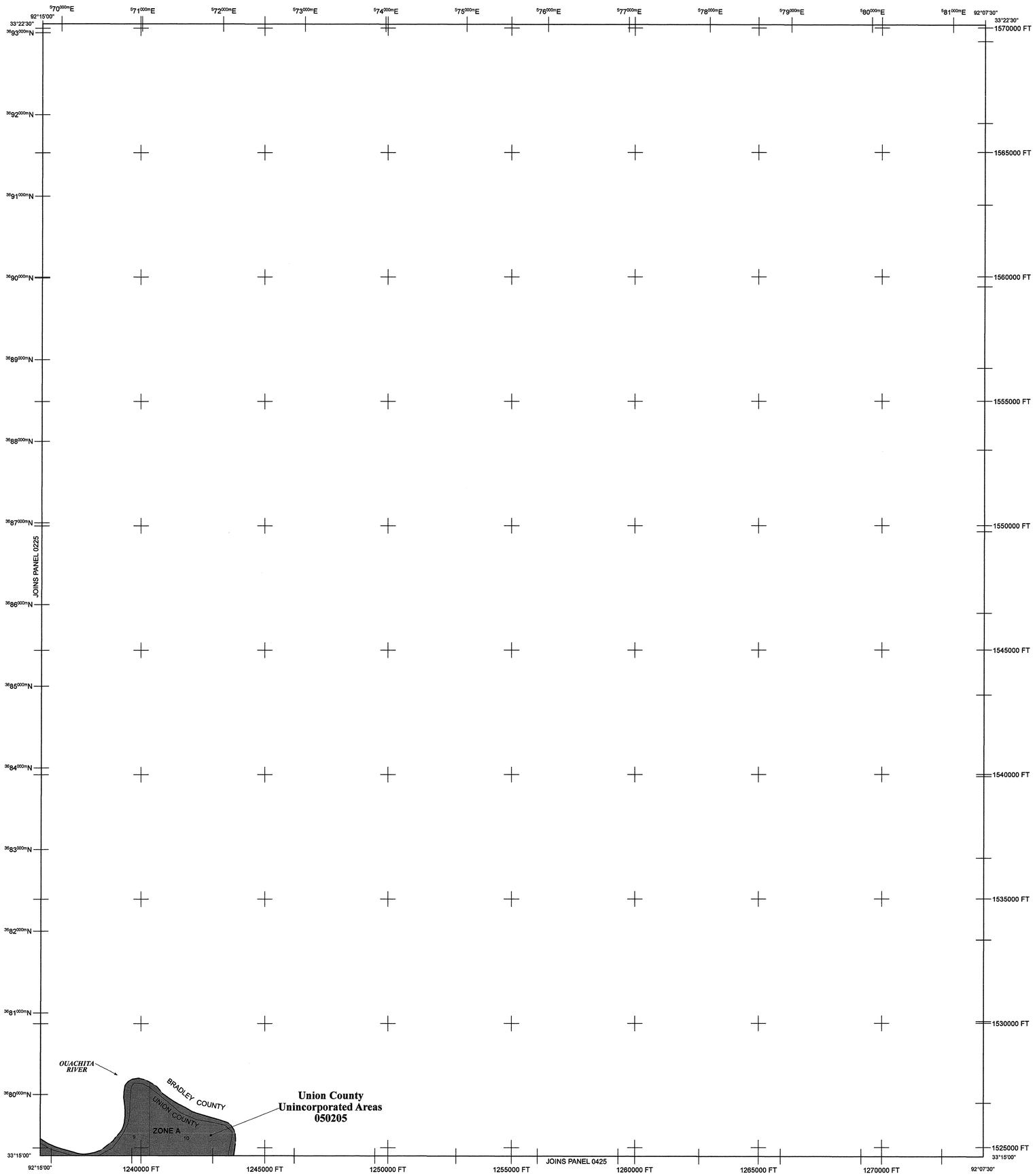


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

| | |
|---|---|
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MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
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September 28, 2007

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1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0250C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 250 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0250 | C |

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**MAP NUMBER**
**05139C0250C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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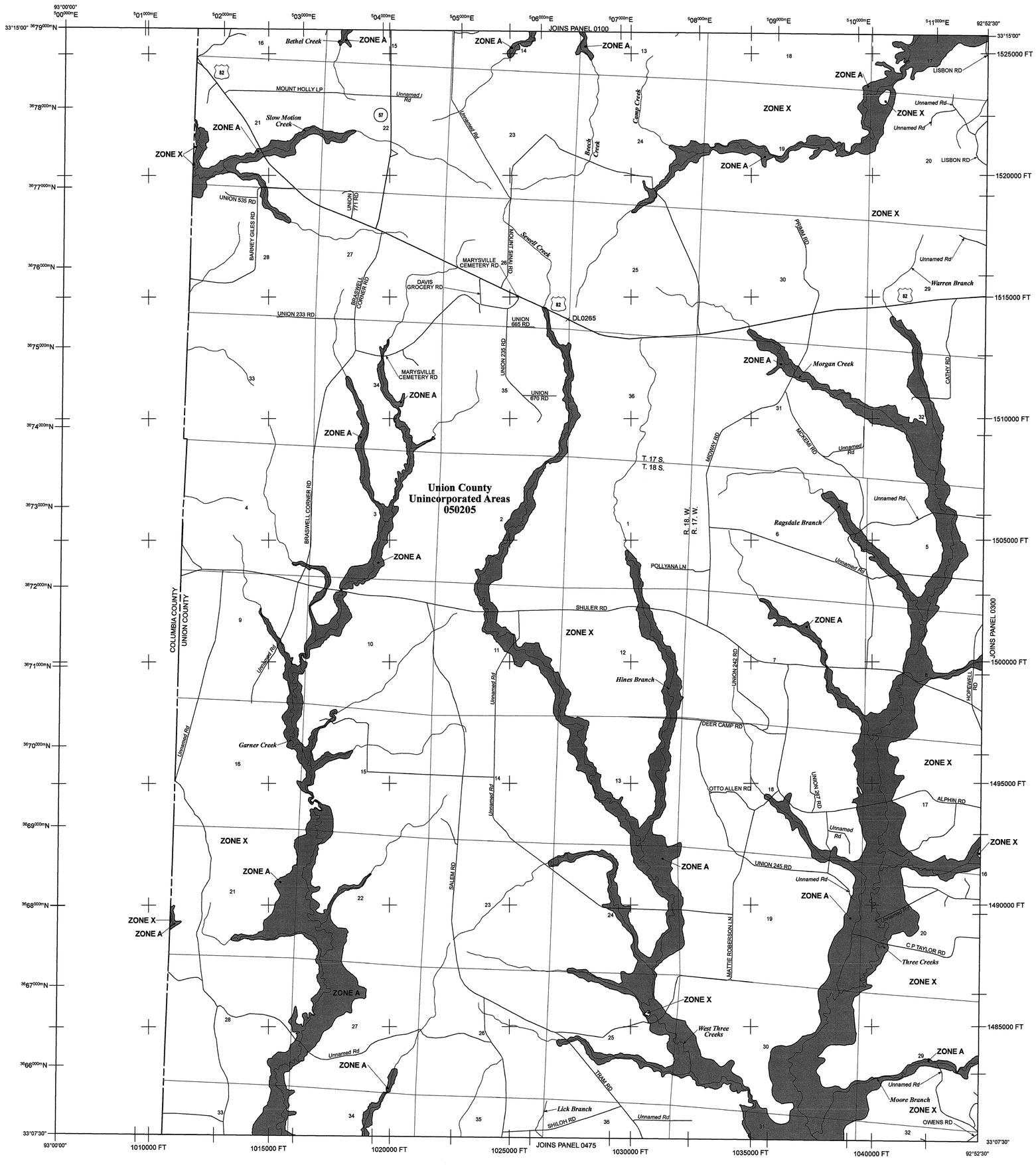


# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE | 1000-meter Universal Transverse Mercator grid ticks, zone 15 |
| 6000000 FT | 5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0275C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 275 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0275 | C |

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

**MAP NUMBER**
**05139C0275C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

# NOTES TO USERS

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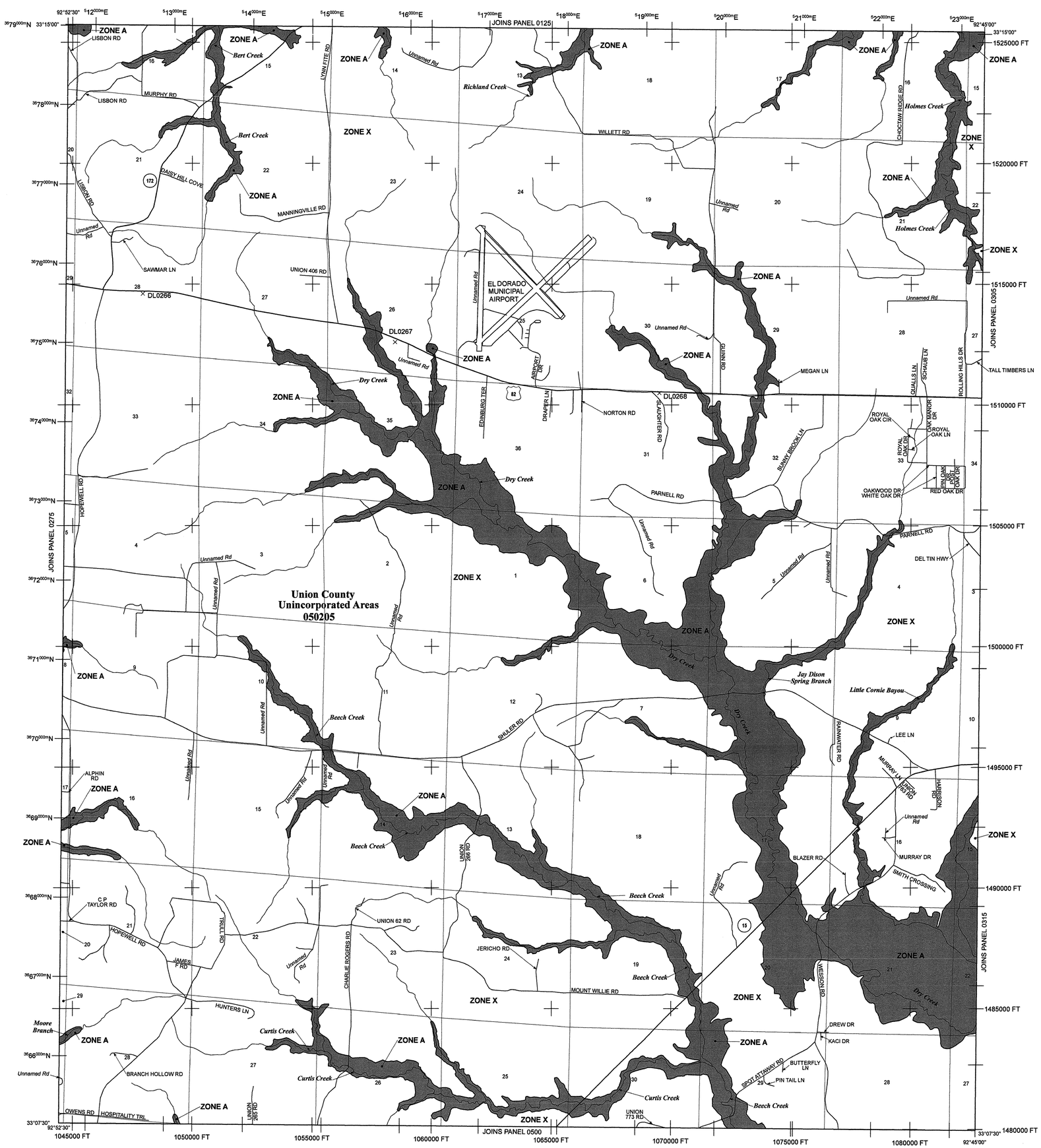


# LEGEND

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

| | |
|---|---|
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| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
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| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0300C**

# FIRM

## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 300 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0300 | C |

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

**MAP NUMBER**
**05139C0300C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

# NOTES TO USERS

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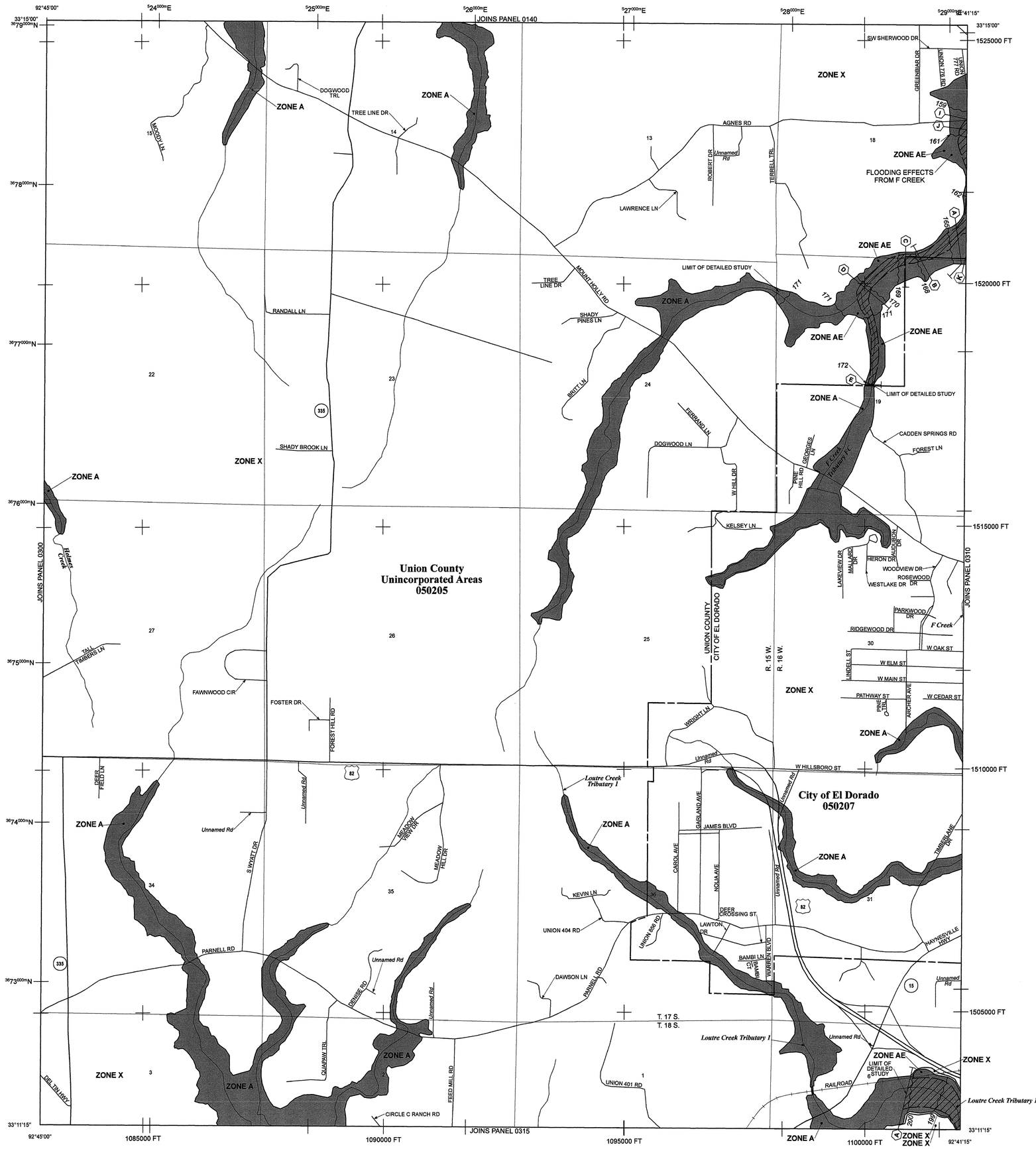


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

| | |
|---|---|
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OTHER AREAS

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| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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OTHERWISE PROTECTED AREAS (OPAs)

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MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0305C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 305 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL DORADO, CITY OF | 050207 | 0305 | C |
| UNION COUNTY | 050205 | 0305 | C |

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

**MAP NUMBER**
**05139C0305C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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National Geodetic Survey, NOAA
Silver Spring Metro Center
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Silver Spring, Maryland 20910
(301) 713-3191

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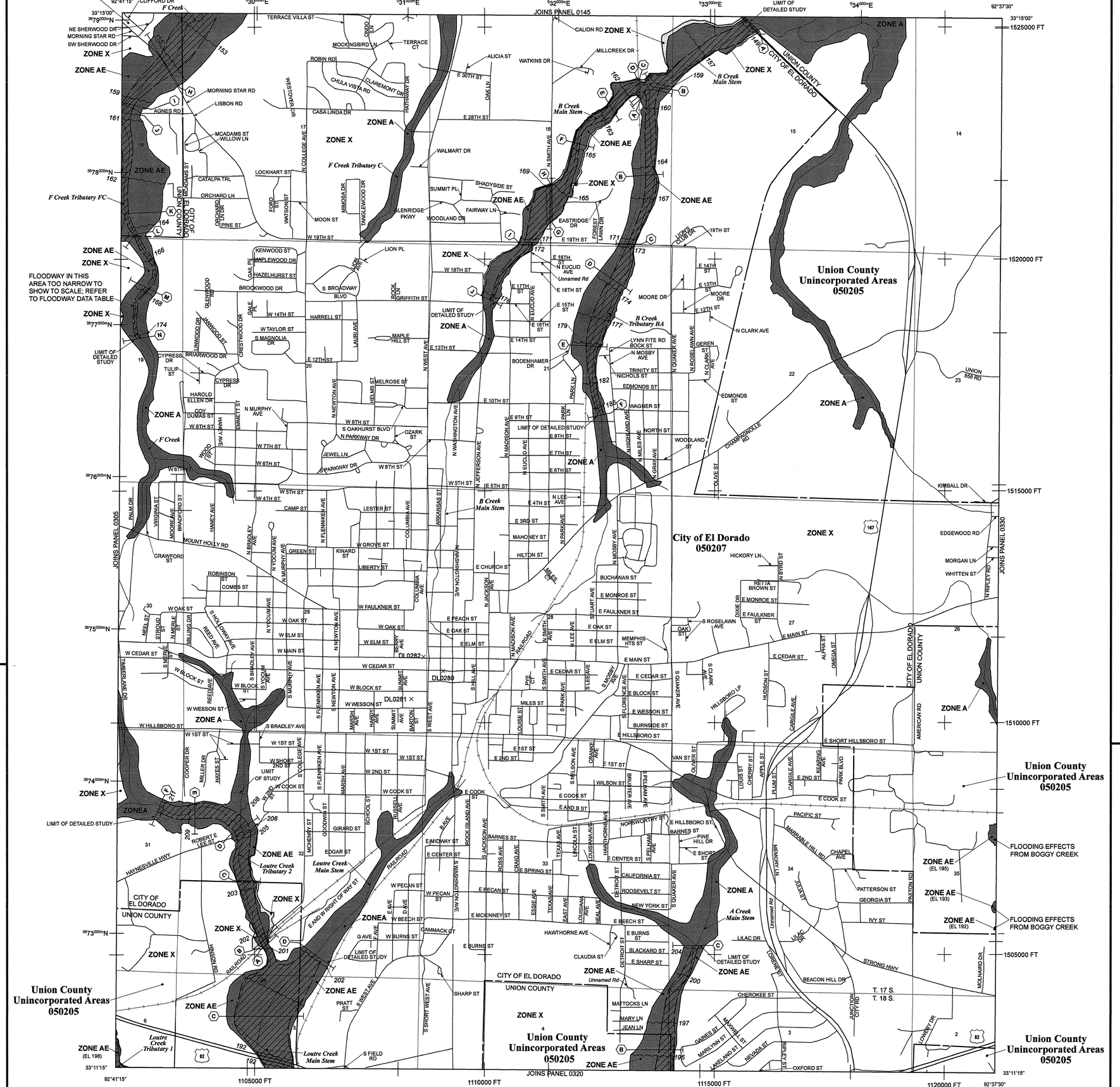


# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE | 1000-meter Universal Transverse Mercator grid ticks, zone 15 |
| 6000000 FT | 5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0310C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 310 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL DORADO, CITY OF | 050207 | 0310 | C |
| UNION COUNTY | 050205 | 0310 | C |

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

**MAP NUMBER**
**05139C0310C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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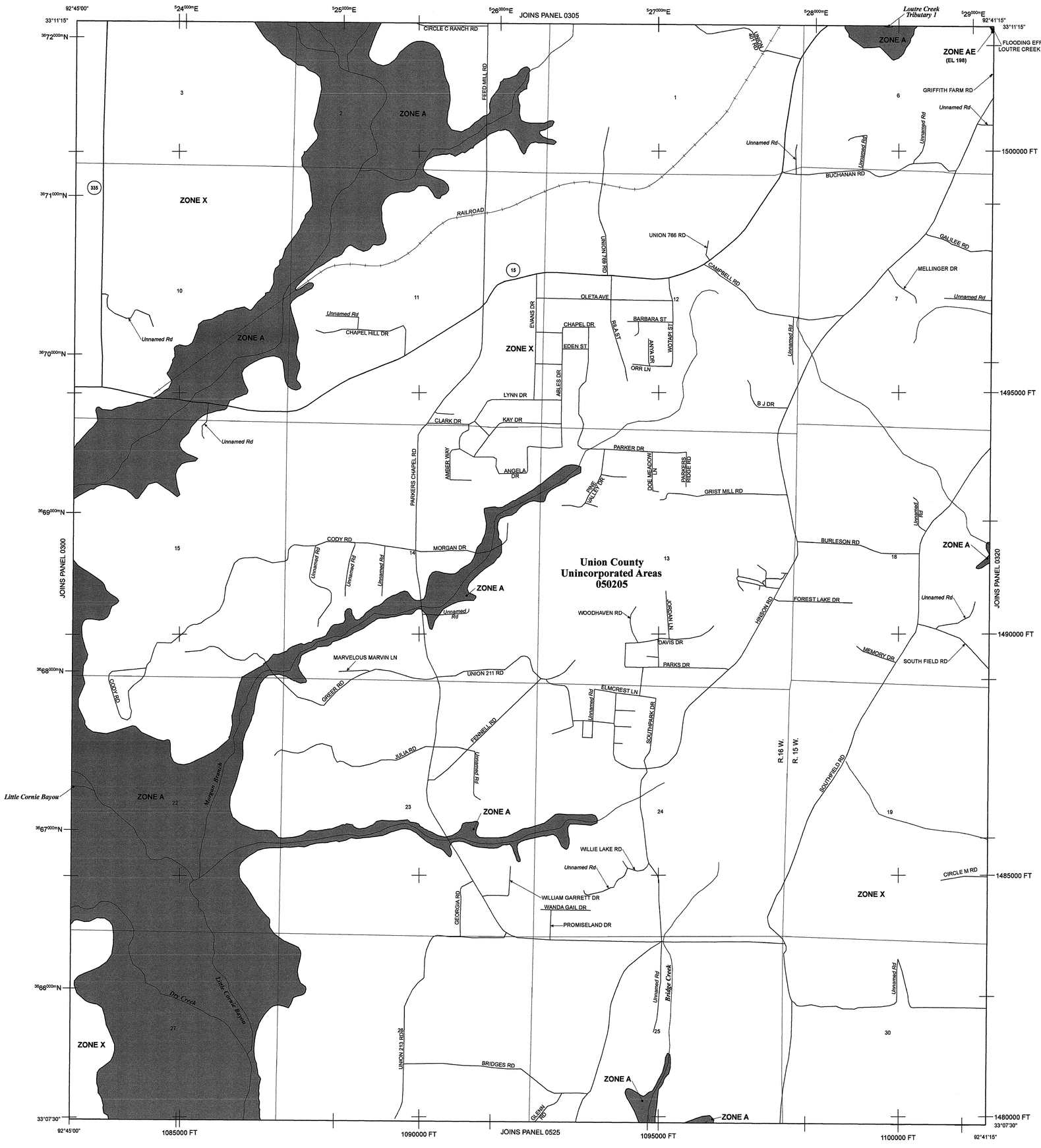


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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

| | |
|---|---|
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Floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

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EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0315C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 315 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0315 | C |

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**MAP NUMBER**
**05139C0315C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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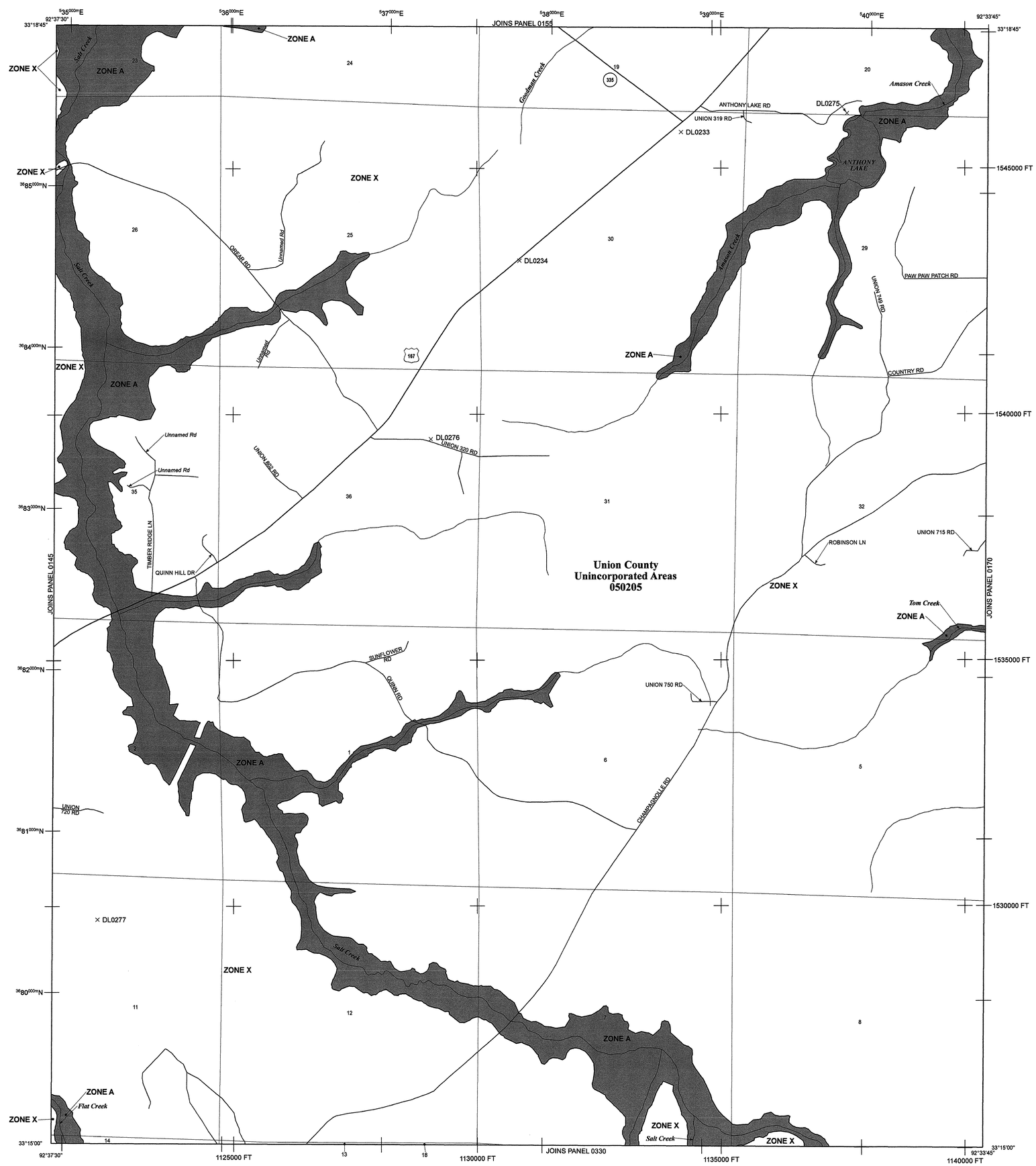


# LEGEND

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OTHER FLOOD AREAS

| | |
|---|---|
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OTHER AREAS

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MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
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September 28, 2007

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500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0165C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 165 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0165 | C |

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**MAP NUMBER**
**05139C0165C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

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

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National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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

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

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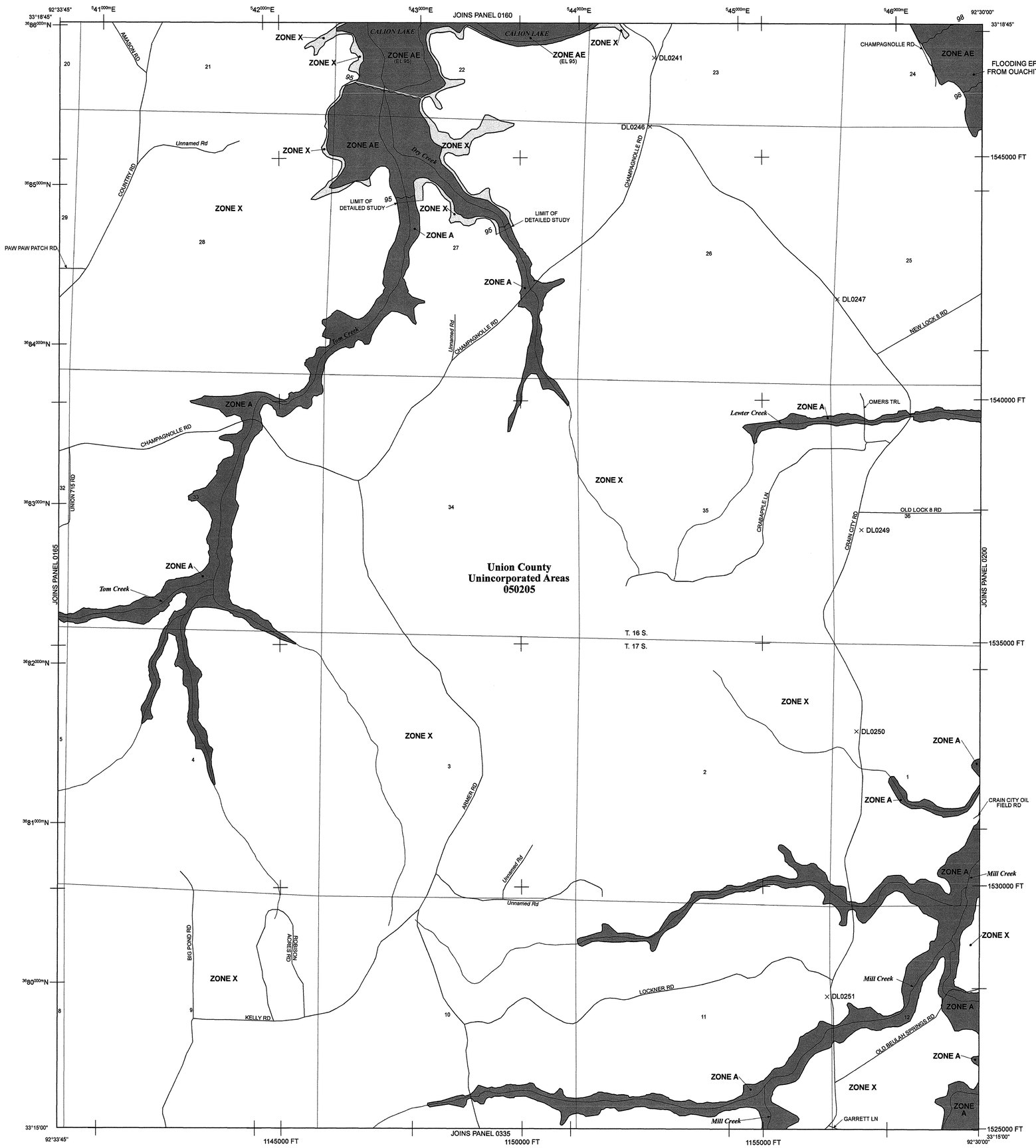
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 475000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0170C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 170 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0170 | C |

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

**MAP NUMBER**
**05139C0170C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

# NOTES TO USERS

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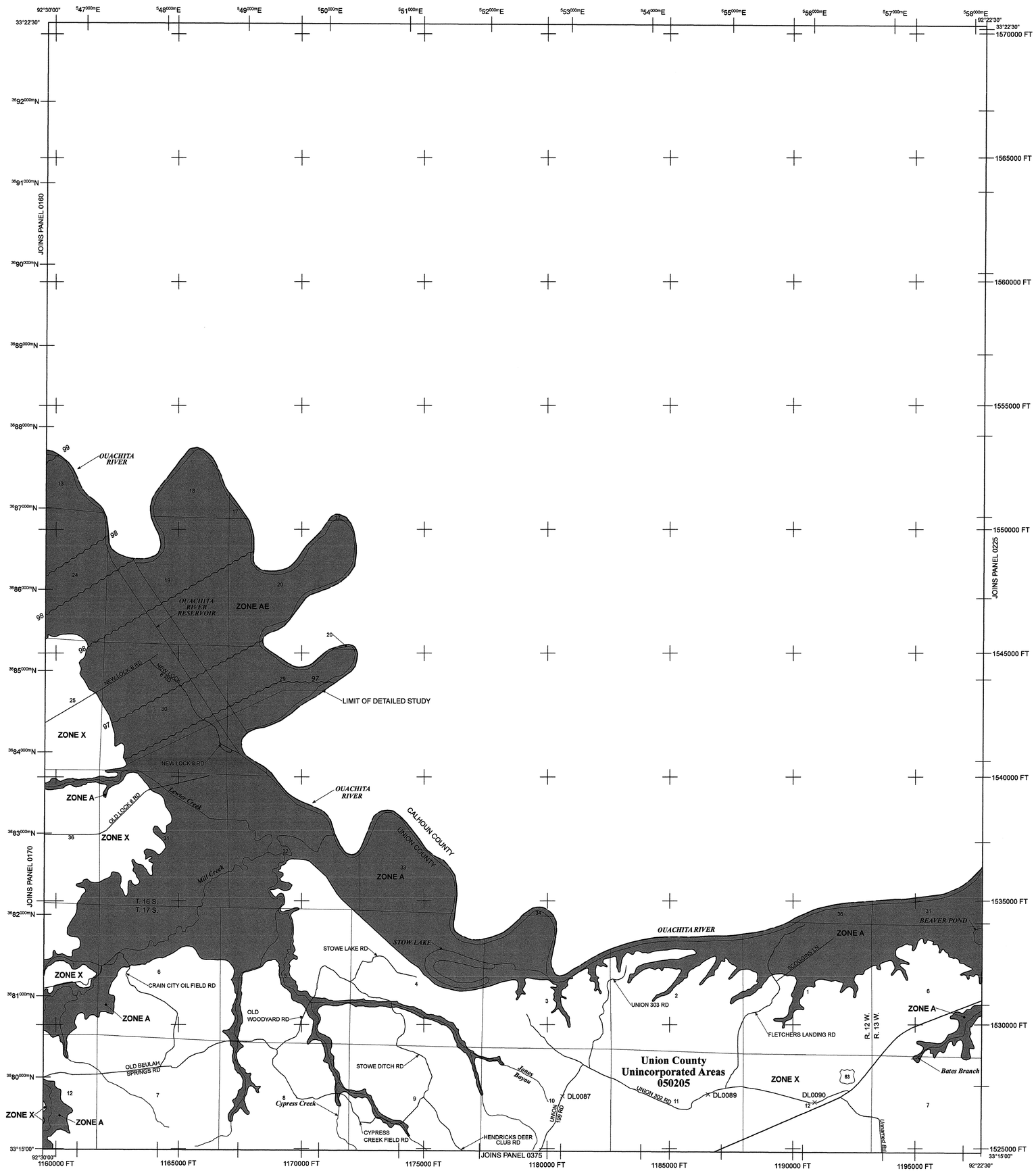


# LEGEND

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| | |
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FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
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| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 75000mE | 1000-meter Universal Transverse Mercator grid ticks, zone 15 |
| 6000000 FT | 5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0200C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 200 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0200 | C |

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

**MAP NUMBER**
**05139C0200C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

# NOTES TO USERS

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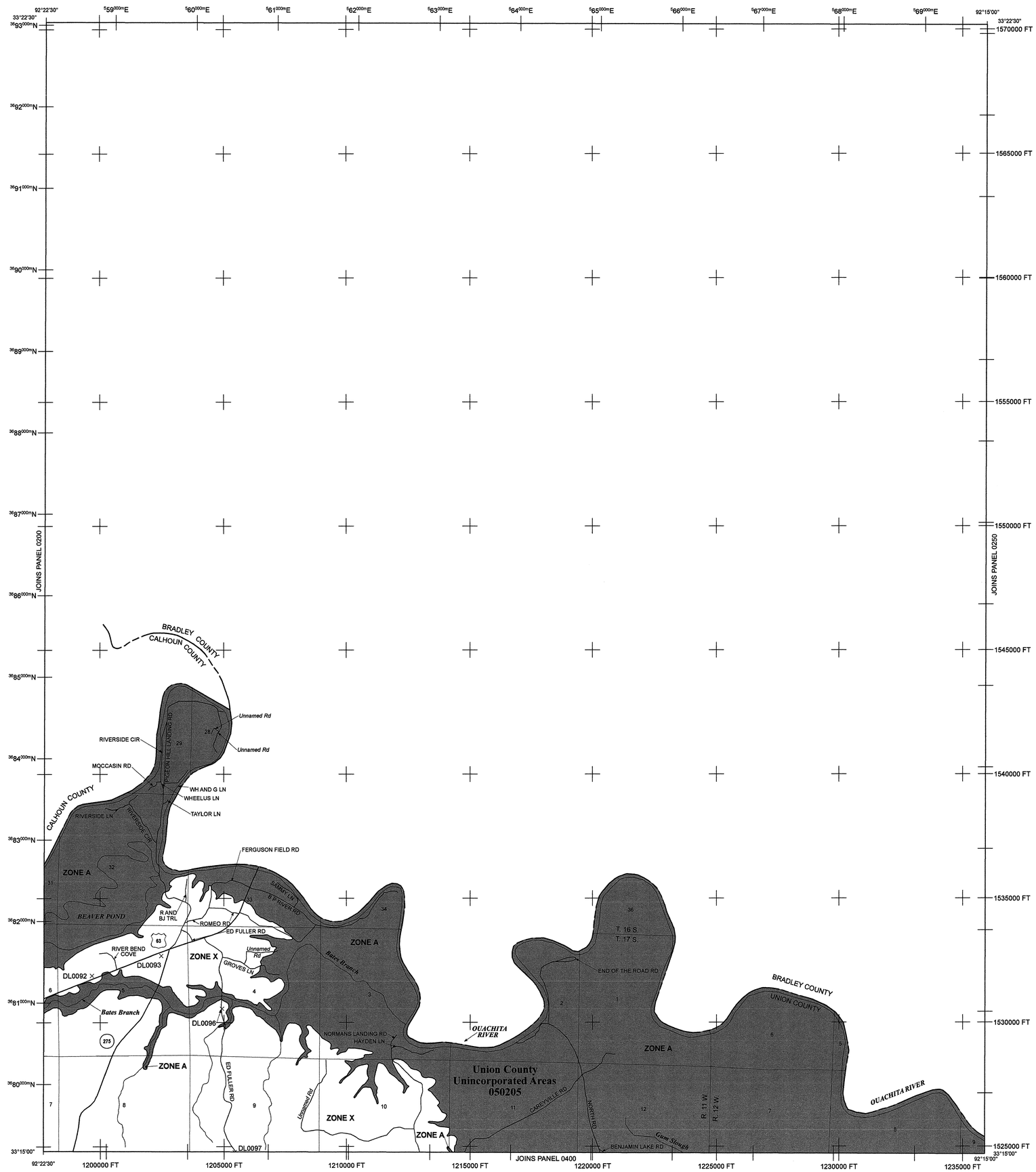


# LEGEND

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| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

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

OTHER AREAS

| | |
|---|---|
| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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|---|---|
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| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0225C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 225 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0225 | C |

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

**MAP NUMBER**
**05139C0225C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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

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

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

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

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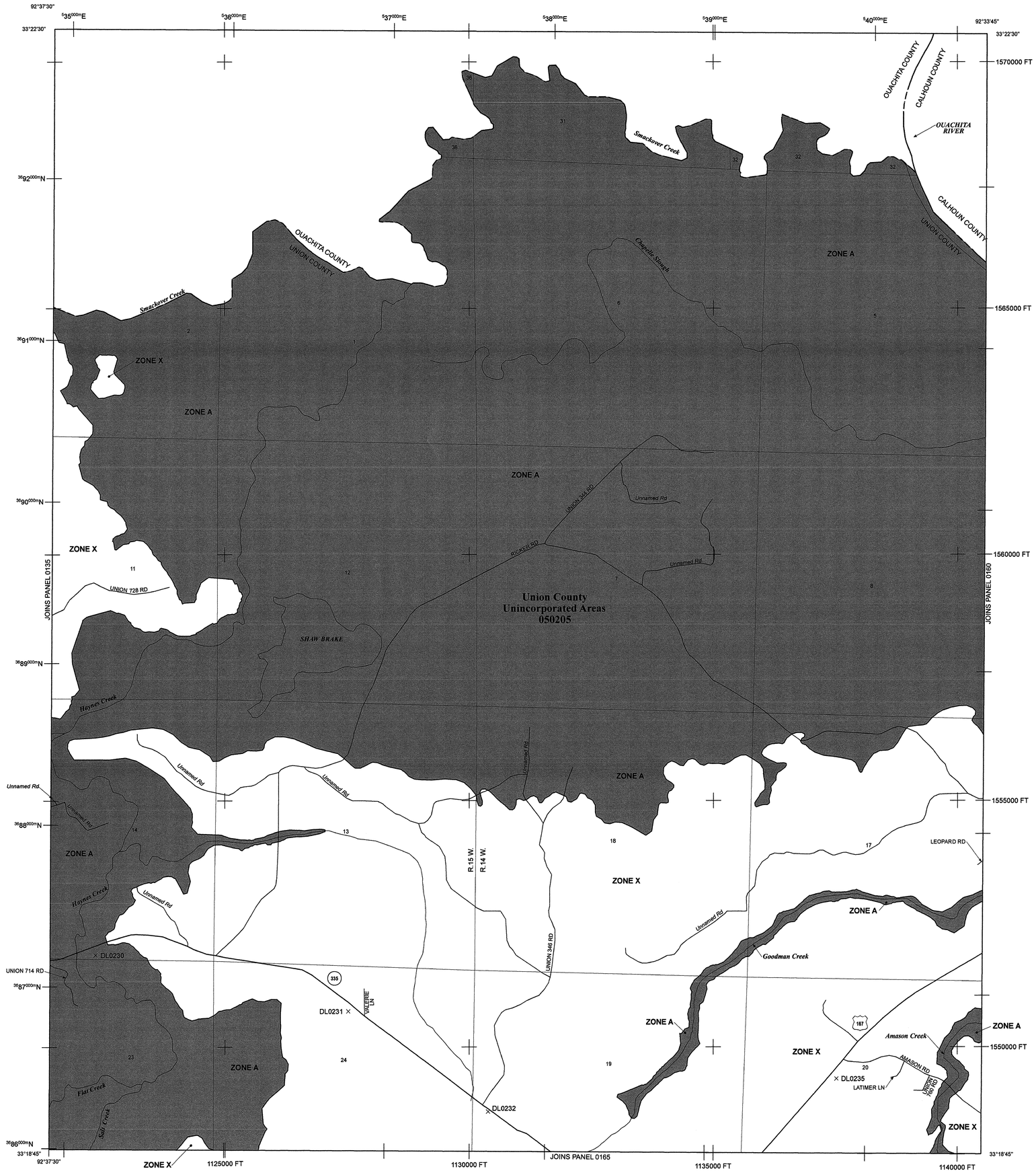
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0155C**

# FIRM

## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 155 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0155 | C |

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

**MAP NUMBER**
**05139C0155C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

# NOTES TO USERS

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

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

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The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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# LEGEND

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| | |
|---|---|
| **ZONE A** | No Base Flood Elevation determined. |
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| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
|---|---|
| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
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| DX5510$_X$ | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0160C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

## AND INCORPORATED AREAS

**PANEL 160 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CALION, CITY OF | 050206 | 0160 | C |
| UNION COUNTY | 050205 | 0160 | C |

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

**MAP NUMBER**
**05139C0160C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

# NOTES TO USERS

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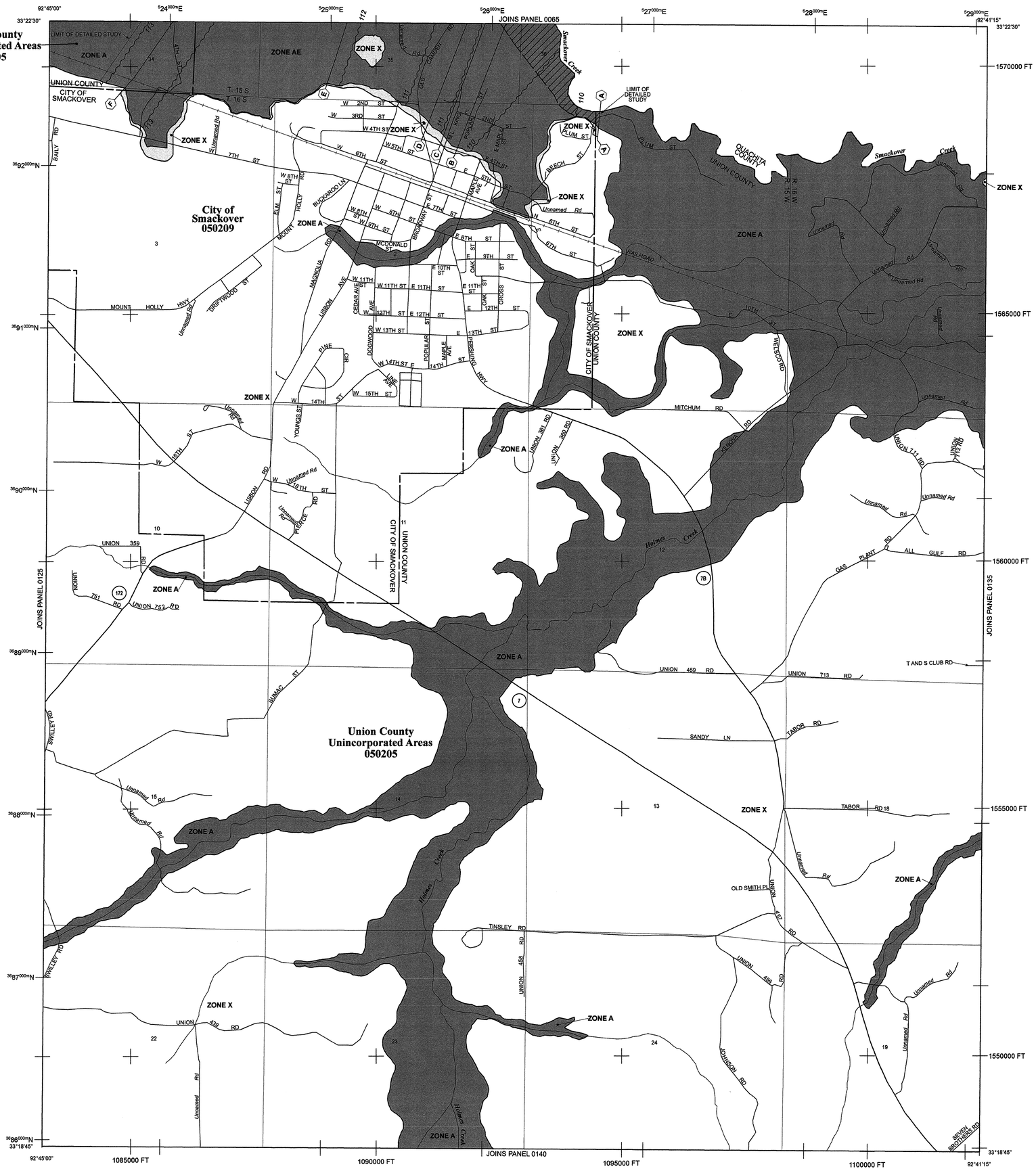


# LEGEND

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| **ZONE A99** | Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined. |
| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
|---|---|
| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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| | |
|---|---|
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| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0130C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 130 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| SMACKOVER, CITY OF | 050209 | 0130 | C |
| UNION COUNTY | 050205 | 0130 | C |

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

**MAP NUMBER**
**05139C0130C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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

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

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

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National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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

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

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

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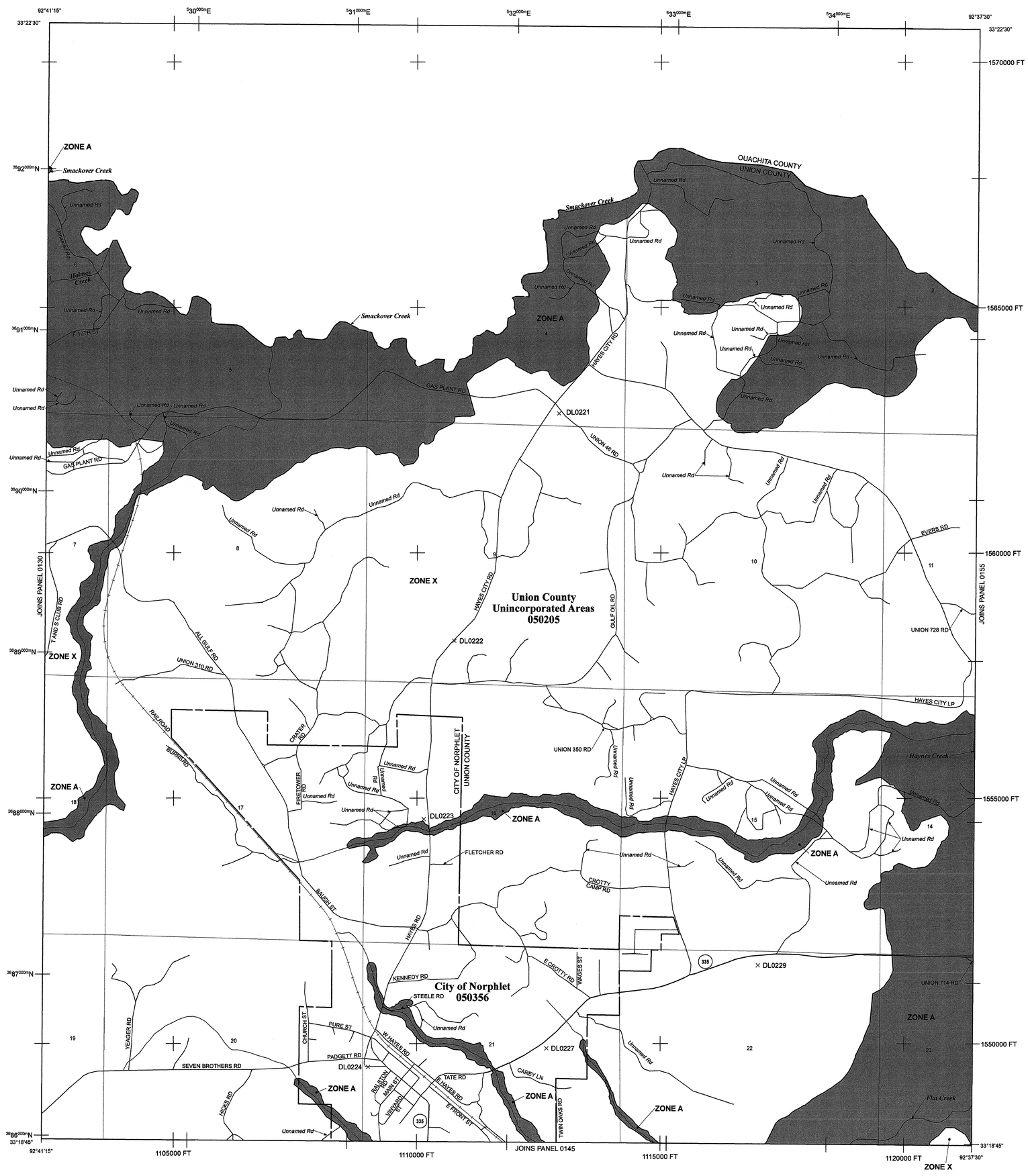
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| • M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0135C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 135 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| NORPHLET, CITY OF | 050356 | 0135 | C |
| UNION COUNTY | 050205 | 0135 | C |

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

**MAP NUMBER**
**05139C0135C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

# NOTES TO USERS

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

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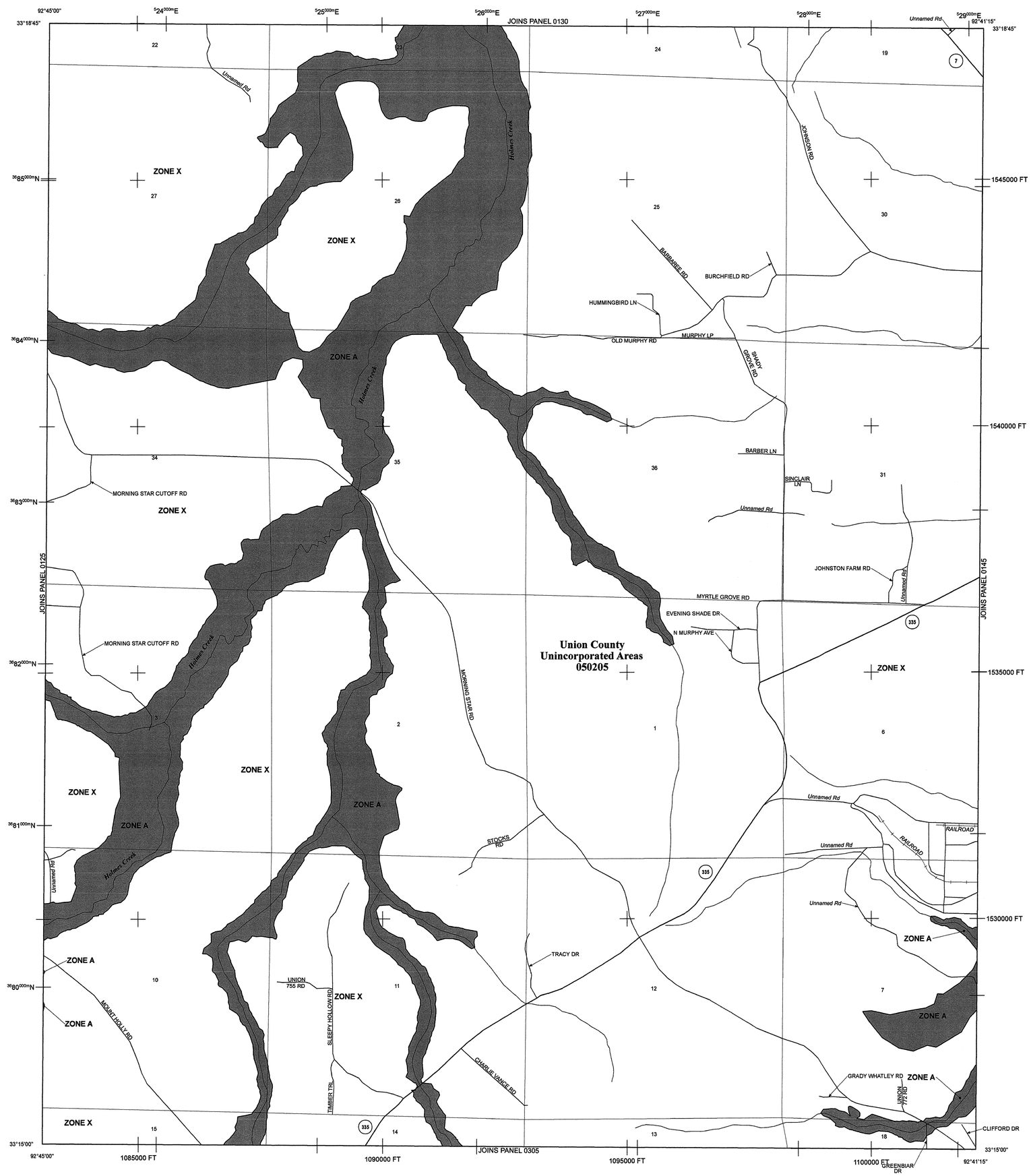


# LEGEND

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

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

| | |
|---|---|
| **ZONE A** | No Base Flood Elevation determined. |
| **ZONE AE** | Base Flood Elevations determined. |
| **ZONE AH** | Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined. |
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| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
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FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
|---|---|
| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| • M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0140C**

# FIRM

## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 140 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0140 | C |

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

**MAP NUMBER**
**05139C0140C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

# NOTES TO USERS

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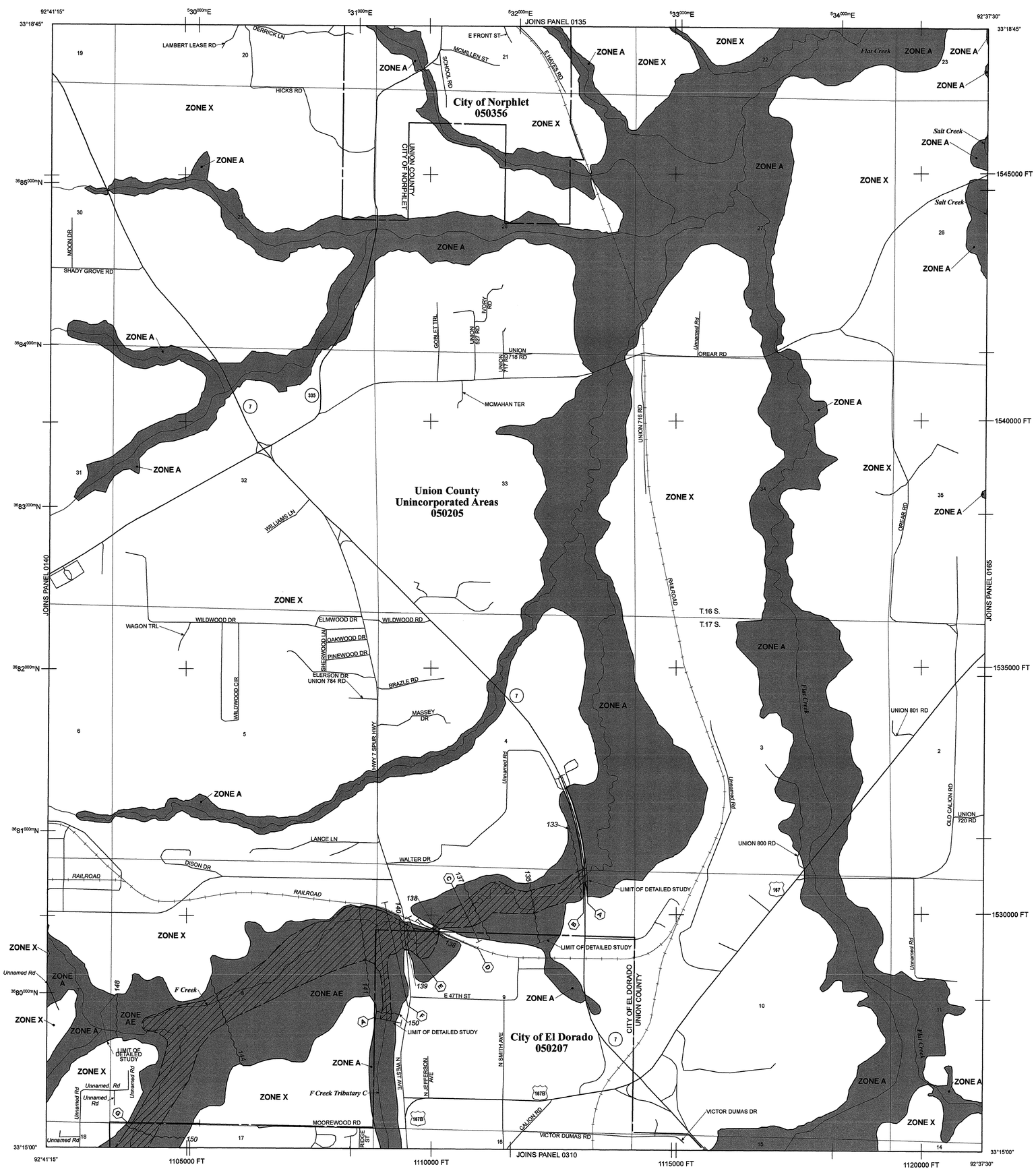


# LEGEND

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| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
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FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
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| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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| | |
|---|---|
| | Floodplain boundary |
| | Floodway boundary |
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| DX5510X | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0145C**

# FIRM

## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 145 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| EL DORADO, CITY OF | 050207 | 0145 | C |
| NORPHLET, CITY OF | 050356 | 0145 | C |
| UNION COUNTY | 050205 | 0145 | C |

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

**MAP NUMBER**
**05139C0145C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

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

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

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National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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

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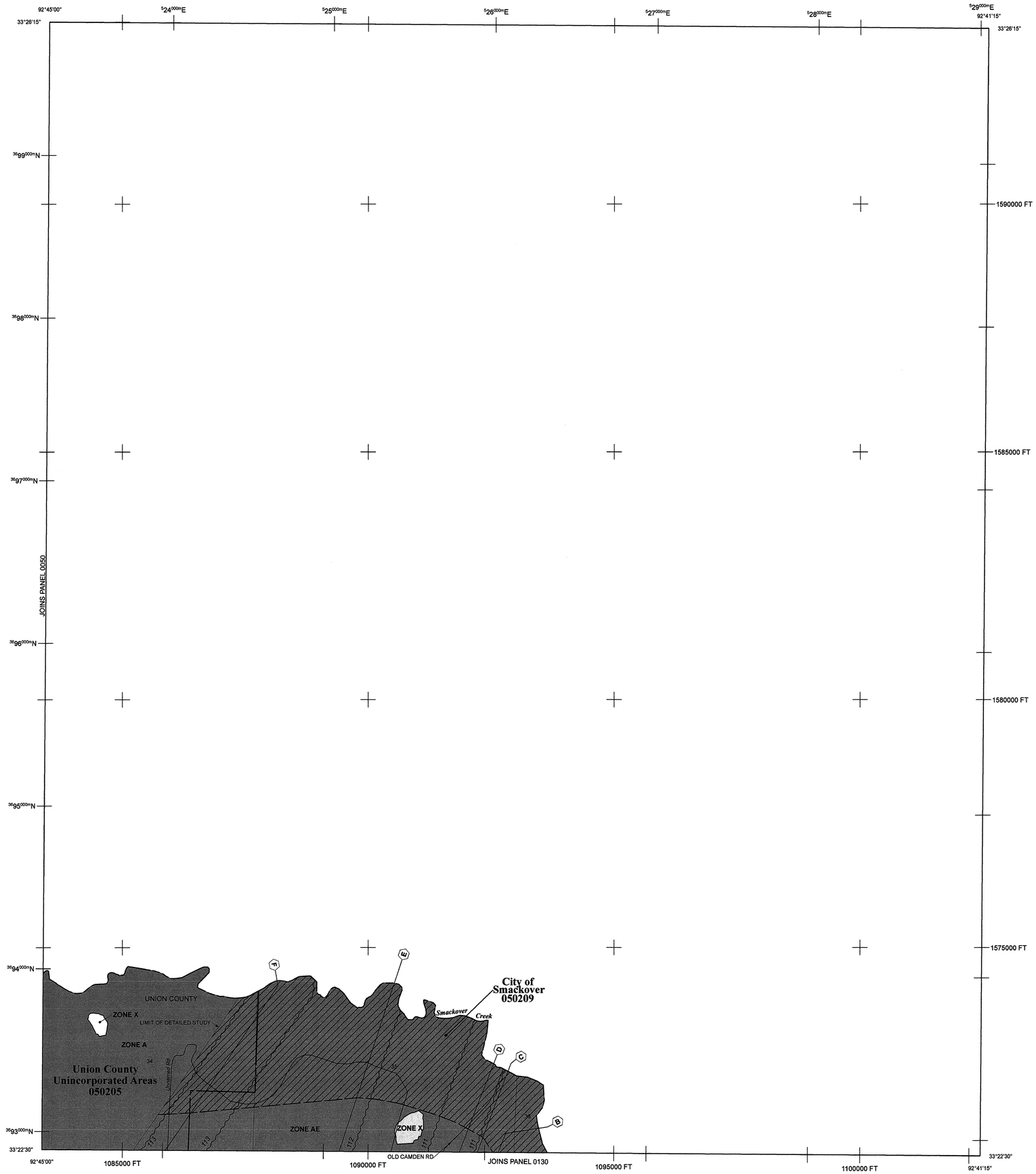
If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.




# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510$_X$ | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 1000'**

500 0 500 1,000 1,500 2,000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0065C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 65 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| SMACKOVER, CITY OF | 050209 | 0065 | C |
| UNION COUNTY | 050205 | 0065 | C |

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

**MAP NUMBER**
**05139C0065C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

# NOTES TO USERS

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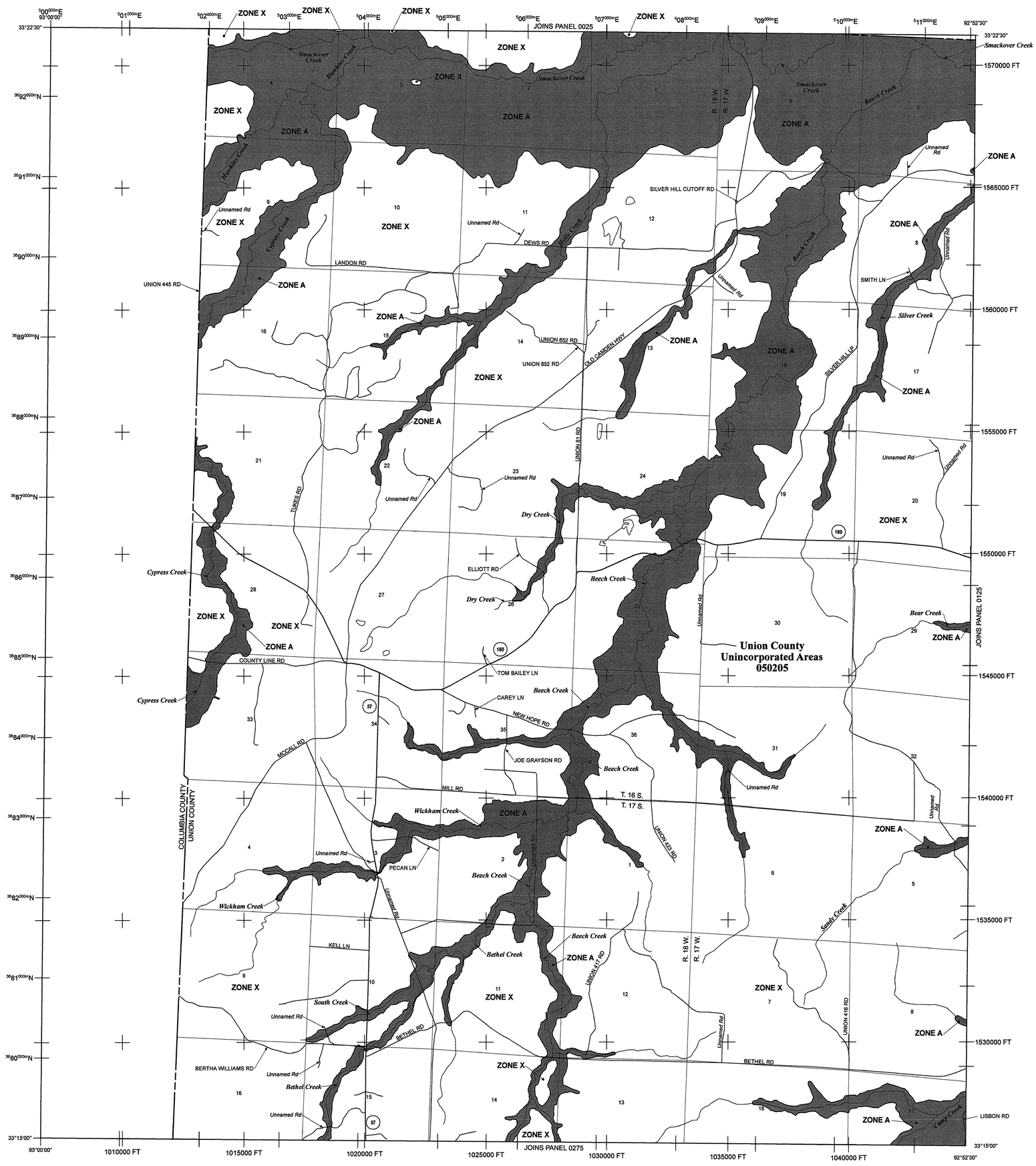


# LEGEND

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FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

| | |
|---|---|
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OTHERWISE PROTECTED AREAS (OPAs)

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

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| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0100C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

## AND INCORPORATED AREAS

**PANEL 100 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0100 | C |

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

**MAP NUMBER**
**05139C0100C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

# NOTES TO USERS

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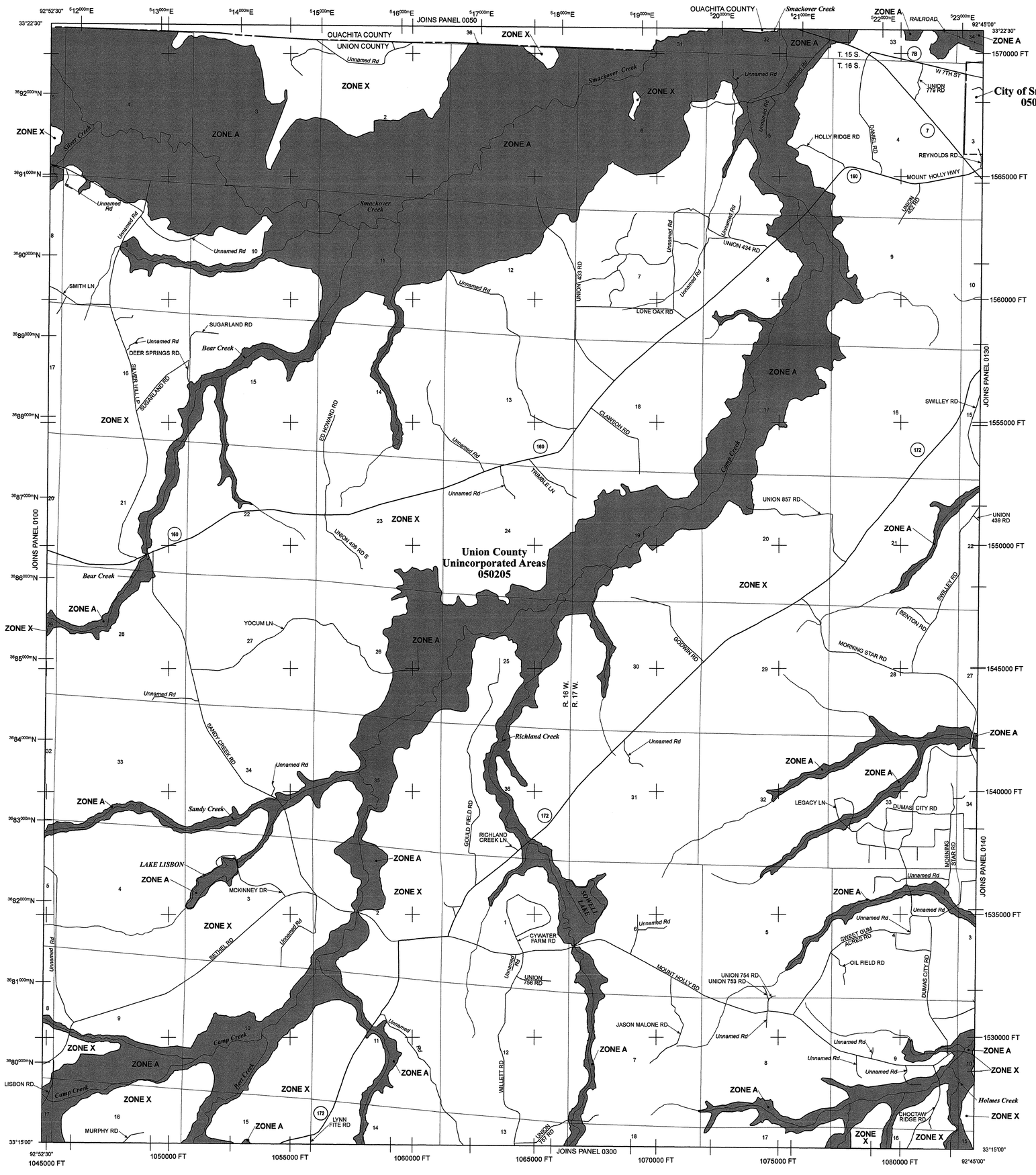


# LEGEND

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| **ZONE V** | Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined. |
| **ZONE VE** | Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined. |

FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

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

OTHER AREAS

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| **ZONE X** | Areas determined to be outside the 0.2% annual chance floodplain. |
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OTHERWISE PROTECTED AREAS (OPAs)

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| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 42 75000m E | 1000-meter Universal Transverse Mercator grid ticks, zone 15 |
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MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET

600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0125C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 125 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| SMACKOVER, CITY OF | 050209 | 0125 | C |
| UNION COUNTY | 050205 | 0125 | C |

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

**MAP NUMBER**
**05139C0125C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

# NOTES TO USERS

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

**Coastal Base Flood Elevations (BFEs)** shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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

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

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 15. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

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

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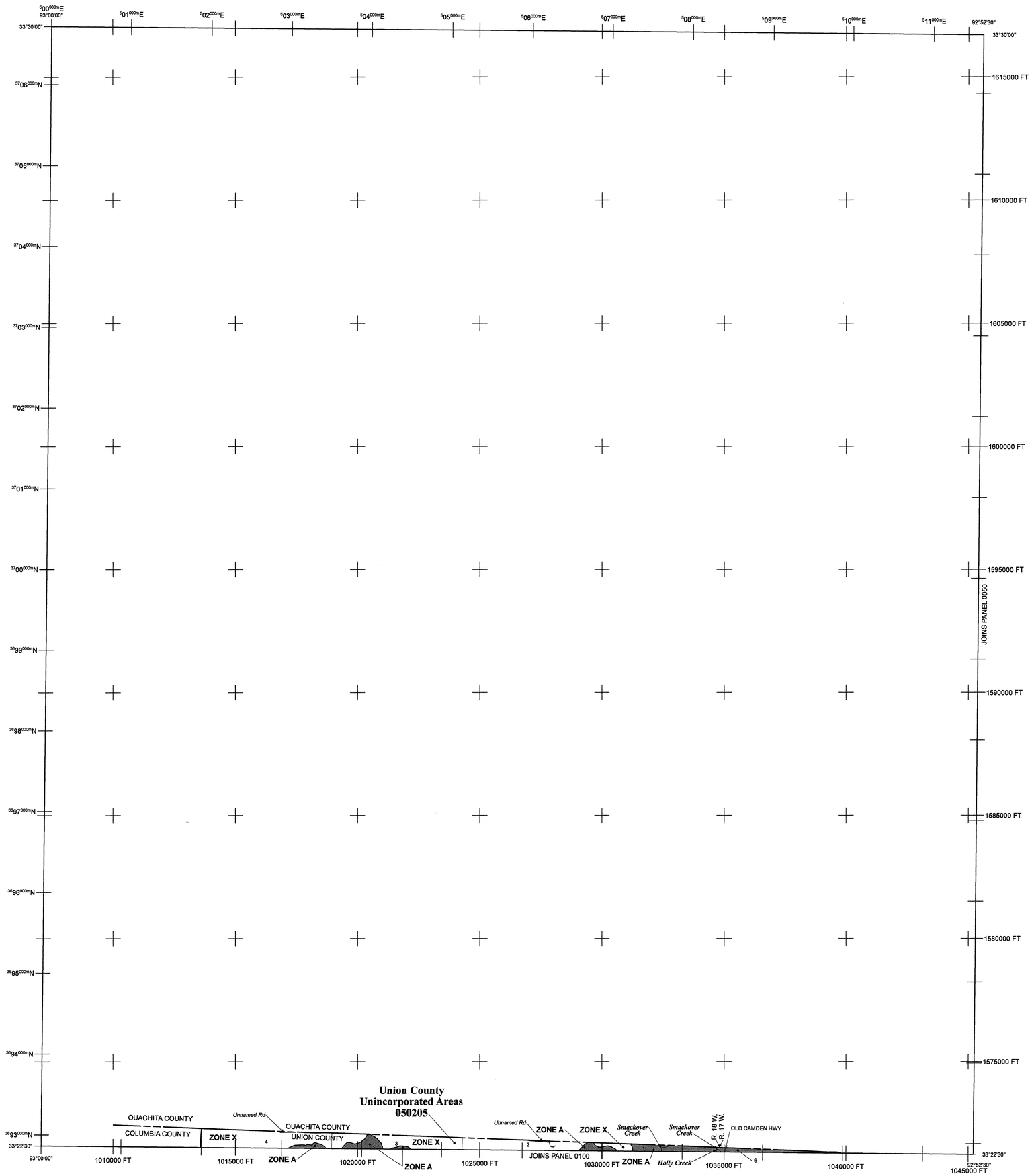
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which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

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

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




# LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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

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

**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET
600 0 600 1,200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0025C**

# FIRM
## FLOOD INSURANCE RATE MAP
## UNION COUNTY, ARKANSAS
### AND INCORPORATED AREAS

**PANEL 25 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0025 | C |

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

**MAP NUMBER**
**05139C0025C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

Federal Emergency Management Agency

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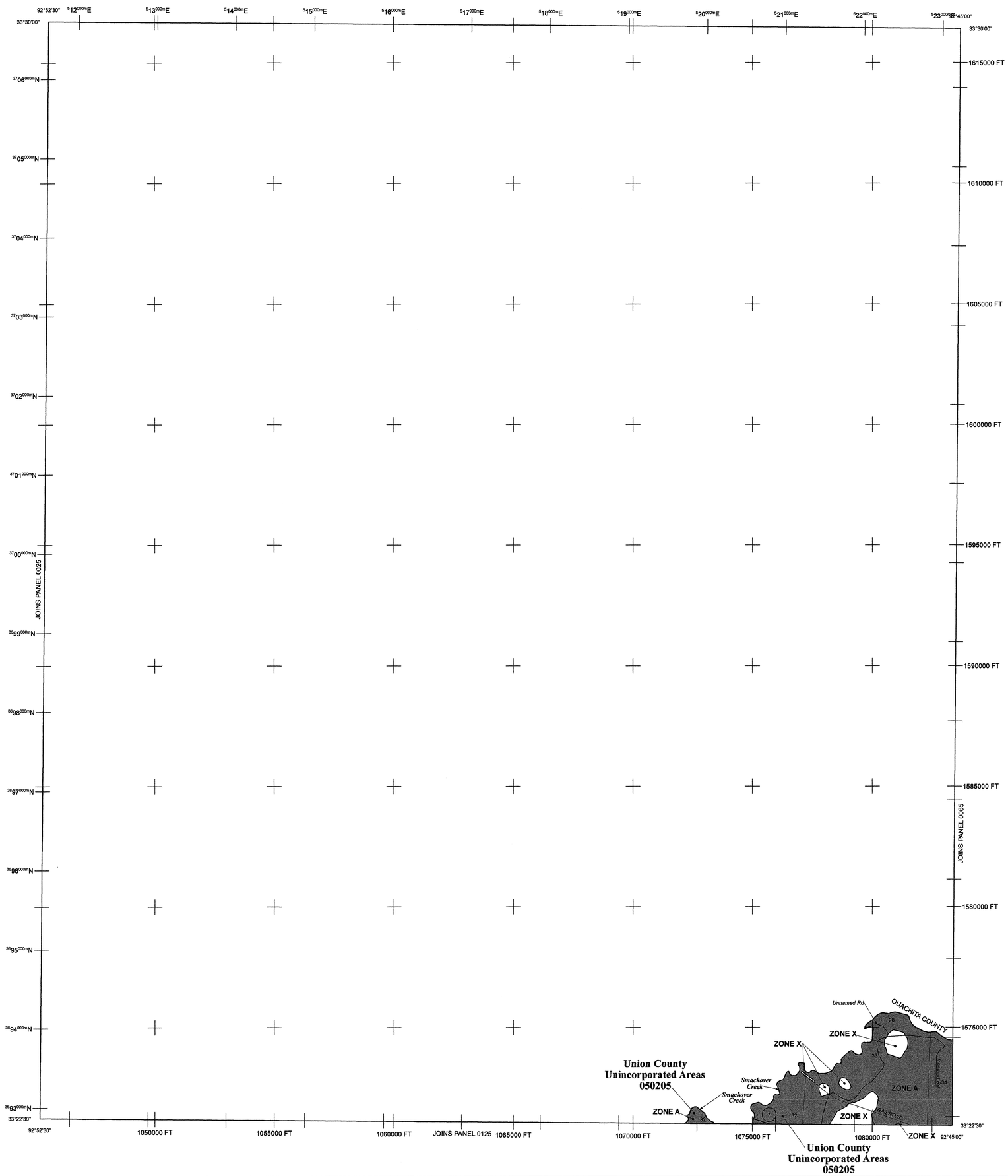


# LEGEND

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OTHER FLOOD AREAS

| | |
|---|---|
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|---|---|
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OTHERWISE PROTECTED AREAS (OPAs)

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

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

| | |
|---|---|
| A — A | Cross section line |
| 23 - - - - 23 | Transect line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4275000mE<br>6000000 FT | 1000-meter Universal Transverse Mercator grid ticks, zone 15<br>5000-foot grid values: Arkansas State Plane coordinate system, South Zone (FIPSZONE = 302), Lambert projection |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel) |
| ● M1.5 | River Mile |

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 28, 2007

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

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**MAP SCALE 1" = 2000'**

1,000 0 1,000 2,000 3,000 4,000 FEET
600 0 600 1,200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0050C**

# FIRM

## FLOOD INSURANCE RATE MAP

## UNION COUNTY, ARKANSAS

### AND INCORPORATED AREAS

**PANEL 50 OF 650**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| UNION COUNTY | 050205 | 0050 | C |

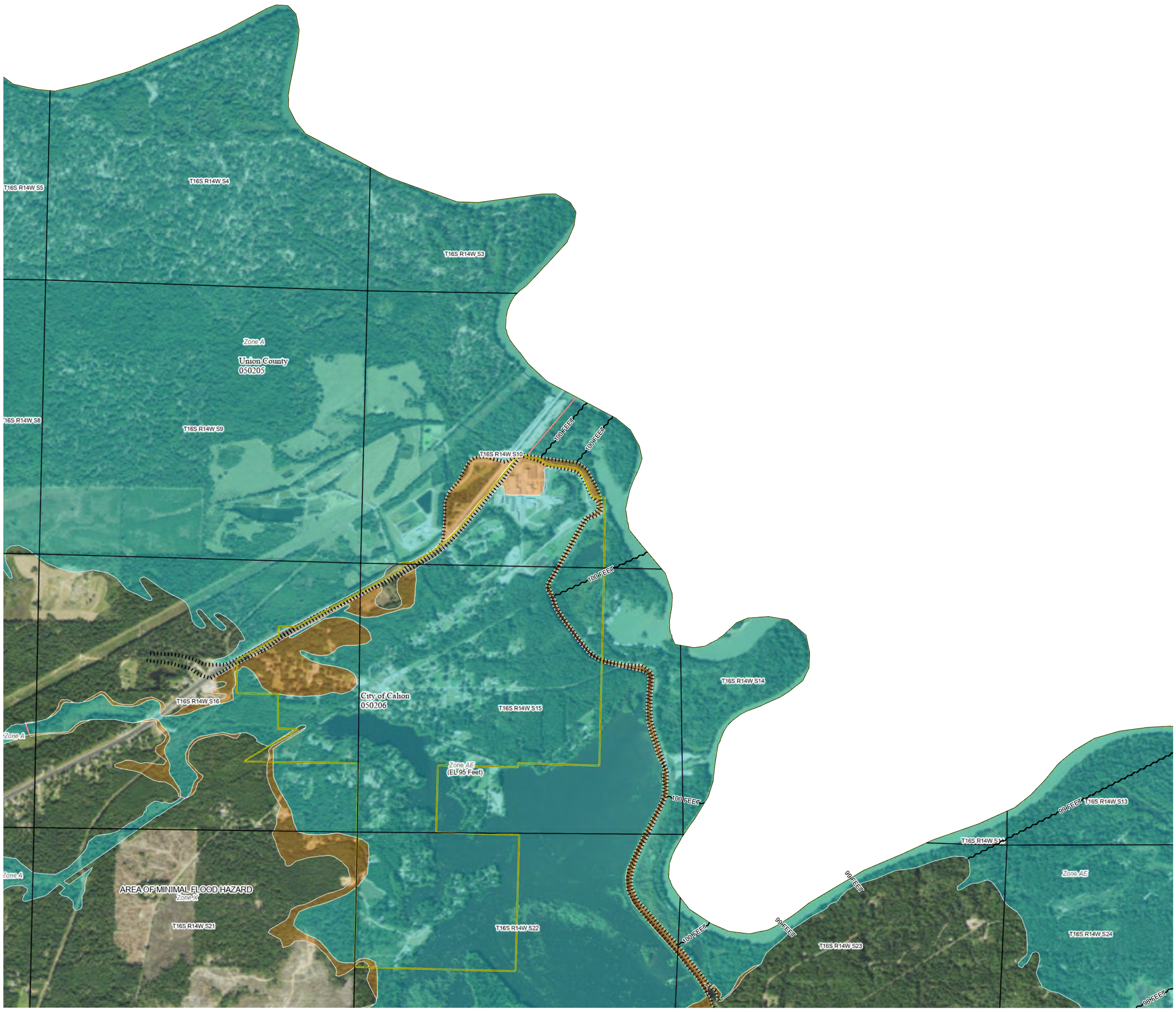
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP NUMBER**
**05139C0050C**

**EFFECTIVE DATE**
**SEPTEMBER 28, 2007**

**Federal Emergency Management Agency**

92°33'45.88"W 33°22'27.17"N




92°29'59.17"W 33°18'15.81"N

## FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- B 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

## NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

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For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

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

Basemap information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). The basemap shown is the USGS National Map: Orthoimagery. Last refreshed October, 2020.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on 3/13/2023 4:10 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

## SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NAVD88
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

N

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

PANEL 160 OF 650

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| CITY OF CALION | 050206 | 0160 |
| UNION COUNTY | 050205 | 0160 |

MAP NUMBER
05139C0160C
EFFECTIVE DATE
September 28, 2007

92°41'15.88"W 33°15'13.23"N

92°37'29.17"W 33°11'1.87"N

## FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
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- Channel, Culvert, or Storm Sewer
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0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters

FEMA
National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM**

FLOOD INSURANCE RATE MAP

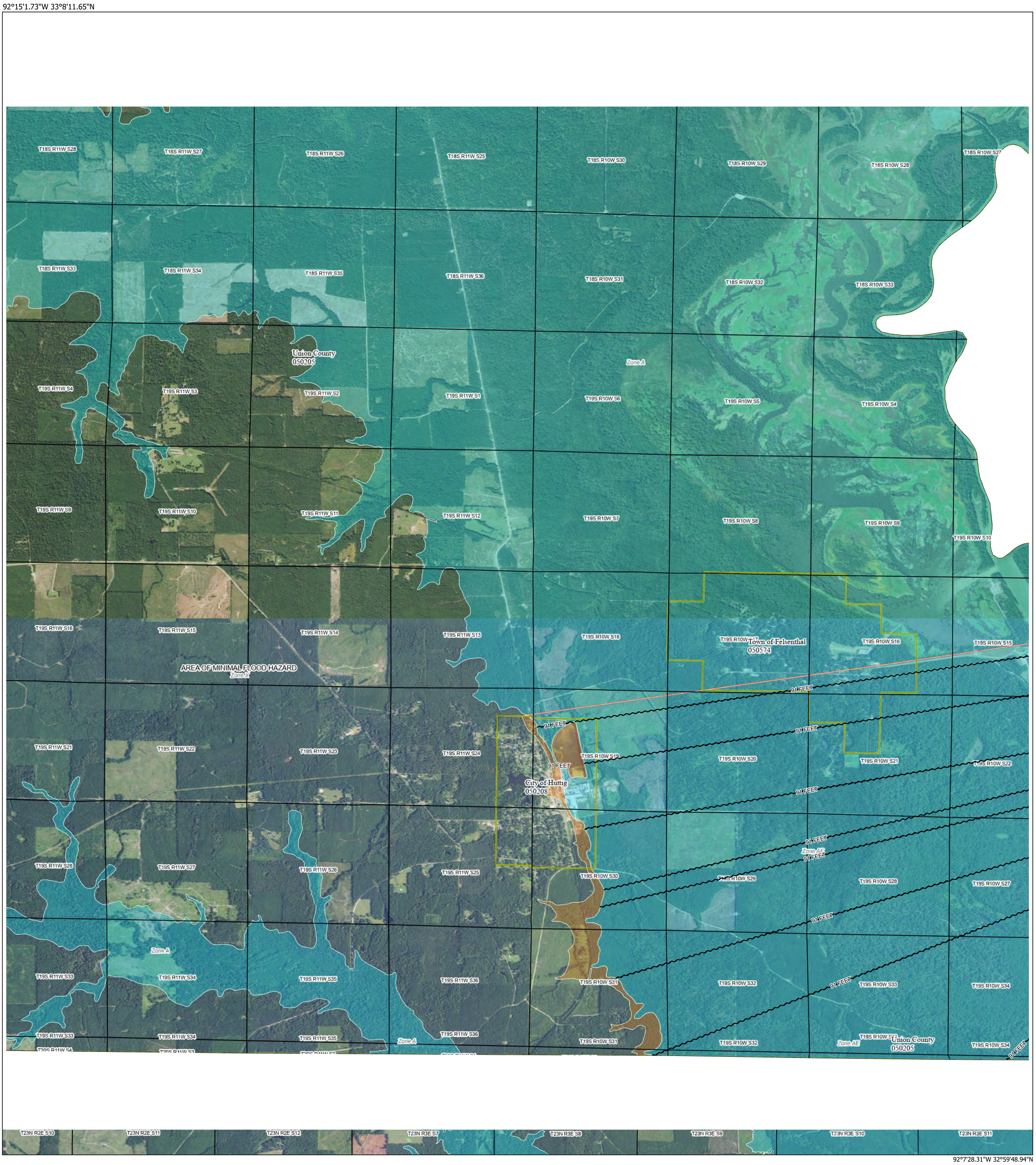
PANEL **310** OF **650**

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| UNION COUNTY | 050205 | 0310 |
| CITY OF EL DORADO | 050207 | 0310 |

MAP NUMBER
**05139C0310C**
EFFECTIVE DATE
**September 28, 2007**

92°15'1.73"W 33°8'11.65"N




92°7'28.31"W 32°59'48.94"N

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| | |
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| | Future Conditions 1% Annual Chance Flood Hazard *Zone X* |
| | Area with Reduced Flood Risk due to Levee See Notes *Zone X* |
| | Area with Flood Risk due to Levee *Zone D* |
| OTHER AREAS | NO SCREEN Area of Minimal Flood Hazard *Zone X* |
| | Effective LOMRs |
| | Area of Undetermined Flood Hazard *Zone D* |
| GENERAL STRUCTURES | Channel, Culvert, or Storm Sewer |
| | Levee, Dike, or Floodwall |
| OTHER FEATURES | 20.2 Cross Sections with 1% Annual Chance |
| | 17.5 Water Surface Elevation |
| | 8 Coastal Transect |
| | Coastal Transect Baseline |
| | Profile Baseline |
| | Hydrographic Feature |
| | 513 Base Flood Elevation Line (BFE) |
| | Limit of Study |
| | Jurisdiction Boundary |

## NOTES TO USERS

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For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

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

Basemap information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). The basemap shown is the USGS National Map: Orthoimagery. Last refreshed October, 2020.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on 3/14/2023 4:33 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

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## SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NAVD88
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

N

1 inch = 2,000 feet 1:24,000

0 1,000 2,000 4,000 6,000 8,000 Feet

0 210 420 840 1,260 1,680 Meters

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

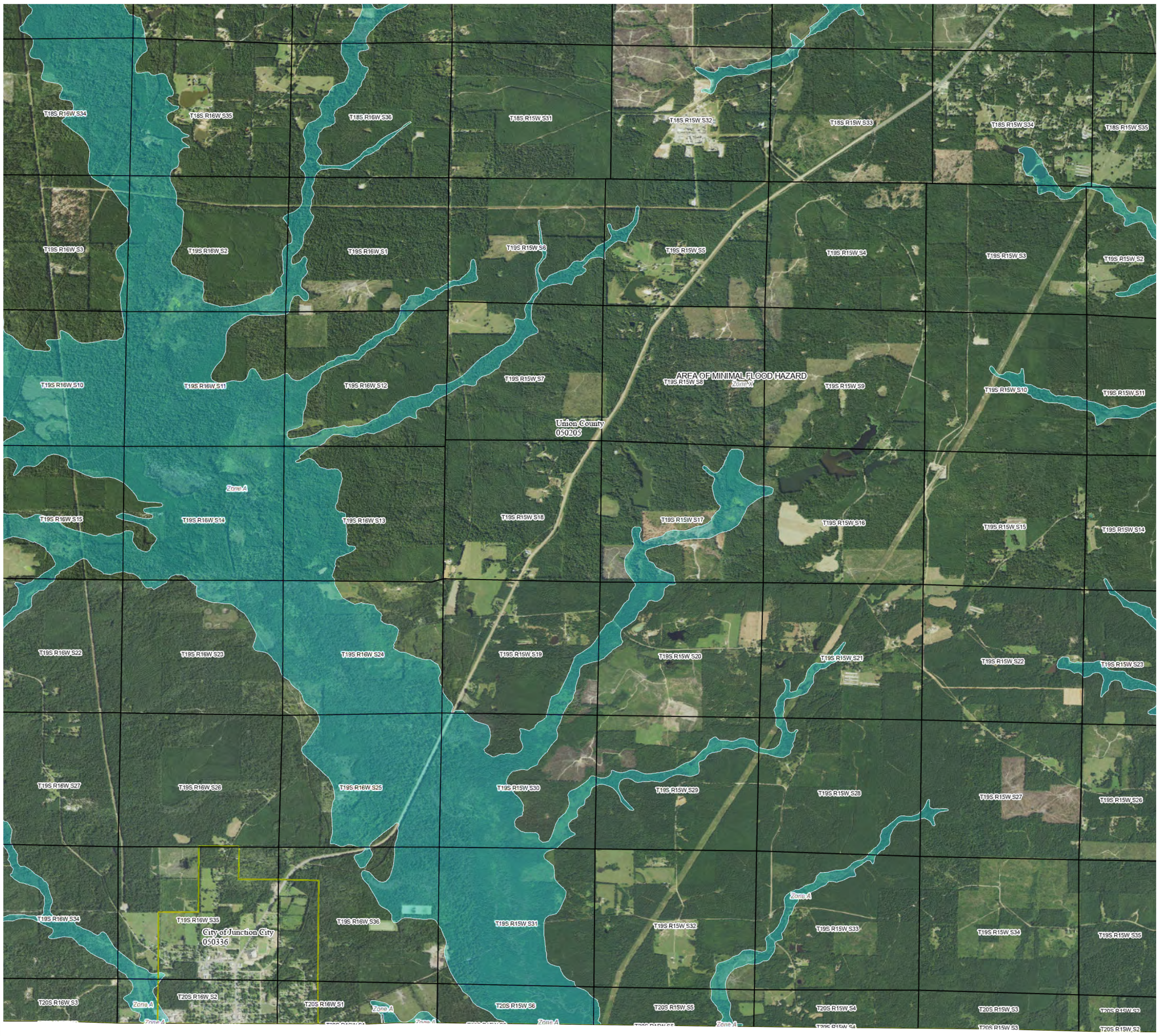
PANEL 625 OF 650

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| TOWN OF FELSENTHAL | 050574 | 0625 |
| FELSENTHAL NATIONAL WILDLIFE REFUGE | 050003 | 0625 |
| CITY OF HUTTIG | 050208 | 0625 |
| UNION COUNTY | 050205 | 0625 |
| ASHLEY COUNTY | 050003 | 0625 |

MAP NUMBER
05139C0625C
EFFECTIVE DATE
September 28, 2007

92°45'1.73"W 33°8'20.7"N




92°37'28.31"W 32°59'58"N

## FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**

- B 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

## NOTES TO USERS

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This map was exported from FEMA's National Flood Hazard Layer (NFHL) on 3/14/2023 10:56 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

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## SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: No elevation features on this FIRM
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N

1 inch = 2,000 feet 1:24,000

0 1,000 2,000 4,000 6,000 8,000 Feet

0 210 420 840 1,260 1,680 Meters

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

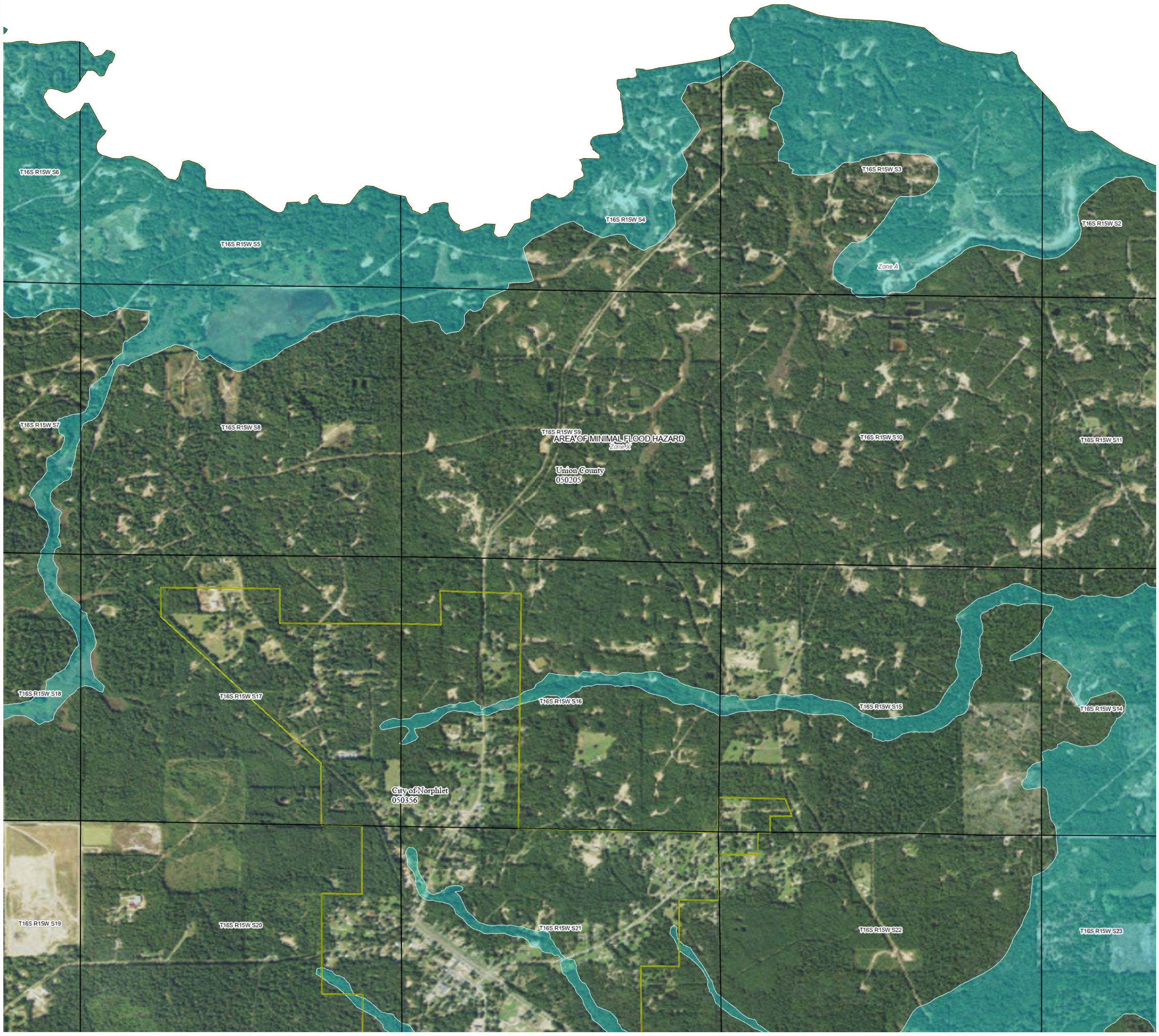
PANEL 525 OF 650

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| VILLAGE OF JUNCTION CITY | 220335 | 0525 |
| UNION PARISH | 220359 | 0525 |
| CITY OF JUNCTION CITY | 050336 | 0525 |
| UNION COUNTY | 050205 | 0525 |

MAP NUMBER
05139C0525C
EFFECTIVE DATE
September 28, 2007

92°41'15.88"W 33°22'30.98"N




92°37'29.17"W 33°18'19.63"N

## FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- B 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

## NOTES TO USERS

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This map was exported from FEMA's National Flood Hazard Layer (NFHL) on 3/14/2023 5:10 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

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## SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: No elevation features on this FIRM
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N

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters

FEMA
National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM**

FLOOD INSURANCE RATE MAP

PANEL **135** OF **650**

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| OUACHITA COUNTY | 050161 | 0135 |
| CITY OF NORPHLET | 050356 | 0135 |
| UNION COUNTY | 050205 | 0135 |

MAP NUMBER
**05139C0135C**
EFFECTIVE DATE
**September 28, 2007**

92°45'W 33°11'28.23"N

92°41'14.17"W 33°7'16.87"N

## FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**

- B 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

## NOTES TO USERS

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This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **3/14/2023 5:49 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

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## SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: No elevation features on this FIRM
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N

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters

FEMA
National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM**

FLOOD INSURANCE RATE MAP

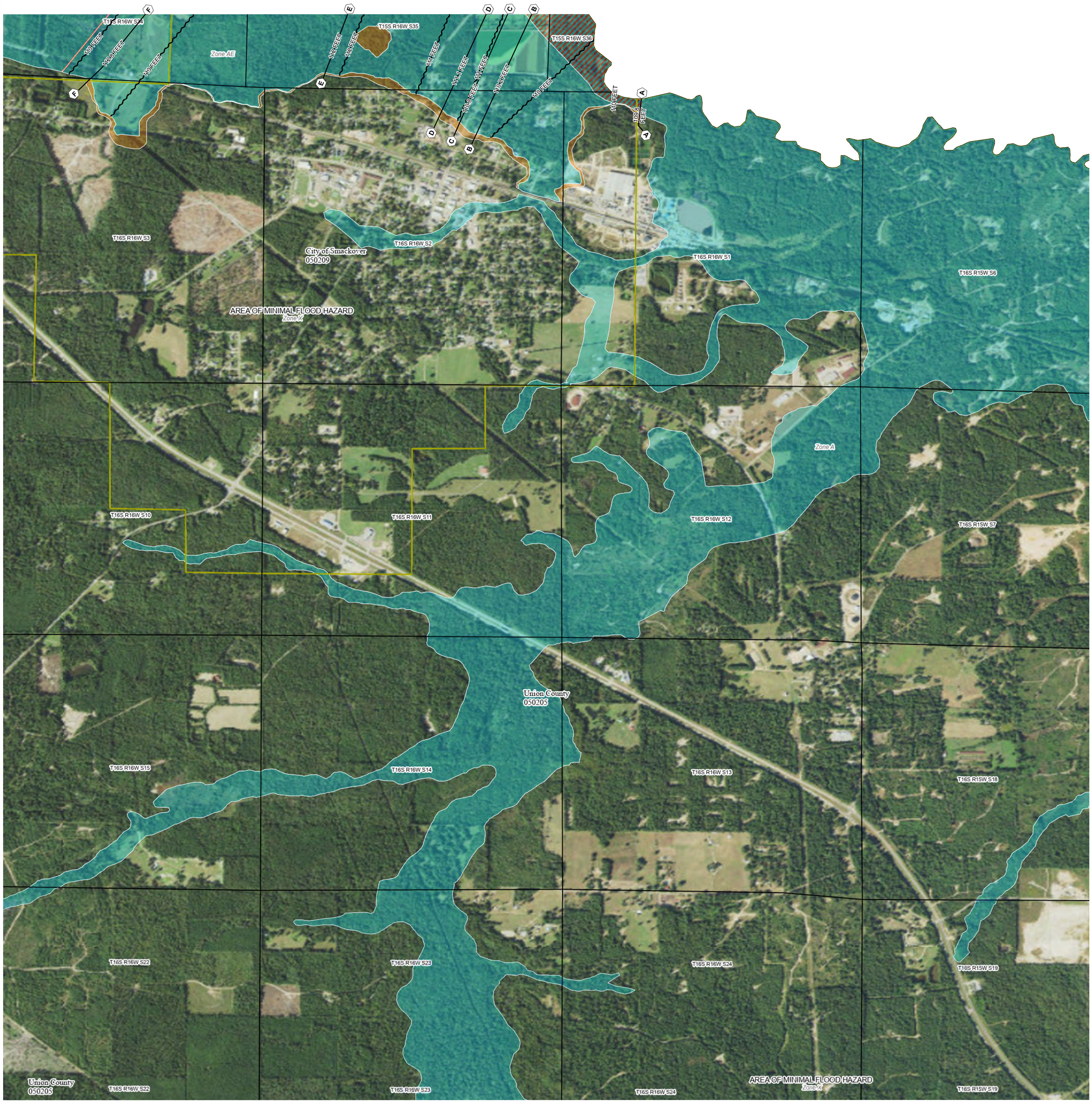
PANEL **315** OF **650**

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| UNION COUNTY | 050205 | 0315 |

MAP NUMBER
**05139C0315C**
EFFECTIVE DATE
**September 28, 2007**

92°45'W 33°22'43.22"N




92°41'14.17"W 33°18'31.87"N

## FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

| | |
|---|---|
| SPECIAL FLOOD HAZARD AREAS | Without Base Flood Elevation (BFE) *Zone A, V, A99* |
| | With BFE or Depth *Zone AE, AO, AH, VE, AR* |
| | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X* |
| | Future Conditions 1% Annual Chance Flood Hazard *Zone X* |
| | Area with Reduced Flood Risk due to Levee See Notes *Zone X* |
| | Area with Flood Risk due to Levee *Zone D* |
| OTHER AREAS | NO SCREEN Area of Minimal Flood Hazard *Zone X* |
| | Effective LOMRs |
| | Area of Undetermined Flood Hazard *Zone D* |
| GENERAL STRUCTURES | Channel, Culvert, or Storm Sewer |
| | Levee, Dike, or Floodwall |
| OTHER FEATURES | 20.2 Cross Sections with 1% Annual Chance |
| | 17.5 Water Surface Elevation |
| | Coastal Transect |
| | Coastal Transect Baseline |
| | Profile Baseline |
| | Hydrographic Feature |
| | 513 Base Flood Elevation Line (BFE) |
| | Limit of Study |
| | Jurisdiction Boundary |

## NOTES TO USERS

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## SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NAVD88
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N

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

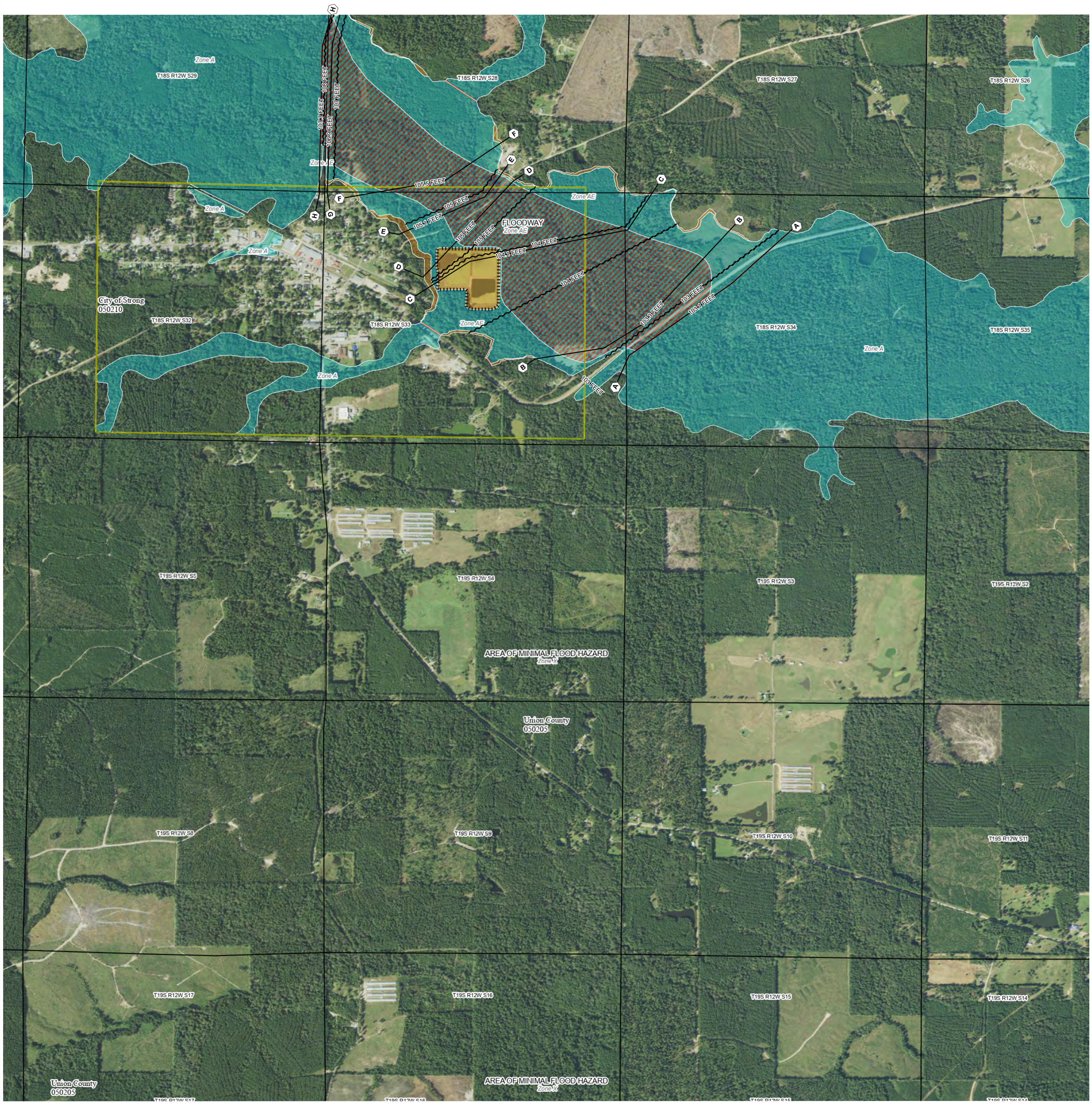
PANEL 130 OF 650

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| OUACHITA COUNTY | 050161 | 0130 |
| UNION COUNTY | 050205 | 0130 |
| CITY OF SMACKOVER | 050209 | 0130 |

MAP NUMBER
05139C0130C
EFFECTIVE DATE
September 28, 2007

92°22'30.88"W 33°7'43.23"N




92°18'44.17"W 33°3'31.87"N

## FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- B 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- 8 Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

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## SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NAVD88
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N

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0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters

FEMA
National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM**

FLOOD INSURANCE RATE MAP

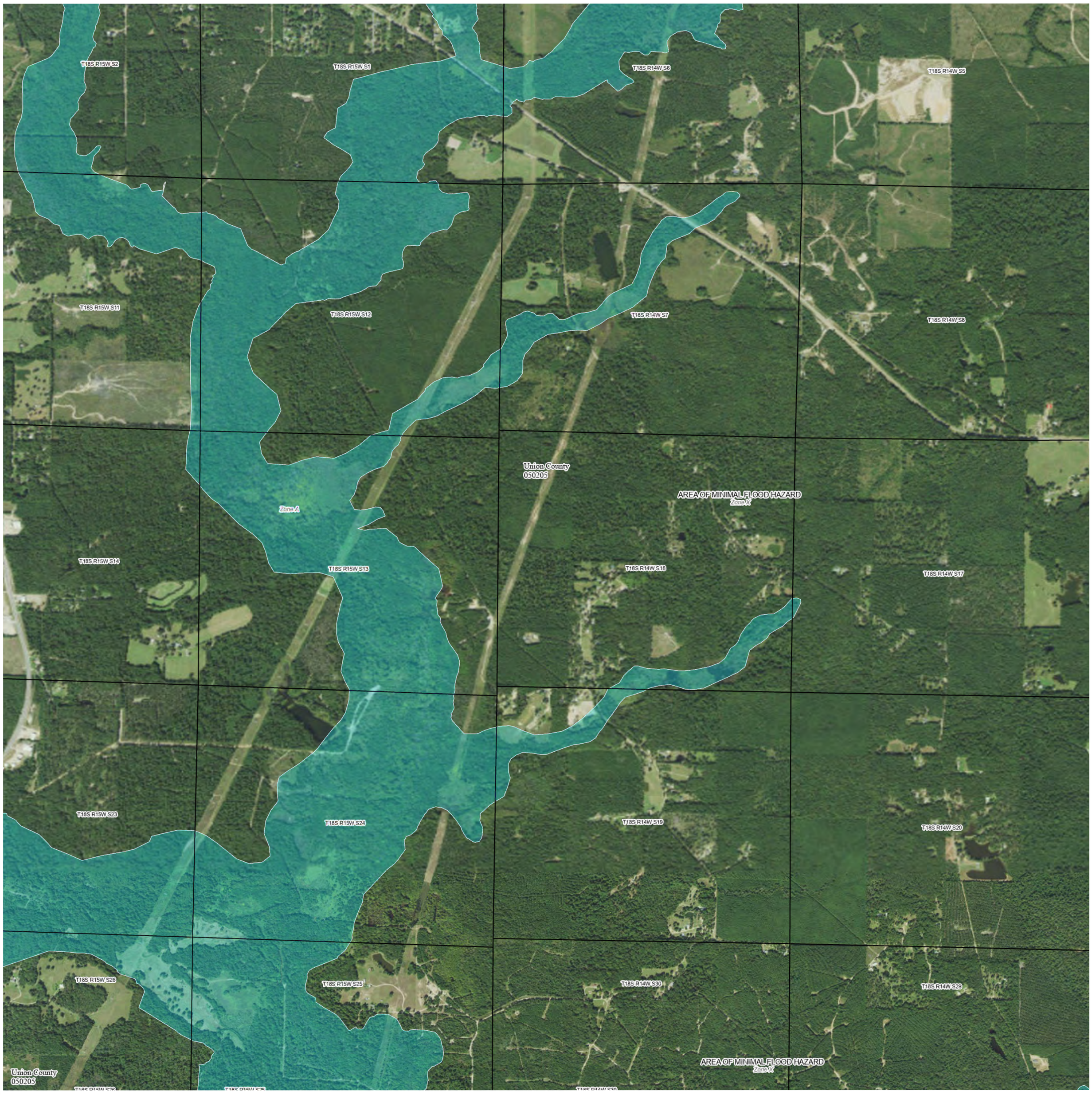
PANEL **580** OF **650**

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| CITY OF STRONG | 050210 | 0580 |
| UNION COUNTY | 050205 | 0580 |

MAP NUMBER
**05139C0580C**
EFFECTIVE DATE
**September 28, 2007**

92°37'30.88"W 33°11'28.23"N




92°33'44.17"W 33°7'16.87"N

## FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

| | |
|---|---|
| SPECIAL FLOOD HAZARD AREAS | Without Base Flood Elevation (BFE) *Zone A, V, A99* |
| | With BFE or Depth *Zone AE, AO, AH, VE, AR* |
| | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X* |
| | Future Conditions 1% Annual Chance Flood Hazard *Zone X* |
| | Area with Reduced Flood Risk due to Levee See Notes *Zone X* |
| | Area with Flood Risk due to Levee *Zone D* |
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| | Effective LOMRs |
| | Area of Undetermined Flood Hazard *Zone D* |
| GENERAL STRUCTURES | Channel, Culvert, or Storm Sewer |
| | Levee, Dike, or Floodwall |
| OTHER FEATURES | B 20.2 Cross Sections with 1% Annual Chance |
| | 17.5 Water Surface Elevation |
| | 8 Coastal Transect |
| | Coastal Transect Baseline |
| | Profile Baseline |
| | Hydrographic Feature |
| | 513 Base Flood Elevation Line (BFE) |
| | Limit of Study |
| | Jurisdiction Boundary |

## NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

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

Basemap information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). The basemap shown is the USGS National Map: Orthoimagery. Last refreshed October, 2020.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on 3/13/2023 5:14 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

## SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: No elevation features on this FIRM
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

N

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

PANEL 340 OF 650

Panel Contains:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| UNION COUNTY | 050205 | 0340 |

MAP NUMBER
05139C0340C
EFFECTIVE DATE
September 28, 2007

# APPENDIX B: FLOOD MAPS (FIRM PANELS)

FEMA Flood Insurance Rate Maps (FIRMs) for Union County document the Special Flood Hazard Area (SFHA) boundaries for the Ouachita River, Smackover Creek, and other waterways within the planning area. The current effective FIRM for Union County (DFIRM 05139C) is dated September 28, 2007; full panel set is documented in Appendix C.

FIRM panels for Union County are available through FEMA's Map Service Center at msc.fema.gov.

# APPENDIX C: PREVIOUS EVENT DATA

*Note on COVID-19 declarations: EM-3461-AR and DR-4518-AR are biological/pandemic declarations and are included for completeness in the federal declaration record. These declarations do not represent natural hazard events profiled in this plan.*

The following table summarizes all federal disaster declarations for Union County, Arkansas (FIPS 05139), from 1968 through January 2026. Source: OpenFEMA Disaster Declarations Summaries v2.

| Declaration | Type | Date | Incident Type | Title | IA | PA | HM |
|---|---|---|---|---|---|---|---|
| DR-239-AR | DR | 1968-05-29 | Tornado | Tornadoes, Severe Storms & Flooding | Yes | Yes | No |
| DR-254-AR | DR | 1969-02-15 | Flood | Severe Storms & Flooding | Yes | Yes | No |
| DR-375-AR | DR | 1973-04-27 | Flood | Severe Storms & Flooding | Yes | Yes | No |
| DR-437-AR | DR | 1974-06-08 | Flood | Severe Storms & Flooding | Yes | Yes | No |
| DR-865-AR | DR | 1990-05-15 | Flood | Severe Storms & Flooding | Yes | Yes | No |
| DR-907-AR | DR | 1991-05-30 | Flood | Severe Storms & Flooding | No | Yes | No |
| DR-1011-AR | DR | 1994-02-28 | Snowstorm | Severe Winter Ice Storm | No | Yes | No |
| DR-1176-AR | DR | 1997-04-14 | Flood | Flooding, Severe Storms | Yes | Yes | No |
| EM-3159-AR | EM | 2000-12-28 | Ice Storm | Severe Winter Ice Storm (emergency phase) | No | Yes | No |
| DR-1354-AR | DR | 2000-12-29 | Ice Storm | Severe Winter Ice Storm (recovery phase) | Yes | Yes | No |
| DR-1363-AR | DR | 2001-03-13 | Severe Storm | Severe Storms and Flooding | No | Yes | No |
| EM-3215-AR | EM | 2005-09-02 | Hurricane | Hurricane Katrina Evacuation | No | Yes | No |
| DR-1744-AR | DR | 2008-02-07 | Severe Storm | Severe Storms, Tornadoes, and Flooding | Yes | Yes | **Yes** |
| DR-1845-AR | DR | 2009-06-16 | Severe Storm | Severe Storms, Tornadoes, and Flooding | No | Yes | **Yes** |
| DR-1861-AR | DR | 2009-12-03 | Severe Storm | Severe Storms, Tornadoes, and Flooding | No | Yes | **Yes** |
| EM-3461-AR | EM | 2020-03-13 | Biological | COVID-19 | No | Yes | No |
| DR-4518-AR | DR | 2020-04-03 | Biological | COVID-19 Pandemic | No | Yes | Yes |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| EM-3541-AR | EM | 2020-08-27 | Hurricane | Hurricane Laura | No | Yes | No |
| EM-3627-AR | EM | 2025-04-05 | Severe Storm | Severe Storms, Tornadoes, and Flooding | No | Yes | No |
| EM-3636-AR | EM | 2026-01-24 | Winter Storm | Severe Winter Storm | No | Yes | No |

**Total: 20 declarations (12 DR + 8 EM)**

*IA = Individual Assistance | PA = Public Assistance | HM = Hazard Mitigation funding available*

**Key observations for plan narrative:**

- Flooding is the most federally declared hazard -- 9 of 20 declarations involve flooding or severe storms with flooding
- December 2000 ice storm generated two declarations (EM-3159 + DR-1354) for the same event -- $40M damage event
- Hazard Mitigation funding available in DR-1744, DR-1845, DR-1861 (2008-2009)
- No federal declaration was issued for the January 2005 F3 tornado that killed 2 people at Junction City
- Most recent declarations: EM-3627 (April 2025, tornadoes) and EM-3636 (January 2026, winter storm)

NOAA Storm Events data for Union County (2000-2025) is summarized in Section 3 and detailed CSV files are available from the Southwest Arkansas PDD office.

# APPENDIX D: NATIONAL RISK INDEX DATA

The following National Risk Index (NRI) Expected Annual Loss data is for Union County, Arkansas. Source: FEMA National Risk Index, hazards.fema.gov/nri. Union County NRI Risk Score: 53.88 (Relatively Low overall).

| Hazard | Expected Annual Loss | NRI Rating | % of Total EAL |
|---|---|---|---|
| Inland Flooding | $4,862,520.78 | Relatively Low | 38.6% |
| Ice Storm | $1,856,413.42 | **Very High** | 14.7% |
| Tornado | $1,780,703.59 | Relatively Low | 14.1% |
| Heat Wave | $1,398,804.56 | Relatively Low | 11.1% |
| Earthquake | $930,214.85 | Relatively Low | 7.4% |
| Strong Wind | $882,381.66 | Relatively Moderate | 7.0% |
| Lightning | $291,765.17 | Relatively Low | 2.3% |
| Hail | $230,428.56 | Relatively Low | 1.8% |
| Cold Wave | $176,427.69 | Relatively Low | 1.4% |
| Hurricane | $138,659.82 | Relatively Low | 1.1% |
| Winter Weather | $20,392.70 | Relatively Low | 0.2% |
| Drought | $21,576.37 | Very Low | 0.2% |
| Wildfire | $8,848.45 | Very Low | 0.1% |
| Landslide | $889.32 | Very Low | <0.1% |
| **TOTAL** | **$12,600,026.96** | Relatively Low | 100% |

**Key NRI findings for Union County:**

26. **Flooding ($4.86M EAL, 38.6% of total):** The highest-dollar EAL hazard. Validated by 9 federal flood declarations and 59 recorded flood events (2000-2025). Primary driver of mitigation actions #1, #7, #8, #11, #12.
27. **Ice Storm ($1.86M EAL, 14.7% -- Very High):** The ONLY "Very High" NRI rating in Union County's entire hazard profile. Validated by the December 12, 2000 catastrophic ice storm ($40M property damage). Primary driver of mitigation actions #5 and #14.
28. **Tornado ($1.78M EAL, 14.1%):** Validated by 25 recorded tornado events (2000-2025) including two EF3-equivalent events at Junction City (2005: 2 deaths, 13 injuries; 2007). Primary driver of mitigation action #3.
29. **Earthquake ($930K EAL):** Reflects NMSZ regional risk scenario. No local damaging events. Supports continued attention to seismic construction standards for critical facilities.
30. **Strong Wind ($882K EAL, Relatively Moderate):** Reflects 247 thunderstorm events (2000-2025). Combined with Hail ($230K) and Lightning ($292K), total thunderstorm-related EAL is approximately $1.4M.

# APPENDIX E: PUBLIC INVOLVEMENT DOCUMENTATION

The Public Involvement Documentation for the Union County Multi-Jurisdictional Hazard Mitigation Plan is delivered as a standalone companion document, Appendix_E_Public_Involvement_Documentation_Union_County.docx, and includes: (E-1) the planning-process meeting table with the pre-adoption 30-day public comment period; (E-2) the November 2025 targeted stakeholder capability-assessment survey instrument and blank questionnaire; (E-3) the November 2025 survey response summary (9-jurisdiction return table plus substantive findings); (E-4) Bruce Goff's signed prior-plan action status checklist (Element E2-b); and (E-5) the 30-day public comment period notice template and documentation placeholders. The public comment period ran September 8, 2026 through October 8, 2026 on the Southwest Arkansas PDD hazard-mitigation website (https://southwestar.org/hazards).

# APPENDIX F: HOUSING VULNERABILITY

The Housing Vulnerability analysis for the Union County Multi-Jurisdictional Hazard Mitigation Plan is delivered as a standalone companion document, Appendix_F_Housing_Vulnerability_Union_County.docx, and includes: (F-1) purpose and methodology (CDC/ATSDR SVI 2022, USACE NSI 2022, FEMA NFHL S_POL_AR, FHWA NBI 2024, ACS 2018–2022); (F-2) a data-limitation callout for small-population places; (F-3) a regional comparison of Union County against the six adjoining counties/parishes on ACS housing units and mobile-home counts (Ashley, Bradley, Calhoun, Columbia, Ouachita, Claiborne LA); (F-4) tract-level SVI 2022 indicators and the mobile-home / SVI choropleths; (F-5) jurisdiction-level NSI structure-level split (the same table reproduced in Section 2.7 of the plan body); (F-6) a hazard cross-reference tying the vulnerable-housing findings to the tornado, severe thunderstorm, ice storm, flood, extreme heat, and earthquake profiles in Section 3; (F-7) data limitations; and (F-8) data currency and next-refresh notes. See Section 2.7 of this plan for the in-body summary and countywide vulnerable-housing figures.

## UNION COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

# Appendix F — Housing Vulnerability

**Prepared by:** Southwest Arkansas Planning and Development District (Southwest Arkansas PDD)

**Prepared for:** Union County Office of Emergency Management, El Dorado, Arkansas

**Version:** Public Review Draft — September 8, 2026

**Companion document to:** Union County Multi-Jurisdictional Hazard Mitigation Plan, Section 2 (Planning Area and Resources) — Section 2.2 Social Vulnerability, Section 2.6 Critical Infrastructure, Section 2.7 Vulnerable Housing (Structure-Level Analysis)

## F.1 Purpose

This appendix documents the housing-vulnerability analysis that underlies the per-jurisdiction hazard narratives in Section 3 of the Union County Multi-Jurisdictional Hazard Mitigation Plan. It identifies the county's most vulnerable housing at three complementary scales — census tract (CDC/ATSDR SVI 2022 and ACS 2018–2022), individual structure (USACE National Structure Inventory 2022), and municipal jurisdiction (NFHL S_POL_AR political-area boundaries) — and places Union County's housing exposure in a six-neighbor regional context. Findings are cross-referenced to the tornado, severe thunderstorm, ice storm, flood, and extreme-heat profiles in Section 3 of the plan, and support the prioritization of Mitigation Actions #3 (School Safe Rooms), #5 (Generator Backup), #6 (Manufactured Home Anchoring), and #14 (Warming Centers / Public Education).

## F.2 Methodology and Sources

- **CDC/ATSDR Social Vulnerability Index 2022 (Feature Server layer 7, 8) —** housing units (E_HU) and mobile-home units (E_MOBILE) at census-tract and county scale; used for the regional neighbor comparison in Section F.3 and the per-tract MH percentage in Section D.4.
- **USACE National Structure Inventory 2022 —** individual-building point layer for all 21,701 structures in Union County (14,561 residential); used for the structure-level manufactured-home identification (occupancy type RES2), low-value proxy (bottom-quintile value ≤ $106,365 excluding RES2), FIRM-zone flood-exposure flag, and elderly-nighttime-occupancy overlay. NSI is the primary data source for the vulnerable-housing map (Figure F-1).
- **FEMA National Flood Hazard Layer, S_POL_AR political-area shapefile —** 8 city polygons + countywide polygon for Union County (CID 050205 / DFIRM 05139C effective September 28, 2007); used for the point-in-polygon jurisdiction attribution in Section D.5.
- **FHWA National Bridge Inventory 2024 —** 289 water-crossing bridges in Union County with condition ratings; used for the transportation-vulnerability overlay in Section F.6 and cross-referenced to the Flooding profile (Section 3.7).
- **U.S. Census Bureau American Community Survey 2018–2022 —** Table B25024 (Units in Structure) and B25034 (Year Structure Built); used for the fuller mobile-home housing-unit share and the pre-1970 aging-stock share.

**Data-limitation callout for small places.** The American Community Survey does not publish stable place-level Units-in-Structure estimates for populations below ~2,000. For Union County that means Calion (438), Felsenthal (51), Huttig (448), Junction City (681), Norphlet (642), Smackover (1,665), and Strong (453) do NOT have reliable ACS place-level mobile-home shares. For those places, this appendix uses (a) the NSI RES2 structure count, tagged to the FEMA NFHL city polygon (see Section D.5, Table F-4), and (b) the surrounding CDC/ATSDR SVI tract's

mobile-home rate. Neither is a substitute for a completed windshield survey, but together they establish that manufactured housing is the dominant vulnerable-housing type in five of the eight incorporated communities in the planning area.

## F.3 Regional Comparison — Union County vs. Adjoining Counties/Parishes

Union County borders six other counties/parishes: Ashley to the east, Bradley to the north, Calhoun to the northwest, Columbia to the west, Ouachita to the northwest, and Claiborne Parish, Louisiana, to the south. Union County's mobile-home share (20.5 percent of housing units, ACS 2018–2022) sits in the middle of this six-neighbor region — above Ouachita and Bradley, similar to Ashley and Columbia, and well below Calhoun and Claiborne Parish. Union County has by far the largest absolute count of mobile-home units in the six-neighbor region (3,830 units).

### Table F-1 — Housing Units and Mobile Homes, Union County and Neighboring Counties/Parishes (ACS 2018–2022 via CDC SVI)

| Jurisdiction | Housing units (E_HU) | Mobile homes (E_MOBILE) | % Mobile homes | Note |
|---|---|---|---|---|
| **Union County (subject)** | **18,722** | **3,830** | **20.5%** | **This plan** |
| Ashley County (east) | 9,432 | 1,907 | 20.2% | AR neighbor |
| Bradley County (north) | 5,112 | 818 | 16.0% | AR neighbor |
| Calhoun County (northwest) | 2,476 | 859 | 34.7% | AR neighbor — highest in region |
| Columbia County (west) | 11,051 | 2,098 | 19.0% | AR neighbor |
| Ouachita County (northwest) | 11,925 | 1,772 | 14.9% | AR neighbor |
| Claiborne Parish, LA (south) | 6,858 | 1,854 | 27.0% | LA neighbor |

*Source: CDC/ATSDR Social Vulnerability Index 2022 county layer (FeatureServer 7), fields E_HU and E_MOBILE (source data: American Community Survey 2018–2022). Retrieved September 8, 2026.*

## F.4 Census-Tract Detail — Union County (SVI 2022)

Union County contains 12 census tracts. The table below summarizes the CDC/ATSDR SVI overall vulnerability percentile, population, mobile-home percentage, and top theme driver for each tract. Four tracts (9509, 9510, 9506, 9508) rank at or above the 75th national percentile for overall social vulnerability — all four cover portions of El Dorado. Three rural/small-town tracts (9504.01, 9505.01, 9505.02) carry the highest mobile-home shares in the county, at 43.0 percent, 41.2 percent, and 34.6 percent respectively.

### Table F-2 — Union County SVI 2022 Tract-Level Vulnerability Indicators

| Tract | Label | Overall SVI pctile | Population | % Mobile | Top theme driver |
|---|---|---|---|---|---|
| **9509** | **El Dorado SW / downtown** | **95.7** | **2,455** | **5.1%** | **Housing/Transportation (99)** |
| **9510** | **El Dorado S / Mt.** | **87.3** | **4,215** | **9.0%** | **Housing/Transportation** |

| | | | | | |
|---|---|---|---|---|---|
| | **Holly** | | | | **(93)** |
| **9506** | **El Dorado NE** | **77.5** | **3,615** | **8.0%** | **Household Char. (79)** |
| **9508** | **El Dorado central** | **76.3** | **3,140** | **3.0%** | **Housing/Transportation (84)** |
| 9501 | N Union / Smackover N | 65.0 | 2,893 | 22.6% | Socioeconomic (65) |
| 9507 | El Dorado central-E | 59.5 | 4,609 | 4.3% | Housing/Transportation (80) |
| 9504.01 | Norphlet area | 53.6 | 2,293 | 43.0% | Socioeconomic (58) |
| 9503 | Smackover area | 44.3 | 2,636 | 22.6% | Household Char. (64) |
| 9502 | Northern rural | 40.0 | 2,620 | 19.0% | Household Char. (54) |
| 9504.02 | NW Union | 35.7 | 3,467 | 26.8% | Racial/Ethnic Minority (47) |
| 9505.01 | W Union / Parkers Chapel | 22.0 | 3,167 | 41.2% | Household Char. (48) |
| 9505.02 | W Union | 21.8 | 2,796 | 34.6% | Household Char. (72) |

*Source: CDC/ATSDR SVI 2022 tract layer, retrieved June 25, 2026 (Union County/Data Pulls/SVI_SocialVulnerability_UnionCounty.md). Tracts with overall SVI ≥ 75th national percentile are bolded.*

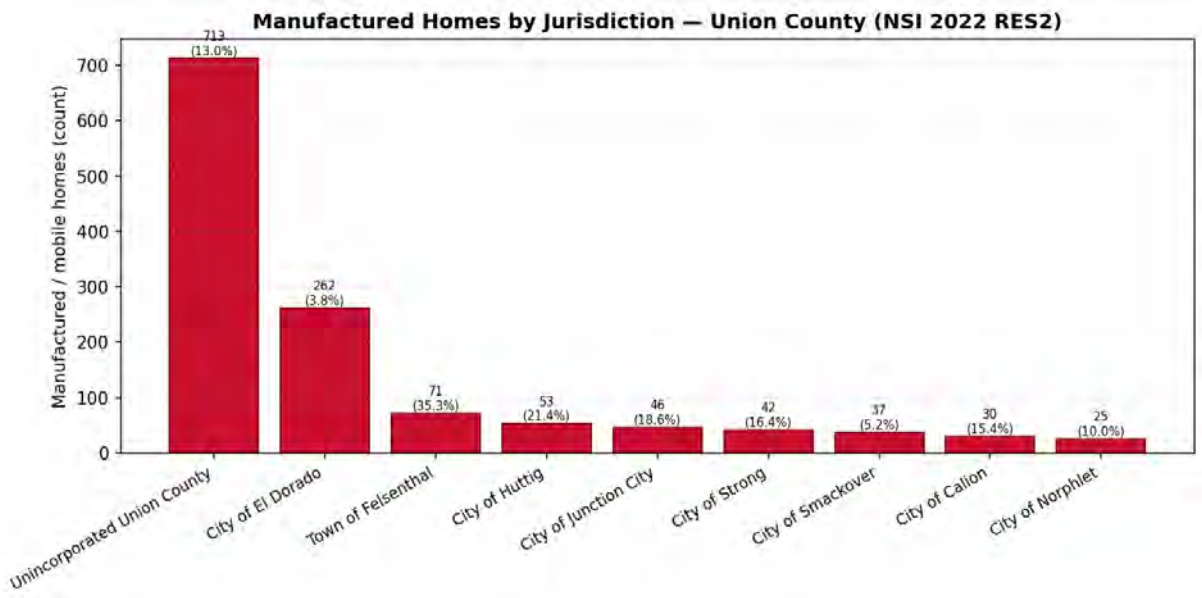


*Figure F-1. Manufactured / mobile homes by jurisdiction — Union County (NSI 2022 RES2). Absolute count with percentage in parentheses.*

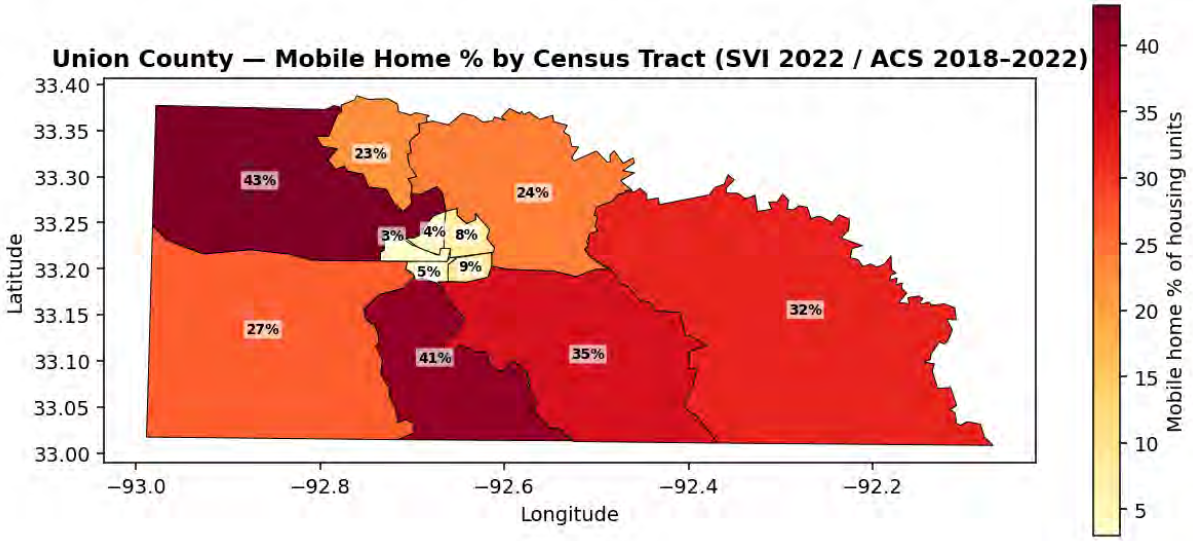


*Figure F-2. Mobile-home percentage of housing units by census tract — Union County (SVI 2022 / ACS 2018–2022). YlOrRd colormap; darker = higher mobile-home share.*

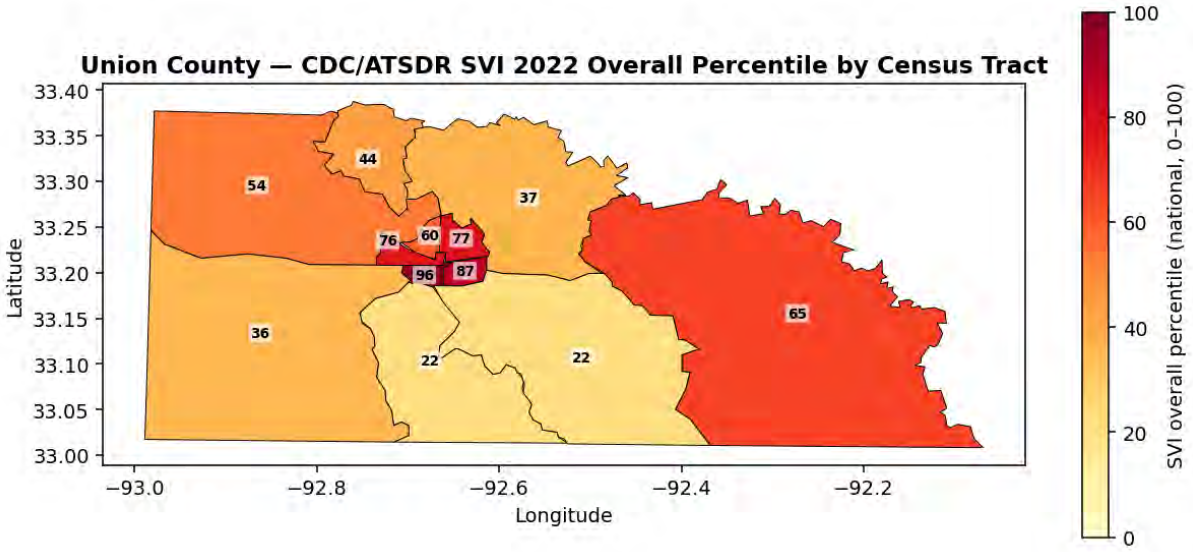


*Figure F-3. CDC/ATSDR SVI 2022 overall percentile by census tract — Union County. Four tracts covering portions of El Dorado (9509, 9510, 9506, 9508) rank at or above the 75th national percentile for overall social vulnerability.*

## F.5 Jurisdiction-Level Detail — NSI Structure-Level Split

The USACE National Structure Inventory 2022 was tagged to each of the eight incorporated cities and the unincorporated county using the effective FEMA NFHL S_POL_AR political-area polygons for Union County. The following table gives the structure-level breakdown per jurisdiction. This is the fullest jurisdiction-level housing-vulnerability picture available for Union County, and it is the direct evidence base for the per-jurisdiction hazard narratives in Section 3 of the plan.

### Table F-3 — NSI 2022 Structure-Level Housing Vulnerability by Jurisdiction, Union County

| Jurisdiction | Total res. | Manufactured | % MH | Low-value | In SFHA | MH in SFHA |
|---|---|---|---|---|---|---|
| City of El Dorado | 6,964 | 262 | 3.8% | 1,809 | 103 | 11 |
| Unincorporated | 5,486 | 713 | 13.0% | 469 | 197 | 36 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Union County | | | | | | |
| City of Smackover | 713 | 37 | 5.2% | 62 | 27 | 2 |
| City of Strong | 256 | 42 | 16.4% | 83 | 8 | 2 |
| City of Norphlet | 251 | 25 | 10.0% | 21 | 1 | 0 |
| City of Huttig | 248 | 53 | 21.4% | 87 | 0 | 0 |
| City of Junction City | 247 | 46 | 18.6% | 8 | 0 | 0 |
| Town of Felsenthal | 201 | 71 | 35.3% | 78 | 201 | 71 |
| City of Calion | 195 | 30 | 15.4% | 40 | 183 | 28 |
| **Union County Planning Area (Total)** | **14,561** | **1,279** | **8.8%** | **2,657** | **720** | **150** |

*Source: USACE National Structure Inventory 2022 (Union County/Data Pulls/structures Union.json), spatially joined to the FEMA NFHL S_POL_AR political-area polygons (CID 050205 through 050574) in WGS84. Low-value threshold ($106,365) is the bottom-quintile structure value for Union County residential structures excluding RES2 (manufactured homes). SFHA = Special Flood Hazard Area (NSI firmzone in A/AE/AO/AH/A99/V/VE).*

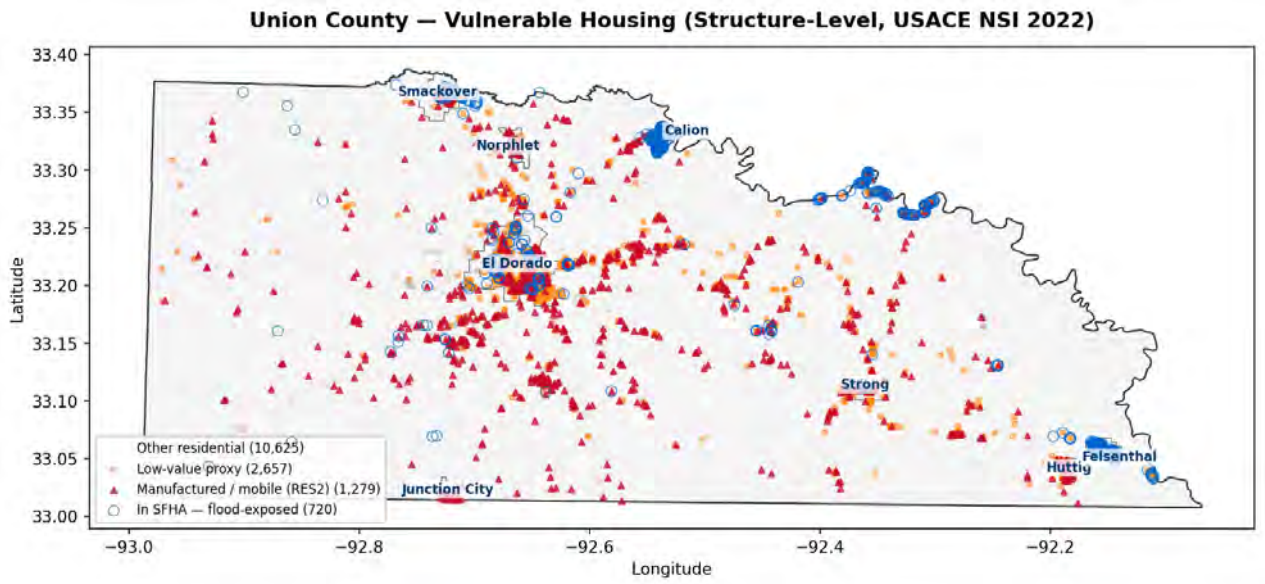


*Figure F-4. Vulnerable housing in Union County at the individual-structure scale (USACE National Structure Inventory 2022). Red triangles = manufactured / mobile homes (RES2, 1,279 units); orange squares = low-value site-built residential (bottom-quintile value proxy, 2,657 units); gray dots = other residential; blue rings = residences in the mapped SFHA (720 units, 150 of which are manufactured). This is the same map reproduced in Section 2.7 of the plan.*

## F.6 Hazard Cross-Reference — What Vulnerable Housing Means for Each Profile

Manufactured housing is destroyed by weaker events than site-built housing across every wind- and ice-driven hazard. The following table cross-references the vulnerable-housing findings to each hazard profile in Section 3 of the plan and to the specific mitigation actions in Section 4 that address that vulnerability.

| Hazard profile | Housing-vulnerability implication | Related mitigation actions |
|---|---|---|
| **Tornado (Section 3.9)** | EF1 and stronger tornadoes destroy manufactured housing at | Actions #3 (School Safe Rooms), |

| | | |
|---|---|---|
| | rates several times those for site-built structures. Union County's five small-city populations (Felsenthal 35.3%, Huttig 21.4%, Junction City 18.6%, Strong 16.4%, Calion 15.4%) and unincorporated county (13.0%) carry the highest per-unit tornado life-safety exposure. The January 12, 2005 F3 tornado at Junction City that killed 2 and injured 13 is the direct historical precedent. | #6 (Manufactured Home Anchoring) |
| **Severe Thunderstorm Wind (Section 3.8)** | Straight-line winds ≥ 58 mph produce disproportionate manufactured-home damage. Same jurisdictional exposure profile as tornado above. | Actions #6 (Manufactured Home Anchoring), #10 (Community Wildfire Protection Planning — includes debris management) |
| **Ice Storm / Winter Storm (Section 3.11)** | Manufactured housing carries elevated risk of pipe-freeze, roof collapse under ice load, and prolonged habitability loss during multi-day power outages. Elderly-occupied residences (6,023 countywide, NSI pop2amo65 > 0) face the highest life-safety exposure during winter-storm outages. The December 12, 2000 ice storm caused $40 million in Union County property damage — the largest single-event loss in county history. | Actions #2 (NOAA Weather Radios), #5 (Generator Backup for Critical Facilities), #14 (Warming Centers / Public Education) |
| **Flooding (Section 3.7)** | 720 residences sit in the mapped SFHA countywide. 150 of those are manufactured homes — the double-exposure population. Felsenthal (100% of the town in SFHA, including 71 manufactured units), Calion (183 of 195 residences in SFHA), and Unincorporated Union County (197 residences in SFHA, 36 manufactured) carry the highest flood-manufactured double exposure. | Actions #4 and #11 (El Dorado Stormwater), #8 (Eagle Tram Road — Felsenthal), #12 (Junction City NFIP Enrollment) |
| **Extreme Heat (Section 3.5 / drought context)** | Manufactured homes with limited insulation and older cooling equipment carry elevated heat-mortality risk. Elderly-occupied units (6,023 countywide) are the highest life-safety exposure during multi-day heat events, especially when compounded by power outage. | Actions #5 (Generator Backup), #14 (Cooling Centers / Public Education) |
| **Earthquake (Section 3.6)** | Unanchored manufactured units can shift off their piers or blocking even in weak ground motion. The New Madrid Seismic Zone controlling-scenario would concentrate its non-structural damage in the same small-city and rural-county populations that carry the highest wind and tornado risk. | Action #6 (Manufactured Home Anchoring) |

## F.7 Data Limitations

- **NSI structure counts are a conservative floor.** The Bing building-footprint layer that seeds NSI structures does not capture every rural outbuilding or manufactured unit. NSI RES2 is therefore a conservative structure count; the ACS mobile-home housing-unit share (20.5 percent, 3,830 units) is the fuller measure of how many Union County households live in manufactured housing.
- **NSI structure-age data is model-imputed.** NSI's med_yr_blt field is often a modeled decade rather than a per-structure record; this appendix does not report structure age from NSI. For aging-stock analysis, the ACS pre-1970 share (Table B25034) is used.
- **Small-place ACS data is not stable.** See the Section F.2 callout. Place-level MH shares for Calion, Felsenthal, Huttig, Junction City, Norphlet, Smackover, and Strong are inferred from the NSI RES2 counts and the surrounding SVI tract rates.

- **Flood-zone attribution uses NSI firmzone.** The FEMA NFHL vector data covers Union County (DFIRM 05139C, effective September 28, 2007). Structures not intersecting a modeled A/AE/AO/AH zone are counted as "not in SFHA" — this does not mean zero flood risk (unmodeled tributaries and localized stormwater flooding are not captured).
- **Local knowledge supersedes the model.** Individual jurisdictions may report additional vulnerable-housing concentrations, aging-stock concentrations, or shelter accessibility limitations that are not captured in the SVI/NSI/ACS data pulled here. Comments received during the September 8 – October 8, 2026 public review period will be incorporated into the final adopted plan.

## F.8 Data Currency and Next Refresh

This appendix reflects data pulled through September 2026. The three underlying data products refresh on different cycles: (a) USACE National Structure Inventory typically annually; (b) CDC/ATSDR Social Vulnerability Index every 2–4 years (current release is SVI 2022); (c) U.S. Census American Community Survey 5-year files annually with a 1-year lag. The Union County OEM will re-evaluate this appendix at each annual plan review (Section 6.2, April) and at the 5-year plan update (2031).