Arkansas Aviation Operation Plan Earthquake Annex

1.0 Purpose

This annex provides an overview of an earthquake hazard assessment, along with other earthquake related hazards information. This will outline and describe the vulnerability of the State of Arkansas to earthquakes. It also serves as a supplement to the Arkansas Aviation Operation Plan and is intended to expand the response and recovery organization for a catastrophic New Madrid event. Many of the operational concepts could be adapted to a large scale man-made or natural hazard.

By far the largest hazard threat to the State of Arkansas is a catastrophic earthquake in the New Madrid Seismic Zone (NMSZ). The New Madrid Seismic Zone encompasses eight states and the fault itself is 150 miles long and stretches from Cairo, Illinois down to Marked Tree, AR.

1.1 Lead Agencies ESF #1 (Ground/Air)

- Arkansas State Highway and Transportation Department
- Arkansas Department of Aeronautics

1.1.1 Arkansas State Highway and Transportation Department (AHTD)

- The AHTD is the Primary Agency responsible for coordinating ground transportation activities. AHTD ESF# 1 is responsible for coordinating state resources needed to restore and maintain transportation routes necessary to protect lives and property during an emergency/disaster and will provide an ESF# 1 liaison to the State Emergency Operations Center (SEOC).

1.1.2 Arkansas Department of Aeronautics (ADA)

- The AR Department of Aeronautics (ADA) is responsible for the coordination of air transportation activities. ADA will provide a liaison to the state Air Coordination Group. ESF # 1 will coordinate the available state air assets through the Air Coordination Group (ACG) according to the Arkansas Aviation Operations Plan annex to the Arkansas Emergency Operations Plan.

1.2 Supporting Agencies

Supporting agencies have resources that may fulfill roles and responsibilities identified in this ESF. Resources will be called upon as needed and provided by supporting agencies as they are available.

- Arkansas National Guard
- Civil Air Patrol
- Department of Finance and Administration
- Game and Fish Commission
- Arkansas Forestry Commission
- Arkansas State Police

Agency	Functions
Arkansas National Guard	Provides trained personnel and unit equipment capable of deploying to protect life and property, and maintain peace, order, and public safety and to support U.S. military objectives.
Civil Air Patrol	• Provides assistance in aerial damage surveys of transportation infrastructure • The ability to provide air and ground transportation of medicines, blood plasma, personnel, supplies, and equipment etc. • Provides airborne relay/repeater • Digital Photography • Reconnaissance Tasking • GIIEP Cooperation with National Guard
Department of Finance and Administration	Responsible for the provision of fuel along transportation and evacuation routes
Game and Fish Commission	Provide alternate modes of transportation (all terrain vehicles, off-road vehicles, watercraft, and manpower)
Arkansas Forestry Commission	• Provide alternate modes of transportation (all terrain vehicles, off road vehicles) • Air support (fixed wing assets) to include pilots • Provide debris clearance equipment
Arkansas State Police	Assist with enforcement of traffic routes

1.3 Mission Priorities

To ensure the effective deployment of all available aerial assets and resources that may be used for assessing:

- Rapid needs
- Infrastructure
- Communications
- Logistical support
- Access / Debris
- Emergency evacuations
- Medical evacuations

1.4 Critical Assumptions

The State of Arkansas is susceptible to a multitude of natural and man-made disasters. These disasters, depending on their magnitude, may have the ability to damage structures and lifelines that will rapidly overwhelm the capacity of the counties that it affects.

In the specific event of a catastrophic NMSZ earthquake it may be assumed that:

- Roads and bridges in and immediately surrounding the affected area will be damaged or heavily congested, impairing emergency transportation to, from, and within the area.
- Utility lifelines, telecommunications, electricity, gas, water, sewer services to airports will be inoperative for an extended time.
- Shortfalls can be expected in both the infrastructure and in the logistical areas of transportation in terms of support personnel, equipment, materials, and supplies.

1.5 Emergency Evacuation

Emergency Evacuation will be coordinated with the SECO to ensure the evacuees are moved to an appropriate shelter and those with special needs receive appropriate transportation in the time of need. Air Operations will assist in the emergency evacuation process by providing assisting personnel, pilots, crew members, and specialized transportation (aircraft) and technical assistance in supporting ESF#1 (Ground).

1.5.1 Staging Areas

Potential staging areas should be pre-identified by ESFs and their state supporting agencies as part of planning for an identified risk area. Utilization and management of the staging areas will be coordinated with all ESFs, and with appropriate state and local officials, to assure site availability and to facilitate resource management.

ESF #1 (Ground) AHTD (Arkansas Highway & Transportation Department)

- Little Rock
- Batesville
- Pine Bluff

ESF #8 ADH (Arkansas Department of Health)

- Searcy Airport (ambulance service)

ESF #9 AGF (Arkansas Game & Fish)

- Searcy Airport (Primary)
- Mayflower Office (Secondary)

ESF #10 ADEQ (Arkansas Department of Environmental Quality)

- Batesville
- Secondary will be in Walnut Ridge at the AHTD

ESF #13 ASP (Arkansas State Police)

- Newport Airport

1.5.2 Points to Consider when Dealing with Survivor Emergency Evacuations

- Establish local collection points to pick up survivors and move them by surface transportation to an evacuation hub
- Screen survivors by categories such as:
  - ✓ Families
  - ✓ Special Needs
  - ✓ Medical Special Needs
  - ✓ Pets
- Security screening of survivors and baggage
- Coordinating arrival of aircraft with arrival of survivors at the emergency evacuation rally point.
- Transfer and loading of survivors to an aircraft
- Coordination with host airports, cities, and states for arrival and sheltering

1.6 Mutual Aid

The requisition for out-side resources may take up to 72 hours to arrive from the first call of assistance based on the distance and condition of the affected area.

All mutual aid requests (state/federal) will be requested from the SEOC once all local resources have been exhausted.

1.7 Temporary Flight Restriction (TFR)

With this fundamental principle in mind, the FAA develops and implements a package of air traffic and airspace management measures that is scalable and flexibly adjusted to meet often rapidly evolving disaster situations on a case-by-case basis. These packages are developed and implemented along the three general sequences below, which are, of course, dynamically modified by the FAA to meet the situation and mission needs specific to each individual disaster. [1] The ACG Coordinator can seek a TFR though the federal ESF #1 FAA Liaison.

- **Small Disasters** - Localized disasters and other significant incidents (e.g., aftermath of a tornado strike) that are addressed through the use of Special Notices simply cautioning all operators flying in a designated area and/or a TFR established using the basic provisions of a 91.137 TFR.

  Note that some of these relatively contained disasters, specifically including wildfires, may prompt the use of disaster TFRs complemented by pre-coordinated C2 structures and operations coordination tools (e.g. Fire Traffic Areas) used to manage all participating flights. [1]

- **Growing Disasters** - Disasters such as Hurricane Katrina that are initially considered to be relatively localized crises are addressed using the approach outlined in the previous bullet, but are subsequently determined to be more significant (e.g., wider area and more serious destruction, more complex operations, etc.). As the more serious effects of these disasters are identified, the FAA may scale up its response using Special Notices, 91.137 disaster TFRs reinforced by integrated procedures (e.g., low level altitude stratification by mission type of participating flights) to help manage participating and non-participating air traffic over the disaster area., and other related air traffic and airspace management measures.[1]

- **Large Disasters** - Large Disasters that are immediately characterized as wide scale and catastrophic - e.g., a major New Madrid Seismic Zone (NMSZ) earthquake. In these scenarios, the FAA may opt to immediately implement advisory Special Notices and 91.137 TFRs broadly covering what is believed to be the disaster area based on the best available impact information. As damage assessments are conducted, clarifying the situation at hand, and FSLTT[2] response activities are initiated, the FAA would refine its air traffic and airspace management measures to better support the mission needs of contingency aviation operations and efforts to mitigate and recover from the impact to the NAS.

[1] FAA Airspace Management Plan for Disasters (AMP) 3.5 & 3.6
[2] Federal, State, Local, and Territorial / Tribal **(FSLTT)**

1.5.2 Flight Operations in the disaster area

- Majority of flight operations will be conducted under Visual Flight Rules (VFR)

1.5.3 Contingency Airspace Management Plan (see Figure: 7)

- The Contingency Airspace Management Plan provides altitude de-confliction by identifying horizontal layers of airspace dedicated to specific air operations.
- This is for specific air mission guidance. Other air operations may temporarily enter, occupy, and exit the altitude layers as their mission requires.

1.5.4 Common Traffic Advisory Frequency (CTAF) Procedures

- VFR traffic inherently requires additional coordination on the part of the participating aircraft in order to see and avoid. Assigned area Common Traffic Advisory Frequencies (CTAF) will be used by all States.
- Each state will have geographical area CTAFs designated by their respective ARNG or State Frequency Managers. Within each state, separate geographical regions have been established with specific assigned CTAFs.
- All aircraft operating VFR at or below 6000 above ground level (AGL) will make entry and exit notification on the appropriate CTAF frequencies for the area.

1.5.5 VFR Common Traffic Advisory Frequency

VFR traffic inherently requires additional coordination on the part of the participating aircraft in order to see and avoid. Assigned area Common Traffic Advisory Frequencies (CTAF) will be used throughout the eight participating states. Each state will have geographical area CTAFs designated by their respective ARNGT or State Frequency Managers. Within each state, separate geographical regions have been established with specific assigned CTAFs.

1.5.6 State Geographical Areas

Arkansas is divided into 4 distinct regional quadrants. The North/South dividing feature is Interstate 40 which runs from Fort Smith, AR east to West Memphis, AR. The East West dividing feature is US 67 which runs from Corning, AR south through Little Rock, AR to Texarkana, AR. Any aircraft flying VFR below 6000' AGL north of 40 and West of 67 will make reporting calls on CTAF 122.7. Any aircraft flying VFR below 6000' AGL north of 40 and East of 67 will make calls on CTAF 122.8. Any aircraft flying VFR below 6000' AGL south of 40 and West of 67 will make reporting calls on CTAF 123.0. Any aircraft flying VFR below 6000' AGL south of 40 and East of 67 will make reporting calls on CTAF 123.07. These frequencies are subject to change at the discretion of the FAA.

1.5.7 Required Radio Reporting on Assigned CTAF

Any aircraft participating in Incident Response Operations under VFR conditions at 6000 AGL and below will make initial calls on appropriate CTAF frequencies. Participating aircraft will make an initial call 10 minutes prior to entry into an established geographical area or crossing state borders. This initial call will include the following:

- Call sign and type
- Current location and direction of flight
- Intended point of entry into Geographical region
- Intended destination

All participating aircraft will make 30 minute calls within sector. These calls will include the following:

- Call sign and type
- Current location and direction of flight
- Intended destination

All participating aircraft will make a departure call 5 minutes prior to departure of an established geographical area or crossing state borders. This departure call will include the following:

- Call sign and type
- Current location and direction of flight
- Intended point of departure from Geographical region
- Intended destination

NOTE: The use of geographical area CTAFs for entry, 30 minute reporting, and departure calls does not negate the requirement of participating aircraft to utilize appropriate airfield CTAFs or other mandatory ATC frequencies during their mission.

1.8 Contingency Response Air Support Schedule (CRASS)

The Contingency Response Air Support Schedule (CRASS) is use for the benefit of all agencies flying in support of civil authority operations. The CRASS is a visibility document of all participating aircraft operating in the airspace control area, to include both Joint Forces Commander (JFC) and non-JFC assets. The CRASS will include all unclassified Department of Defense (DOD)/interagency missions, as well as planned flying by other agencies (e.g., local enforcement agencies, Title 32 ANG, etc.). The fidelity of this product is highly dependent on the information provided by non-DOD agencies/organizations. It will be published using a common application (Microsoft Excel), ensuring the ability to manipulate data, and requires increased coordination with state emergency operations centers/law enforcement agencies/other agencies to ensure:

- Shared Situational Awareness- The FAA, in coordination with the States' ACGs will provide a web-based automated aircraft tracking system. The system is the FAA Automated Detection and Processing Terminal (ADAPT) system, or "Web-Adept". It will provide near real-time airspace and air mission visibility.
- Common Operating Picture- Each State will complete the Contingency Response Aircraft Scheduling Sheet (CRASS), and upload to a shared site as determined the States' Emergency Managers.
- Reporting Procedures- Will be completed through WebEOC

1.9 Damage / Safety Assessment

Damage / Safety Assessments are the basis for determining the need to identify hazards. An initial damage estimate is developed during the emergency response phase to guide operational decisions and support a request for a Governor's proclamation and for the State to request a presidential declaration.

During any type of disaster or large-scale emergency the potential need for aerial operations is apparent. Emergency funding from the federal government requires a systematic damage assessment that may only be available from an aerial view. Different areas of the state can be isolated by damaged bridges/roads that are impassible in the affected areas. As soon as possible following a catastrophic event, an aerial assessment is conducted on buildings, airports, roads, bridges, pipelines, and power lines. All information is relayed to the SEOC.

1.9.1 Civil Air Patrol has three (3) pre-established flight routes currently for damage/safety assessment: (See Figure: 9)

The earthquake response is alerted by a 6.0 magnitude earth tremor. **No aircraft will launch automatically**. ALL aircraft will remain at their base until released by the CAP Incident Commander with an assignment and a mission number.

Route A: Aircraft launches from Little Rock. Fly I-40 and Hwy 70 to West Memphis/Memphis. Then fly North, on the east-side of I-55 to Osceola and Blytheville, and then to Jonesboro. Direct back to Little Rock.

Route B: Aircraft launches from next and nearest available base. Route begins at Brinkley. Follows Hwy 49 North to Jonesboro. From Jonesboro, fly Hwy 63 to Marked Tree. Join I-55, stay west parallel. Join Hwy 64 through Wynne to Bald Knob. Then fly Hwy 67 from Bald Knob to Cabot. Recover at Little Rock if possible, land with at least one hour of fuel onboard.

Route C: Aircraft launches from next and nearest available base. Route begins at Bald Knob. Fly Hwy 67 from Bald Knob to Corning. Then follow Highway 62 Corning to Piggott. Highway 49 Piggot to Jonesboro. Highway 1 Jonesboro to Marianna. Recover at Little Rock if possible, land with at least one hour of fuel onboard.

1.10 Annex Maintenance

ADEM and the ACG have the responsibility of coordinating, developing and maintaining the Earthquake Annex in association with the Arkansas Air Operations Plan This annex will be updated annually during the first quarter of the new calendar year.

2.0 Maps

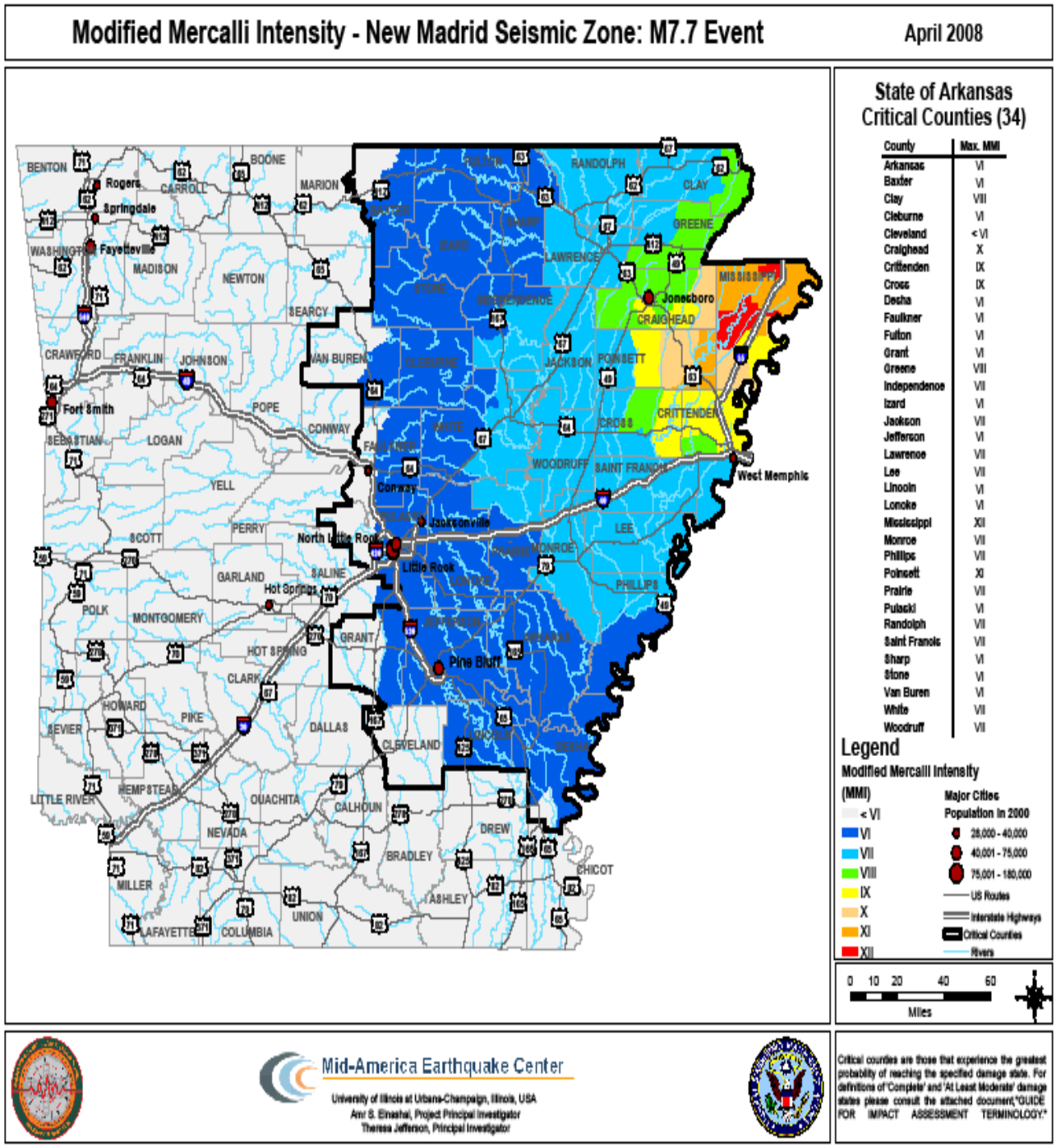
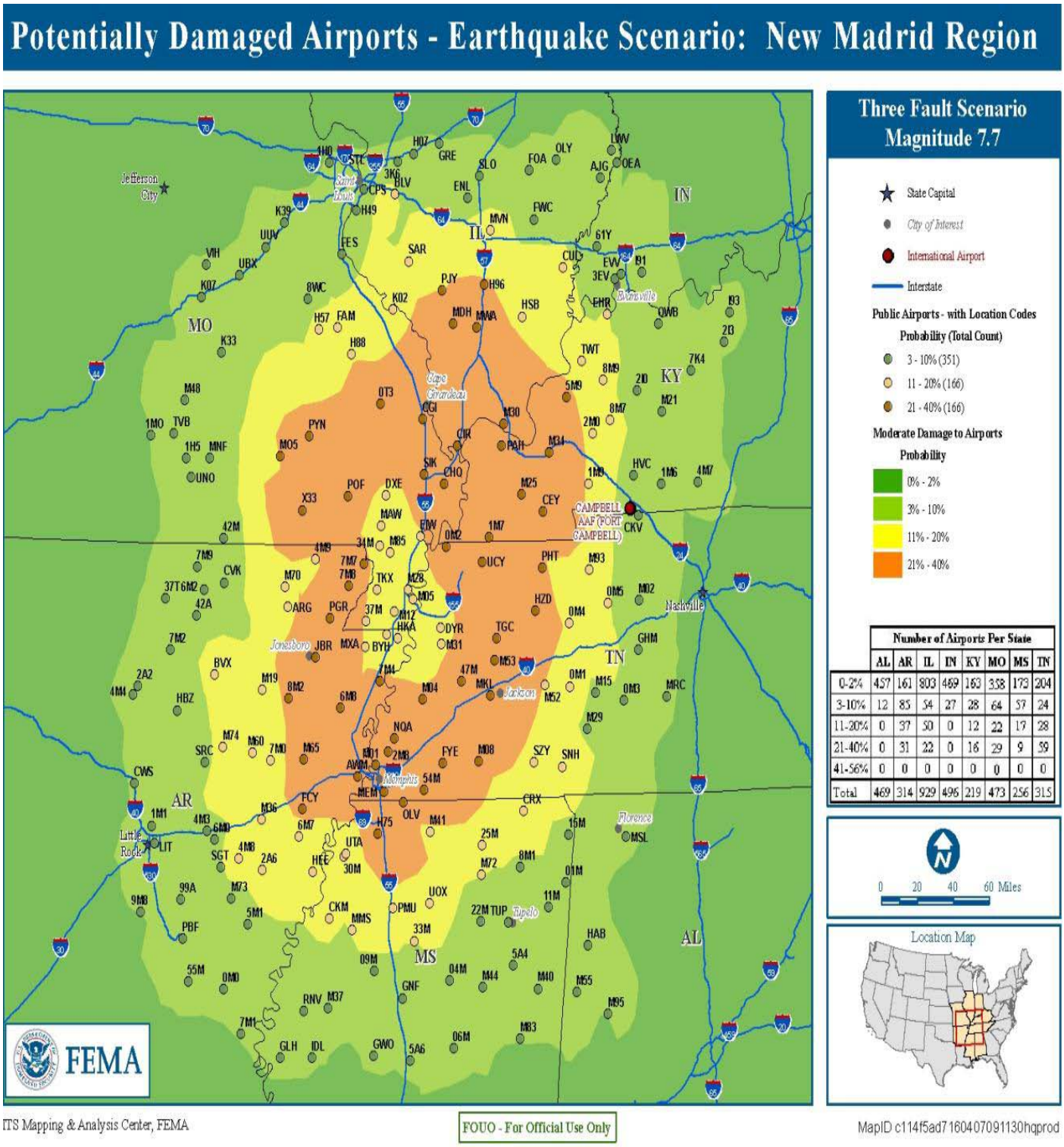


Figure 1: Potentially Affected areas in the New Madrid Seismic Zone



	Number of Airports Per State							
	AL	AR	IL	IN	KY	MO	MS	TN
0-2%	457	161	803	469	163	358	173	204
3-10%	12	85	54	27	28	64	57	24
11-20%	0	37	50	0	12	22	17	28
21-40%	0	31	22	0	16	29	9	39
41-56%	0	0	0	0	0	0	0	0
Total	469	314	929	496	219	473	256	315

Figure 2: Potentially Damaged Airports in the New Madrid Zone

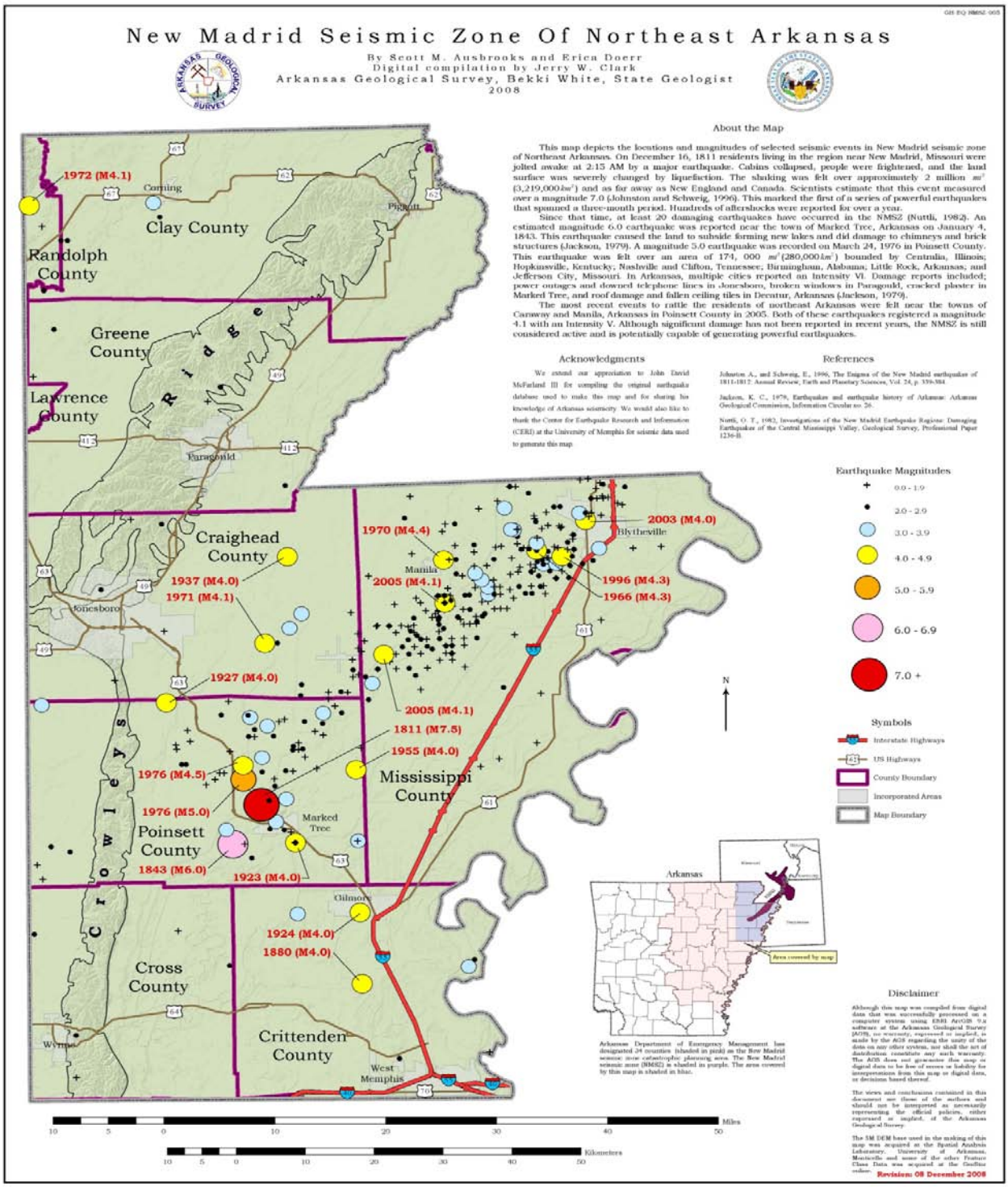


Figure 3: Arkansas Geological Commission Northeast Seismic Map[3]

[3] AR Geological Commission

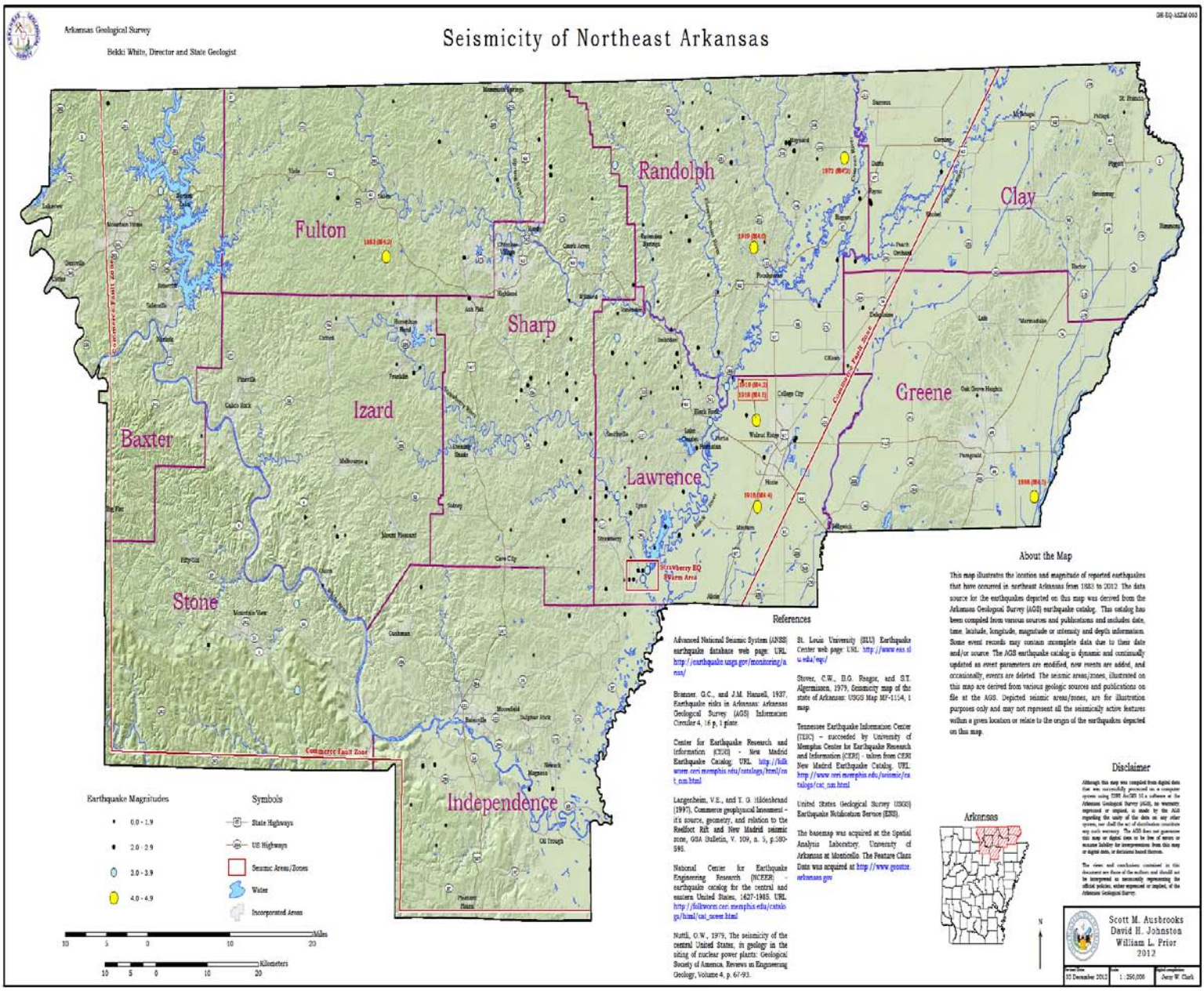


Figure 4: Seismicity of Northeast Arkansas [3]

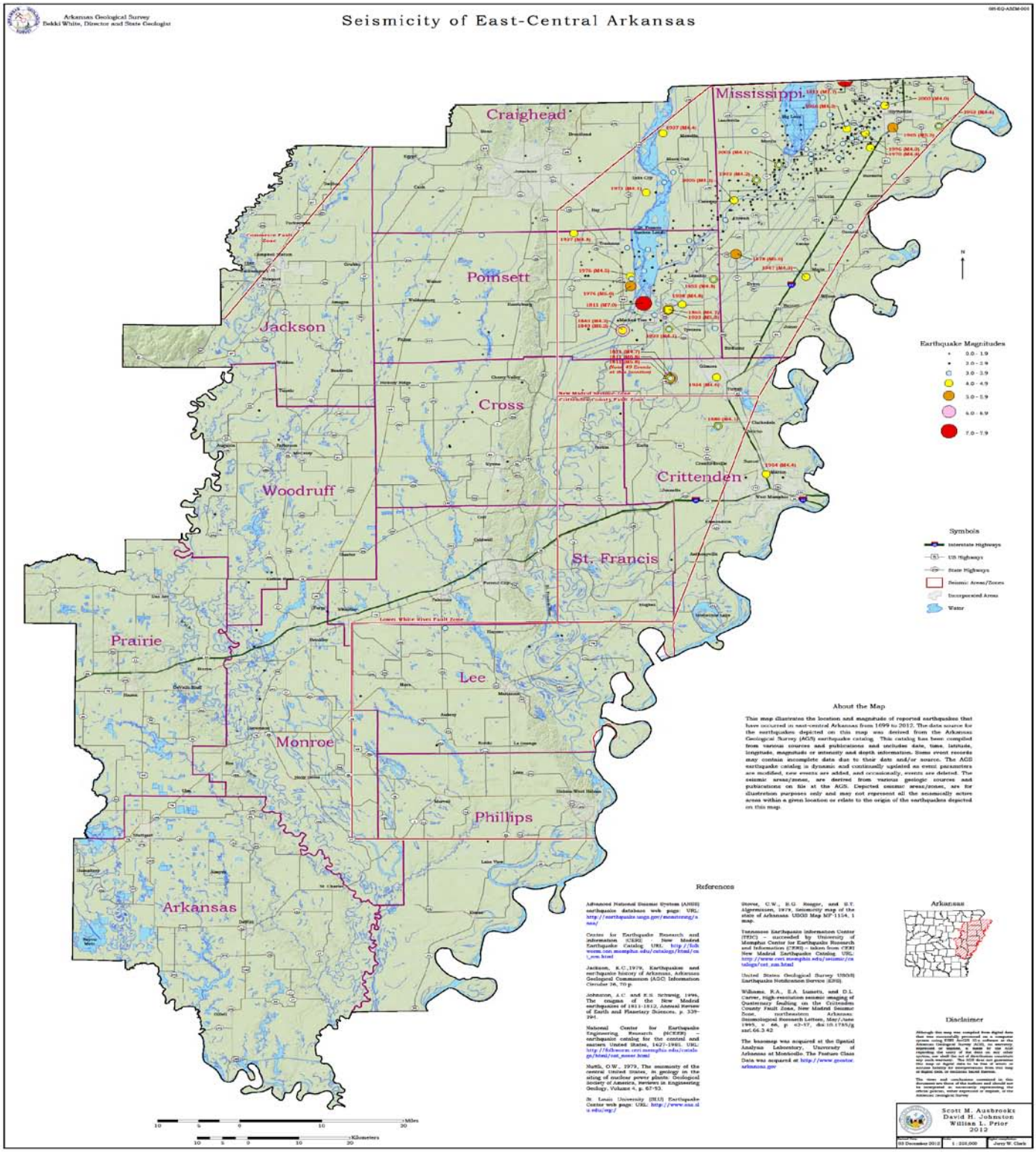


Figure 5: Seismicity of East-Central Arkansas [3]

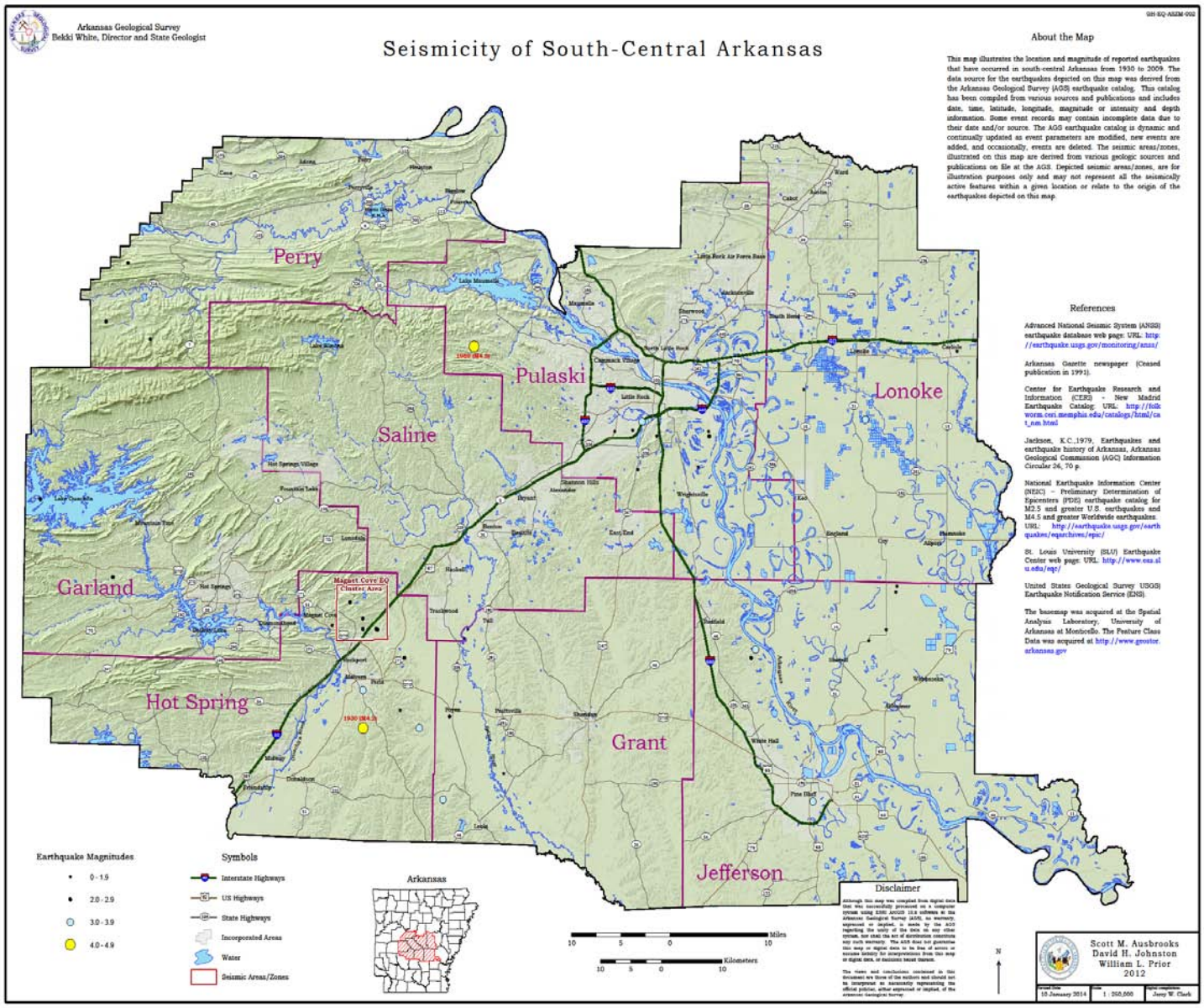


Figure 6: Seismicity of South-Central Arkansas [3]

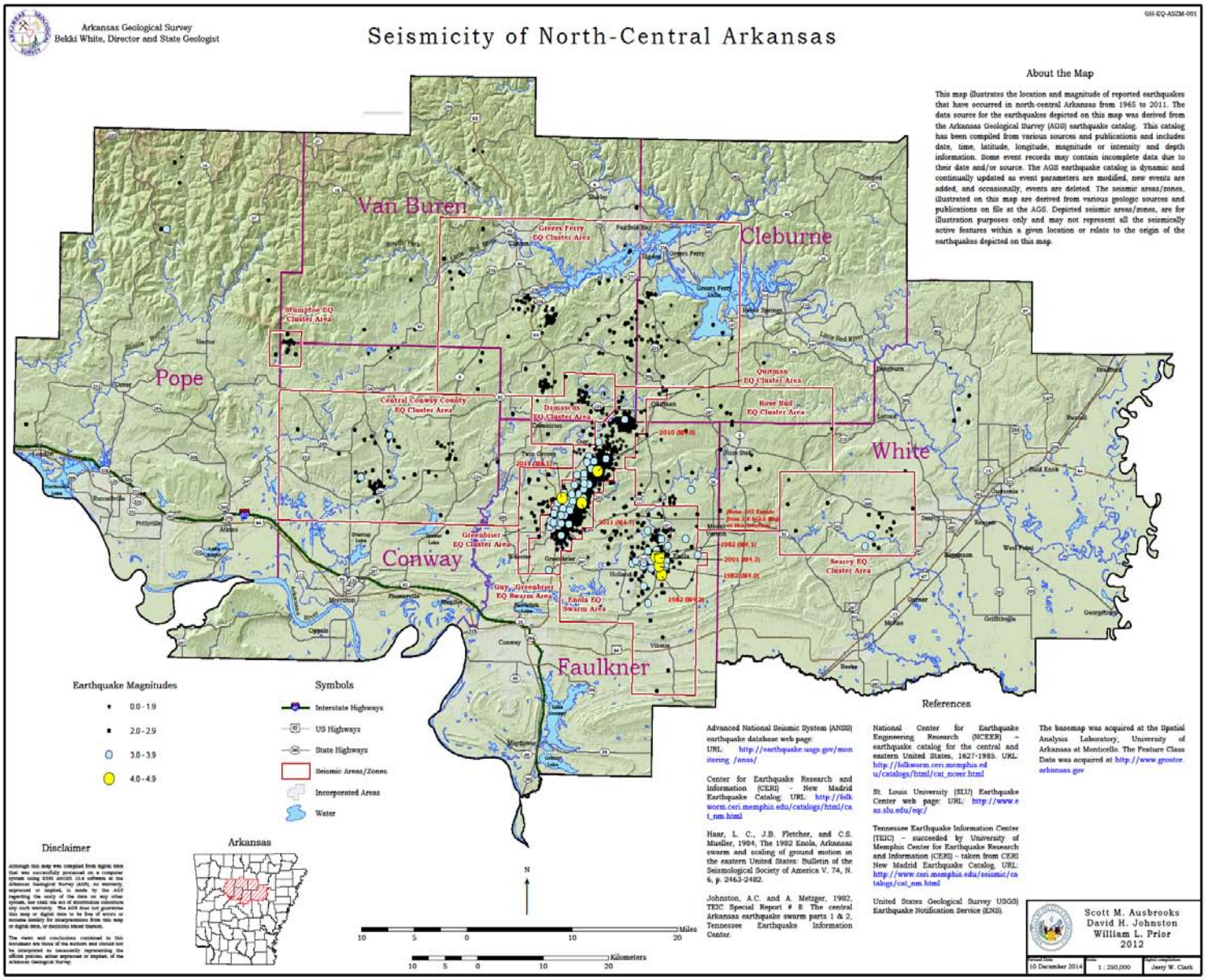


Figure7: Seismicity of East-Central Arkansas [3]

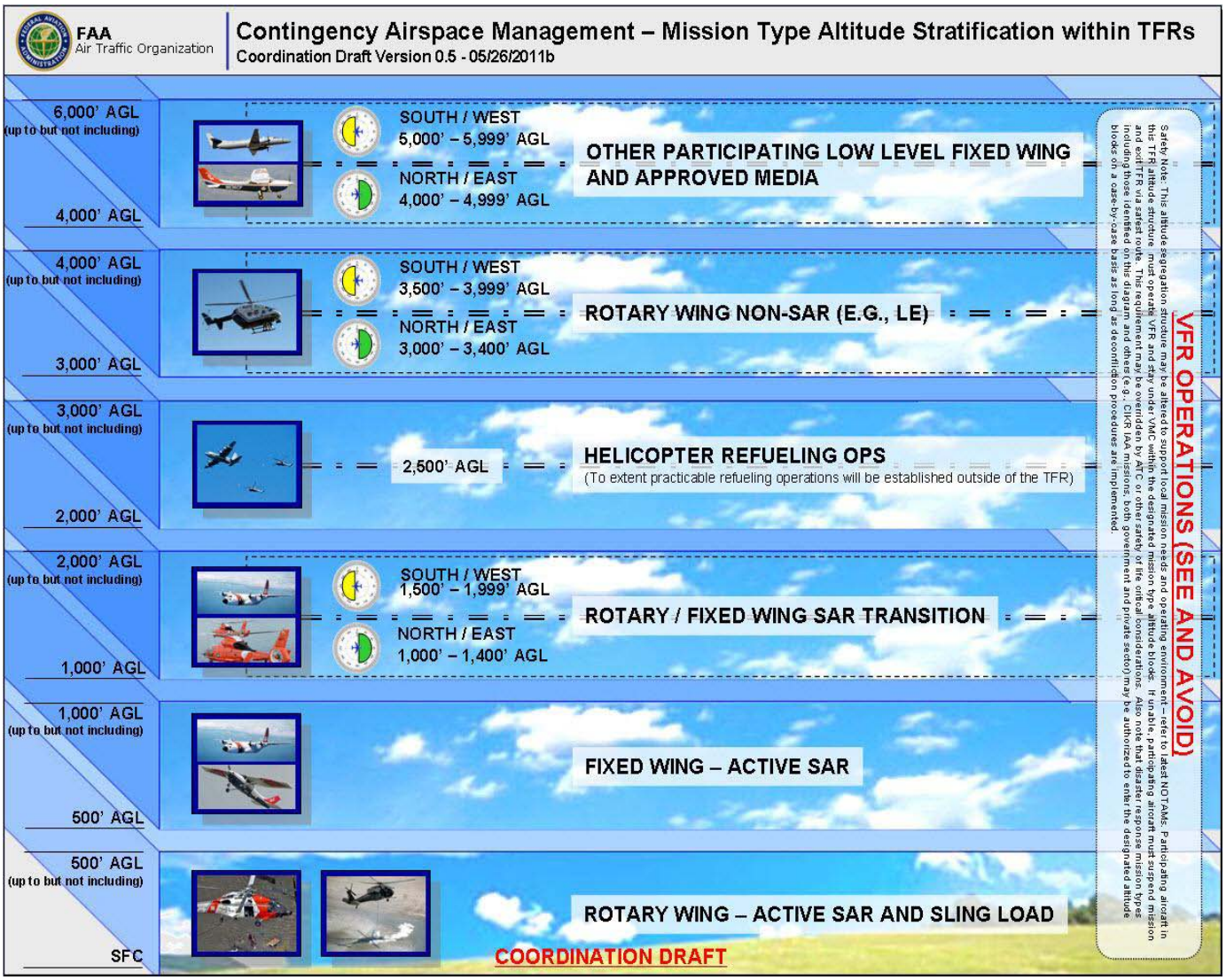


Figure 7: Contingency Airspace Management Chart

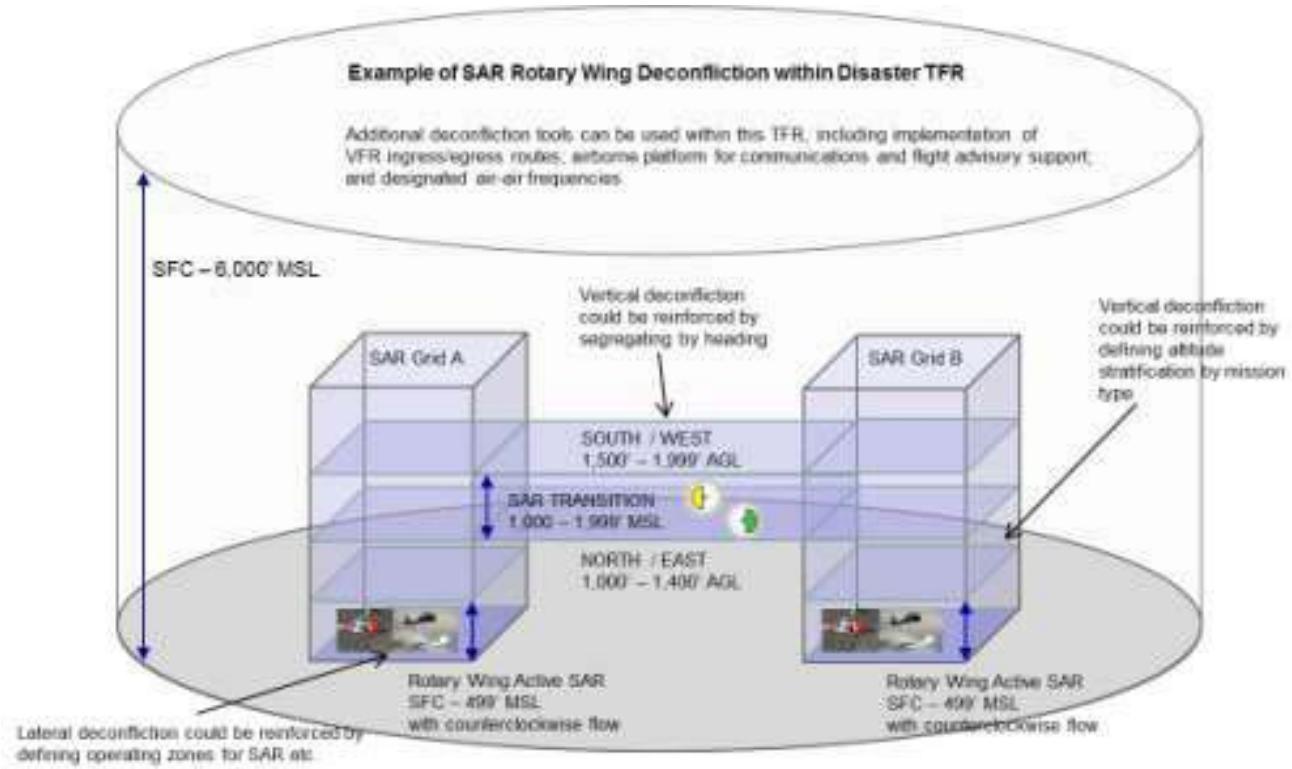


Figure 8: Example Temporary Flight Restriction Depiction

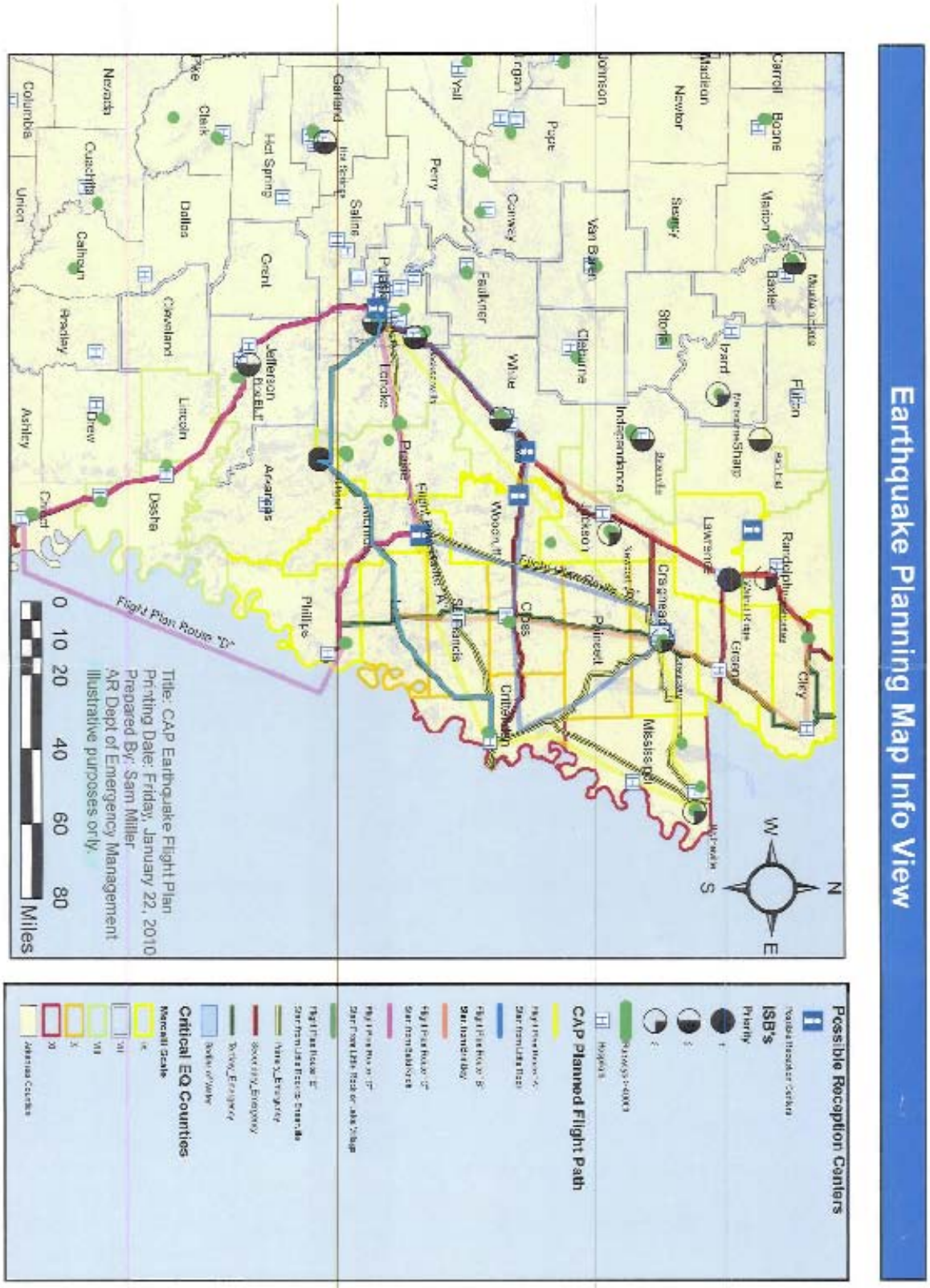


Figure 9: Civil Air Patrol Planned Flight Path

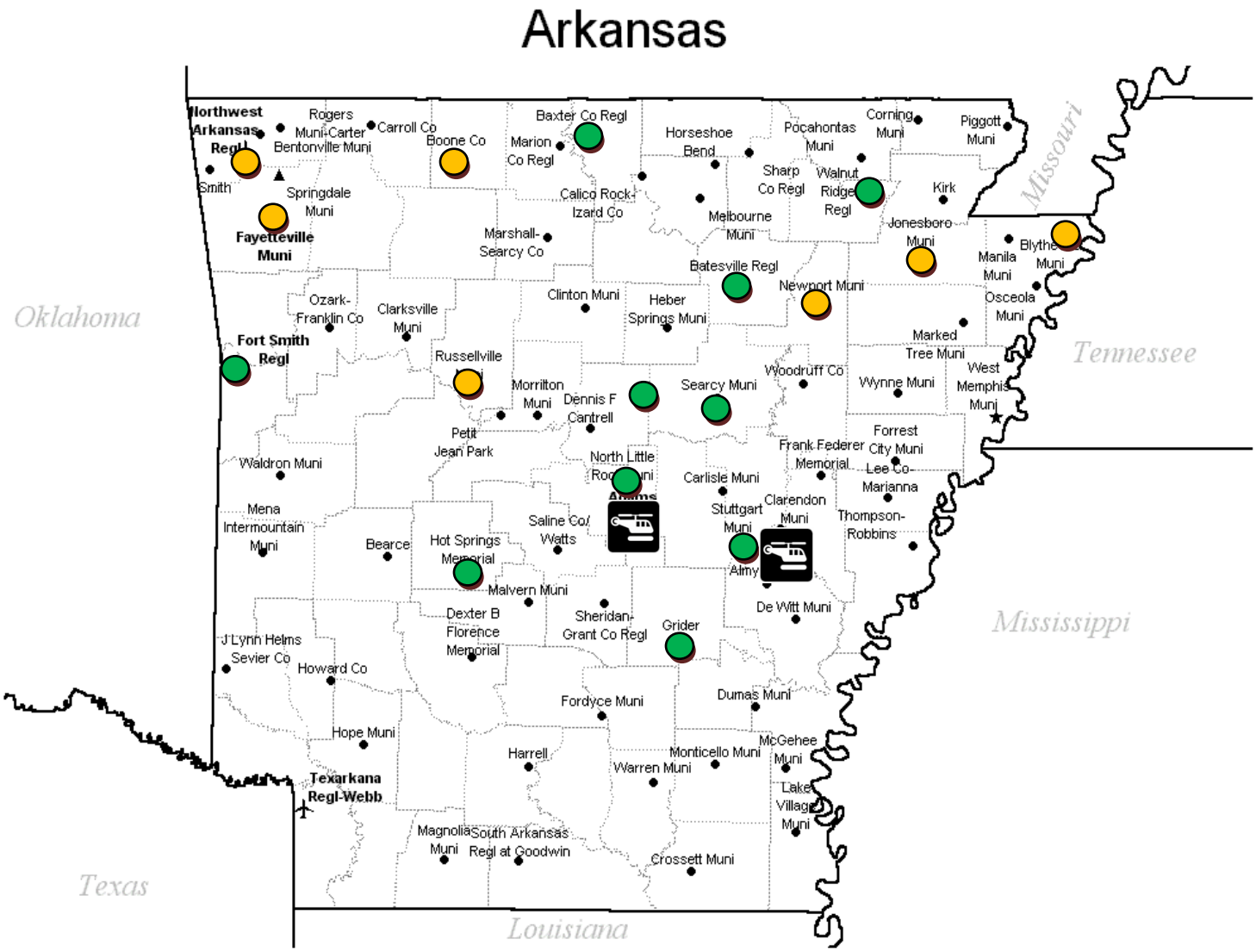


Figure 9: Primary & Secondary Airports

***Airport information found in Arkansas Airport Directory or page 10 & 11 of this annex, additional Airport information can be found in Appendix 1 of the Air Operations Plan**

3.0 Primary and Secondary Airports

Name	CODE	Runways	Max on Ground
Walnut Ridge Regional [4]	ARG	04-22 6000x150 13-31 5000x150 18-36 5000x150	MOG 20
Searcy Municipal	SRC	01-19 6000x100	MOG 4
Baxter County	BPK	05-23 5000x75	MOG 2
Batesville Regional	BVX	07-25 6000x150	MOG 2 (6 w/closed runway)
Stuttgart Municipal	SGT	04-22 6600x144 13-31 5200x100 **Helipad 60′**	MOG 29
Little Rock Adams Field	LIT	04L-22R 8200x150 04R-22L 8200x150 18-36 5200x100 **Helipad 50′**	MOG 14 (20 w/closed runway)
Jacksonville LRAFB	LRF	07-25 12000x200 69-259 3400x60	
Pine Bluff Grider Field	PBF	18-36 6000x60	MOG 1
Fort Smith Regional	FSM	01-19 5002x150 07-25 8000x150	MOG 8
Hot Springs Memorial Field	HOT	05-23 6500x150 13-31 4000x150	MOG 2

***AWIN Capable: Stuttgart, Little Rock, Pine Bluff, Fort Smith, and Hot Springs**

***Maximum on the Ground (MOG) is based on C-130J Footprint**

[4] Walnut Ridge Regional Airport (ARG) Aero-medical Evacuation Operations Plan

4.0 Secondary Airports

Name	CODE	Runways		Max on Ground
Jonesboro Municipal	JBR	05-23 13-31	6200x150 4000x150	MOG 2
Blytheville Municipal	BYH	18-36	11600x150	MOG 28 (37 w/Christmas Tree)
Newport Municipal	M19	04-22 18-36	5000x150 5000x150	MOG 6
Harrison Boone County	HRO	18-36	6161x150	MOG 2 (4 w/taxiway closed)
Russellville Regional	RUE	07-25	5094-75	MOG 4 (w/taxiway closed)
Fayetteville Drake Field	FYV	16-34	6006x100	MOG 7 (10 w/taxiway closed)
Northwest Arkansas Regional	XNA	16-34	8800x150	MOG 11 (20 w/taxiway closed)

***AWIN Capable: Fayetteville Drake Field, Northwest Arkansas Regional**

***Maximum on the Ground (MOG) is based on C-130J Footprint**

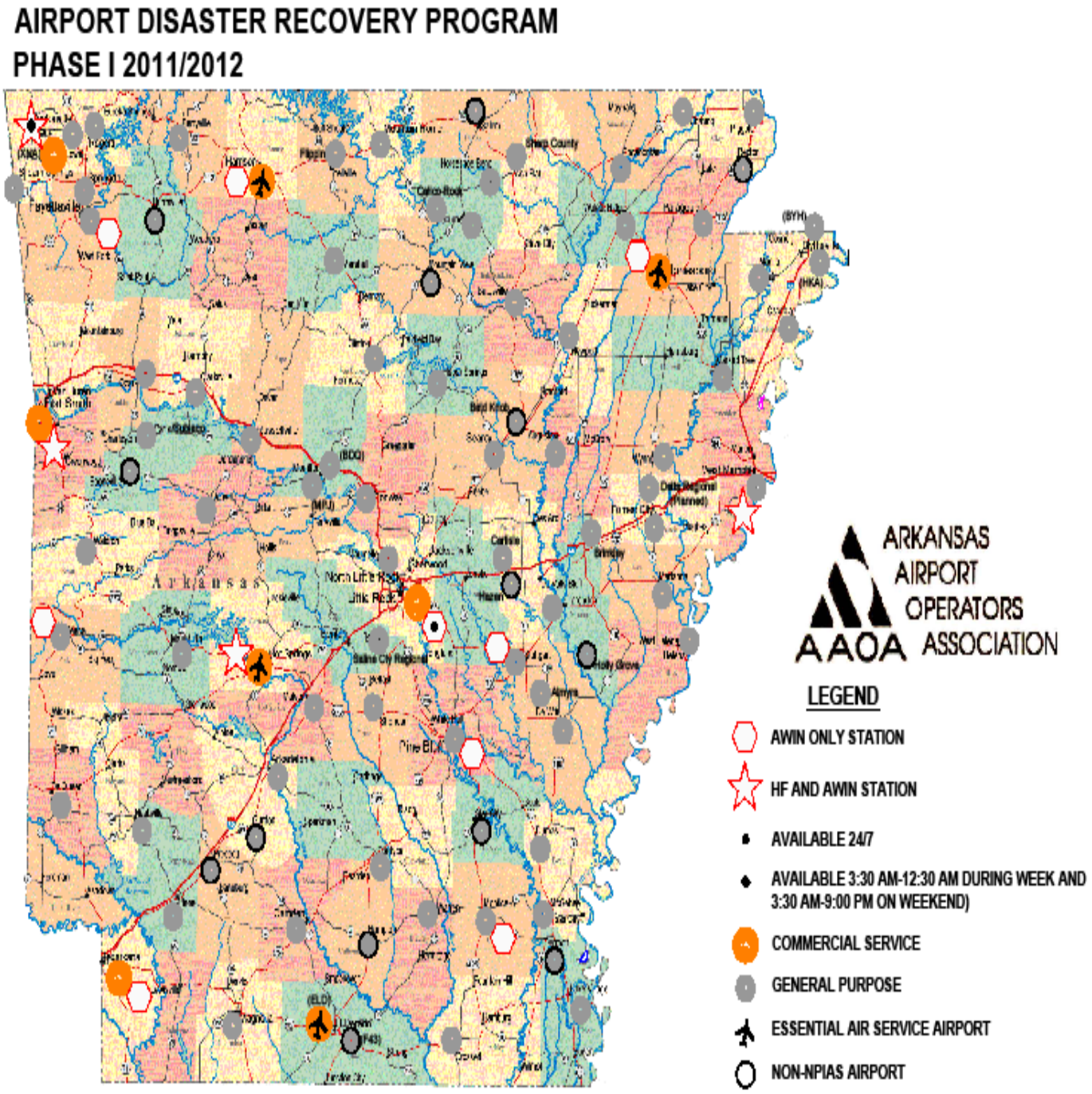


Figure 6: AAOA Airport Disaster Recovery Phase 1 Map

5.0 Authorities

- Arkansas Code Annotated 12-75-114 Governor's Authority during State of Disaster Emergency.
- Arkansas Code Annotated 12-27-109 to 112 Arkansas Department of Emergency Management.
- Arkansas Code Annotated 12-78-101 to 105 Emergency Communications Act of 1991.
- Arkansas Code Annotated 12-83-101 to 105 Emergency Volunteer Reserve Act of 1995.
- Executive Orders of the Governor of Arkansas.
- Federal Civil Defense Act of 1950.
- Federal Aviation Act of 1958.
- Homeland Security Presidential Directive 5 (HSPD - 5), Management of Domestic Incidents, February 28, 2003.
- Post-Katrina Emergency Management Reform Act of 2006 (PKEMRA), Public Law 109-295.
- Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, 42 U.S.C. 5121, et seq., as amended.
- Code of Federal Regulations
- US Department of Transportation
- National Transportation Safety Board

5.1.1 References

- AFD-070808-022—Defense Support to Civil Authorities (DSCA) Handbook: Air Support Handbook, August 1, 2007.
- AFNORTH Instruction 10-202A, Joint Concept of Operations (J-CONOPS) Air Mobility Coordination for Crisis Response, March 2, 2009.
- CJCSI 3710.01 DOD, Counterdrug Support, January 28, 2008.
- Department of Homeland Security Management Directive System MD Number: 0021, Aviation Concept of Operations, April 18, 2005.
- Department of Homeland Security Management Directive System MD Number: 0020.1, Aviation Management and Safety, February 22, 2005.
- DHS (U.S. Department of Homeland Security). 2008. National Response Framework. Washington, DC.
- DOD Directive 3025 DOD, Manual for Civil Emergencies, June 2, 1994.
- DOD Directive 3025 Defense Support of Civil Authorities, 5525 Military Support of Civilian Law Enforcement series, January 15, 1993.
- Federal Aviation Regulation Part (FAR) 91.137, General Operating and Flight Rules, October 11, 2001.
- Federal Aviation Regulation Part (FAR) Part 99.7, Security Control of Air Traffic, March 30, 2004.
- National Interoperability Field Operations Guide v1.2, DHS Office of Emergency Communications, March 2008.
- National Incident Management System (NIMS), December 2008.
- PMS 311-83, National Wildfire Coordinating Group Task Book for the Position of: Area Command Aviation Coordinator (ACAC), May 2008.
- U.S. National SAR Supplement (NSS), May 2000.
- USFS-BLM Interagency Airspace Coordination Guide, July 29, 2003.
- Federal Aviation Administration (AMP) Airspace Management for Disasters
- FAA Airspace Management Plan for Disasters
- AFD-070808-022—*Defense Support to Civil Authorities (DSCA) Handbook: Air Support Handbook*, August 1, 2007,
- Walnut Ridge Airport Assessment (ARG) FEMA
- MAE Center – Mid America Earthquake Center - www. mae.cee.illinois.edu
- 2013 AR Comprehensive Emergency Management Plan (ARCEMP)
- Arkansas Geological Survey www.geology.ar.gov

6.0 Record of Changes

Date of Change and Initials	Nature of Change and Location	Revision
3/2014 rpridgen	Maps , Colors, Graphics, References, Content, Mountain Home airport name: Baxter County, MOG in Boone County, ESF9 backup staging area 1.5.2 / 1.5.3 / 1.5.4 / 1.5.5 / 1.5.6 / 1.5.7 / 1.8 / 1.10 / 3.0 / 5.1.1/4.0	1