

Benton County Hazard Mitigation Plan August, 2016



Encompassing the Jurisdictions of:

Benton County

City of Bella Vista City of Bentonville City of Bethel Heights City of Cave Springs City of Centerton City of Decatur City of Gentry City of Gravette City of Little Flock City of Lowell City of Pea Ridge City of Rogers City of Siloam Springs City of Sulphur Springs



Town of Avoca Town of Garfield Town of Gateway Town of Highfill Town of Springtown

Northwest Arkansas Community College

Bentonville School District Decatur School District Gentry School District Gravette School District Pea Ridge School District Rogers School District Siloam Springs District

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The Benton County Hazard Mitigation Plan is being developed to update and revise hazard mitigation activities for Benton County and its participating jurisdictions. The Benton County Hazard Mitigation Planning Team will evaluate mitigation measures to be undertaken, and outline a strategy for implementation of mitigation projects. This plan covers 20 municipalities, 1 college, and 7 school districts in Benton County, including the governments of: Benton County, the City of Bella Vista, City of Bentonville, City of Bethel Heights, City of Cave Springs, City of Centerton, City of Decatur, City of Gentry, City of Gravette, City of Little Flock, City of Lowell, City of Pea Ridge, City of Rogers, City of Siloam Springs, City of Sulphur Springs, the Town of Avoca, Town of Garfield, Town of Gateway, Town of Highfill, Town of Springtown, the Northwestern Arkansas Community College, Bentonville School District, Decatur School District, Gentry School District, Gravette School District, Pea Ridge School District, Rogers School District, and the Siloam Springs School District.

Formal adoption and implementation of a hazard mitigation plan presents many benefits to Benton County and the participating jurisdictions. By identifying problems and possible solutions in advance of a disaster, Benton County and the participating jurisdictions will be in a better position to obtain preand post-disaster funding.

This document aims to produce the following strategic outcomes:

1) Reduce loss of life and decrease property losses to Benton County and its jurisdictions due to natural disasters; and

2) Provide the framework and coordination to encourage government, and public and private organizations, at all levels, to undertake mitigation in order to minimize potential disasters and to employ mitigation strategies in the recovery following disasters.

Specifically, these strategic outcomes will be brought about through the following planning process:

- 1) Identify, describe, and characterize the hazards to which Benton County and its jurisdictions are susceptible; and
- 2) Assess the risk of each hazard, including probability, frequency, exposure, vulnerability; and
- 3) Examine feasible mitigation opportunities appropriate for the identified hazards, prioritize those opportunities; and
- 4) Implement mitigation actions to reduce loss of lives and property; and
- 5) Identify mitigation opportunities for long-term planning consideration.





Executive Summary	2
Glossary of Terms	10
Introduction to Mitigation	11
Section 1 – Planning Process	13
1.1 – Plan Introduction	13
1.2 – Plan Development	14
1.2.1 – Plan Drafting Stage	14
1.2.2 – Jurisdictions	
Table 1 – Jurisdictional Contribution by Planning Phase 1000 Million in Million in Million in Million	
1.2.3 - Major Mitigation Planning Meetings	20
T.3 – Stakeholder Participation	
1.4. Community Involvement	
Table 2 Partner Involvement by Entity	
	24
Section 2 – Local Procedures & Resources	25
2.1 – Available Resources	25
2.1.1 – Documentation Resources	25
2.1.2 – Fiscal Resources	25
2.1.3 – Technical Resources	26
2.2 – Continued Public Involvement	27
2.3 – Plan Maintenance Process	
2.3.1 – Plan Monitoring	28
2.3.2 – Plan Evaluating	29
2.3.3 – Plan Updating	29
Section 3 – Planning Area	31
Map 1 – Arkansas	
3.1 – Demographics	33
Table 4 – Community Demographics	
3.1.1 – Land Use & Development Trends	
3.1.2 – Infrastructure & Critical Facilities	
Table 5 – Critical Facilities Summary	
3.2 – Climate	
Map 2 – NWS Public Forecast Zones	37
Section 4 – Hazard Risk Assessment	38
Table 6 – Disaster Declarations, Benton County	
4.1 – Identifying Hazards	39





Table 7 – Identified Hazards	39
4.2 – Profiling Hazards	40
Table 8 – Probability Categories	40
4.3DF – Dam Failure	41
4.3.1 – Description	41
4.3.2 – Location & Extent	41
Map 3 – Dam Locations, Benton County	42
Map 4 – Inundation Zone, Lake Ann Dam	43
Map 5 – Dam Inundation, Lake Atlanta Dam	44
Map 6 – Dam Inundation, Lake Keith Dam	45
Map 7 – Dam Inundation, Little Flint Creek Dam	46
Map 8 – Dam Inundation, Loch Lomond Dam	47
4.3.3 – Previous Occurrences	48
4.3.4 – Assessing Vulnerability and Impacts	49
Table 9 – Dam Failure Impacts	49
Table 10 – Unique & Varied Risk, Dam Failure	50
4.3D – Droughts	51
4.3.1 – Description	51
Chart 1 – Droughts per Month, Benton County (2005 – 2013)	52
4.3.2 – Location & Extent	53
Table 11 – Palmer Drought Severity Index	54
Table 12 – Standard Precipitation Index	54
Map 9 – Land Use, Benton County	55
4.3.3 – Previous Occurrences	56
Chart 2 – Droughts per Year, Benton County (2005 – 2013)	57
Table 13 – Probability, Droughts	57
4.3.4 – Assessing Vulnerability & Impact	58
Table 14 – Historical Impacts, Droughts	58
4.3EQ – Earthquakes	60
4.3.1 – Description	60
4.3.2 – Location & Extent	60
Table 15 – Modified Mercalli Scale Vs. Richter Scale	61
Table 16 – % Peak Ground Acceleration Vs. Mercalli & Richter Scales	61
4.3.3 – Previous Occurrences	62
Map 10 – Earthquakes, Arkansas	63
Map 11 – Seismic Hazard Rating, Benton County	64
Map 12 – Earthquakes, NMSZ	65
4.3.4 – Assessing Vulnerability & Impacts	67
Table 17 – Vulnerable Structures, Earthquakes	68
Map 13 – NMSZ Simulation, Total Buildings Damaged	70
Map 14 – NMSZ Simulation, Total Casualties	71
4.3EH – Excessive Heat	72
4.3.1 – Description	72
Chart 3 – Excessive Heat Events per Month, Benton County (1998 – 2013)	72





4.3.2 – Location & Extent	73
4.3.3 – Previous Occurrences	74
Table 18 – Temperature, Benton County	74
Chart 4 – Excessive Heat Events per Year, Benton County (1998 – 2013)	75
Table 19 – Probability, Excessive Heat	76
4.3.4 – Assessing Vulnerability & Impacts	77
Table 20 – Historical Impacts, Excessive Heat	77
4.3F – Floods	
4.3.1 – Description	79
Chart 5 – Floods per Month, Benton County (1993 – 2013)	79
4.3.2 – Location & Extent	80
Table 21 – Flood Zone Classifications	80
Table 22 – Riverine Flood Depths	81
Map 15 – Floodplains, Benton County	82
4.3.3 – Previous Occurrences	83
Chart 6 – Floods per Year, Benton County (1993 – 2013)	83
Table 23 – Probability, Riverine Floods	84
Table 24 – Probability, Flash Floods	85
4.3.4 – Assessing Vulnerability & Impacts	86
Table 25 – Historical Impacts, Floods	86
Table 26 – Vulnerable Structures, Flash Flooding	87
Table 27 – Vulnerable Structures, Riverine Flooding	
Table 28 – Critical Facilities Summary	
Table 29 – Unique & Varied Risk, Riverine Floods	91
Table 30 – RL/SRL Properties	
4.3.5 – HAZUS Models	
Table 31 – HAZUS Model 1, 100 Year Flood	
Map 16 – HAZUS Model 1, 100 Year Flood	
Table 32 – HAZUS Model 2, 500 Year Flood	96
Map 17 – HAZUS Model 2, 500 Year Flood	
Table 33 – HAZUS Model 3, 100 Year Flood	
Map 18 – HAZUS Model 3, 100 Year Flood	
Table 34 – HAZUS Model 4, 500 Year Flood	
Map 19 – HAZUS Model 4, 500 Year Flood	
Table 35 – HAZUS Model 5, 100 Year Flood	
Map 20 – HAZUS Model 5, 100 Year Flood	
Table 36 – HAZUS Model 6, 500 Year Flood	
Map 21 – HAZUS Model 6, 500 Year Flood	
Table 37 – HAZUS Model 7, 100 Year Flood	
Map 22 – HAZUS Model 7, 100 Year Flood	
Table 38 – HAZUS Model 8, 500 Year Flood	
Map 23 – HAZUS Model 8, 500 Year Flood	
Table 39 – HAZUS Model 9, 100 Year Flood	
Map 24 – HAZUS Model 9, 100 Year Flood	





Table 40 – HAZUS Model 10, 500 Year Flood	
Map 25 – HAZUS Model 10, 500 Year Flood	
4.3SS – Severe Storms	
4.3.1 – Description	
Chart 7 – Hail Impacts per Month, Benton County (1956 – 2013)	
Chart 8 – High & Strong Winds per Month, Benton County (1998 – 2013)	
Chart 9 – Lightning Impacts per Month, Benton County (1998 – 2013)	
Chart 10 – Thunderstorm Winds per Month, Benton County (1956 – 2013)	
4.3.2 – Location & Extent	
Table 41 – Lightning Activity Intensity Levels	
Table 42 – Modified NOAA/TORRO Hailstorm Intensity Scale	
4.3.3 – Previous Occurrences	
Chart 11 – Hail Impacts per Year, Benton County (1956 – 2013)	
Chart 12 – High & Strong Winds per Year, Benton County (1998 – 2013)	
Chart 13 – Lightning Impacts per Year, Benton County (1993 – 2013)	
Chart 14 – Thunderstorm Winds per Year, Benton County (1956 – 2013)	
Map 26 – Severe Storms, Benton County	
Table 43 – Probability, Severe Storms	
4.3.4 – Assessing Vulnerability & Impacts	
Table 44 – Historical Impacts, Severe Storms	
Table 45 – Vulnerable Structures, Severe Storms	
4.3T - Tornadoes	
4.3.1 – Description	
Chart 15 – Tornadoes per Month, Benton County (1954 – 2013)	
4.3.2 – Location & Extent	
4.3.3 – Previous Occurrences	
Chart 16 – Tornadoes per Year, Benton County (1954 – 2013)	
Map 27 – Tornadoes, Benton County	
Table 46 – Probability, Tornadoes	
4.3.4 – Assessing Vulnerability & Impacts	
Table 47 – Historical Impacts, Tornadoes	
Table 48 – Vulnerable Structures, Tornadoes	
4.3WF – Wildfires	137
4.3.1 – Description	
4.3.2 – Location & Extent	
Table 49 – Burn Severity Index	
Map 28 – WUI, Benton County	
4.3.3 – Previous Occurrences	
Chart 17 – Wildfires per Year, Benton County (1989 – 2013)	
Table 50 – Probability, Wildfires	
4.3.4 – Assessing Vulnerability & Impacts	
Table 51 – Historical Impacts, Wildfires	
Table 52 – Vulnerable Structures, Wildfires	
Table 53 – Critical Facilities Summary	





Table 54 – Unique & Varied Risk, Wildfires	
4.3WS – Winter Storms	
4.3.1 – Description	
Chart 18 – Winter Storms per Month, Benton County (1993 – 2013)	
4.3.2 – Location & Extent	
4.3.3 – Previous Occurrences	
Chart 19 – Winter Storms per Year, Benton County (1993 – 2013)	
Table 55 – Probability, Winter Storms	
4.3.4 – Assessing Vulnerability & Impact	
Table 56 – Historical Impacts, Winter Storms	
Table 57 – Vulnerable Structures, Winter Storms	
4.4 – Land Use & Development Trends Summary	
Table 58 – Land Use & Development Trends, Hazard Summary	
4.5 – Hazard Risk Summary	
Table 59 – Hazard Risk Summary	
4.6 – Excluded Hazards	
Map 29 – Landslide Risk, Benton County	
Section E Mitigation Stratage	450
Section 5 – Miligation Strategy	
5.1 – Mitigation Capabilities	
Table 60 – Local Mitigation Capabilities, Part 1	
Table 61 – Local Mitigation Capabilities, Part 2	
Table 62 – Local Mitigation Capabilities, Part 3	
Table 63 – Local Mitigation Capabilities, Part 4	
5.2 – Floodplain Programs	
Table 64 – NFIP Participating Communities	
5.3 – Mitigation Goals	
5.4 – Mitigation Projects	
Table 65 – Mitigation Projects Summary	
5.4.1 – Mitigation Projects Timeline	
5.4.2 – Mitigation Project Updates	
Table 66 – Mitigation Project Updates	
5.5 – Mitigation Project Evaluations	171
5.5.1 – STAPLE+E	
Table 67 – STAPLE+E Criteria	
Table 68 – STAPLE+E Rankings	
5.5.2 – Mitigation Project Prioritization Summary	
Table 69 – Mitigation Project Prioritization Summary, Part 1	
Table 70 – Mitigation Project Prioritization Summary, Part 2	
Table 71 – Mitigation Project Prioritization Summary, Part 3	
5.6 – Planning Integration	177
Table 72 – Local Planning Mechanisms	









Appendix I – Federal Approval Letter	
Appendix H – Plan Adoption Resolutions	261
Table 113 – Mitigation Project Prioritization, Siloam Springs SD	
Table 112 – Mitigation Project Prioritization, Rogers SD	
Table 111 – Mitigation Project Prioritization, Pea Ridge SD	
Table 110 – Mitigation Project Prioritization, Gravette SD	
Table 109 – Mitigation Project Prioritization, Gentry SD	
Table 108 – Mitigation Project Prioritization, Decatur SD	





ADEM – Arkansas Department of Emergency Management ANRC – Arkansas Natural Resources Commission ASU – Arkansas State University **BFE – Base Flood Elevation BPS** – Bold Planning Solutions DFIRM – Digital Flood Insurance Rate Map DMA 2000 - Disaster Mitigation Act of 2000 EMS – Emergency Medical Services EMA – Emergency Management Agency EOP - Emergency Operations Plan FMA – Flood Mitigation Assistance Grant Program FEMA – Federal Emergency Management Agency FIRM – Flood Insurance Rate Map FOUO - For Official Use Only HMGP – Hazard Mitigation Grant Program HMP – Hazard Mitigation Plan HMPT – Hazard Mitigation Planning Team ICS – Incident Command System I/CFs - Infrastructure and Critical Facilities LEPC – Local Emergency Planning Committee NEIC – National Earthquake Information Center NFHL – National Flood Hazard Layer NFIP – National Flood Insurance Program NMSZ - New Madrid Seismic Zone NRCS - Natural Resources Conservation Service NWACC - Northwest Arkansas Community College **OEM – Office of Emergency Management** PDM – Pre Disaster Mitigation Grant Program PoC – Point of Contact RFP – Request for Proposal SD – School District SS - Severe Storms SOP – Standard Operating Procedure SSURGO - Soil Survey Geographic Database UALR - University of Arkansas Little Rock USACE - United States Army Corps. Of Engineers USDA - United States Department of Agriculture USGS - United States Geological Survey WID – Watershed Improvement District WS – Winter Storm WUI - Wildland Urban Interface



The Emergency Management Cycle & Mitigation

Understanding this cycle is the first step in effectively planning and operating in relation to all disaster related activities. The emergency management cycle is an open ended and ongoing process. The four phases in the process are mitigation, preparedness, response, and recovery. Each phase of the cycle can last years or moments in length while different paths can exist simultaneously.

Mitigation planning is the process of determining

how to reduce or eliminate the loss of life and property damage resulting from natural and humancaused hazards.

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

The Disaster Mitigation Act of 2000 (DMA 2000)

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 became law on October 30, 2000, and amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the "Stafford Act") (Public Law 93-288, as amended). Regulations for this activity can be found in Title 44 of the Code of Federal Regulations Part 206, Subpart M.

This legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. This act establishes a pre-disaster hazard mitigation program and new requirements for the national, post-disaster, Hazard Mitigation Grant Program.

Section 322 of the act specifically addresses mitigation planning at the state and local levels. It identifies new requirements that allow HMGP funds to be used for mitigation planning activities, and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network will better enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects. To implement the new DMA 2000 requirements, FEMA prepared an interim final rule, published in the Federal Register on February 26, 2002, at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states and local communities.

On October 31, 2007, FEMA subsequently published an Interim Rule in the Federal Register, which ensures the Flood Mitigation Assistance (FMA) program planning requirements are consistent with the









mitigation planning regulations as cited in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201 (44 CFR Part 201).

This interim rule established that local communities must comply with mitigation planning requirements to be eligible to apply for FEMA mitigation project grant funding, including FMA and FEMA's Severe Repetitive Loss Program. Meeting the requirements of the regulations cited above ensures participating jurisdictions in the planning area will be eligible to receive disaster assistance, including hazard mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended.

The Benton County Emergency Management Agency has the responsibility to coordinate all local activities relating to hazard evaluation and mitigation, and to prepare and submit to FEMA a local hazard mitigation plan, following the criteria established in 44 CFR 201.6 and Section 322 of the Disaster Mitigation Act of 2000 (Public Law 106-390).



1.1 – Plan Introduction

This hazard mitigation plan consists of 28 jurisdictions: 1 county, 14 cities, 5 towns, 1 college, and 7 school districts. Each jurisdiction actively participated in the planning process from its inception. Each jurisdiction provided at least one representative to provide a locality specific perspective.

Planning team members actively participated in meetings, solicited input from members of their communities, and ensured that all jurisdiction information was reflected in the plan.

Planning Process

- Plan Development
- Stakeholder Participation
- Community Involvement

Local Procedures & Resources

Planning Area

Hazard Risk Assessment

Mitigation Strategy

If a planning team member could not attend a meeting they were called via telephone, and all documentation which was presented at the meeting was delivered to the team member. The phone call consisted of a brief overview of the meeting along with time for the planning team member to make his or her suggestions or comments. A detailed description of the planning process, including a list of contributions from each jurisdiction, is provided in Section 1.2.2 Jurisdictions while a complete list of planning team participation is in section 1.3 – Stakeholder Participation.





1.2.1 – Plan Drafting Stage

Benton County's revision process began in January of 2014, when the Benton County EMA applied for a HMGP planning grant under FEMA DR-4143. Benton County was awarded the grant to begin the process of updating their previously approved plan. Following the funding commitments, Benton County hired BOLDplanning to facilitate the plan's development.

Benton County's mitigation planning process was initiated on 29 May 2014 when BOLDplanning hosted a public kick-off planning meeting. At this meeting, an initial planning team comprised of representatives from each participating jurisdiction was organized. The initial team was instructed to solicit interested persons from their



community to participate on the planning team. All participating jurisdictions actively participated in the planning process through soliciting input and participation in meetings.

Four planning events were held throughout the planning process. The final planning meeting was a public hearing held on 22 January 2015. The planning events included meetings with representation from each Benton County jurisdiction and members of the public were invited as well. Planning events also included conference phone calls with municipal and agency officials who could not attend scheduled meetings.

Throughout the process the public was given opportunities to review HMP drafts, ask questions, and provide input on hazards. They were invited to provide feedback on mitigation project prioritization, hazard identification, and hazard ranking. Details and documentation of the public's participation can be found in Appendix C – Public Participation.

Planning Process Summary

- 1.) Each participating jurisdiction appointed a jurisdictional representative along with other stakeholders, Benton County's EMA, and the BOLDplanning Mitigation Department.
- 2.) The Benton County EMA engaged BOLDplanning to provide staff support in facilitating the planning process and preparing the plan.
- 3.) Meetings were held with team members to understand and agree on planning processes and steps required, including organizing resources, assessing hazards, developing a mitigation plan, implementing the plan and monitoring progress.

BOLDplanning held subsequent discussions about the planning process with ADEM staff.







The following table lists the participating jurisdictions of Benton County, their lead representative contact during the HMP's development, and their HMPT contributions by development phase.

Table 1 – Jurisdictional Contribution by Planning Phase				
Jurisdiction & Representative	Planning Process	Risk Assessment	Mitigation Strategy	Plan Maintenance
Benton County	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Mike Dixon, Office of Emergency Management,	Provided information on critical facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Director	PoC and lead jurisdiction for the HMPT	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Avoca	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Diane Bowen, Town of Avoca, Mayor	Provided information on critical facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Bella Vista	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Christopher Suneson, City of Bella Vista, Director of	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Planning		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Bentonville	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Brent Boydstrom, Bentonville Fire Department, Fire Chief	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Bethel Heights	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Cindy Black, City of Bethel Heights, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Cave Springs	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Larry Smith, City of Cave Springs, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	





Jurisdiction & Representative	Planning Process	Risk Assessment	Mitigation Strategy	Plan Maintenance
Centerton	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Bill Edwards, City of Centerton, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Decatur	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
James Boston, City of Decatur, Public Works Manager	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Garfield	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Gary Blackburn, Town of Garfield, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E]
Gateway	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Frank Hackler, Town of Gateway, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Gentry	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Kevin Johnston, City of Gentry, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E]
Gravette	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
James Rusternolz, Gravette Police Department, Assistant	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Chief of Police		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Highfill	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Stacy Digby, Town of Highfill, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	





Jurisdiction & Representative	Planning Process	Risk Assessment	Mitigation Strategy	Plan Maintenance
Little Flock	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Buddy Blue, City of Little Flock, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Lowell	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Elden Long, City of Lowell, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Pea Ridge	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Jackie Crabtree, City of Pea Ridge, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Rogers	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Jarod Mason, Rogers Police Department, Lieutenant	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Siloam Springs	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Bryan Austin, Siloam Springs Police Department,	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Leauitenant		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Springtown	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Paul Lemke, Town of Springtown, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Sulphur Springs	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Sherman Buckley, City of Sulphur Springs, Mayor	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
		Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	





Jurisdiction & Representative	Planning Process	Risk Assessment	Mitigation Strategy	Plan Maintenance
NWACC	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Gary Dennis, Northwest Arkansas Community College,	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Director of Public Safety	Provided enrollment data	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Bentonville SD	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Paul Wallace, Bentonville School District, Director of	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Facilities	Provided enrollment data	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Decatur SD	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history.	Will participate in the LEPC as prescribed in Section 2 - Plan Maintenance
Jeff Gravette, Decatur School District, Superintendent	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	
	Provided enrollment data	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Gentry SD	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Jason Barrett, Gentry School District, Transportation Director	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
	Provided enrollment data	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Gravette SD	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Richard Carver, Gravette School District, Transportation	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Director	Provided enrollment data	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Pea Ridge SD	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Keith Martin, Pea Ridge School District, Assistant	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Superintendent	Provided enrollment data	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	
Rogers SD	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history	Will participate in the LEPC as prescribed in Section 2 - Plan
Jim White, Rogers School District, COO	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
	Provided enrollment data	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	





Jurisdiction & Representative	Planning Process	Risk Assessment	Mitigation Strategy	Plan Maintenance
Siloam Springs SD	Participated in HMPT	Completed hazard history documentation	Provided mitigation projects and actions history.	Will participate in the LEPC as prescribed in Section 2 - Plan
Jody Wiggins, Siloam Springs School District, Assistant	Provided information, facilities, hazards, PoCs	Completed risk assessment questionnaire	Proposed mitigation projects	Maintenance
Superintendent	Provided enrollment data	Reviewed risk assessment	Prioritizing mitigation projects using STAPLE+E	





1.2.3 – Major Mitigation Planning Meetings

The Benton County HMPT held various public meetings to discuss the mitigation plan process as well as gain public support and input for the plan. The following is a brief synopsis of those meetings. Proof of meetings, sign in sheets, and public notification documentation can be found in Appendix C – Public Participation.

Hazard Mitigation Plan Kick-Off Meeting 29 May 2014

The kick-off meeting was held for the Benton County HMPT. The mitigation planning process was reviewed, questions were answered, and roles were assigned. The HMPT ranked hazards, prioritized mitigation projects, and scheduled a public planning meeting. BOLDplanning worked with the HMPT to collect contact information, hazard history, facility information, and other pertinent jurisdictional information. Documentation for this meeting is located in Appendix C – Public Participation.

Hazard Mitigation Plan Public Information Meeting 29 May 2014

A public announcement ran for two weeks in the Northwest Arkansas Marketplace and the Benton County OEM's website and Facebook page. The public was invited to voice any concerns, ask questions, and provide input. The meeting was held at the Benton County EMA's EOC with Tony Gertz and Fulton Wold available in person to answer any technical questions. Documentation for this meeting is located in Appendix C – Public Participation.

Hazard Mitigation Plan Public Review Meeting 22 January 2015

Public announcements ran for two weeks in local jurisdictions' newspapers and on the Benton County EMA's website. The public was invited to voice any concerns, ask questions, and review a draft copy of the Benton County Hazard Mitigation Plan. The meeting was held at the Benton County EMA with Tony Gertz available in person to answer any technical questions. Documentation for this meeting is located in Appendix C – Public Participation.

Hazard Mitigation Plan Final Review Meeting

22 January 2015

The Benton County Hazard Mitigation Plan was reviewed by the HMPT and any stakeholders, as requested, prior to ADEM submission.

Hazard Mitigation Plan Adoption Signing To Be Determined

The Benton County Hazard Mitigation Plan adoption letters will be disseminated and signed by the participating jurisdictions. The signing of these resolutions codify the adoption of the HMP by the participating jurisdictions.





1.3 – Stakeholder Participation

The Benton County HMPT is made up of stakeholders working together for the development and ongoing maintenance of this plan. The participants are grouped into actively participating representatives from the participating communities within Benton County.

- Hazard Mitigation Planning Team This group consists of the jurisdictional representatives from the planning area, the Arkansas Department of Emergency Management, supporting state and federal agencies, and BOLDplanning.
- Other Stakeholders This group consists of interested parties from the local community. This plan was developed with the support and input from various commercial interests including local hospitals, industry, planning departments, health departments, and veteran's affairs.
- Members from the public at large FEMA requires this planning effort to be open to constant input from interested citizens in compliance with the Sunshine Laws. In Arkansas, public meetings must comply with the Arkansas Open Meetings Law, unless established by statutory exemption. Therefore, any individual citizens who wish to be involved in this effort to mitigate future disasters are encouraged to attend the HMPT meetings and to solicit relevant comments to be included in the draft sections of the written plan.

The following table details the stakeholders and HMPT members who participated in the hazard mitigation planning process. This list contains all relevant local and state agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, and any appropriate neighboring communities.





Table 2 – Stakeholders & HMPT Members Organization **Collaboration/Invitation** Position Name Principal Plan Developers Fulton Wold BOLDplanning **Executive Officer** Organized planning schedule, meetings, and development process BOLDplanning Tonv Gertz Mitigation Planner Project Manager and mitigation specialist Local Governments Diane Bowen Avoca Mayor Represented jurisdiction and provided input Steve Sims Bella Vista FD Fire Chief Provided additional support and input, participated in the plan review Chris Suneson Bella Vista Planning **Planning Director** Represented jurisdiction and provided input Jennifer Bonner Bella Vista Planning Planner Provided additional support and input Ken Farmer Bella Vista PD Chief of Police Provided additional support and input, participated in the plan review Peter Christie Bella Vista PD Office Provided additional support and input, participated in the plan review Marc Trollinger Fire Marshal Benton County Provided additional support and input Michael DeRose Benton County Emergency Communications Director Provided additional support and input Provided additional support and input Benton County Health Dept. Planning Director Joy Bailey Robert McGowen Benton County EMA Director Represented jurisdiction and provided input Mike Dixon Benton County EMA **Deputy Director** Provided additional support and input Johnathan Moon Benton County EMA Participated in the plan review Intern Glenn Tracey Jr. Benton County Planning **Building Inspector** Participated in the plan review Martin Watson Administrator of Public Safety Benton County Participated in the plan review Brent Boydstrom Bentonville FD Fire Chief Represented jurisdiction and provided input Cindy Black **Bethel Heights** Mayor Represented jurisdiction and provided input Larry Smith **Cave Springs** Mayor Represented jurisdiction and provided input Bill Edwards Centerton Represented jurisdiction and provided input Mayor James Boston Decatur **Public Works Manager** Represented jurisdiction and provided input Ben Wall Elm Springs Mayor Provided additional support and input Fayettville Dept. of Veteran's Affairs Avon Haurey **Emergency Manager** Provided additional support and input Gary Blackburn Garfield Mayor Represented jurisdiction and provided input Frank Hackler Gateway Mayor Represented jurisdiction and provided input Kevin Johnston Represented jurisdiction and provided input Gentry Mayor James Rusternolz Asst. Chief of Police Gravette PD Represented jurisdiction and provided input Stacy Digby Highfill Mayor Represented jurisdiction and provided input Buddy Blue Little Flock Represented jurisdiction and provided input Mayor





Name	Organization	Position	Collaboration/Invitation
Elden Long	Lowell	Mayor	Represented jurisdiction and provided input
Richard Stone	Lowell	Certified Floodplain Manager	Provided additional support and input
Jackie Crabtree	Pea Ridge	Mayor	Represented jurisdiction and provided input
Jamie Baggett	Pea Ridge FD	Fire Chief	Provided additional support and input
Nathan See	Pea Ridge	Director of Streets Department	Provided additional support and input
Jarod Mason	Rogers PD	Lieutenant	Represented jurisdiction and provided input
Bryan Austin	Siloam Springs PD	Lieutenant	Represented jurisdiction and provided input
Travis White	Siloam Springs FD	Battalion Chief	Provided additional support and input
Paul Lemke	Springtown	Mayor	Represented jurisdiction and provided input
Sherman Buckley	Sulphur Springs	-	Represented jurisdiction and provided input
School Districts			
Paul Wallace	Bentonville SD	Director of Facilities	Represented jurisdiction and provided input
Jeff Gravette	Decatur SD	Superintendent	Represented jurisdiction and provided input
Jason Barrett	Gentry SD	Transportation Director	Represented jurisdiction and provided input
Richard Carver	Gravette SD	Transportation Director	Represented jurisdiction and provided input
Keith Martin	Pea Ridge SD	Assistant Superintendent	Represented jurisdiction and provided input
Jim White	Rogers SD	COO	Represented jurisdiction and provided input
Jody Wiggins	Siloam Springs SD	Assistant Superintendent	Represented jurisdiction and provided input
State Agencies			
Lacye Blake	ADEM	State Mitigation Officer	Provided ADEM oversight
Jennifer Oakley	ADEM	Mitigation Planner	Provided ADEM oversight and technical assistance.
Norma Fujikawa	ADH	Preparedness Coordinator	Provided additional support and input
David Wiley	AR Forestry Commission	Administration Office Supervisor	Provided wildfire information for Benton County
Academia, Neighbor	ing Communities, and Private Organizations		
Steve Oler	NW Arkansas Hospitals	Emergency Preparedness Coordinator	Provided additional support and input
Hugh Burge	-	Facilities Consultant	Provided additional support and input
Rick Windham	ARVEST	Business Continuity Planner	Provided additional support and input
Chris Dryman	ARVEST	Business Continuity Planner	Provided additional support and input
Gary Dennis	NWACC	Director of Public Safety	Represented jurisdiction and provided input
Gregg Sweeten	McDonald County OEM	Emergency Management Director	Provided additional support and input
Lonny Phillips	Simmons Food	Regional Safety Manager	Provided additional support and input
David Celis	Simmons Food	PSM Coordinator	Provided additional support and input





1.4 – Community Involvement

The Benton County HMPT provided the opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process. The public was notified of open meetings via the Northwestern Arkansas Marketplace, the Benton County EMA's website, and on the Benton County EMA's Facebook page under the upcoming county events section. BOLDplanning and the Benton County EMA invited all non-covered or soon to expire jurisdictions, including school districts, to participate in the plan. Any jurisdiction or school district not covered in this HMP is either covered under another plan, or declined to participate.

Participating jurisdictions were notified of HMPT meetings via e-mail, regular mail, and telephone. Emergency managers from neighboring counties were personally invited to attend the public draft review meeting. For two weeks prior to each public meeting an announcement was placed on the Benton County EMA website. Please see Appendix C – Public Participation for documentation.

At the first public planning meeting attendees ranked and identified hazards, created a community profile, prioritized mitigation projects, and completed a risk assessment questionnaire. During this meeting, and the latter public review hearing, concerned citizens and other parties were invited to review the most current draft, provide any input of feedback, and ask any relevant questions of the Benton County HMPT and BOLDplanning.

Relevant federal, regional, state, local, and tribal governments, as well as any private and non-profit organizations were invited to provide input and technical expertise. The entities who volunteered, either in person or by providing hazard data, are listed in the following table.

Table 3 – Partner Involvement by Entity							
Entity Classification	Entity	Entity Input					
Federal Agencies	NOAA, USACE, USDA NRCS, USGS	Provided weather data, dam data, soil data, and geological data.					
State Agencies	ADEM, AR Department of Health, AR Division of Forestry, AR NRCS	Provided oversight & technical assistance. Provided wildfire records.					
Local Government	Benton County EMA, Benton County Health Department, Benton County Planning Department, Fayettville Department of Veteran's Affairs, Participating Municipalities	HMPT members, principle subjects. Provided input.					
Private Business	ARVEST, BOLDplanning, North West Arkansas Hospitals, Simmon Foods	HMPT members, Directed planning effort, principle planners.					
Academia	Bentonville SD, Decatur SD, Gentry SD, Gravette SD, Pea Ridge SD, Rogers SD, Siloam Springs SD	HMPT members, principle subjects. Provided input.					





Section 2 – Local Procedures & Resources

2.1 – Available Resources

2.1.1 – Documentation Resources

The HMPT conducted a comprehensive review of Benton County and the participating jurisdictions to determine the availability of existing emergency management and preparedness information.

Benton County Critical Facilities List

Planning Process

Local Procedures & Resources

- Available Resources
- Continued Public involvement
- Plan Maintenance Process

Planning Area

Hazard Risk Assessment

Mitigation Strategy

The HMPT compiled a list of critical facilities and pertinent information on those facilities. This list is used throughout the plan and is the basis for the vulnerability assessments and loss estimates. The complete list is posted in Appendix D.

Benton County Emergency Operations Plan

The Benton County EMA has developed a county-wide EOP. Using a commercial template to follow "best practices" methodology, this plan is a work in progress that is constantly being developed, tested, and updated. Relevant information regarding high hazard dams was pulled from the EOP and integrated into this plan.

Benton County Hazard Mitigation Plan

Benton County is currently covered by a FEMA approved local hazard mitigation plan. The current plan has been reviewed and is incorporated throughout this plan per FEMA requirements.

Benton County Planning Documents

Benton County and its participating jurisdictions provided a host of planning, zoning, and development related documents. These documents were reviewed, assessed, and cataloged to compile each participating jurisdiction's capabilities profile in Section 5.1 and development profiles in 5.6.

2.1.2 – Fiscal Resources

The HMPT conducted an assessment of their available funding options. The following is a list of federal, state, and local funding sources either available, or relevant to the Benton County HMP.

Flood Mitigation Assistance Program

The FMA program is designed to aid in the buyout of RL and SRL properties as well as assist in the funding of flood mitigation projects and activities.

Hazard Mitigation Grant Program

The HMGP is managed by FEMA and administered by ADEM. The development of this plan has been funded by an HMGP grant at a 75% match.

Local Revenues & Budgets

Recognizing the importance of hazard mitigation planning, Benton County and its participating jurisdictions have self-funded the 25% match required by the FEMA HMGP grant.

Pre Disaster Mitigation Grant Program

PDM is managed by FEMA and is a nationally competitive grant program. Benton County does not have any PDM funds available for mitigation planning.





2.1.3 – Technical Resources

The Benton County HMPT employed a variety of technical resources in its plan development. These technical resources were instrumental in completing an accurate vulnerability and risk assessment.

Arkansas GeoStor

The State of Arkansas maintains its GIS data files in the form of an online database named: GeoStor. This database provided numerous local and regional GIS data files used in developing the Benton County HMP's risk assessment.

Benton County Planning Department

The Benton County Planning Department provided critical facility, dam inundation, land use, and other GIS data for use in the plan.

BOLDplanning

With over 9 years of experience in hazard mitigation planning, BOLDplanning's Mitigation Department was the principle plan writer.

ESRI ArcGIS v10

Each map developed for this plan, and the HAZUS models, were developed using ESRI's ArcGIS v10.

FEMA DFIRM – Map Data Center

FEMA's NFHL data was instrumental in mapping floodplain locations and estimating potential flood impacts and loss estimates.

NOAA NCDC

Weather data and historical events were primary provided by NOAA's NCDC.

University of Wisconsin – Madison SILVIS Labs

SILVIS Labs collects and distributes the raw WUI information used in calculating Benton County and its participating jurisdictions' wildfire risk.

USACE

The USACE provided Benton County and BOLDplanning with data from its national dam inventory containing their location and assessed hazard level.

USGS

The USGS's studies and reports on earthquakes in Central Arkansas and the New Madrid Seismic Zone provided the basis for the Benton County and its participating jurisdictions' earthquake risk assessment.





2.2 – Continued Public Involvement

Benton County is dedicated to involving the public in the continual shaping of its Hazard Mitigation Plan and development of its mitigation projects and activities.

The Benton County HMPT will continue to keep the public informed about its hazard mitigation projects and activities through its EMA's website. Additionally, it will provide a "comments/suggestions" option for the public to submit their input through their website.

The public will also be invited to participate in annual HMPT meetings to review and discuss the HMP events of the past year.

Copies of the Benton County Hazard Mitigation Plan will be available on their website and distributed to each jurisdiction.





2.3 – Plan Maintenance Process

The Benton County HMPT has developed a method to ensure monitoring, evaluation, and updating of its HMP. Upon adoption of the Benton County HMP, its LEPC will form a subcommittee on mitigation projects comprised of Benton County's EMA Director and jurisdictional representatives from the HMPT. The chair of the subcommittee will be determined by a vote in the subcommittee. Additional members may be added based on necessity. The sub-committee will submit a quarterly report to the LEPC which in turn will submit an annual report to the EMA.



Please see the Benton County HMP Quarterly Report form at the end of this section.

The Benton County EMA may request a non-scheduled report on the monitoring, evaluation, or updating of any portion of the HMP due to irregular progress on mitigation actions and or projects, in the aftermath of a hazard event, or for any reason deemed appropriate.

2.3.1 – Plan Monitoring

Plan monitoring can be defined as the ongoing process by which stakeholders obtain regular feedback on the progress being made towards achieving their goals and objectives. In the more limited approach, monitoring may focus on tracking projects and the use of the agency's resources. In the broader approach, monitoring also involves tracking strategies and actions being taken by partners and non-partners, and figuring out what new strategies and actions need to be taken to ensure progress towards the most important results.



A monitoring report will be written and submitted to the

LEPC quarterly and after the annual HMPT meeting or when triggered by a situation change. The monitoring report will answer the following questions.

- Is the mitigation project under, over, or on budget?
- Is the mitigation project behind, ahead of, or on schedule?
- Are there any changes in Benton County's capabilities which impact the HMP?
- Are there any changes in Benton County's hazard risk?
- Has the mitigation action been initiated or its initiation planned?
- If applicable, has participation in a mitigation action's collaboration been regular?
- If any, what plan updates occurred, why they occurred, and what is their impact?

The plan maintenance process is cyclical and maintenance items can operate simultaneously within the process.



A plan evaluation is a rigorous and independent assessment of either completed or ongoing activities to determine the extent to which they are achieving stated objectives and contributing to decision making.

An evaluation report will be written and submitted to the LEPC when the situation dictates. The following situations are typical examples of when an evaluation will be necessary.

- Post hazard event
- Post training exercise
- Post tabletop or drill exercise
- Significant change or completion of a mitigation project
- Significant change or completion of a mitigation action

An evaluation report will ask the following questions in response to the previously listed events.

- Do the mitigation objectives and goals continue to address the current hazards?
- Are there new or previously unforeseen hazards?
- Are current resources appropriate for implementing a mitigation project?
- Was the outcome of a mitigation action/project expected?
- Are there implementation problems?
- Are there coordination problems?

2.3.3 – Plan Updating

Typically, a HMP update is initiated upon the completion of a plan evaluation and even then, only when the evaluation determines an update is appropriate. Additionally, when new hazard data becomes available it will be added to the HMP. New data will be confirmed or denied at annual HMPT meeting.

For whatever reason, a HMP update can be written anytime it is deemed necessary by the Benton County EMA.

Benton County will begin their update process three years

from this plan's adoption according to FEMA DMA2000 guidelines on local mitigation plan updates under the direction of the director of the Benton County EMA.





If an evaluation

found any deficiencies in the

HMP, then an update is necessary.

Updating

Evaluating







Benton County Local Emergency Planning Committee Benton County Hazard Mitigation Plan Quarterly Report

Hazard Mitigation Plan Sub Committee Chair: Meeting Date:_____ Plan Approval Date: Plan Expiration Date:

Have there been any disasters or training events since the last report? If so, list them below:

Disaster Number/Training Event	Hazard Type(s)	Was the hazard expected or unforeseen?	Is a plan update required?	
Example: DR-1000	Volcanic Eruption	Unforeseen	Yes	
Example: Annual Training	Flash Flooding	Expected	No	

Mitigation Projects:

Mitigation Project	Participating Jurisdictions	Proposed/Schedules/In Progress/Completed	Behind/Ahead/On- Schedule	Estimated Completion Date
Example: Tornado Safe Room	Pea Ridge	In Progress	On-Schedule	1/1/2016

Miscellaneous Notes:



Located in the northwest corner of Arkansas, Benton County borders Missouri and Oklahoma and is part of the Ozark Plateau. The county has grown from a Native American hunting ground and a timberland and fruit resource to one of the fastest-growing and most economically vibrant counties in the country.

Benton County was established in 1836. It rests in the north western most corner of the state bordering Oklahoma to the west and Missouri to the north. It encompasses the Fayettville-Springdale-Rogers metropolitan statistical area with its southern neighbor, Washington County.

Planning Process

Local Prodedures & Resources

Planning Area

- Demographics
- Climate

Topology

Hazard Risk Assessment

Mitigation Strategy

The last few decades of the twentieth century brought rapid growth and a booming economy to Benton County. The 2010 census showed a continuation of the growth trend. Also boosting the county's economy is Wal-Mart Stores Inc., headquartered in Bentonville. As the world's top retailer, it is not only the county's but the world's largest employer. Supporting their Wal-Mart accounts, many large and small businesses have moved in, bringing thousands of new residents from across the country. Other top employers in the county include J. B. Hunt Transport, Arvest Bank Group, McKee Foods, Peterson Farms, Simmons Foods, Franklin Electric Company, Gates Rubber Company, and La-Z-Boy.

Rogers is the largest city in the county and the ninth largest in Arkansas. Since 1990, industry has invested more than \$900 million in the city and created more than 9,000 jobs. Major employers include Tyson Foods, St. Mary's Hospital, Glad Products Company, Rogers Tool Works, and Superior Industries.

Agribusiness, chiefly poultry and cattle, also remains important. In 2002, Benton County led the state in production of hay and pasture for livestock.

Rapid population growth has necessitated infrastructure improvements. Northwest Arkansas Regional Airport (XNA)opened in 1998, what is now Interstate 49 through Benton County was completed by 1999, and the Two-ton Loop pipeline now carries water from Beaver Lake to Benton and Washington counties. Northwest Arkansas Community College in Bentonville, one of the fastest-growing two-year colleges in Arkansas, opened in 1990.

In the 1990s, the county's rate of growth for personal income was more than nine percent, significantly higher than that of the state and the country. By 2010, Benton County was the state's second-most-populous county and is projected to become the most populous by 2030. In 2002, it had the largest percentage of new residents in Arkansas, most attracted by employment opportunities. The county still maintains its blend of Midwestern, Western and Southern small-town sensibilities, but it is increasingly becoming part of a more global community. (Benton County History & Culture, Encyclopedia of Arkansas History & Culture, 2014)









Map 1 – Arkansas





3.1 – Demographics

The U.S. Census Bureau estimates as of 2013, Benton County has a total of 237,297 people residing within its boundaries, 185,623 of which reside in cities and towns. According to the most up to date, released Census Bureau projections, Benton County, Bentonville, Cave Springs, Centerton, Gentry, Highfill, Lowell, and Rogers have seen significant population growth that has potentially increased its hazard vulnerability. The remaining participating jurisdictions have seen some growth, but not significant enough to alter its hazard vulnerability. None of the participating jurisdictions have seen a decline in its population since the development of the last plan.

The table below details the participating jurisdictions' demographic information. Jurisdictions with significant growth are highlighted in red while jurisdictions with significant declining growth are highlighted in green.

Table 4 – Community Demographics								
Jurisdiction	Size (Sq. Mi.)		Population		% Population Change			
		2000	2010	2013	2000 - 2010	2010 - 2013	2000 - 2013	
Benton County (Inclusive)	847.36	153,406	222,896	237,297	45.30%	6.46%	54.69%	
Benton County (Exclusive)	647.69	46,033	49,946	51.674	8.50%	3.46%	12.25%	
Avoca	1.81	423	490	508	15.84%	3.67%	20.09%	
Bella Vista	66.37	16,582	26,587	27,642	60.34%	3.97%	66.70%	
Bentonville	31.5	19,730	35,862	40,167	81.76%	12.00%	103.58%	
Bethel Heights	2.52	714	2,381	2,456	233.47%	3.15%	243.98%	
Cave Springs	7.28	1,103	1,754	2,151	59.02%	22.63%	95.01%	
Centerton	4.02	2,146	9,586	10,556	346.69%	10.12%	391.89%	
Decatur	2.29	1,314	1,706	1,758	29.83%	3.05%	33.79%	
Garfield	3.67	490	504	516	2.86%	2.38%	5.31%	
Gateway	0.57	116	407	422	250.86%	3.69%	263.79%	
Gentry	2.38	2,165	3,175	3,351	46.65%	5.54%	54.78%	
Gravette	2.34	1,810	3,124	3,213	72.60%	2.85%	77.51%	
Highfill	11.32	379	588	621	55.15%	5.61%	63.85%	
Little Flock	7.56	2,585	2,598	2,711	0.50%	4.35%	4.87%	
Lowell	6.26	5,013	7,346	7,940	46.54%	8.09%	58.39%	
Pea Ridge	4.09	2,346	4,818	5,026	105.37%	4.32%	114.24%	
Rogers	33.58	38,829	56,309	60,112	45.02%	6.75%	54.81%	
Siloam Springs	10.56	10,843	15,115	15,856	39.40%	4.90%	46.23%	
Springtown	0.54	114	87	91	-23.68%	4.60%	-20.18%	
Sulphur Springs	1.01	671	513	526	-23.55%	2.53%	-21.61%	

Benton County Hazard Mitigation Plan





3.1.1 – Land Use & Development Trends

Benton County and its participating jurisdictions have been rapidly growing since the late 1960s. Since 2000, almost every municipality within Benton County has seen incredible growth. The planning area's total population increase since 2000 is 54.69%. Throughout the planning area, on average, 768 single-family homes are being constructed per year.

The steadily high rate of growth has increasing hazard resiliency a challenge. Presuming these development trends continue, the best way to curtail future development from increasing hazard risk is to enforce already in place zoning, ordinances, building codes and conform to NFIP standards. A hazard specific analysis, as it pertains to land use and development trends, is covered under each hazard in Section 4 – Hazard Risk Assessment.

For hazards that affect the entire planning area, increased population growth increases a jurisdiction's overall vulnerability, while decreased population growth decreases it. It is difficult to quantify the exact change in vulnerability in either direction, but can be depicted as generally directly proportional to the population change itself. For more information on hazards effect the entire planning area, see Section 4 – Hazard Risk Assessment.

For hazards which have easily measured extents, changes in vulnerability are more difficult to calculate. Over the past 5 years, dramatic improvements in available geographic data and improvements in risk assessment methodology make this plan update's risk assessment far superior to the previous plan. However, the downside of utilizing improved methodologies and data is that they are incapable of being directly compared to the previous plans methods and data. For instance, the previous plan does not geographically and accurately depict the locations of the WUI or the WUI intermix. Without knowing where they existed in 2010, the current, improved methodology does not allow for a comparison of vulnerability.

For the sake of having a comparison, although not as accurate as desired, this plan considers any jurisdiction with a positive population growth rate, in this case Benton County, Bentonville, Cave Springs, Centerton, Gentry, Highfill, Lowell, and Rogers, to have increased vulnerability.

A hazard specific analysis, as it pertains to land use and development trends, is covered under each hazard in Section 4 – Hazard Risk Assessment.





3.1.2 – Infrastructure & Critical Facilities

Table 5 – Critical Facilities Summary										
Jurisdiction	Airport	AWIN	Fire	Healthcare	Hospital	Municipal	Police	School	Utility	
Benton County	-	1	22	-	-	1	1	3	-	
Avoca	-	-	1	-	-	1	1	-	1	
Bella Vista	-	-	4	2	-	5	2	1	-	
Bentonville	1	-	6	1	2	11	1	1	5	
Bethel Heights	-	-	1	-	-	2	1	-	1	
Cave Springs	-	-	1	-	-	1	1	-	-	
Centerton	-	-	3	-	-	3	1	1	1	
Decatur	-	-	2	-	-	3	1	-	-	
Garfield	-	-	1	-	-	-	-	-	-	
Gentry	-	-	1	-	-	5	1	1	4	
Gravette	-	-	1	1	1	4	1	1	1	
Highfill	1	-	3	-	-	1	1	-	-	
Little Flock	-	-	1	2	-	-	1	-	-	
Lowell	-	-	1	1	-	1	2	1	-	
Pea Ridge	-	-	2	-	-	2	1	-	3	
Rogers	1	-	7	2	1	8	1	8	-	
Siloam Springs	1	-	3	3	1	6	1	2	3	
Springtown	-	-	1	-	-	-	-	-	-	
Sulphur Springs	-	-	1	-	-	-	1	-	-	
Academia		Academic Structures								
NWACC					12					
Bentonville SD	71									
Decatur SD		12								
Gentry SD		9								
Gravette SD	14									
Pea Ridge SD		22								
Rogers SD		67								
Siloam Springs SD	11									




Benton County, Arkansas, receives 45.1 inches of rain per year. The US yearly average is 36.5. Snowfall is typically 11.1 inches while the US average is 25 inches. The number of days with any measurable precipitation is 93.

On average, there are 217 sunny days per year in Benton County. The July high 86.5 degrees and the January low is 20.5. The comfort index, which is based on humidity during the hot months, is a 33 out of 100, where a higher value represents more comfort. The US average comfort index is 44.

All weather related data used will be in reference to Benton County or the location of the specific event. Some of the historical weather tables listed in Appendix E use NWS Public Forecast Zones. Please use the map on the following page to determine Benton County's Public Forecast Zone.







Map 2 – NWS Public Forecast Zones



Section 4 – Hazard Risk Assessment

The goal of mitigation is to reduce the future impacts of hazards including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist recovery. To be done correctly, mitigation decision making should be based on risk assessment.

A risk assessment consists of three components: hazard profiling, exposure, and vulnerability assessment. The process entails past hazard events, probability of future events, asset lists, loss estimation, and other sections where appropriate.

A history of declared disasters helps capture an overview of the hazards facing Benton County and its participating jurisdictions. Since 1969, Benton County and its participating jurisdictions

Planning Process

Planning Area

Hazard Risk Assessment

- Identify Hazards
- Profiling Hazards
- Hazards
- Land Use & Development Trends
- Hazard Risk Summary
- Excluded Hazards

Mitigation Strategy

have suffered from 17 declared disasters. These disaster declarations were due to flooding, Hurricane Katrina, severe storms, tornadoes, and winter storms. A list of the declared disasters occurring in Benton County and its participating jurisdictions since 1969 is presented in the table below. Smaller disasters are more frequent and are not reflected in the table.

Table 6 – Disaster Declarations, Benton County			
Designation	Date Declared	Incident Type	
DR-4143	9/4/2013	Flooding, Severe Storms	
DR-1975	5/2/2011	Flooding, Severe Storms, Tornadoes	
DR-1819	2/6/2009	Severe Winter Storm	
EM-3301	1/28/2009	Severe Winter Storm	
DR-1758	5/20/2008	Flooding, Severe Storms, Tornadoes	
DR-1751	3/26/2008	Flooding, Severe Storms, Tornadoes	
EM-3215	9/2/2005	Hurricane Katrina	
DR-1528	6/30/2004	Flooding, Severe Storms	
DR-1472	6/6/2003	Flooding, Severe Storms, Tornadoes	
DR-1354	12/29/2000	Severe Winter Storm	
EM-3159	12/28/2000	Severe Winter Storm	
DR-865	5/15/1990	Severe Storm	
EM 3019	12/3/1976	Drought	
DR-437	6/8/1974	Flooding, Severe Storms	
DR-375	4/27/1973	Flooding, Severe Storms	
DR-321	1/27/1972	Flooding, Severe Storms	
DR-254	2/15/1969	Elooding Severe Storms	







4.1 – Identifying Hazards

The first step in developing a hazard assessment is identifying the hazards with reasonable potential to strike Benton County or its participating jurisdictions. Identification allows appropriate and well planned action to mitigate the extent and impact of a hazard event as well as facilitating emergency response and recovery operations. Not all disaster contingencies can be planned for however, by using an all-hazards approach to planning, the mitigation process yields increased preparedness for unforeseen hazard events.

The table at the bottom of this page lists the hazards profiled in the State of Arkansas Hazard Mitigation Plan. Based on the research described above, 9 of these hazards pose a risk to at least one of the participating jurisdictions. These are: dam failure, droughts, earthquakes, excessive heat, floods, tornadoes, severe storms (includes hail, high winds, lightning, and thunderstorms), wildfires, and winter storms. Hail, high winds, lightning, and thunder storm winds are included under the severe storms profile.

Details for each hazard and their potential impact on Benton County are located in Section 4.3. The following tables compare the identified and profiled hazards as they relate to their previous plan and to the state's plan. Any hazards which affect the State of Arkansas or were profiled in the previous plan, but do not affect any of Benton County's jurisdictions are listed as 'excluded.' An analysis of why a hazard has been excluded can be found in Section 4.6 – Excluded Hazards.

Table 7 – Identified Hazards				
Hazards in State/Previous HMP	Previous Inclusions	Included/Excluded	Justification	
Dam Failure	Local & State Plan	Included	Hazard areas identified	
Droughts	Local & State Plan	Included	Disaster History	
Earthquakes	Local & State Plan	Included	Hazard areas identified	
Excessive Heat	Local Plan	Included	Disaster History	
Floods	Local & State Plan	Included	Hazard areas identified	
Hail	Local & State Plan	Included - In Severe Storms	Disaster History	
High Winds	Local & State Plan	Included - In Severe Storms	Disaster History	
Landslides	Local & State Plan	Excluded	See Section 4.6	
Thunderstorms	Local & State Plan	Included - In Severe Storms	Disaster History	
Tornadoes	Local & State Plan	Included	Disaster History	
Winter Storms	Local & State Plan	Included	Disaster History	
Wildfires	Local & State Plan	Included	Disaster History	





4.3.1 – Description

This section describes the general characteristics of the hazard.

4.3.2 – Location & Extent

Contains information on location; the geographic areas in the planning area that affected by the hazard, and extent; the strength or magnitude of the hazard, for each hazard.

4.3.3 – Previous Occurrences

This section contains a history of previous hazard events for the profiled hazard.

Methodology: Most of the historical hazard data used in the risk assessment originates from NOAA. In most instances the hazard affects a large geographic area and thus the hazard data is reported at the county level. *This is the best available data for these hazards*. The calculations for Previous Occurrences and the Probability of Future Events are based on county level data.

4.3.3A – Probability of Future Events

Contains the likelihood of the hazard occurring.

Table 8 – Probability Categories			
Category	Range (Per Year)		
Rare	0% - 25%		
Not Likely	25% - 50%		
Likely	50% - 75%		
Highly Likely	75% - 100%		

4.3.4 – Vulnerability & Impact

Describes the potential impacts of the hazard for each participating jurisdiction and provides an overall summary of each jurisdiction's vulnerability to the hazard through structures, systems, populations, and community assets that are susceptible to damage and loss from the hazard.

4.3.4A – Infrastructure & Critical Facilities

When appropriate, this section details the infrastructure and facilities pertinent to the hazard.

4.3.4B – Land Use & Development Trends

Provides a general description of land use and development trends within the community.

4.3.4C – Unique or Varied Risk

Assesses each jurisdiction's risk where it varies from the risks facing the entire planning area.

4.3.4D – Repetitive Loss Structures

Describes the types of facilities and estimates the number of repetitive loss properties exposed to the hazard.

4.3.5 – HAZUS Models

When appropriate this section will contain the results of various HAZUS simulation models.





4.3.1 – Description

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

Dams fail in two ways, a controlled spillway release done to prevent full failure, or the partial or complete collapse the dam itself. In each instance an overwhelming



amount of water, and potentially debris, is released. Dam failures are rare, but when they occur can cause loss of life, and immense damage to infrastructure and the environment.

Common reasons for dam failure are the following:

- Sub-standard construction materials/techniques
- Spillway design error
- Geological instability caused by changes to water levels during filling or poor surveying
- Sliding of a mountain into the reservoir
- Poor maintenance, especially of outlet pipes
- Human, computer or design error
- Internal erosion, especially in earthen dams.
- Earthquakes

4.3.2 – Location & Extent

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

The USACE ranks each dam, reservoir, and WID according to a hazard risk of low, significant, and high. Benton County and its participating jurisdictions have 5 dams labeled as "high hazard" by the USACE. These are; Lake Ann Dam, Lake Atlanta Dam, Lake Keith Dam, Little Flint Creek Dam, and the Lock Lomond Dam. These dams have the potential to impact the participating jurisdictions of: Rogers, Belle Vista, Cave Springs, Benton County, and again Belle Vista respectively.

The expected intensity of a dam failure is based on the speed at which the water is released from the dam, whether or not it fails instantly or slowly over a period of time. If one of these dams fails slowly, it is possible the depth of water affecting the inundation area is a little as a few inches. However, if one of these dams fails catastrophically, the identified inundation areas could be filled the maximum capacity water stored behind the dam. These values, in acre-feet, are 800 for the Lake Atlanta Dam, 2,900 for the Lake Ann Dam, 50 for the Lake Keith Dam, 24,400 for the Little Flink Creek Dam, and 23,099 for the Loch Lomond Dam.

Maps on the following pages depict the locations of these dams as well as their modeled impact zone.

















Benton County Hazard Mitigation Plan

















Benton County Hazard Mitigation Plan









Benton County Hazard Mitigation Plan









Benton County Hazard Mitigation Plan





Presently there are no incidents of dam failure in Benton County or its participating jurisdictions.

4.3.3A – Probability of Future Events



As previously stated there can be advanced warning to no warning at all for a dam failure event. At present, there is no history of a dam failure of any size in Benton County or its participating jurisdictions. In lieu of any historical events, the next best prediction tool would be based on the structural state of the dam. However, maintenance and structural information on the USACE's dams in Benton County and its participating jurisdictions is confidential information and not for public use.

Given the absence of any historical precedence of dam failure in Benton County and its participating jurisdictions, information on the dams being poorly maintained, or having reoccurring structural flaws, the probability of experiencing a dam failure event is categorized as 'rare.'







4.3.4 – Assessing Vulnerability and Impacts

Dam Failure Impacts

The USACE's inundation studies do not have estimated flow times or water depths. The best data available to draw impact conclusions is based on the impact area, as shown in the previous maps, and the normal water volume located behind a dam. Any amount of water listed below has the potential, given a variety of release speeds, to completely destroy and buildings in its wake or trickle through as nothing more than intense rain.

Table 9 – Dam Failure Impacts			
Dam	Normal Volume (Acre Ft.)		
Lake Atlanta	800	360	
Lake Ann	2,900	1,800	
Lake Keith	50	22	
Little Flint Creek	24,400	18,300	
Lock Lomond	23,099	14,093	

*The data are from the USACE.

Vulnerability of Facilities

Facilities within a dam failure inundation area are at extreme risk. The water level of a dam failure can range from inches, causing damage similar to small floods, to completely engulfing a structure in water. Additionally, the speed of the flow can cause variations in the impact. A slow flow will cause damage similar to a riverine flood, however, a fast moving, high level flow has the potential to completely destroy a structure.

The five high hazard dams in Benton County threaten to destroy a total of 36 residential structures, 20 industrial buildings, and two golf courses. See Section 4.3.4C for the breakdown of these at risk locations.

Vulnerability of Population

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

Vulnerability of Systems

Community systems with a dam failure inundation area are at extreme risk. Depending on water level, and arrival speed a community's entire energy infrastructure, transportation networks, and economic systems could be completely destroyed.

4.3.4A – Infrastructure & Critical Facilities

Through the USACE's inundation studies, none of Benton County or its participating jurisdictions' infrastructure or critical facilities were found to be at risk. A complete list of infrastructure and critical facilities can be found in Appendix D.

4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to dam failure by way of its systems' population, and facilities' vulerability as defined in Section 4.3.4 of this hazard profile. Of the





participating jurisdictions that are at risk, only Cave Springs and Rogers have seen significant growth. In both jurisdictions, their growth since the development of the last plan has increased their vulnerability and overal risk to dam failures. Please see Section 4.4 for information.

4.3.4C – Unique & Varied Risk

Given the USACE's inundation studies, only Benton County, Bella Vista, Cave Springs, and Rogers are exposed to any risk from dam failure. None of the participating school districts are at risk from dam failure.

Table 10 – Unique & Varied Risk, Dam Failure			
Dam	Jurisdiction	Threaten Structures	
Lake Atlanta	Rogers	Industrial (20), Residential (6)	
Lake Ann	Belle Vista	Golf Course (1), Residential (16)	
Lake Keith	Cave Springs	Residential (9)	
Little Flint Creek	Benton County	Residential (5)	
Loch Lomond	Belle Vista	Golf Couse (1)	





4.3.1 – Description

Drought is an abnormally dry period lasting months or years when an area has a deficiency of water and precipitation in its surface and or underground water supply. The hydrological imbalance can be grouped into the following non-exclusive categories.

- **Agricultural:** When the amount of moisture in the soil no longer meets the needs of previously grown crops.
- *Hydrological:* When surface and subsurface water levels are significantly below their normal levels.



- **Meteorological:** When there is a significant departure from the normal levels of precipitation.
- **Socio-Economic:** When the water deficiency begins to significantly affect the population.

Droughts are regularly monitored by multiple federal agencies using a number of different indices. Typically, they are seasonal occurring in the late spring through early fall. Drought monitoring focuses on precipitation and temperature. When precipitation is less than normal, and natural water supplied begins to decease, a drought is occurring.

When below average, little or no rain falls soil can dry out and plants can die. If unusually dry weather persists and water supply problems develop the time period is defined as a drought. Human activity such as over farming, excessive irrigation, deforestation, and poor erosion controls can exacerbate a drought's effects. It can take weeks or months before the effects of below average precipitation on bodies of water are observed. Depending on the region droughts can happen quicker, noticed sooner, or have their effects naturally mitigated. The more humid and wet an area is, the quicker the effects will be realized. A naturally dry region, which typically relies more on subsurface water will take more time to actualize its effects.

Periods of drought can have significant environment, agricultural, health, economic, and social consequences. The effects vary depending on vulnerability and regional characteristics. Droughts can also reduce water quality through a decreased ability for natural rivers and streams to dilute pollutants and increase contamination. See the list below for the most common effects of droughts and the chart on the following page for Benton County and its participating jurisdictions' seasonal occurrences of droughts.

- Diminished crop growth or yield
- Erosion
- Dust storms
- Ecosystem and environmental damage
- Increased probability of wildfires
- Reduced electricity production due to reduced flow through hydroelectric dams
- Shortages of water for industrial production
- Increased risk of wildfires







Chart 1 – Droughts per Month, Benton County (2005 – 2013)

*The data are from the NOAA NCDC Storm Event Database.





4.3.2 – Location & Extent

Extended periods without sufficient rainfall can and do occur across Benton County and its participating jurisdictions affecting the entire planning area, causing damage to lawns, gardens, flora and fauna. The events, when they do occur, occur on a massive geographic scale, often affecting multiple counties, regions, and states. Severe drought can cause enormous economic consequences, not only in the county but in the region and nation as well. There is no set speed of onset or warning period. A drought may begin in as short of period as a week or it may take months to reach an official declared drought. Additionally, the drought can last for as little as a week to up to the entire season.

Droughts are regularly monitored by multiple federal agencies using a number of different indices. Typically, they are seasonal occurring in the late spring through early fall. Drought monitoring focuses on precipitation and temperature. When precipitation is less than normal, and natural water supplied began to decease, a drought is occurring. There is no set speed of onset or warning period, a drought may began in as short of period as a week or it may take months to reach an official declared drought. Additionally, the drought can last for as little as a week to up the entire season.

When a drought begins and ends is difficult to determine. Rainfall data alone won't tell if an area is in a drought, how severe the drought may be, or how long the area has been in drought. However, one can identify various indicators of drought, such as rainfall, snowpack, stream flow, and more, and track these indicators to monitor drought. Researchers have developed a number of tools to help define the onset, severity, and end of droughts. Drought indices take thousands of bits of data on rainfall, snowpack, stream flow, etc., analyze the data over various time frames, and turn the data into a comprehensible big picture. A drought index value is typically a single number, which is interpreted on a scale of abnormally wet, average, and abnormally dry. There are three primary drought indices that are all used to determine the onset and the severity of a drought, the Standard Precipitation Index, the Palmer Drought Severity Index, and the Crop Moisture Index. During a drought event, Benton County and its participating jurisdictions can expect see a range anywhere from 0.0 to -4.0 on the Palmer Drought Severity Index or a -1.0 to -2 on the Standard Precipitation Index. Please see below and the following page for descriptions and tables of the primary drought indices.

The agricultural industry is the first and hardest hit by droughts. According to the NRCS' 2013 Land Use Survey, Benton County and its participating jurisdictions do not have a significant agricultural industry. The only recognizable pockets exist in Benton County, Centerton, Highfill, and Pea Ridge. They do however, have a significant amount of pasture land. These are depicted in Map 9.

Crop Moisture Index (CMI)

A derivative of the PDSI is the CMI. It looks at moisture supply in the short term for crop producing regions. The CMI monitors week-to-week crop conditions, whereas the PDSI monitors long-term meteorological wet and dry spells. The CMI was designed to evaluate short-term moisture conditions across major crop-producing regions. Because it is designed to monitor short-term moisture conditions affecting a developing crop, the CMI is not a good long-term drought monitoring tool. The CMI's rapid response to changing short-term conditions may provide misleading information about long-term conditions. The CMI uses the same index as the PDSI, but in its own redefined context.





The Palmer Drought Severity Index (PDSI)

The PDSI has been used the longest for monitoring drought. The PDSI allows for a categorization of various levels of wetness and dryness that are prominent over an area. The PDSI is calculated based on precipitation and temperature data, as well as the local Available Water Content (AWC) of the soil. Palmer values may lag emerging droughts by several months, are less well suited for mountainous land or areas of frequent climatic extremes, and are complex—haves an unspecified, built-in time scale that can be misleading.

Table 11 – Palmer Drought Severity Index			
Extremely Wet	4.0 or more		
Very Wet	3.0 to 3.99		
Moderately Wet	2.0 to 2.99		
Slightly Wet	1.0 to 1.99		
Incipient Wet Spell	0.5 to 0.99		
Near Normal	0.49 to -0.49		
Incipient Dry Spell	-0.5 to -0.99		
Mild Drought	-1.0 to -1.99		
Moderate Drought	-2.0 to -2.99		
Severe Drought	-3.0 to -3.99		
Extreme Drought	-4.0 or less		

The Standard Precipitation Index (SPI)

The SPI shows the actual precipitation compared to the probability of precipitation for various time frames. The SPI is an index based on precipitation only. It can be used on a variety of time scales, which allows it to be useful for both short-term agricultural and long-term hydrological applications. A drought event occurs any time the SPI is continuously negative and reaches an intensity of -1.0 or less. The event ends when the SPI becomes positive. Each drought event, therefore, has a duration defined by its beginning and end, and intensity for each month the event continues. The positive sum of the SPI for all the months within a drought event can be termed the drought's "magnitude".

Table 12 – Standard Precipitation Index			
Extremely Wet	2.0+		
Very Wet	1.5 to 1.99		
Moderately Wet	1.0 to 1.49		
Near Normal	99 to .99		
Moderately Dry	-1.0 to -1.49		
Severely Dry	-1.5 to -1.99		
Extremely Dry	-2 and less		











4.3.3 – Previous Occurrences

Comprehensive data on droughts, drought impacts, and drought forecasting is extremely limited and often inaccurate. Due to the complexity of drought monitoring, the complexity of agricultural and livestock market pricing, and the large areas droughts impact, the USDA and USGS have difficulty quantifying and standardizing drought data. Each of these contributing drought factors has confounding variables within them.



The USGS partners with the USDA for drought monitoring by means of ground water and aquifer measurement. Since ground water and aquifer levels are highly variable from year to year, this indicator is useful for reporting whether there is a current shortage or surplus, but is unhelpful in forecasting future events. Additionally, ground water and aquifer levels are correlates only in a lagged model to climactic conditions further compounding their usefulness in predicting future droughts.

Drought's primary impact is on agriculture and livestock. However, there are many factors it can affect: most notably livestock count, crop prices, crop losses, livestock size, and livestock by products such as milk. Absent a drought, these factors highly vary from season to season. Prices vary with international market factors influenced by conditions across the globe. Crop yields vary with other climate conditions such as too much rain during planting season or insect abundance, and even marketing campaigns developed to sell more meat from one type of livestock. Drought is only one factor in an equation of many variables.

The USDA monitors these conditions and aggregates the data to create its drought monitor. However, due to the reasons discussed, it is limited in its ability to quantify how severe a drought was over specified period of time and a specific jurisdiction.

Benton County and its participating jurisdictions have no recorded deaths of injuries from droughts.

Since 2005, NOAA has recorded 20 drought events in Benton County and its participating jurisdictions. Benton County and its participating jurisdictions have not recorded any property or crop damage from drought events.

For a complete list of NOAA recorded drought events, please reference Appendix E.









Chart 2 – Droughts per Year, Benton County (2005 – 2013)

*The data are from the NOAA NCDC Storm Event Database.

4.3.3A – Probability of Future Events

Benton County and its participating jurisdictions can expect a drought event with a 222.22% probability per year, or 2.2222 events per year.

Table 13 – Probability, Droughts			
Event Year	Event Count		
2005	2		
2006	5		
2007	0		
2008	0		
2009	0		
2010	0		
2011	3		
2012	7		
2013	3		
Total Recorded Events =	20		
Total Years =	9		
Yearly Probability =	222.22%		

*The data are from the NOAA NCDC Storm Event Database.





Drought Impacts

Benton County and its participating jurisdictions have recorded 20 drought events since 2005, of which the range and magnitude is unrecorded. Based on the future probability in Table 13, Benton County and its participating jurisdictions can expect 2.2222 drought events per year which can range anywhere below 0 and -4 on the Palmer Drought Severity Index.



Table 14 – Historical Impacts, Droughts			
Count of Events	20		
Impacts Per Year	2.22		
Average Magnitude	-		
Magnitude Range	-		
Average Cost	\$0		
Magnitude of Cost	\$0 - \$0		
Total Recorded Cost	\$0		
Average Fatalities	0		
Total Fatalities	0		
Average Injuries	0		
Total Injuries	0		

The data are compiled from the NOAA NCDC Storm Event Database.

Vulnerability of Facilities

Drought does not pose any risk to Benton County or its participating jurisdictions' facilities.

Vulnerability of Population

Drought in itself poses no direct risk of injury or death to Benton County and its participating jurisdictions' population.

Vulnerability of Systems

Drought can have a significant effect on a jurisdiction's agriculture and tourism economies. If the precipitation level is below normal, farmers and ranchers will struggle to grow their crops and feed their livestock. If rivers, streams, and lakes dry up, tourist will be less likely to enjoy a jurisdiction's amenity resources. Map 9 depicts land use throughout Benton County and its participating jurisdictions. According to the USDA's land use data, there are sizable wetlands and pastures throughout Benton County. Prolonged droughts can drain a wetland, permanently damaging local ecosystems. Local sources estimate that a prolonged drought over a season or more would likely kill between 25% and 50% of Benton County and its participating jurisdictions' livestock.

4.3.4A – Infrastructure & Critical Facilities

Drought does not pose any risk to Benton County or its participating jurisdictions' infrastructure and critical facilities. A complete list of infrastructure and critical facilities can be found in Appendix D.





4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to droughts by way of its systems' vulerability as defined in Section 4.3.4 of this hazard profile. Of the participating jurisdictions that are at risk, only Benton County, Centerton, and Highfill have seen significant growth. In these jurisdictions, their growth since the development of the last plan has increased their vulnerability and overal risk to droughts. Please see Section 4.4 for information.

4.3.4C – Unique & Varied Risk

The participating jurisdictions of Benton County, Centerton, Highfill, and Pea Ridge have significant agricultural areas at risk to droughts. These areas are marked in Map 9.





4.3.1 – Description

An earthquake is the result of a sudden release of energy in the Earth's crust that creates seismic waves. In the most general sense, the word earthquake is used to describe any event that generates seismic waves. Earthquakes are typically caused by the rupturing of geological faults. Occasionally, they are also caused by other events such as volcanic activity, landslides, mine blasts, and nuclear tests. An earthquake's point of initial



rupture is called its focus or hypocenter. The epicenter is the point at ground level directly above the hypocenter.

At the Earth's surface, earthquakes manifest themselves by shaking and sometimes displacement of the ground. When the epicenter of a large earthquake is located offshore, the seabed may be displaced sufficiently to cause a tsunami. Earthquakes can also trigger landslides, and occasionally volcanic activity. The shallower an earthquake, the more damage to structures it causes, all else being equal.

4.3.2 – Location & Extent

Portions of Arkansas are at risk from the New Madrid Seismic Zone. The location of the NMSZ is shown in the photo the right. In addition to the NMSZ, other parts of central Arkansas experience low level and low intensity earthquakes (between 1.0 and 5.0).

Earthquakes strike suddenly and without warning, occur at any time of the year, and at any time of the day. A damaging earthquake occurs without definitive signals and massive earthquakes are accompanied by aftershocks. The duration of shaking can last anywhere from a second to a period of minutes.

There are numerous characteristics measured when observing earthquake activity, however, its force, depth, peak ground acceleration, and the distance to the epicenter are the most influential in determining damage.

Two scales are used when referring to earthquake activity; estimating the total force of the earthquake, the Richter Scale, and the observed damage from an



earthquake, the Modified Mercalli Intensity Scale. Please see the figures on the following pages for both scales and their estimated matching equivalent index.

Earthquakes of magnitude 5.5 or greater are considered potentially threatening to Benton County and its jurisdictions, as this is the point at which structures can become damaged. Any earthquake felt at this magnitude or greater would cause for cessation of operations until sight inspections can take place.





Category	Effects	Richter Scale (approximate)
I. Instrumental	Not felt	1-2
II. Just perceptible	Felt by only a few people, especially on upper floors of tall buildings	3
III. Slight	Felt by people lying down, seated on a hard surface, or in the upper stories of tall buildings	3.5
IV. Perceptible	Felt indoors by many, by few outside; dishes and windows rattle	4
V. Rather strong	Generally felt by everyone; sleeping people may be awakened	4.5
VI. Strong	Trees sway, chandeliers swing, bells ring, some damage from falling objects	5
VII. Very strong	General alarm; walls and plaster crack	5.5
VIII. Destructive	Felt in moving vehicles; chimneys collapse; poorly constructed buildings seriously damaged	6
IX. Ruinous	Some houses collapse; pipes break	6.5
X. Disastrous	Obvious ground cracks; railroad tracks bent; some landslides on steep hillsides	7
XI. Very disastrous	Few buildings survive; bridges damaged or destroyed; all services interrupted (electrical, water, sewage, railroad); severe landslides	7.5
XII. Catastrophic	Total destruction; objects thrown into the air; river courses and topography altered	8

Table 16 – % Peak Ground Acceleration Vs. Mercalli & Richter Scales

Mercalli Scale Intensity	Richter Scale (Approximate)	Minimum %g	Maximum %g
I	1 - 2	0.00%	0.17%
11 - 111	3 - 3.5	0.17%	1.40%
IV	4	1.40%	3.90%
V	4.5	3.90%	9.20%
VI	5	9.20%	18.00%
VII	5.5	18.00%	34.00%
VIII	6	34.00%	65.00%
IX	6.5	65.00%	124.00%
X +	7 +	124.00%	-

*The data are from the USGS.





4.3.3 – Previous Occurrences

The New Madrid Seismic Zone

The NMSZ differs from traditional fault lines in many ways. There has not been any notable and intense seismic activity from the NMSZ in 200 years. The lack of an extensive historical record and other unique characteristics make it difficult to predict the frequency of events. Please see Map 12 on page 65 for historical NMSZ earthquakes.

The largest earthquakes felt in the United States were along the New Madrid Fault. A three month long series of quakes from 1811 to 1812 included four major earthquakes. These earthquakes were felt over the entire Eastern United States, with Missouri, Tennessee, Kentucky, Indiana, Illinois, Ohio, Alabama, Arkansas, and Mississippi experiencing the strongest ground shaking.

- December 16, 1811, 0815 UTC (2:15 a.m.); (M ~7.2 8.1) Epicenter in northeast Arkansas. It caused only slight damage to man-made structures, mainly because of the sparse population in the epicentral area. The future location of Memphis, Tennessee experienced level IX shaking on the Mercalli Intensity Scale. A seismic seiche propagated upriver, and Little Prairie (a village that was on the site of the former Fort San Fernando, near the site of present-day Caruthersville, Missouri) was heavily damaged by soil liquefaction.
- December 16, 1811, 1415 UTC (8:15 a.m.); (M ~7.2–8.1) Epicenter in northeast Arkansas. This shock followed the first earthquake by six hours and was similar in intensity.
- January 23, 1812, 1500 UTC (9 a.m.); (M ~7.0–7.8) Epicenter in the Missouri Bootheel. The meizoseismal area was characterized by general ground warping, ejections, fissuring, severe landslides, and caving of stream banks.
- February 7, 1812, 0945 UTC (4:45 a.m.); (M ~7.4–8.0) Epicenter near New Madrid, Missouri. New Madrid was destroyed. At St. Louis, Missouri, many houses were severely damaged, and their chimneys were toppled. Uplift along a segment of this reverse fault created temporary waterfalls on the Mississippi at Kentucky Bend, created waves that propagated upstream, and caused the formation of Reelfoot Lake by obstructing streams in what is now Lake County, Tennessee.

A recent USGS study on the NMSZ, "Earthquake Hazard in the New Madrid Seismic Zone Remains a Concern" states:

"There are historical accounts of major earthquakes in the New Madrid region during 1811–12. The geologic record of pre-1811 earthquakes also reveals that the New Madrid seismic zone has repeatedly produced sequences of major earthquakes, including several of magnitude 7 to 8, over the past 4,500 years. These prehistoric earthquakes caused severe and widespread ground failures in the New Madrid region, much like those caused by the 1811–12 earthquake sequence."









Benton County Hazard Mitigation Plan







Map 11 – Seismic Hazard Rating, Benton County







Map 12 – Earthquakes, NMSZ





4.3.3A – Probability of Future Events The New Madrid Seismic Zone

Included in the USGS 2006 study on the NMSZ was a scientific prediction on the future probability of an earthquake event.

In summary, the study predicts the NMSZ will produce the following:

- A Magnitude 6 earthquake at a probability of 25% 50% in the next 50 years.
- An earthquake sequence similar to the 1811-12 earthquakes at a probability of 7% 10% in the next 50 years.

A recent USGS study on the NMSZ, "Earthquake Hazard in the New Madrid Seismic Zone Remains a Concern" states:

"It was the consensus of this broad group of scientists that (1) the evidence indicates that we can expect large earthquakes similar to the 1811–12 earthquakes to occur in the future with an average recurrence time of 500 years and that (2) magnitude 6 earthquakes, which can also cause serious damage, can be expected more frequently than the large 1811–12 shocks.

Based on this history of past earthquakes, the USGS estimates the chance of having an earthquake similar to one of the 1811–12 sequence in the next 50 years is about 7 to 10 percent, and the chance of having a magnitude 6 or larger earthquake in 50 years is 25 to 40 percent."



4.3.4 – Assessing Vulnerability & Impacts

Earthquake Impacts

The Mid America Earthquake Center ran a comprehensive region wide NMSZ simulation in 2008. They estimate Benton County will sustain 0 to 1,000 casualties and between 0 and 1,000 buildings will be damaged. The results of the estimates are shown in Map 13 and 14. The range of expected impacts from a NMSZ event on Benton County and its jurisdictions is estimated as a 4 on the Richter Scale and a category IV on the



Mercalli Scale. The potential impacts of a NMSZ earthquake on each jurisdiction are detailed in 4.3.4C. According the study, Benton County is located far outside the estimated area of a NMSZ impact. However, it is possible that a NMSZ event could occur at a greater than predicted magnitude and impact Benton County.

Vulnerability of Facilities

Benton County and its jurisdictions' structural vulnerability to earthquakes vary based on the construction quality, construction material, soil and foundation, and earthquake resilience of each structure. Buildings in Arkansas must abide by the Arkansas Fire Prevention Code 2007 which set a minimum standard for structural earthquake resilience. However, a high magnitude earthquake will still damage or destroy structures.

Historically, there are no recorded incidents of property damage from earthquakes to any of Benton County or its jurisdictions' structures.

Data Deficiency

Structural resistance to earthquakes is a significant factor in determining earthquake vulnerability. It is likely there are structural differences in Benton County and its jurisdictions' buildings which change the vulnerability ratings. Benton County and its jurisdictions' structures specific information on earthquake structural resistance is unavailable.

Dam Failure Vulnerability

Mentioned in Section 4.3DF – Dam Failure, structural information on Benton County and its jurisdiction's dams is unavailable. Therefore in the event of an earthquake, it is possible a secondary hazard of dam failure may occur and threaten the planning area.

Please reference Table 15 to compare Mercalli Classes to likely impacts and damages.

Benton County and its participating jurisdiction's structures are valued at \$24,036,634,656. As previously stated, in the event of catastrophic NMSZ earthquake, the planning area could see damage to anywhere between 0 and 1000 buildings. Additionally, since the seismic resistance is unknown for structures in the planning area, all structures are considered vulnerable. Please see the table on the following page for a breakdown of these values by sector and jurisdiction.





Jurisdiction	Agricultural	Commercial	Public	Industrial	Residential
Benton County	\$24,469,000	\$308,796,000	\$4,276,000	\$106,236,000	\$4,431,276,000
Avoca	\$146,000	\$4,657,000	\$1,478,000	\$1,084,000	\$39,535,000
Bella Vista	\$1,423,000	\$119,750,000	\$780,000	\$11,527,000	\$3,292,919,000
Bentonville	\$25,380,000	\$507,666,000	\$17,912,000	\$124,084,000	\$3,267,777,000
Bethel Heights	\$334,000	\$24,638,000	\$0	\$30,285,000	\$146,823,000
Cave Springs	\$336,000	\$23,497,000	\$146,000	\$5,619,000	\$167,938,000
Centerton	\$292,000	\$24,409,000	\$118,000	\$6,186,000	\$882,612,000
Decatur	\$2,154,000	\$10,281,000	\$756,000	\$7,761,000	\$135,499,000
Garfield	\$0	\$4,398,000	\$3,002,000	\$1,116,000	\$29,987,000
Gateway	\$178,000	\$1,423,000	\$0	\$366,000	\$24,313,000
Gentry	\$88,000	\$21,547,000	\$1,744,000	\$3,393,000	\$199,560,000
Gravette	\$2,759,000	\$40,898,000	\$419,000	\$10,360,000	\$270,430,000
Highfill	\$449,000	\$22,358,000	\$0	\$865,000	\$36,364,000
Little Flock	\$1,636,000	\$10,536,000	\$83,000	\$2,409,000	\$248,468,000
Lowell	\$1,116,000	\$97,890,000	\$1,618,000	\$15,220,000	\$611,151,000
Pea Ridge	\$256,000	\$22,729,000	\$2,712,000	\$2,936,000	\$362,395,000
Rogers	\$5,881,000	\$777,691,000	\$17,429,000	\$310,099,000	\$4,680,192,000
Siloam Springs	\$6,628,000	\$189,417,000	\$1,938,000	\$60,079,000	\$1,078,049,000
Springtown	\$2,000	\$1,811,000	\$135,000	\$654,000	\$26,919,000
Sulphur Springs	\$91,000	\$2,666,000	\$157,000	\$396,000	\$54,094,000
Total (Minus County) =	\$49,149,000	\$1,908,262,000	\$50,427,000	\$594,439,000	\$15,555,025,000
Total =	\$73,618,000	\$2,217,058,000	\$54,703,000	\$700,675,000	\$19,986,301,000
School District or College Structure Values					
NWACC			\$108,113,520		
Bentonville SD	\$250,180,000				
Decatur SD	\$15,400,000				
Gentry SD	\$44,067,704				
Gravette SD	\$40,700,000				
Pea Ridge SD	\$42,800,000				
Rogers SD	\$411,200,000				
Siloam Springs SD	\$91,818.432				





Vulnerability of Population

Benton County and its jurisdictions' population vulnerability to earthquakes is largely dependent on its vulnerability to facilities. An earthquake will shake object off a wall or shake off parts of a structure which has the potential to hurt the population. Additionally, there is the risk, although extremely unlikely, of a poorly constructed facility partially or fully collapsing which would injure or kill a high number of the people inside. The population total of Benton County and its jurisdictions is 237,297. Of the 237,297, none are considered in any comparable or measurable risk due to the county being far outside the estimated impact area.

Historically, there are no recorded incidents of death or injury from earthquakes in Benton County or any of its participating jurisdictions.

Vulnerability of Systems

If an earthquake damages any part of Benton County or its jurisdictions, it is highly likely the entire planning area will be similarly damaged due to the geographic scale of earthquakes. A high magnitude event would likely cripple the planning area, destroying buildings and infrastructure, starting fires, widespread loss of power and basic services, and hampering local emergency management and response services from providing the necessary assistance.

If a high magnitude earthquake originates from the NMSZ it is likely the entire region will be dramatically affected and emergency services from local, regional, state, and the federal government will be spread thin among the region. A high magnitude earthquake will not only yield these direct and immediate effects, but will likely hurt Benton County and its jurisdictions' economy and scar its population for years.

4.3.4A – Infrastructure & Critical Facilities

Benton County and its participating jurisdictions' critical facilities face the same risk to earthquakes as does their parent jurisdiction. All infrastructure and critical facilities in Benton County and its participating jurisdictions are located in the 2% to 3% ground acceleration zone with exception of 6 fire stations located in the south eastern most corner of the county. These 6 fire stations are in the 3% to 4% ground acceleration zone. For more detail on this risk please see 'Vulnerability of Facilities.' A complete list of infrastructure and critical facilities can be found in Appendix D.

4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to earthquakes by way of its facilities', population, and systems' vulerabilities as defined in Section 4.3.4 of this hazard profile. Of the participating jurisdictions that are at risk, only Benton County, Bentonville, Cave Springs, Centerton, Gentry, Highfill, Lowell, and Rogers have seen significant growth. In these jurisdictions, their growth since the development of the last plan has increased their vulnerability and overal risk to earthquakes. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the planning area. Please see Section 4.4 for information.

4.3.4C – Unique & Varied Risk

Based on the models and seismic maps in this section, Benton County and its participating jurisdictions all exist within the 2% to 3% ground acceleration zone with the exception of a largely empty portion of south eastern Benton County which is in the 3% to 4% ground acceleration zone.







Map 13 – NMSZ Simulation, Total Buildings Damaged







Map 14 – NMSZ Simulation, Total Casualties


4.3.1 – Description

Heat is the number one weather-related killer in the United States, resulting in hundreds of fatalities each year. In fact, on average, extreme heat claims more lives each year than floods, lightning, tornadoes and hurricanes combined.

North American summers are hot; the majority of the

United States sees heat waves on a regular basis. East of the Rockies, they tend to combine both high temperature and high humidity; although some of the worst heat waves have been catastrophically dry.

Excessive heat events occur when the heat index is in excess of 105 during the day with a nighttime low index of 80 or higher forecast to occur for 2 consecutive days.



Chart 3 – Excessive Heat Events per Month, Benton County (1998 – 2013)

Benton County Hazard Mitigation Plan





^{*}The data are from the NOAA NCDC Storm Event Database.





Excessive heat occurs often throughout Benton County and its participating jurisdictions. The events, when they do occur, occur on a massive geographic scale, often affecting multiple counties, regions, and states designating the entire planning area and its jurisdictions as at risk to excessive heat.

Waves of excessive heat can be predicted days in advance and occur seasonally during or around the summer. NOAA and local weather services may employ an extreme heat watch, warning, and or advisories to



assist in alerting a community. The alerts and the events can last for a few days or for a period of weeks.

Excessive heat is measured using the heat index. The heat index measures how it feels in regards to the actual temperature and the relative humidity.

NOAA does not have specific excessive heat monitoring stations in the planning area. Daily activities throughout Benton County and its participating jurisdictions will remain unchanged under the "caution" level. Under "extreme caution" schools will begin monitoring its students, EMS will heighten its preparedness to heat related injuries, community festivals and organized gatherings will distribute water and monitor attendees, and health care facilities will monitor their vulnerable populations. If the index level reaches "danger" or "extreme danger" schools will cancel outdoor activities, community festivals and organized gatherings will be cancelled, health care facilities will restrict outdoor activities for vulnerable populations, and the Benton County EMA will work to minimize prolonged exposure of the population in any ways possible.

Based on climate data from the NWS, Benton County and its participating jurisdictions can expect extreme heat events up to 110 degrees Fahrenheit. This temperature, depending on the humidity, puts Benton County and its participating jurisdictions in the "Danger" category of NOAA's heat index.





4.3.3 – Previous Occurrences

Since 1998, NOAA has recorded 6 excessive heat events in Benton County, Arkansas. Benton County does not have a record of any fatalities or injuries from these events. The best available data from NOAA does not include heat indices. For a complete list of NOAA recorded excessive heat events, please reference Appendix E.

The table below details the climate norms for Benton County and its participating jurisdictions as they relate to excessive heat. The record high for the hottest months; June, July, August, and September are 101, 110, 110, and 117 degrees Fahrenheit respectively. The average high for the hottest months are 84, 89, 89, and 81 degrees Fahrenheit.

Table 18 – Temperature, Benton County												
Temperature is in	Month											
Fahrenheit	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sep.	Oct.	Nov.	Dec.
Record High	77	83	89	93	93	101	110	110	103	96	83	78
Average High	46	51	60	69	76	84	89	89	81	70	59	48

*The data are from the NWS.



*The data are from the NWS.







Chart 4 – Excessive Heat Events per Year, Benton County (1998 – 2013)

*The data are from the NOAA NCDC Storm Event Database.





4.3.3A – Probability of Future Events

Benton County and its participating jurisdictions can expect an excessive heat event with a 37.50% probability per year, or 0.3750 events per year.

Table 19 – Probability, Excessive Heat			
Event Year	Event Count		
1998	1		
1999	0		
2000	0		
2001	0		
2002	0		
2003	0		
2004	0		
2005	0		
2006	2		
2007	0		
2008	0		
2009	0		
2010	0		
2011	1		
2012	2		
2013	0		
Total Recorded Events =	6		
Total Years =	16		
Yearly Probability =	37.50%		

*The data are from the NOAA NCDC Storm Event Database.



4.3.4 – Assessing Vulnerability & Impacts

Excessive Heat Impacts

Benton County has recorded 6 excessive heat events since 1998, of which there is no recorded range of impact. Based on the heat index on page 73 and the future probability in Table 19, Benton County and its participating jurisdictions can expect 0.3750 excessive heat events per year ranging anywhere above the minimum criteria of a 105 degree heat index.



Table 20 – Historical Impacts, Excessive Heat		
Count of Events	6	
Impacts Per Year	0.38	
Average Magnitude	-	
Magnitude Range	-	
Average Cost	\$0	
Magnitude of Cost	\$0 - \$0	
Total Recorded Cost	\$0	
Average Fatalities	0.67	
Total Fatalities	4	
Average Injuries	0	
Total Injuries	0	

*The data are compiled from the NOAA NCDC Storm Event Database.

Vulnerability of Facilities

Excessive heat does not pose a risk to Benton County or its participating jurisdictions' facilities.

Vulnerability of Population

Excessive heat can be a grave threat to the citizens of any exposed community. At certain levels, the human body cannot maintain proper internal temperatures. Exposure to heat and dehydration can injure and even kill people through heat stroke, dehydration, and by also compounding existing medical conditions.

The citizens of Benton County and its participating jurisdictions must take great care to remain cool and well hydrated. Any causal or typical behavior may become dangerous if exposure to extreme heat is prolonged. For the citizens of Benton County and its participating jurisdictions this ranges from outdoor activities, daily activities, and even indoor activities within an improperly cooled structure.

Benton County and its participating jurisdictions have 4 recorded fatalities from excessive heat.

Vulnerability of Systems

Excessive heat may cause a community to overuse their air conditioners and cooling units causing an excessive power draw on its energy infrastructure. If the drain is great enough it could bring down portions of the power grid and cause a power loss throughout Benton County or its participating jurisdictions. Without power the citizens of Benton County or its participating jurisdictions would have difficulty keeping cool and thus put them at risk of bodily harm. Local representatives in Benton County reported that during previous excessive heat events, the electrical grid did not fail. It stands then, that if the grid is vulnerable to failure, it would potentially occur at heat indices far exceeding the recorded historical events.







4.3.4A – Infrastructure & Critical Facilities

Extreme heat does not pose a risk to Benton County or its participating jurisdictions' facilities. A complete list of infrastructure and critical facilities can be found in Appendix D.

4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to excessive heat by way of its population, and systems' vulerabilities as defined in Section 4.3.4 of this hazard profile. Of the participating jurisdictions that are at risk, only Benton County, Bentonville, Cave Springs, Centerton, Gentry, Highfill, Lowell, and Rogers have seen significant growth. In these jurisdictions, their growth since the development of the last plan has increased their vulnerability and overal risk to excessive heat. Please see Section 4.4 for information.

4.3.4C – Unique & Varied Risk

Excessive heat has ability to affect a portion of or the entire planning area. Unfortunately, there is no accurate method of predicting the location or extent of an extreme heat event's impact, that being if it will affect one participating jurisdiction up to any number or all participating jurisdictions. Due to these characteristics, there are no calculable unique risks between the participating jurisdictions.

Additionally, it is not possible to predict any varying probability between the participating jurisdictions with the exception of varying risk as it is proportionate to a participating jurisdiction's demographics. Logically, participating jurisdictions with a greater population are at a higher risk as participating jurisdictions with a lower population are at a lower risk.

Although this plan addresses vulnerability to excessive heat, without the possibility of being able to calculate all components of risk at a jurisdictional level, each jurisdiction's individual risk to extreme heat is not possible to calculate.





4.3.1 – Description

Flooding is the most prevalent and costly disaster in the United States. Flooding occurs when water, due to dam failures, rain, or melting snows, exceeds the absorptive capacity of the soil and the flow capacity of rivers, streams or coastal areas. At this point, the water concentration hyper extends the capacity of the flood way and the water enters the floodplain. Floods are most common in seasons of rain and thunderstorms. Floods can be associated with other natural phenomenon such as rainstorms, thunderstorms,



hurricanes, coastal swells, earthquakes, tsunamis and rapidly melting snow.

Intense rainfall, accompanying the large thunderstorms in Benton County and its participating jurisdictions, may result in water flowing rapidly from higher elevations into valleys, collecting in, and sometimes overtopping the low lying streams. Various types of floods can happen quickly in the form of a flash flood, or accumulate seasonally over a period of weeks as is the case in a riverine flood. Flooding can occur anytime throughout the year, but is typically associated with the spring season. The chart below illustrates season differences between riverine and flash flood impacts per month.



Chart 5 – Floods per Month, Benton County (1993 – 2013)

*The data are from the NOAA NCDC Storm Event Database.

Benton County Hazard Mitigation Plan





A variety of factors affect the severity of flash and riverine flooding within the planning area. These include topography, weather characteristics, development, and geology. Intense flooding will create havoc in any jurisdictions affected. The predicative magnitude of flash and riverine floods varies greatly.

Flash Flooding

Flash flooding is unpredictable and can occur anywhere throughout the entire planning area. Benton County and its participating jurisdictions do not have any centralized, or identified re-occurring, locations that are more likely



to experience flash flooding than other areas, based on previous events and historical documentation. The reviewed historical documentation repeatedly mentions roads and ditches being flooded, but no specific areas continually experiencing flash flooding. Additionally, when property damage occurred, none of the locations were repeatedly mentioned.

Historically, Benton County and its participating jurisdictions have seen up to 3.5 inches of flash flood accumulation in its streets and 6.5 inches of water within some of its structures. In more rural areas, where there is little development, but there are roadways, Benton County and its participating jurisdictions have seen up to 6.5 inches of accumulated water from flash flooding.

Riverine Flooding

Intense and widespread flooding can trap people and entire communities without basic goods or services. Any amount of damage can render a structure unusable for as long as recovery operation would take depending on the level of damage.

Riverine flooding throughout the county varies. SFHAs were identified via FEMA's NFHL. The greatest amount of riverine flooding the county and its participating jurisdictions have experienced is around 37 inches, but luckily this depth was not recorded near any development. Riverine flood depth estimates were determined using GIS modeling techniques and the results are shown in the table on the following page. The magnitude of riverine floods is still a best estimate and remains conclusively indeterminate.

The following map shows FEMA's NFHL data to depict the location of 100 and 500 year floodplains throughout Benton County. Every participating jurisdiction is at risk of riverine flooding with the exceptions of: Garfield, Gateway, the NWACC, Decatur SD, Gentry SD, Gravette SD, Pea Ridge SD, and the Siloam Springs SD. Please see Maps A103 to A154 of Addendum 1 – Map Compendium and Map 15 for GIS depictions of the FEMA's NFHL and the SFHA.

Table 21 – Flood Zone Classifications				
Zone Class	Description			
A	An area inundated by 1% annual chance flooding, for which no BFEs have been determined. (100 Year Floodplain)			
AE	An area inundated by 1% annual chance flooding, for which BFEs have been determined. (100 Year Floodplain)			
В	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. An area inundated by 0.2% annual chance flooding.			

*For the following FEMA NFHL maps the A and AE zones have been combined as they are both considered 100 year floodplains.





Table 22 – Riverine Flood Depths			
Jurisdiction	100 Year Depth (Feet)	500 Year Depth (Feet)	
Benton County	47.72	59.89	
Avoca	7.53	10.38	
Bella Vista	28.25	37.71	
Bentonville	7.14	8.81	
Bethel Heights	3.62	5.42	
Cave Springs	10.74	12.62	
Centerton	1.65	5.01	
Decatur	36.57	37.42	
Garfield	No Risk	No Risk	
Gateway	No Risk	No Risk	
Gentry	7.48	8.73	
Gravette	11.98	18.23	
Highfill	9.44	10.68	
Little Flock	15.62	17.54	
Lowell	13.28	15.52	
Pea Ridge	18.81	23.84	
Rogers	6.97	11.93	
Siloam Springs	12.23	21.8	
Springtown	12.44	14.22	
Sulphur Springs	17.15	20.31	
NWACC	No Risk	No Risk	
Bentonville SD	1.67	2.65	
Decatur SD	No Risk	No Risk	
Gentry SD	No Risk	No Risk	
Gravette SD	No Risk	No Risk	
Pea Ridge SD	No Risk	No Risk	
Rogers SD	4.08	4.49	
Siloam Springs SD	No Risk	No Risk	









Benton County Hazard Mitigation Plan



4.3.3 – Previous Occurrences

Since 1993, NOAA has recorded 5 riverine flood impacts in Benton County and its participating jurisdictions. Therefore, Benton County and its participating jurisdictions have not experienced any damage to property of harm to life from riverine flooding.

Since 1993, NOAA has recorded 58 flash flood impacts in Benton County and its participating jurisdictions. Benton County and its participating jurisdictions have recorded 6 fatalities and 0 injuries relating to flash flooding. These events have cost Benton County and its participating jurisdictions \$7,755,000 in property damage.



Please see the chart below for flash and riverine flooding events per year.



Chart 6 – Floods per Year, Benton County (1993 – 2013)

*The data are from the NOAA NCDC Storm Event Database.

Benton County Hazard Mitigation Plan





4.3.3A – Probability of Future Events

The definition of each flood zone's classification is used for the purpose of calculating the yearly probability of a riverine flood.

Jurisdictions with property in a 100 year floodplain can expect a 1% annual chance of flooding within the designated areas. Jurisdictions with property in a 500 year floodplain can expect a 0.2% annual chance of flooding within the designated areas.

Table 23 – Probability, Riverine Floods					
	Floodplain Exposure				
Jurisdiction	100 Year (1% Annual)	500 Year (0.2% Annual)			
Benton County	X	X			
Avoca	X	-			
Bella Vista	X	-			
Bentonville	X	X			
Bethel Heights	X	-			
Cave Springs	X	-			
Centerton	X	X			
Decatur	X	-			
Garfield	-	-			
Gateway	-	-			
Gentry	X	-			
Gravette	X	-			
Highfill	X	-			
Little Flock	X	X			
Lowell	X	-			
Pea Ridge	X	-			
Rogers	X	X			
Siloam Springs	X	X			
Springtown	X	X			
Sulphur Springs	X	-			
NWACC	-	-			
Bentonville SD	X	X			
Decatur SD	-	-			
Gentry SD	-	-			
Gravette SD	•	-			
Pea Ridge SD	-	-			
Rogers SD	X	X			
Siloam Springs SD	•	-			

*The data are compiled from the FEMA NFHL.





Benton County and its participating jurisdictions can each expect a flash flood event with 276.19% probability per year, or 2.7619 events per year. For a complete list of NOAA recorded flash flood events, please reference Appendix E.

Table 24 – Probability, Flash Floods				
Event Year	Event Count			
1993	2			
1994	1			
1995	4			
1996	5			
1997	1			
1998	2			
1999	3			
2000	3			
2001	2			
2002	1			
2003	0			
2004	4			
2005	2			
2006	0			
2007	1			
2008	9			
2009	2			
2010	0			
2011	3			
2012	0			
2013	13			
Total Recorded Events =	58			
Total Years =	21			
Yearly Probability =	276.19%			

*The data are from the NOAA NCDC Storm Event Database.



4.3.4 – Assessing Vulnerability & Impacts

Flood Impacts

Based on Map 15 and Maps A103 through A154 in Addendum 1 – Map Compendium, and the future probability in Section 4.3.3.A, Benton County, Bentonville, Centerton, Little Flock, Rogers, Siloam Springs, Springtown, the Bentonville SD, and the Rogers SD are exposed to 100 and 500 year floodplains and can expect 0.01 riverine floods per year and additional 0.002 floods per year. Avoca, Bella Vista, Bethel Heights, Cave Springs, Decatur, Gentry, Gravette, Highfill, Lowell, Pea Ridge, and Sulphur Springs, are exposed to 100 year floodplains and can expect 0.01 riverine floods per year.



Garfield, Gateway, the NWACC, Decatur SD, Gentry SD, Gravette SD, Pea Ridge SD, and the Siloam Springs SD are not exposed to any FEMA designated floodplains. The probability of flash flooding is equal through each participating jurisdiction.

Table 25 – Historical Impacts, Floods				
Hazard	Riverine Floods	Flash Floods		
Count of Events	5	58		
Impacts Per Year	0.33	2.76		
Average Magnitude	-	-		
Magnitude Range	-	-		
Average Cost	\$0	\$133,706.90		
Magnitude of Cost	\$0 - \$0	\$0 - \$2,000,000		
Total Recorded Cost	\$0	\$7,755,000		
Average Fatalities	0	0.10		
Total Fatalities	0	6		
Average Injuries	0	0		
Total Injuries	0	0		

The following table is provided as a best available estimate of what a typical riverine or flash flood event in the region may cause in terms of damage, injuries, and fatalities.

*The data are compiled from the NOAA NCDC Storm Event Database.

Vulnerability of Facilities

Benton County and its participating jurisdictions have fire stations, utility structure, municipal building, school buildings, and commercial and residential structures in floodplains. Flooding can cause minimal or complete damage to any of these types of facilities taking them offline for days to years depending on the resources available after an event.

The average riverine flood event in Benton County and its participating jurisdictions costs \$0. The average flash flood costs \$133,706.90, while the existing range of a single incident has been from \$0 to \$2,000,000. Benton County and its participating jurisdictions have incurred a total of \$0 in property damage from riverine flood events and \$7,755,000 in property damage from flash flood events.

Benton County and its participating jurisdiction's structures are valued at \$24,036,634,656. Since flash flooding threatens the entire planning area, all structures are considered exposed and vulnerable. A GIS analysis of FEMA's identified SFHAs puts a total of \$4,626,261,015 worth of the planning area's









structural inventory exposed to riverine flooding. Please see the tables below for a breakdown of these values by type of flooding, sector, and jurisdiction.

Table 26 – Vulnerable Structures, Flash Flooding					
Jurisdiction	Agricultural	Commercial	Public	Industrial	Residential
Benton County	\$24,469,000	\$308,796,000	\$4,276,000	\$106,236,000	\$4,431,276,000
Avoca	\$146,000	\$4,657,000	\$1,478,000	\$1,084,000	\$39,535,000
Bella Vista	\$1,423,000	\$119,750,000	\$780,000	\$11,527,000	\$3,292,919,000
Bentonville	\$25,380,000	\$507,666,000	\$17,912,000	\$124,084,000	\$3,267,777,000
Bethel Heights	\$334,000	\$24,638,000	\$0	\$30,285,000	\$146,823,000
Cave Springs	\$336,000	\$23,497,000	\$146,000	\$5,619,000	\$167,938,000
Centerton	\$292,000	\$24,409,000	\$118,000	\$6,186,000	\$882,612,000
Decatur	\$2,154,000	\$10,281,000	\$756,000	\$7,761,000	\$135,499,000
Garfield	\$0	\$4,398,000	\$3,002,000	\$1,116,000	\$29,987,000
Gateway	\$178,000	\$1,423,000	\$0	\$366,000	\$24,313,000
Gentry	\$88,000	\$21,547,000	\$1,744,000	\$3,393,000	\$199,560,000
Gravette	\$2,759,000	\$40,898,000	\$419,000	\$10,360,000	\$270,430,000
Highfill	\$449,000	\$22,358,000	\$0	\$865,000	\$36,364,000
Little Flock	\$1,636,000	\$10,536,000	\$83,000	\$2,409,000	\$248,468,000
Lowell	\$1,116,000	\$97,890,000	\$1,618,000	\$15,220,000	\$611,151,000
Pea Ridge	\$256,000	\$22,729,000	\$2,712,000	\$2,936,000	\$362,395,000
Rogers	\$5,881,000	\$777,691,000	\$17,429,000	\$310,099,000	\$4,680,192,000
Siloam Springs	\$6,628,000	\$189,417,000	\$1,938,000	\$60,079,000	\$1,078,049,000
Springtown	\$2,000	\$1,811,000	\$135,000	\$654,000	\$26,919,000
Sulphur Springs	\$91,000	\$2,666,000	\$157,000	\$396,000	\$54,094,000
Total (Minus County) =	\$49,149,000	\$1,908,262,000	\$50,427,000	\$594,439,000	\$15,555,025,000
Total =	\$73,618,000	\$2,217,058,000	\$54,703,000	\$700,675,000	\$19,986,301,000
		School District	or College St	ructure Value	S
NWACC			\$108,113,520		
Bentonville SD			\$250,180,000		
Decatur SD			\$15,400,000		
Gentry SD			\$44,067,704		
Gravette SD			\$40,700,000		
Pea Ridge SD			\$42,800,000		
Rogers SD			\$411,200,000		
Siloam Springs SD		\$91,818,432			





Table 27 – Vullerable Structures, Riverine Flooding					
Jurisdiction	Agricultural	Commercial	Public	Industrial	Residential
Benton County	\$6,294,080	\$151,310,900	\$2,784,815	\$68,371,250	\$1,288,837,950
Avoca	\$0	\$0	\$0	\$0	\$0
Bella Vista	\$404,000	\$25,533,000	\$146,000	\$2,474,000	\$917,734,000
Bentonville	\$1,540,000	\$147,337,000	\$5,546,000	\$43,219,000	\$1,618,237,000
Bethel Heights	\$0	\$1,167,200	\$0	\$4,938,000	\$12,960,900
Cave Springs	\$0	\$834,600	\$0	\$348,000	\$23,396,000
Centerton	\$76,000	\$4,451,600	\$1,180	\$738,000	\$40,718,400
Decatur	\$31,680	\$1,486,300	\$7,560	\$684,000	\$13,712,200
Garfield	\$0	\$0	\$0	\$0	\$0
Gateway	\$0	\$0	\$0	\$0	\$0
Gentry	\$0	\$7,000	\$0	\$848,000	\$9,592,000
Gravette	\$0	\$747,000	\$0	\$6,000	\$9,290,700
Highfill	\$0	\$0	\$0	\$35,000	\$2,719,000
Little Flock	\$0	\$0	\$0	\$0	\$6,338,000
Lowell	\$0	\$8,520,000	\$0	\$2,353,000	\$12,437,000
Pea Ridge	\$56,000	\$2,433,000	\$922,000	\$127,000	\$16,301,000
Rogers	\$101,000	\$37,582,700	\$54,000	\$18,140,000	\$50,586,000
Siloam Springs	\$0	\$10,502,000	\$0	\$10,260,000	\$17,431,000
Springtown	\$0	\$330,000	\$0	\$258,000	\$1,079,000
Sulphur Springs	\$0	\$0	\$0	\$0	\$2,785,000
Total (Minus County) =	\$2,208,680	\$240,931,400	\$6,676,740	\$84,428,000	\$2,755,317,200
Total =	\$8,502,760	\$392,242,300	\$9,461,555	\$152,799,250	\$4,044,155,150
		School District	or College S	Structure Value	S
NWACC			\$0		
Bentonville SD			\$19,000,000		
Decatur SD		\$0			
Gentry SD		\$0			
Gravette SD			\$0		
Pea Ridge SD			\$0		
Rogers SD			\$100,000		
Siloam Springs SD		\$0			

Table 27 – Vulnerable Structures, Riverine Flooding





Vulnerability of Population

If evacuation is not heeded, or flood waters rise quickly enough, Benton County and it participating jurisdictions' population can drown or become trapped on rooftops or points of high elevations. Depending on the conditions, this will expose them to elements and deprive them of basic needs and services.

Long term care facilities housing vulnerable populations can take longer to evacuate. Additionally, the potential presence of mold after a flood requires extra care to be taken before their population can re-inhabit a facility.

Benton County and its participating jurisdictions have 0 recorded fatalities from riverine floods and 6 fatalities from flash flood events.

Vulnerability of Systems

Critical facilities and infrastructure can be rendered unusable or permanently destroyed having a significant impact on a jurisdiction's ability to conduct its day to day or current flood event operations. Significant damage to residential and or commercial structures can irrevocably damage a community and its economy creating refugees and economic hardship. If a chemical facility is significantly impacted it is possible the chemicals stored at the facilities can wash away with the flood waters and have detrimental effects on the local environment.





4.3.4A – Infrastructure & Critical Facilities

A complete list of infrastructure and critical facilities can be found in Appendix D.

Table 28 – Critical Facilities Summary				
Jurisdiction	100 Year Floodplain	500 Year Flood Plain		
Benton County	Fire Station (1)	-		
Avoca	-	-		
Belle Vista	-	-		
Bentonville	-	Municipal Utility (1)		
Bethel Heights	-	-		
Cave Springs	-	-		
Centerton	Municipal Building (2), School (1)	-		
Decatur	-	-		
Garfield	-	-		
Gentry	-	-		
Gravette	-	-		
Highfill	-	-		
Little Flock	-	-		
Lowell	-	-		
Pea Ridge	-	-		
Rogers	Fire Station (1), Municipal Building (1), School (1)	-		
Siloam Springs	-	-		
Springtown	-	-		
Sulphur Springs	-	-		
NWACC	-	-		
Bentonville SD	School Building (2)	-		
Decatur SD	-	-		
Gentry SD	-	-		
Gravette SD	-	-		
Pea Ridge SD	-	-		
Rogers SD	-	School Building (1)		
Siloam Springs SD	-	-		

4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to flash and riverine floods by way of its facilities', population, and systems' vulerabilities as defined in Section 4.3.4 of this hazard profile. Of the participating jurisdictions that are at risk, only Benton County, Bentonville, Cave Springs, Centerton, Gentry, Highfill, Lowell, and Rogers have seen significant growth. In these jurisdictions, their growth since the development of the last plan has increased their vulnerability and overal risk to flash flooding The growing jurisdictions of Cave Springs, Centerton, Gentry, Lowell, and Rogers have seen an increase in their vulnerability and risk to riverine flooding caused by their development. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within or outside of the designated floodplains. Please see Section 4.4 for information.





4.3.4C – Unique & Varied Risk

Due to the nature of flash flooding, each jurisdiction in the planning area has an equal risk to a flash flood impact. The variable risks to riverine flooding are detailed in the table below.

Table 29 – Unique & Varied Risk, Riverine Floods				
Jurisdiction	Risk Characteristics			
Benton County	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Avoca	Parts of the jurisdiction are located in a 100 year floodplain.			
Bella Vista	Parts of the jurisdiction are located in a 100 year floodplain.			
Bentonville	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Bethel Heights	Parts of the jurisdiction are located in a 100 year floodplain.			
Cave Springs	Parts of the jurisdiction are located in a 100 year floodplain.			
Centerton	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Decatur	Parts of the jurisdiction are located in a 100 year floodplain.			
Garfield	No risk to riverine flooding.			
Gateway	No risk to riverine flooding.			
Gentry	Parts of the jurisdiction are located in a 100 year floodplain.			
Gravette	Parts of the jurisdiction are located in a 100 year floodplain.			
Highfill	Parts of the jurisdiction are located in a 100 year floodplain.			
Little Flock	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Lowell	Parts of the jurisdiction are located in a 100 year floodplain.			
Pea Ridge	Parts of the jurisdiction are located in a 100 year floodplain.			
Rogers	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Siloam Springs	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Springtown	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Sulphur Springs	Parts of the jurisdiction are located in a 100 year floodplain.			
NWACC	No risk to riverine flooding.			
Bentonville SD	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Decatur SD	No risk to riverine flooding.			
Gentry SD	No risk to riverine flooding.			
Gravette SD	No risk to riverine flooding.			
Pea Ridge SD	No risk to riverine flooding.			
Rogers SD	Parts of the jurisdiction are located in 100 and 500 year floodplains.			
Siloam Springs SD	No risk to riverine flooding.			





4.3.4D – Repetitive Loss Structures

The Arkansas Natural Resources Commission has reported there are 13 RL/SRL properties in Benton County and its participating jurisdictions. These properties have filed a total of 32 claims for a total of \$891,759 with an average payout of \$10,305.

Table 30 – RL/SRL Properties											
Jurisdiction	Building Type	Insured?	Claims	Average Payout	Total Paid Out						
Benton County	Single Family	Yes	2	\$10,676.35	\$21,352.69						
Benton County	Non-Residential	No	2	\$3,110.45	\$6,220.89						
Benton County	Non-Residential	No	3	\$38,390.80	\$115,172.40						
Bentonville	Single Family	No	2	\$5,046.72	\$2,523.36						
Cave Springs	Single Family	Yes	2	\$7,877.89	\$15,755.78						
Decatur	Non-Residential	No	4	\$70,033.60	\$280,134.41						
Decatur	Non-Residential	No	2	\$33,241.52	\$66,483.03						
Rogers	Single Family	Yes	2	\$72,676.25	\$145,352.49						
Rogers	Condo	Yes	3	\$7,991.35	\$23,974.05						
Rogers	Multi-Family	Yes	2	\$22,972.32	\$45,944.63						
Rogers	Multi-Family	No	2	\$4,477.17	\$8,954.34						
Siloam Springs	Non-Residential	No	3	\$24,449.86	\$73,349.57						
Siloam Springs	Non-Residential	No	3	\$28,847.32	\$86,541.95						
Total = 32 \$10,305.99 \$891,759.59											

*The data are from the Arkansas Natural Resources Commission.





Included in the risk assessment are comprehensive simulations conducted in FEMA's HAZUS-MH v2.1. To properly display Benton County and its participating jurisdictions' risk to riverine floods, eight models have been developed for this plan.

The simulations models utilize the USGS's National Elevation Database (at 1 arc second) as the baseline for determining stream basins, hydrology, and drainage. A 10 square mile stream drainage setting was used to calculate each models hydrology functions. One simulation models a 500 year flood, while the other models a 100 year flood.

The information depicts the simulation models' estimates for: debris generation, economic losses, shelter requirements, transportation infrastructure damage, and utility infrastructure damage. Maps are included to display the simulated flood boundaries.





Table 31 – HAZUS Model 1, 100 Year Flood									
	Ca	pital Stock Loss	ses	Building Loss		Income Losses		Total	
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	Total	
	\$20,726,000	\$15,055,000	\$362,000	2.6%	\$14,000	\$2,000	\$6,000	\$36,165,000	
Shaltar		Displa	ced People		F	People Needing Sh	ort Term Shelter		
Sheller			592			203	3		
Dobris	Finishe	Finishes (Tons) Structur		ures (Tons)	Foundations (Tons)			Total (Tons)	
Debits	6,9	993	7,547		9,2	283		23,823	
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total	
Facilities	\$0	\$82,070	\$0	\$0	\$0	\$0		\$82,070	
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total	
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	









Benton County Hazard Mitigation Plan





Table 32 – HAZUS Model 2, 500 Year Flood										
	Ca	pital Stock Loss	ses	Building Loss		Income Losses		Total		
Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	Total		
	\$25,425,000	\$18,250,000	\$414,000	3.1%	\$17,000	\$4,000	\$7,000	\$44,117,000		
Shaltar		Displa	ced People		F	People Needing Sh	ort Term Shelter			
Sheller			690	690		255	j			
Dobris	Finishe	s (Tons)	Struct	ures (Tons)	Foundatio	Total (Tons)				
Debits	8,4	47		9,941	12,012		12,012			30,399
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total		
Facilities	\$0	\$563,040	\$0	\$0	\$0	\$0		\$563,040		
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total		
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		









Benton County Hazard Mitigation Plan





Table 33 – HAZUS Model 3, 100 Year Flood											
	Ca	pital Stock Los	ses	Building Loss		Income Losses		Total			
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	Total			
	\$13,639,000	\$23,307,000	\$2,126,000	1.8%	\$25,000	\$94,000	\$100,000	\$39,302,000			
Sholtor		Displa	ced People		F	People Needing Sh	ort Term Shelter				
Sheller			759			333					
Debris	Finishes	s (Tons)	Struct	ures (Tons)	Foundatio	ons (Tons)		Total (Tons)			
Debris	1,8	805	322		475			2,602			
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total			
Facilities	\$0	\$6,449,730	\$0	\$0	\$0	\$0		\$6,449,730			
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0			
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0			
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total			
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Bridges	\$440	\$0	\$0	\$0	\$0	\$0	\$0	\$440			
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			









Benton County Hazard Mitigation Plan





Table 34 – HAZUS Model 4, 500 Year Flood										
	Ca	pital Stock Los	ses	Building Loss		Income Losses		Tatal		
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	TOTAL		
	\$16,889,000	\$28,364,000	\$2,853,000	2.3%	\$27,000	\$102,000	\$111,000	\$48,088,000		
Shaltar		Displa	ced People		F	People Needing Sh	ort Term Shelter			
Sheller			884			406	3			
Debris	Finishe	s (Tons)	Struct	ures (Tons) Foundations (Tons)				Total (Tons)		
Debits	2,3	805	479		654			3,438		
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total		
Facilities	\$0	\$8,006,850	\$0	\$0	\$0	\$0		\$8,006,850		
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total		
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		









Benton County Hazard Mitigation Plan





Table 35 – HAZUS Model 5, 100 Year Flood										
	Capi	tal Stock Loss	ses	Building Loss		Income Losses		Tetel		
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	TOTAL		
	\$14,946,000	\$24,381,000	\$1,841,000	4.2%	\$19,000	\$49,000	\$65,000	\$41,311,000		
Sholtor		Displa	ced People		F	People Needing Sh	ort Term Shelter			
Sheller			658			146	i			
Dobris	Finishes	Finishes (Tons) Structures (Tons)		ures (Tons)	Foundations (Tons)			Total (Tons)		
Debits	4,13	0		3,102	3,9	927		11,159		
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total		
Facilities	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total		
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		









Benton County Hazard Mitigation Plan





Table 36 – HAZUS Model 6, 500 Year Flood										
	Capi	tal Stock Loss	ses	Building Loss		Income Losses		Total		
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	TOTAL		
	\$23,404,000	\$37,771,000	\$2,482,000	6.0%	\$34,000	\$79,000	\$106,000	\$63,888,000		
Shaltar		Displa	ced People		F	People Needing Sh	ort Term Shelter			
Sheller			848			223	5			
Dobris	Finishes (Finishes (Tons) Structures (Tons)		ures (Tons)	Foundatio	ons (Tons)		Total (Tons)		
Debris	6,420)		6,130	6,681			19,231		
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total		
Facilities	\$0	\$4,694,490	\$0	\$0	\$0	\$0		\$4,694,490		
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total		
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		









Benton County Hazard Mitigation Plan





Table 37 – HAZUS Model 7, 100 Year Flood										
	Capi	tal Stock Loss	ses	Building Loss		Income Losses		Total		
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	Total		
	\$3,680,000	\$3,506,000	\$182,000	2.0%	\$0	\$1,000	\$2,000	\$7,371,000		
Shaltar		Displa	ced People		F	eople Needing Sh	ort Term Shelter			
Sheller			198			13				
Debris	Finishes ((Tons) Structur		ures (Tons)	Foundations (Tons)			Total (Tons)		
Debris	1,273	3	1,121		1,312		3,7			
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total		
Facilities	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0		
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total		
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		









Benton County Hazard Mitigation Plan




Table 38 – HAZUS Model 8, 500 Year Flood									
	Capital Stock Losses		Building Loss		Income Losses				
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	Total	
	\$4,405,000	\$4,147,000	\$210,000	2.4%	\$0	\$1,000	\$2,000	\$8,765,000	
Sholtor		Displa	ced People		F	People Needing Sh	ort Term Shelter		
Sheller			222			16			
Dobris	Finishes	(Tons)	Struct	ures (Tons)	Foundatio	ons (Tons)	Total (Tons)		
Debits	1,47	1		1,628		1,825		4,923	
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total	
Facilities	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0	
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total	
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	













Table 39 – HAZUS Model 9, 100 Year Flood								
	Capi	tal Stock Loss	ses	Building Loss	Building Loss Income Losses			Total
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	TOTAL
	\$33,249,000	\$28,107,000	\$620,000	3.3%	\$40,000	\$37,000	\$58,000	\$62,111,000
Sholtor		Displa	ced People		F	People Needing Sh	ort Term Shelter	
Sheller			973			567	,	
Dobris	Finishes	(Tons)	Struct	ures (Tons)	Foundatio	ons (Tons)	Total (Tons)	
Debits	9,29	9	14,612		13,591		37,502	
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total
Facilities	\$0	\$63,303,690	\$0	\$0	\$0	\$0		\$63,303,690
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0









Benton County Hazard Mitigation Plan





Table 40 – HAZUS Model 10, 500 Year Flood								
	Capi	tal Stock Loss	ses	Building Loss	Income Losses			Total
Economic Loss	Building	Contents	Inventory	Ratio	Relocation	Capital	Wages & Rental	TOTAL
	\$39,450,000	\$32,913,000	\$728,000	3.6%	\$48,000	\$44,000	\$72,000	\$73,255,000
Shaltar		Displa	ced People		F	People Needing Sh	ort Term Shelter	
Sheller			1,071			631		
Dobris	Finishes	(Tons)	Struct	ures (Tons)	Foundatio	ons (Tons)	Total (Tons)	
Debits	10,54	0	18,538		17,385		46,463	
Utilities	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication		Total
Facilities	\$0	\$69,530,400	\$0	\$0	\$0	\$0		\$69,530,400
Pipelines	\$0	\$0	\$0	\$0	\$0	\$0		\$0
Total =	\$0	\$0	\$0	\$0	\$0	\$0		\$0
Transportation	Highways	Railways	Light Rail	Bus Facilities	Ports	Ferries	Airports	Total
Segments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tunnels	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total =	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0









Benton County Hazard Mitigation Plan





Severe storms comprise the hazardous and damaging weather effects often found in violent storm fronts. They can occur together or separate, they are common and usually not hazardous, but on occasion they can pose a threat to life and property.

This plan defines Severe Storms as a combination of the following severe weather effects as defined by NOAA and the NWS.



Hail: Showery precipitation in the form of irregular pellets or balls of ice more than 5 mm in diameter, falling from a cumulonimbus cloud.

High/Strong Wind: Sustained wind speeds of 40 miles per hour or greater lasting for 1 hour or longer, or winds of 58 miles per hour or greater for any duration. Often referred to as straight line winds to differentiate from rotating or tornado associated wind.

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.

Thunderstorm Winds: The same classification as high or strong winds, but accompanies a thunderstorm. It is also referred to as a straight line wind to differentiate from rotating or tornado associated wind.

For consistency with the NWS and NOAA, high and strong winds are shown separate from thunderstorm winds when raw, collected data is displayed. However, for their impacts and probability, they are combined and referred to simply as "wind" events.



Chart 7 – Hail Impacts per Month, Benton County (1956 – 2013)

*The data are from the NOAA NCDC Storm Event Database.







Chart 8 – High & Strong Winds per Month, Benton County (1998 – 2013)

*The data are from the NOAA NCDC Storm Event Database.



Chart 9 – Lightning Impacts per Month, Benton County (1998 – 2013)

*The data are from the NOAA NCDC Storm Event Database.







Chart 10 – Thunderstorm Winds per Month, Benton County (1956 – 2013)

^{*}The data are from the NOAA NCDC Storm Event Database.





- Location & Extent

Severe storms occur throughout the year in Benton County and its participating jurisdictions. Thunderstorms, high, and strong winds can affect any size area from a county, region, or isolated pockets of city or neighborhood. In contrast, lightning will strike a single point. It is not often multiple strikes will hit and damage persons and property in one severe storm event. Hail will occur in small pockets of an accompanying storm.

Storms, severe or not, are often predicted within a day or multiple days in advance. The severity of a storm is not as easily predicted and when it is, the window of notification is up to few hours to under an hour. When a storm is imminent it is unknown whether or not hail, lightning, or damaging winds will occur until after an incident has been reported. Since severe storms typically affect an area the size of a region, the expected intensity is the same throughout the planning area.

Strong, high, and thunderstorm winds are classified as winds which occur between 40 and 70 miles per hour lasting for 1 hour or greater or of 58 miles per hour for any duration. The Beaufort Scale shown on below, displays the ranges of wind speed and correlates them with their typical effects. At a level 7 and 8 citizens should remain indoors and anywhere above a level 8 will cause damage to structures. Damage to any amount of structures can cause serious disruption to Benton County and its participating jurisdictions. The scope of damage can range from one residential house up to widespread destruction of homes and reinforced buildings throughout the county.

It can safely be assumed any severe storm has the potential to cause a lightning strike. It can happen instantly with no warning and happen anytime throughout the storm's passage. A storm's lightning intensity is measured by lightning activity intensity levels outlined in the table on the following page. A strike could damage structures throughout the county and render it unusable for a period of time, or cause it to catch fire and damage it beyond repair. Most lightning strikes do not hit structures or people

and therefore go unreported.

Hail typically falls in sizes anywhere from half an inch to upwards of 3 inches. A complete hail index with size and typical damages can be found in Table 42. Any incidents of hail can cause injury to Benton County and its participating jurisdictions' citizens, while anything above 1 inch could cause damage to structures. If windows are broken, some facilities will be rendered unusable until repaired.

Beaufort Scale					
Beaufort number	Wind Speed (mph)	Seaman's term		Effects on Land	
0	Under 1	Calm		Calm; smoke rises vertically.	
1	1-3	Light Air		Smoke drift indicates wind direction; vanes do not move.	
2	4-7	Light Breeze	*	Wind felt on face; leaves rustle; vanes begin to move.	
3	8-12	Gentle Breeze		Leaves, small twigs in constant motion; light flags extended.	
4	13-18	Moderate Breeze		Dust, leaves and loose paper raised up; small branches move.	
5	19-24	Fresh Breeze	W it	Small trees begin to sway.	
6	25-31	Strong Breeze		Large branches of trees in motion; whistling heard in wires.	
7	32-38	Moderate Gale		Whole trees in motion; resistance felt in walking against the wind.	
8	39-46	Fresh Gale		Twigs and small branches broken off trees.	
9	47-54	Strong Gale		Slight structural damage occurs; slate blown from roofs.	
10	55-63	Whole Gale		Seldom experienced on land; trees broken; structural damage occurs.	
11	64-72	Storm		Very rarely experienced on land; usually with widespread damage.	
12	73 or higher	Hurricane Force		Violence and destruction.	





Table 41 – Lightning Activity Intensity Levels

LAL Level	Description
LAL 1	No Thunderstorms
LAL 2	Isolated thunderstorms: Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud-to-ground strikes in a 5 minute period.
LAL 3	Widely scattered thunderstorms: Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud-to-ground strikes in a 5 minute period.
LAL 4	Scattered thunderstorms: Moderate rain is commonly produced Lightning is frequent, 11 to 15 cloud-to-ground strikes in a 5 minute period.
LAL 5	Numerous thunderstorms: Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud-to-ground strikes in a 5 minute period.

Table 42 – Modified NOAA/TORRO Hailstorm Intensity Scale				
Code	Intensity Category	Diameter (Inches)	Approximate Size	Typical Damage Impacts
НО	Hard Hail	0 - 0.33	Pea	No damage
H1	Potentially Damaging	0.33 - 0.60	Marble/Mothball	Slight damage to crops
H2	Potentially Damaging	0.60 - 0.80	Dime/Grape	Significant damage to crops
НЗ	Severe	0.80 - 1.20	Nickel to Quarter	Severe damage to crops, damage to glass and plastic, paint and wood scored
H4	Severe	1.20 - 1.60	Half Dollar	Widespread glass damage, vehicle bodywork damage
H5	Destructive	1.60 - 2.00	Silver Dollar to Golf Ball	Damage to tiled roofs, significant risk of personal injury.
H6	Destructive	2.00 - 2.40	Egg	Aircraft bodywork dented, brick walls pitted
H7	Very Destructive	2.40 - 3.00	Tennis Ball	Severe roof damage, risk of serious injuries to persons not protected
H8	Very Destructive	3.00 - 3.50	Baseball to Orange	Severe damage to aircraft bodywork
Н9	Super Hailstorms	3.50 - 4.00	Grapefruit	Extensive structural damage, risk of severe injury or fatal injuries to persons not protected
H10	Super Hailstorms	4.00 +	Softball and up	Extensive structural damage, risk of severe injury or fatal injuries to persons not protected



4.3.3 – Previous Occurrences

Benton County and its participating jurisdictions have recorded 1 fatality and 21 injuries due to Severe Storms.

Since 1956, NOAA has recorded 270 hail events in Benton County and its participating jurisdictions. These hail events have caused \$3,076,000 in recorded property damage.

Since 1993, NOAA has recorded 15 lightning events in Benton County and its participating jurisdictions. These lightning strikes have caused \$957,000 in recorded property damage.



Since 2006, NOAA has recorded 5 strong and high wind events in Benton County and its participating jurisdictions. These strong wind events have caused \$31,000 in recorded property damage.

Since 1956, NOAA has recorded 348 thunderstorm wind events in Benton County and its participating jurisdictions. These thunderstorm wind events have caused \$9,428,020 in recorded property damage.

For a complete list of NOAA recorded severe storm events, please reference Appendix E.



Chart 11 – Hail Impacts per Year, Benton County (1956 – 2013)

^{*}The data are from the NOAA NCDC Storm Event Database.









*The data are from the NOAA NCDC Storm Event Database.



Chart 13 – Lightning Impacts per Year, Benton County (1993 – 2013)







Chart 14 – Thunderstorm Winds per Year, Benton County (1956 – 2013)

^{*}The data are from the NOAA NCDC Storm Event Database.









Benton County Hazard Mitigation Plan





4.3.3A – Probability of Future Events

Benton County and its participating jurisdictions can each expect a hail event with 457.63% probability per year, or 4.5763 events per year. They can each expect a lightning event with a 71.43% probability or 0.7143 lightning events per year, while they can expect a strong, high, or thunderstorm wind event with a 598.31% probability per year, or 5.9831 events per year.

Table 43 – Probability, Severe Storms						
Event Vern	Event Count					
Event Year	Hail	Lightning	Wind Events			
1956 - 1959	2	-	2			
1960 - 1969	4	-	6			
1970 - 1979	3	-	14			
1980 - 1989	36	-	43			
1990	7	-	4			
1991	5	-	4			
1992	5	-	7			
1993	5	1	6			
1994	25	0	4			
1995	29	1	22			
1996	13	0	9			
1997	4	0	7			
1998	3	1	22			
1999	5	1	21			
2000	2	0	12			
2001	8	2	21			
2002	4	0	8			
2003	9	1	11			
2004	6	1	6			
2005	4	1	10			
2006	10	0	12			
2007	2	0	7			
2008	29	1	22			
2009	13	2	12			
2010	1	1	10			
2011	29	0	17			
2012	5	0	24			
2013	2	2	10			
Total Recorded Events =	270	15	353			
Total Years =	59	21	59			
Yearly Probability =	457.63%	71.43%	598.31%			

*The data are from the NOAA NCDC Storm Event Database.



4.3.4 – Assessing Vulnerability & Impacts

Hail Impacts

Benton County and its participating jurisdictions have recorded 267 hail events since 1956, of which the range of magnitude was between 0.75 and 4.5 inches in diameter with an average of 0.87 inches. Based on the hailstorm scale in Table 42 and future probability in Table 43, Benton County and its participating jurisdictions can expect 4.5763 hail events per year ranging from 'hard hail' to 'hail storm.'



Lightning Impacts

Benton County and its participating jurisdictions have

recorded 15 lightning event since 1993, of which the range of magnitude is not recorded. Based on the future probability found in Table 43, Benton County and its participating jurisdictions can expect 0.71 lightning events per year with an unknown range of impact.

Wind Impacts

Benton County and its participating jurisdictions have recorded 353 wind events since 1956, of which the range of magnitude was between 58 and 86 miles per hour with an average of 66.81 miles per hour. Based on the Beaufort Scale and future probability in Table 43, Benton County and its participating jurisdictions can expect 5.98 wind events per year ranging from Beaufort Scale 8 – "Twigs and small branches broken off trees." to Beaufort Scale 12 – "Violence and destruction."

Table 44 – Historical Impacts, Severe Storms					
Hazard	Hail	Lightning	Winds		
Count of Events	267	15	353		
Impacts Per Year	4.57	0.71	5.98		
Average Magnitude	0.87	-	66.81		
Magnitude Range	0.75 - 4.5	-	58 - 86		
Average Cost	\$15,855.67	\$63,800	\$26,708		
Magnitude of Cost	\$0 - \$2,500,000	\$0 - \$500,000	\$0 - \$3,500,000		
Total Recorded Cost	\$3,076,000	\$957,000	\$9,428,020		
Average Fatalities	0	0	0.01		
Total Fatalities	0	0	1		
Average Injuries	0	0.67	0.03		
Total Injuries	0	10	11		

*The data are compiled from the NOAA NCDC Storm Event Database.

Vulnerability of Facilities

Structural vulnerability to severe storms is the same throughout Benton County and its participating jurisdictions. Hail can be costly by damaging rooftops, outdoor equipment, and windows. Lightning can strike anything with the potential to significantly damage electrical infrastructure or ignite a fire. Wind events create flying debris which can damage infrastructure and buildings. Strong enough wind can cause structure damage to older, less well constructed buildings even toppling or leveling them.

The average hail event in Benton County and its participating jurisdictions costs \$15,855.67 while the existing range of a single incident has been from \$0 to \$2,500,000.





The average lightning event in Benton County and its participating jurisdictions costs \$63,800, while the existing range of a single incident has been from \$0 to \$500,000.

The average wind event in Benton County and its participating jurisdictions costs \$26,708, while the existing range of a single incident has been from \$0 to \$3,500,000.

Benton County and its participating jurisdiction's structures are valued at \$24,036,634,656. Since severe storms threaten the entire planning area, all structures are considered exposed and vulnerable. Please see the table below for a breakdown of these values by sector and jurisdiction.

Table 45 – Vulnerable Structures, Severe Storms					
Jurisdiction	Agricultural	Commercial	Public	Industrial	Residential
Benton County	\$24,469,000	\$308,796,000	\$4,276,000	\$106,236,000	\$4,431,276,000
Avoca	\$146,000	\$4,657,000	\$1,478,000	\$1,084,000	\$39,535,000
Bella Vista	\$1,423,000	\$119,750,000	\$780,000	\$11,527,000	\$3,292,919,000
Bentonville	\$25,380,000	\$507,666,000	\$17,912,000	\$124,084,000	\$3,267,777,000
Bethel Heights	\$334,000	\$24,638,000	\$0	\$30,285,000	\$146,823,000
Cave Springs	\$336,000	\$23,497,000	\$146,000	\$5,619,000	\$167,938,000
Centerton	\$292,000	\$24,409,000	\$118,000	\$6,186,000	\$882,612,000
Decatur	\$2,154,000	\$10,281,000	\$756,000	\$7,761,000	\$135,499,000
Garfield	\$0	\$4,398,000	\$3,002,000	\$1,116,000	\$29,987,000
Gateway	\$178,000	\$1,423,000	\$0	\$366,000	\$24,313,000
Gentry	\$88,000	\$21,547,000	\$1,744,000	\$3,393,000	\$199,560,000
Gravette	\$2,759,000	\$40,898,000	\$419,000	\$10,360,000	\$270,430,000
Highfill	\$449,000	\$22,358,000	\$0	\$865,000	\$36,364,000
Little Flock	\$1,636,000	\$10,536,000	\$83,000	\$2,409,000	\$248,468,000
Lowell	\$1,116,000	\$97,890,000	\$1,618,000	\$15,220,000	\$611,151,000
Pea Ridge	\$256,000	\$22,729,000	\$2,712,000	\$2,936,000	\$362,395,000
Rogers	\$5,881,000	\$777,691,000	\$17,429,000	\$310,099,000	\$4,680,192,000
Siloam Springs	\$6,628,000	\$189,417,000	\$1,938,000	\$60,079,000	\$1,078,049,000
Springtown	\$2,000	\$1,811,000	\$135,000	\$654,000	\$26,919,000
Sulphur Springs	\$91,000	\$2,666,000	\$157,000	\$396,000	\$54,094,000
Total (Minus County) =	\$49,149,000	\$1,908,262,000	\$50,427,000	\$594,439,000	\$15,555,025,000
Total =	\$73,618,000	\$2,217,058,000	\$54,703,000	\$700,675,000	\$19,986,301,000
		School District	or College St	ructure Value	S
NWACC			\$108,113,520		
Bentonville SD			\$250,180,000		
Decatur SD			\$15,400,000		
Gentry SD	\$44,067,704				
Gravette SD	\$40,700,000				
Pea Ridge SD			\$42,800,000		
Rogers SD			\$411,200,000		
Siloam Springs SD	\$91,818,432				





Vulnerability of Population

Benton County and its participating jurisdictions' vulnerability to severe storms is the same throughout the planning area. In the absence of proper shelter, hail can cause serious injury to an unprotected person. As long as Benton County and its participating jurisdictions' citizens stay indoors and away from windows, they will be protected against hail injury and death. Similarly, they can avoid being struck by lightning by staying indoors. Although lightning may strike a structure sheltering people, it is extremely unlikely that the strike itself will directly injure or kill a sheltered person. As long as a structure is able to maintain its integrity during high speed winds, it will protect people from wind injury or death. However, old or poorly constructed facilities are not good shelter as previously mentioned flying debris can break windows or cause structural damage. Either of these instances have the potential to seriously injure or kill anyone taking shelter in older, less well constructed building.

Historically, there have been 1 fatality and 21 injuries recorded from severe storms in the planning area.

Vulnerability of Systems

Benton County and its participating jurisdictions' assets and systems' vulnerability to severe storms is the same throughout the planning area.

Hail damage is typically superficial and does not hamper a community's assets, systems, or activities. Lightning strikes can destroy or damage a community asset, but since their strikes are typically isolated and rarely hit anything, it is unlikely to significantly impact a larger system. Wind events can destroy and damage multiple structures and points of infrastructure. It has the potential to significantly impact a community's power grid compounding the effects of other hazards such as, extreme heat, tornadoes, and winter storms.

4.3.4A – Infrastructure & Critical Facilities

All infrastructure and critical facilities are equally at risk, since severe storms indiscriminately affect the entire planning area. A complete list of infrastructure and critical facilities can be found in Appendix D.

4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to severe storms by way of its facilities', population, and systems' vulerabilities as defined in Section 4.3.4 of this hazard profile. Of the participating jurisdictions that are at risk, only Benton County, Bentonville, Cave Springs, Centerton, Gentry, Highfill, Lowell, and Rogers have seen significant growth. In these jurisdictions, their growth since the development of the last plan has increased their vulnerability and overal risk to severe storms. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the planning area. Please see Section 4.4 for information.





4.3.4C – Unique & Varied Risk

Severe storms have ability to affect a portion of or the entire planning area. Unfortunately, there is no accurate method of predicting the location or extent of a severe storm's impact, that being if it will affect one participating jurisdiction up to any number or all participating jurisdictions.

Additionally, it is not possible to predict any varying probability between the participating jurisdictions with the exception of varying risk as it is proportionate to a participating jurisdiction's demographics. Logically, participating jurisdictions with a greater population are at a higher risk as participating jurisdictions with a lower population are at a lower risk.

Although this plan addresses vulnerability to severe storms, without the possibility of being able to calculate all components of risk at a jurisdictional level, each jurisdiction's individual risk to severe storms is not possible to calculate.

To predict unique and varied risks for Benton County and its participating jurisdictions, one would need a comprehensive catalog of wind resilience ratings, hail impact ratings, and grounding capacity for every piece of infrastructure and structure.





4.3.1 – Description

A tornado is a violent, dangerous, rotating column of air that is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud. Often referred to as a twister or a cyclone, they can strike anywhere and with little warning. Tornadoes come in many shapes and sizes, but are typically in the form of a visible condensation funnel, whose narrow end touches the earth and is often encircled by a cloud of debris and dust.



Tornadoes can cause several kinds of damage to buildings. Tornadoes have been known to lift and move objects weighing more than 3 tons, toss homes more than 300 feet from their foundations, and siphon millions of tons of water. However, less spectacular damage is much more common. Houses and other obstructions in the path of the wind cause the wind to change direction. This change in wind direction increases pressure on parts of the building. The combination of increased pressures and fluctuating wind speeds creates stress on the building that frequently causes connections between building components, roofing, siding, windows, etc., to fail. Tornadoes can also generate a tremendous amount of flying debris. If wind speeds are high enough, airborne debris can be thrown at buildings with enough force to penetrate windows, roofs, and walls.



Chart 15 – Tornadoes per Month, Benton County (1954 – 2013)





4.3.2 – Location & Extent

Tornadoes can strike anywhere in Benton County or its participating jurisdictions placing the entire planning area at risk. Most tornados have wind speeds less than 110 miles per hour, and travel a few miles before dissipating. Many tornadoes only exist for a few seconds in the form of a touchdown. The most extreme tornados can attain wind speeds of more than

Fujita	Scale	EF Scale		
Fujita Scale	3-Second Gust Speed (mph)	EF Scale	3-Second Gust Speed (mph)	
F0	45-78	EF0	65-85	
F1	79-117	EF1	86-109	
F2	118-161	EF2	110-137	
F3	162-209	EF3	138-167	
F4	210-261	EF4	168-199	
F5	262-317	EF5	200-234	

200 mph, stretch more than two miles across, and travel dozens of miles.

A tornado may arrive with a storm front and touchdown in a matter of seconds without warning. Other times tornado watches and sirens will alert communities of high potential tornado producing weather or an already formed tornado and its likely path.

Until 2007 the Fujita Tornado Scale ranked the severity of tornadoes. The Fujita scale assigned a numerical F value, F0 through F5, based on the wind speeds and estimated damage. Since 2007 the U.S. switched over to the Enhanced Fujita Scale. The altered scale adjusted the wind speed values per F level and introduced a rubric for estimating damage.

An EF0 tornado could lightly damage structures where they would become unsafe to use until repaired. An EF1 or larger tornado could destroy the entire neighborhood, town, or city or damage any number of structures to the point where they would be unusable for at least a year.









4.3.3 – Previous Occurrences

Since 1954, NOAA has recorded 46 tornado event in Benton County and its participating jurisdictions. Benton County and its participating jurisdictions have recorded 0 deaths and 28 injuries relating to tornado activity costing \$19,792,750 in property damage.

For a complete list of NOAA recorded tornado events, please reference Appendix E.



















4.3.3A – Probability of Future Events

Benton County and its participating jurisdictions can expect a tornado with a probability of 75.41% per year or 0.7541 tornado events per year.

Table 46 – Probability, Tornadoes			
Event Year	Event Count		
1954 - 1959	2		
1960 - 1969	6		
1970 - 1979	12		
1980 - 1989	0		
1990	1		
1991	1		
1992	0		
1993	5		
1994	0		
1995	2		
1996	0		
1997	1		
1998	1		
1999	0		
2000	0		
2001	0		
2002	0		
2003	0		
2004	0		
2005	0		
2006	2		
2007	0		
2008	4		
2009	0		
2010	2		
2011	4		
2012	1		
2013	2		
Total Recorded Events =	31		
Total Years =	61		
Yearly Probability =	75.41%		

*The data are from the NOAA NCDC Storm Event Database.





Tornado Impacts

Benton County and its participating jurisdictions have recorded 46 tornadoes since 1954, of which the range of magnitude was between EF0 and EF3 with an approximate average of an EF1. Based on the Enhanced Fujita Scale and the future probability in Table 47, the Benton County and its participating jurisdictions can expect 0.77 tornadoes per year ranging from 'light' to 'considerable' damage with the proven potential to be impacted by an EF3 dealing out a 'severe' amount of damage.



Table 47 – Historical Impacts, Tornadoes			
Count of Events	46		
Impacts Per Year	0.77		
Average Magnitude (Enhance Fujita Scale)	1.04		
Magnitude Range (Enhance Fujita Scale)	EF0 - EF3		
Average Cost	\$430,277		
Magnitude of Cost	\$0 - \$10,000,000		
Total Recorded Cost	\$19,792,750		
Average Fatalities	0		
Total Fatalities			
Average Injuries	0.61		
Total Injuries	28		

*The data are compiled from the NOAA NCDC Storm Event Database.

Vulnerability of Facilities

Benton County and its participating jurisdictions' vulnerability is the same throughout the planning area. Most tornadoes are in the EF0 – EF2 class. Building to modern wind standards and state codes provides significant protection from these hazard events; however, a community in the direct path of a violent, high scale tornado can do little to prevent significant property damage. Designing buildings to protect against extreme wind speeds, such as those associated with an EF4 or EF5 is extremely challenging and cost prohibitive. Anything less than a FEMA Code 361 compliant structure is susceptible to significant damage or complete destruction. Currently, there are not any completed FEMA Code 361 compliant structures in Benton County or its participating jurisdictions.

The average tornado event in Benton County and its participating jurisdictions costs \$430,277, while the existing range of a single incident has been between and EF0 and EF3.

Please reference the figure on page 130 to compare EF classes to likely impacts and damages.

Benton County and its participating jurisdiction's structures are valued at \$24,036,634,656. Since tornadoes threaten the entire planning area, all structures are considered exposed and vulnerable with the exception of the safe room in the Decatur School District valued at \$1,000,000. Please see the table on the following page for a breakdown of these values by sector and jurisdiction.







Jurisdiction	Agricultural	Commercial	Public	Industrial	Residential
Benton County	\$24,469,000	\$308,796,000	\$4,276,000	\$106,236,000	\$4,431,276,000
Avoca	\$146,000	\$4,657,000	\$1,478,000	\$1,084,000	\$39,535,000
Bella Vista	\$1,423,000	\$119,750,000	\$780,000	\$11,527,000	\$3,292,919,000
Bentonville	\$25,380,000	\$507,666,000	\$17,912,000	\$124,084,000	\$3,267,777,000
Bethel Heights	\$334,000	\$24,638,000	\$0	\$30,285,000	\$146,823,000
Cave Springs	\$336,000	\$23,497,000	\$146,000	\$5,619,000	\$167,938,000
Centerton	\$292,000	\$24,409,000	\$118,000	\$6,186,000	\$882,612,000
Decatur	\$2,154,000	\$10,281,000	\$756,000	\$7,761,000	\$135,499,000
Garfield	\$0	\$4,398,000	\$3,002,000	\$1,116,000	\$29,987,000
Gateway	\$178,000	\$1,423,000	\$0	\$366,000	\$24,313,000
Gentry	\$88,000	\$21,547,000	\$1,744,000	\$3,393,000	\$199,560,000
Gravette	\$2,759,000	\$40,898,000	\$419,000	\$10,360,000	\$270,430,000
Highfill	\$449,000	\$22,358,000	\$0	\$865,000	\$36,364,000
Little Flock	\$1,636,000	\$10,536,000	\$83,000	\$2,409,000	\$248,468,000
Lowell	\$1,116,000	\$97,890,000	\$1,618,000	\$15,220,000	\$611,151,000
Pea Ridge	\$256,000	\$22,729,000	\$2,712,000	\$2,936,000	\$362,395,000
Rogers	\$5,881,000	\$777,691,000	\$17,429,000	\$310,099,000	\$4,680,192,000
Siloam Springs	\$6,628,000	\$189,417,000	\$1,938,000	\$60,079,000	\$1,078,049,000
Springtown	\$2,000	\$1,811,000	\$135,000	\$654,000	\$26,919,000
Sulphur Springs	\$91,000	\$2,666,000	\$157,000	\$396,000	\$54,094,000
Total (Minus County) =	\$49,149,000	\$1,908,262,000	\$50,427,000	\$594,439,000	\$15,555,025,000
Total =	\$73,618,000	\$2,217,058,000	\$54,703,000	\$700,675,000	\$19,986,301,000
	School District or College Structure Values				5
NWACC			\$108,113,520		
Bentonville SD	\$250,180,000				
Decatur SD	\$14,400,000				
Gentry SD	\$44,067,704				
Gravette SD	\$40,700,000				
Pea Ridge SD	\$42,800,000				
Rogers SD	\$411,200,000				
Siloam Springs SD	\$91,818,432				





Vulnerability of Population

Benton County and its participating jurisdictions' vulnerability to tornadoes is the same throughout the planning area.

Benton County and its participating jurisdictions have a total population of 237,297. An EF4 or EF5 tornado has the potential to level the smaller jurisdictions and kill everyone in them while being able to do nearly the same in the larger ones. A lesser magnitude tornado has the ability to kill Benton County and its participating jurisdictions' citizens as it rips off the roofs and walls of its structures while launching airborne missiles born from debris.

Historically, there have been 0 recorded fatalities and 28 injuries from tornadoes in Benton County and its participating jurisdictions.

Vulnerability of Systems

Benton County and its participating jurisdictions' community assets and systems' vulnerability to tornadoes is equal throughout the planning area. A small magnitude tornado will not significantly damage a community of its systems, but a larger magnitude tornado can impact a community for weeks, months, or years and even destroy a town or city completely. Significant damage to Benton County and its participating jurisdictions would hinder the community's economy and increase its social vulnerability.

4.3.4A – Infrastructure & Critical Facilities

All infrastructure and critical facilities are equally at risk, since tornadoes indiscriminately affect the entire planning area. A complete list of infrastructure and critical facilities can be found in Appendix D.

4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to tornadoes by way of its facilities', population, and systems' vulerabilities as defined in Section 4.3.4 of this hazard profile. Of the participating jurisdictions that are at risk, only Benton County, Bentonville, Cave Springs, Centerton, Gentry, Highfill, Lowell, and Rogers have seen significant growth. In these jurisdictions, their growth since the development of the last plan has increased their vulnerability and overal risk to tornadoes. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the planning area. Please see Section 4.4 for information.

4.3.4C – Unique & Varied Risk

Tornadoes have ability to affect a portion of or the entire planning area. Unfortunately, there is no accurate method of predicting the location or extent of a tornado's impact, that being if it will affect one participating jurisdiction up to any number or all participating jurisdictions.

Additionally, it is not possible to predict any varying probability between the participating jurisdictions with the exception of varying risk as it is proportionate to a participating jurisdiction's demographics. Logically, participating jurisdictions with a greater population are at a higher risk as participating jurisdictions with a lower population are at a lower risk.

Additionally, it is not possible to predict any varying probability between the participating jurisdictions. Although this plan addresses vulnerability to tornadoes, without the possibility of being able to calculate all components of risk at a jurisdictional level, each jurisdiction's individual risk to tornadoes is not possible to calculate.





4.3.1 – Description

The NWS defines a wildfire as: Any free burning uncontainable wildland fire not prescribed for the area which consumes the natural fuels and spreads in response to its environment. They can occur naturally, by human accident, and on rare occasions by human action. Typically their point of origin is far from human



development with the exception of roads, power lines, and similar infrastructure. There is a constant threat to hikers, campers, and other people engaging in outdoor activities. Significant danger to life and property occurs when human development meets and becomes intertwined with wildland's vegetation. The threat of wildfire increases in areas prone to intermittent drought, or are generally arid or dry.

Population de-concentration in the U.S. has resulted in rapid development in the outlying fringe of metropolitan areas and in rural areas with attractive recreational and aesthetic amenities, especially forests. This demographic change is increasing the size of the wildland-urban interface (WUI), defined as the area where structures and other human development meet or intermingle with undeveloped wildland. Its expansion has increased the likelihood that wildfires will threaten life and property.

Rampant destruction can be mitigated by fire services regularly engaging in preventative burns and land use measures to minimize the spread of wildfire events. Both of these practices are used in Arkansas to minimize the extent of wildfire





The expansion of the WUI in recent decades has significant implications for wildfire management and its impact. The WUI creates an environment in which fire can move readily between structural and vegetation fuels. Two types of WUI are mapped: intermixed and interface. Intermix WUI are areas where housing and vegetation intermingle; interface WUI are areas with housing in the vicinity of dense, contiguous wildland vegetation.

The duration of a wildfire depends on the weather conditions, how dry it is, the availability of fuel to spread, and the ability of responders to contain and extinguish the fire. Historically, some wildfires have lasted only hours, while other fires have continued to spread and grow for an entire season. They spread quickly and often begin unnoticed until they have grown large enough to signal by dense smoke. If fuel is available, and the high wind speeds hit, a wildfire can spread over a large area in a very short amount of time. These factors make the difference between small upstart fires easily controlled by local fire services to fires destroying thousands of acres requiring multiple state and federal assets for containment and suppression.

Given the WUI and Intermix depictions in Maps A155 through 176 (Located in Addendum 1 – Map Compendium) and Map 28 on the following page, every jurisdiction is exposed to wildfires with the exception of Bethel Heights, the NWACC, Decatur SD, Gentry SD, Pea Ridge SD, and the Siloam Springs SD.

The table shown below, details the range of wildfire damages. The severity of the wildfire depends on a number of quickly changing environmental factors. It is impossible to strategically estimate the severity of a wildfire as the quickly changing factors, drought conditions and wind speed, have such a great influence on the wildfire conditions. The exposed participating jurisdictions (see the paragraph above), could experience a wildfire ranging anywhere from 0 to 4 on the Burn Severity Index.

Table 49 – Burn Severity Index				
Rank	Burn Severity	Description	Characteristics	
0	Unburned	Fire extinguished before reaching microsite	 Leaf litter from previous years intact and uncharred No evidence of char around base of trees and shrubs Pre-burn seedlings and herbaceous vegetation present. 	
1	Low Severity Burn	Surface fire which consumes litter yet has little effect on trees and understory vegetation.	 Burned with partially consumed litter present Evidence of low flame heights around base of trees and shrubs (<0.5 m) No significant decreases in overstory & understory basal area, diversity or species richness from pre-burn assessments Usually burning below 80 ° C 	
2	Medium-Low Severity Burn	No significant differences in overstory density and basal area, & no significant differences in species richness. However, understory density, basal area, and species richness declined.	 No litter present and 100% of the area covered by duff Flame lengths < 2 m Understory mortality present, little or no overstory mortality 	
3	Medium-High Severity Burn	Flames that were slightly taller than those of Medium-low intensity fires, but these fires had occasional hot spots that killed large trees, With significant reduction in the understory	 Soil exposure on I-50% of the area Flame lengths <6m High understory mortality with some overstory trees affected 	
4	High Severity Burn	Crown fires, usually a stand replacing burn with relatively high overstory mortality	 Soil exposure >50% Flame lengths >6m Higher overstory mortality >20% Usually burning above 800 ° C 	

*The index is courtesy of the Southern Appalachian Forest Coalition







Benton County Hazard Mitigation Plan







Benton County and its participating jurisdictions regularly experience wildfire events. The Arkansas Forestry Commission reports Benton County and its participating jurisdictions have recorded 456 fires burning 11,729.00 acres between 1989 and 2013. The Arkansas Forestry Commission does not have any recorded deaths or injuries from wildfire in Benton County or its participating jurisdictions.





Chart 17 – Wildfires per Year, Benton County (1989 – 2013)

^{*}The data are from the Arkansas Forestry Commission.





4.3.3A – Probability of Future Events

The data collected by the Arkansas Forestry Commission is based on the county level. Benton County and its participating jurisdictions can expect a wildfire event with a 1824.00% probability per year, or 18.24 fires per year.

Table 50 – Probability, Wildfires					
Event Year	Event Year Acres Burned		Event Count		
1989	994	80			
1990	789	18			
1991	306	13			
1992	147	15			
1993	78	9			
1994	83	10			
1995	207	19			
1996	250	12			
1997	274	10			
1998	199	10			
1999	19	4			
2000	117	8			
2001	91	7			
2002	629	9			
2003	168	8			
2004	105	4			
2005	336	20			
2006	1,021	27			
2007	552	18			
2008	56	6			
2009	201	19			
2010	405	24			
2011	3,237	35			
2012	1,235	57			
2013	230	14			
Total Acres Burned =	11,729.00	Total Recorded Events =	456		
Total Years =	25				
Acres Per Year =	469.16	Yearly Probability =	1824.00%		

*The data are from the Arkansas Forestry Commission.



4.3.4 – Assessing Vulnerability & Impacts

Wildfire Impacts

Benton County and its participating jurisdictions have recorded 456 wildfires since 1989, of which have burned 11,729.00 acres at an average of 469.16 acres per year and 25.72 acres per fire. Based on the future probability in Table 50, Benton County and its participating jurisdictions can expect 469.16 acres to be burned per year. More specific predictions on potential impacts are dependent on highly variable and continually changing conditions not appropriate for this level of planning.



Table 51 – Historical Impacts, Wildfires				
Years (1989 - 2013)	Fires	Acres		
25	456	11,729.00		
Per Year	18.24	469.16		
Acres Per Fire	25.7	2		

*The data are compiled from the Arkansas Forestry Commission.

Vulnerability of Facilities

A wildfire burning near a jurisdiction may cover it in soot, cause secondary fires from traveling coals, or directly engulf facilities burning them to the ground. Facilities can be protected by creating defensible spaces or buffer zones, maintaining a fuel free environment, and structural modifications to prevent the growth of a wildfire.

Benton County and its participating jurisdiction's structures are valued at \$24,036,634,656. A GIS analysis of identified WUI zones puts a total of \$6,496,890,700 worth of the planning area's structural inventory exposed to wildfires. Please see the tables below for a breakdown of these values by sector and jurisdiction.







Table 52 – Vulnerable Structures, Wildfires						
Jurisdiction	Agricultural	Commercial	Public	Industrial	Residential	
Benton County	\$0	\$0	\$0	\$0	\$0	
Avoca	\$146,000	\$4,657,000	\$1,478,000	\$421,000	\$39,023,000	
Bella Vista	\$1,423,000	\$119,409,000	\$780,000	\$11,451,000	\$3,282,545,000	
Bentonville	\$1,141,000	\$82,676,000	\$1,139,000	\$22,897,000	\$1,179,447,000	
Bethel Heights	\$0	\$0	\$0	\$0	\$0	
Cave Springs	\$0	\$188,000	\$0	\$0	\$9,772,000	
Centerton	\$191,000	\$9,439,000	\$118,000	\$1,249,000	\$524,571,000	
Decatur	\$0	\$42,000	\$0	\$43,000	\$3,399,000	
Garfield	\$0	\$4,398,000	\$3,002,000	\$1,116,000	\$29,987,000	
Gateway	\$178,000	\$1,423,000	\$0	\$274,000	\$23,923,000	
Gentry	\$0	\$893,000	\$0	\$0	\$7,875,000	
Gravette	\$1,489,000	\$37,097,000	\$340,000	\$8,039,000	\$223,104,000	
Highfill	\$0	\$300,000	\$0	\$14,000	\$2,246,000	
Little Flock	\$0	\$2,959,000	\$0	\$970,000	\$53,634,700	
Lowell	\$181,000	\$599,000	\$0	\$448,000	\$7,881,000	
Pea Ridge	\$0	\$1,206,000	\$0	\$547,000	\$12,082,000	
Rogers	\$1,971,000	\$34,837,000	\$671,000	\$16,228,000	\$638,147,000	
Siloam Springs	\$0	\$1,650,000	\$0	\$91,000	\$20,399,000	
Springtown	\$0	\$0	\$0	\$0	\$1,814,000	
Sulphur Springs	\$91,000	\$2,666,000	\$157,000	\$396,000	\$53,922,000	
Total (Minus County) =	\$6,811,000	\$304,439,000	\$7,685,000	\$64,184,000	\$6,113,771,700	
Total =	\$6,811,000	\$304,439,000	\$7,685,000	\$64,184,000	\$6,113,771,700	
School District or College Structure Values						
NWACC			\$0			
Bentonville SD	\$41,300,000					
Decatur SD	\$0					
Gentry SD	\$0					
Gravette SD	\$31,200,000					
Pea Ridge SD	\$0					
Rogers SD	\$21,200,000					
Siloam Springs SD	\$0					




Vulnerability of Population

Benton County and its participating jurisdictions have a population of 237,297. A jurisdiction's population greatest vulnerability is an inability to properly evacuate. They can be caught off guard due to improper warning systems and become trapped in a growing wildfire.

Historically, there are no recorded fatalities or injuries in Benton County and its participating jurisdictions from wildfire.

Vulnerability of Systems

In the event a wildfire begins to burn and grow, evacuation routes may become blocked by the fire or by other people attempting to evacuate. The impingement of the local transportation system make appropriate warning and information paramount in mitigating Benton County and its participating jurisdictions' systems vulnerability to wildfires.

4.3.4A – Infrastructure & Critical Facilities

A complete list of infrastructure and critical facilities can be found in Appendix D.

Table 53 – Critical Facilities Summary						
Jurisdiction	Low Risk WUI	Medium Risk WUI	High Risk WUI			
Benton County	AWIN (1), Fire Station (8), School (1)	Fire Station (4)	-			
Avoca	-	Fire Station (1), Municipal Building (1), Municipal Utility (1), Police Station (1)	-			
Belle Vista	Fire Station (2), Municipal Building (5), Police Station (1)	Fire Station (1), Healthcare (1), School (1)	-			
Bentonville	Fire Station (1)	Municipal Utility (2)	-			
Bethel Heights	-	-	-			
Cave Springs	-	Fire Station (1)	-			
Centerton	Fire Station (1)	Municipal Building (1)	-			
Decatur	-	-	-			
Garfield	Fire Station (1)	-	-			
Gentry	-	-	-			
Gravette	Fire Station (1), Healthcare (1), Municipal Utility (1)	-	-			
Highfill	-	-	-			
Little Flock	-	-	-			
Lowell	-	-	-			
Pea Ridge	-	-	-			
Rogers	-	-	-			
Siloam Springs	-	-	-			
Springtown	-	-	-			
Sulphur Springs	-	Fire Station (1), Police Station (1)	-			
NWACC	-	-	-			
Bentonville SD	-	School Building (9)	-			
Decatur SD	-	-	-			
Gentry SD	-	-	-			
Gravette SD	School Building (8)	School Building (3)	-			
Pea Ridge SD	-	-	-			
Rogers SD	School Building (2)	School Building (1)	-			
Siloam Springs SD	-	-	-			





4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to wildfires by way of its facilities', population, and systems' vulerabilities as defined in Section 4.3.4 of this hazard profile. Of the participating jurisdictions that are at risk, only Benton County has seen growth into identified wildfire hazard areas thus increasing their vulnerability and overall risk. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the identified hazard areas. Please see Section 4.4 for information.

4.3.4C – Unique & Varied Risk

	Table 54 – Unique & Varied Risk, Wildfires
Jurisdiction	Risk Characteristics
Benton County	Contains WUI zones of 'low' and 'medium' risk
Avoca	Contains WUI zones of 'low' and 'medium' risk
Bella Vista	Contains WUI zones of 'low,' 'medium,' and 'high' risk
Bentonville	Contains WUI zones of 'low,' 'medium,' and 'high' risk
Bethel Heights	Contains no WUI zones
Cave Springs	Contains WUI zones of 'low' and 'medium' risk
Centerton	Contains WUI zones of 'low,' 'medium,' and 'high' risk
Decatur	Contains WUI zones of 'low' and 'medium' risk
Garfield	Contains WUI zones of 'low' and 'medium' risk
Gateway	Contains WUI zones of 'low' and 'medium' risk
Gentry	Contains WUI zones of 'low' and 'medium' risk
Gravette	Contains WUI zones of 'low,' 'medium,' and 'high' risk
Highfill	Contains WUI zones of 'low' risk
Little Flock	Contains WUI zones of 'low' and 'medium' risk
Lowell	Contains WUI zones of 'low' risk
Pea Ridge	Contains WUI zones of 'low' and 'medium' risk
Rogers	Contains WUI zones of 'low,' 'medium,' and 'high' risk
Siloam Springs	Contains WUI zones of 'medium' risk
Springtown	Contains WUI zones of 'low' and 'medium' risk
Sulphur Springs	Contains WUI zones of 'low,' 'medium,' and 'high' risk
NWACC	Contains no WUI zones
Bentonville SD	Contains WUI zones of 'low' and 'medium' risk
Decatur SD	Contains no WUI zones
Gentry SD	Contains no WUI zones
Gravette SD	Contains WUI zones of 'low' and 'medium' risk
Pea Ridge SD	Contains no WUI zones
Rogers SD	Contains WUI zones of 'low,' 'medium,' and 'high' risk
Siloam Springs SD	Contains no WUI zones





4.3.1 – Description

A winter storm encompasses multiple effects caused by winter weather. Included are strong winds, ice storms, heavy or prolonged snow, sleet, and extreme temperatures. Winter storms can be increasingly hazardous in areas and regions that only see winter storms intermittently.



This plan defines winter storms as a combination of the following winter weather effects as defined by NOAA and the NWS.

Ice Storm: An ice storm is used to describe occasions when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of ¼" or greater.

Heavy Snow: This generally means snowfall accumulating to 4" or more in depth in 12 hours or less; or snowfall accumulating to 6" or more in depth in 24 hours or less. In forecasts, snowfall amounts are expressed as a range of values, e.g., "8 to 12 inches." However, in heavy snow situations where there is considerable uncertainty concerning the range of values, more appropriate phrases are used, such as "...up to 12 inches..." or alternatively "...8 inches or more."

Winter Storm: Hazardous winter weather in the form of heavy snow, heavy freezing rain, or heavy sleet. May also include extremely low temperatures and increased wind.



Chart 18 – Winter Storms per Month, Benton County (1993 – 2013)

*The data are from the NOAA NCDC Storm Event Database.

Benton County Hazard Mitigation Plan







Winter storms occur regularly throughout Benton County and its participating jurisdictions and often affect the entire planning area. These events occur on a massive geographic scale, often affecting multiple counties, regions, and states.

Winter storms typically form with warning and are often anticipated. Like other large storm fronts, the severity of a storm is not as easily predicted and when it is, the window of notification is up to few hours to under an hour. Although meteorologists estimate the amount of snowfall a winter storm will drop, it is not known exactly

how many feet of snow will fall, whether or not it will form an ice storm, or how powerful the winds will be until the storm is already affecting a community.

Winter storms can range from moderate snow over a few hours to blizzard conditions with high winds, freezing rain or sleet, heavy snowfall with blinding wind-driven snow and extremely cold temperatures that last several days.

Historically, Benton County and its participating jurisdictions will typically receive 5 inches of snow during a winter storm, but a single storm in the planning area has managed to accumulate 10 inches. Additionally, Benton County and its participating jurisdictions should be prepared for up to 2 inches of ice during a winter storm, but typically experience between 1/4 and 1/2 inches of ice accumulation.

4.3.3 – Previous Occurrences

Benton County and its participating jurisdictions have no recorded deaths from winter storms.

Since 1993, NOAA has recorded 45 winter storms in Benton County and its participating jurisdictions. Benton County and its participating jurisdictions have recorded \$68,395,000 in property damage from winter storms.

For a complete list of NOAA recorded winter storm events, please reference Appendix E.



Chart 19 – Winter Storms per Year, Benton County (1993 – 2013)

*The data are from the NOAA NCDC Storm Event Database.

Benton County Hazard Mitigation Plan





4.3.3A – Probability of Future Events

Benton County and its participating jurisdictions can expect a winter storm with a 241.29% probability per year, or 2.1429 events per year.

Table 55 – Probability, Winter Storms					
Event Year	Event Count				
1993	3				
1994	3				
1995	2				
1996	3				
1997	1				
1998	0				
1999	4				
2000	3				
2001	1				
2002	4				
2003	3				
2004	0				
2005	0				
2006	2				
2007	2				
2008	2				
2009	2				
2010	3				
2011	4				
2012	0				
2013	3				
Total Recorded Events =	45				
Total Years =	21				
Yearly Probability =	214.29%				

*The data are from the NOAA NCDC Storm Event Database.





Winter Storm Impacts

Benton County and its participating jurisdictions have recorded 45 winter storm events since 1993, of which the range of magnitude can be any combination of winter storms, but will always be considered severe. Based on the future probability in Table 55, Benton County and its participating jurisdictions can expect 2.1429 winter storm events per year which could impact in the form of heavy accumulated snow, accumulated ice, extreme and prolonged cold temperatures, or any combination of the three.



Table 56 – Historical Impacts, Winter Storms				
Count of Events	45			
Impacts Per Year	2.14			
Average Magnitude	-			
Magnitude Range	-			
Average Cost	\$2,735,800			
Magnitude of Cost	\$0 - \$50,000,000			
Total Recorded Cost	\$68,395,000			
Average Fatalities	0			
Total Fatalities	0			
Average Injuries	0			
Total Injuries	0			

*The data are compiled from the NOAA NCDC Storm Event Database.

Vulnerability of Facilities

Structural vulnerability to winter storms is the same throughout Benton County and its participating jurisdictions. Heavy snow accumulation can cause roofing to collapse on old or poorly constructed facilities. Ice storms will coat a facility's exterior, but is unlikely to cause anything more than superficial damage. Prolonged, extremely cold temperatures can cause significant damage to poorly insulated or heated facilities. The cold temperatures can cause a facility's water pipes and plumbing systems to freeze. As the water in these systems turns to ice it expands and eventually will cause pipes to burst.

The average winter storm in Benton County and its participating jurisdictions costs \$2,735,800, while the existing range of a single incident has been from \$0 to \$50,000,000.

Benton County and its participating jurisdiction's structures are valued at \$24,036,634,656. Since winter storms threaten the entire planning area, all structures are considered exposed and vulnerable. Please see the table on the following page for a breakdown of these values by sector and jurisdiction.







Jurisdiction	Agricultural	Commercial	Public	Industrial	Residential	
Benton County	\$24,469,000	\$308,796,000	\$4,276,000	\$106,236,000	\$4,431,276,000	
Avoca	\$146,000	\$4,657,000	\$1,478,000	\$1,084,000	\$39,535,000	
Bella Vista	\$1,423,000	\$119,750,000	\$780,000	\$11,527,000	\$3,292,919,000	
Bentonville	\$25,380,000	\$507,666,000	\$17,912,000	\$124,084,000	\$3,267,777,000	
Bethel Heights	\$334,000	\$24,638,000	\$0	\$30,285,000	\$146,823,000	
Cave Springs	\$336,000	\$23,497,000	\$146,000	\$5,619,000	\$167,938,000	
Centerton	\$292,000	\$24,409,000	\$118,000	\$6,186,000	\$882,612,000	
Decatur	\$2,154,000	\$10,281,000	\$756,000	\$7,761,000	\$135,499,000	
Garfield	\$0	\$4,398,000	\$3,002,000	\$1,116,000	\$29,987,000	
Gateway	\$178,000	\$1,423,000	\$0	\$366,000	\$24,313,000	
Gentry	\$88,000	\$21,547,000	\$1,744,000	\$3,393,000	\$199,560,000	
Gravette	\$2,759,000	\$40,898,000	\$419,000	\$10,360,000	\$270,430,000	
Highfill	\$449,000	\$22,358,000	\$0	\$865,000	\$36,364,000	
Little Flock	\$1,636,000	\$10,536,000	\$83,000	\$2,409,000	\$248,468,000	
Lowell	\$1,116,000	\$97,890,000	\$1,618,000	\$15,220,000	\$611,151,000	
Pea Ridge	\$256,000	\$22,729,000	\$2,712,000	\$2,936,000	\$362,395,000	
Rogers	\$5,881,000	\$777,691,000	\$17,429,000	\$310,099,000	\$4,680,192,000	
Siloam Springs	\$6,628,000	\$189,417,000	\$1,938,000	\$60,079,000	\$1,078,049,000	
Springtown	\$2,000	\$1,811,000	\$135,000	\$654,000	\$26,919,000	
Sulphur Springs	\$91,000	\$2,666,000	\$157,000	\$396,000	\$54,094,000	
Total (Minus County) =	\$49,149,000	\$1,908,262,000	\$50,427,000	\$594,439,000	\$15,555,025,000	
Total =	\$73,618,000	\$2,217,058,000	\$54,703,000	\$700,675,000	\$19,986,301,000	
		School District	or College St	ructure Value	S	
NWACC			\$108,113,520			
Bentonville SD			\$250,180,000			
Decatur SD	\$15,400,000					
Gentry SD	\$44,067,704					
Gravette SD	\$40,700,000					
Pea Ridge SD			\$42,800,000			
Rogers SD			\$411,200,000			
Siloam Springs SD			\$91.818.432			





Vulnerability of Population

Benton County and its participating jurisdictions' population are equally vulnerable throughout the planning area. Benton County and its participating jurisdictions' citizens are at risk from prolonged, cold temperatures if they fail to be sheltered in an adequately heated structure or are unable to reach shelter. Some structures are dependent on electricity for their heating making them vulnerable if a winter storm causes power outages. Additionally, if a winter storm restricts travel, people may become immobile on roadways and be at the mercy of their vehicle's gas supply. Exposure from winter storms in any of these cases can lead to frostbite and hypothermia. Both of these conditions if untreated can lead to death.

Historically, there have been 0 recorded fatalities relating to winter storms across region wide fronts in Benton County and its participating jurisdictions.

Vulnerability of Systems

Benton County and its participating jurisdictions' assets and systems vulnerability to winter storms is the same throughout the planning area. Winter storms create havoc on roads impacting travel from decreased speeds and traffic jams to an ice storm or blowing snow drifts making any travel impossible or extremely dangerous. Additionally, ice storms and snow accumulation can directly bring down power lines or bring down vegetation onto power lines. From these scenarios, Benton County and its participating jurisdictions can suffer power outages making it difficult to heat structures and exposing its citizens to prolonged cold temperatures.

4.3.4A – Infrastructure & Critical Facilities

All infrastructure and critical facilities are equally at risk, since winter storms indiscriminately affect the entire planning area. A complete list of infrastructure and critical facilities can be found in Appendix D.

4.3.4B – Land Use & Development Trends

Benton County and it participating jurisdictions have varying growth as detailed in Section 3.1.1 – Land Use & Development Trends.

Increased residential growth increases a community's risk to winter storms by way of its facilities', population, and systems' vulerabilities as defined in Section 4.3.4 of this hazard profile. Of the participating jurisdictions that are at risk, only Benton County, Bentonville, Cave Springs, Centerton, Gentry, Highfill, Lowell, and Rogers have seen significant growth. In these jurisdictions, their growth since the development of the last plan has increased their vulnerability and overal risk to winter storms. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the planning area. Please see Section 4.4 for information.

4.3.4C – Unique & Varied Risk

Winter storms have ability to affect a portion of or the entire planning area. Unfortunately, there is no accurate method of predicting the location or extent of a severe winter weather event's impact, that being if it will affect one participating jurisdiction up to any number or all participating jurisdictions.

Additionally, it is not possible to predict any varying probability between the participating jurisdictions with the exception of varying risk as it is proportionate to a participating jurisdiction's demographics. Logically, participating jurisdictions with a greater population are at a higher risk as participating jurisdictions with a lower population are at a lower risk.

Additionally, it is not possible to predict any varying probability between the participating jurisdictions. Although this plan addresses vulnerability to winter storms, without the possibility of being able to calculate all components of risk at a jurisdictional level, each jurisdiction's individual risk to winter storms is not possible to calculate





4.4 – Land Use & Development Trends Summary

A summary assessment for land use, development trends, and growth as they apply to changes in a jurisdiction's vulnerability and risk, can be broken down into two categories. The first being hazards which either indiscriminately affect the entire planning area, such as winter storms, or those which have an equal chance of occurring throughout the entire planning area, such as tornadoes. The second being hazards which have identified hazard areas, such as riverine floods.

For the first category, an increase in growth and development will increase a jurisdiction's vulnerability and risk. For the second category, an increase in growth and development will only increase a jurisdiction's vulnerability and risk if the growth and development exists in the identified hazard areas.

The list below further details how growth and development affects vulnerability and risk. The table on the following page lists these effects for Benton County and its participating jurisdictions.

Area-Wide Hazards:

Area-wide hazards indiscriminately impact the entire planning. Since it is beyond scientific measurement where and area-wide hazard, such as winter storms, will impact, and likely it will impact everywhere, it is reasonable to assume any significant growth and development will increase vulnerability and risk. Additionally, a hazard such as a tornado, will impact a specific path, but we are unable to predict where exactly it will begin. Thus, having any increase in growth or development increases the chance that a tornado will strike a developed segment of a jurisdiction.

For this plan, this is relevant for droughts, excessive heat, earthquakes, flash flooding, tornadoes, severe storms, and winter storms.

Hazards with Identified Hazard Areas:

If a jurisdiction grows or develops into an established dam spillway, floodplain, WUI zone, or an area with greater linear extensibility, that jurisdiction's vulnerability and risk increase by an amount equal to the development or growth that now exists in that identified hazard area.

For this plan, this is relevant for dam failure, riverine flooding, and wildfires.





Table 58 – Land Use & Development Trends, Hazard Summary

lumin disting	Direction	Hazard								
Jurisalction	Direction	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms
Benton County	Internal	Increase	Increase	Increase	Increase	No Change	Increase	Increase	Increase	Increase
Avoca	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Bella Vista	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Bentonville	SW, W, NW, Internal	-	Increase	Increase	Increase	No Change	Increase	Increase	No Change	Increase
Bethel Heights	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	-	No Change
Cave Springs	S, SW, W, Internal	-	Increase	Increase	Increase	Increase	Increase	Increase	No Change	Increase
Centerton	N, E, Internal	Increase	Increase	Increase	Increase	Increase	Increase	Increase	No Change	Increase
Decatur	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Garfield	Not Significant	-	No Change	No Change	No Change	-	No Change	No Change	No Change	No Change
Gateway	Not Significant	-	No Change	No Change	No Change	-	No Change	No Change	No Change	No Change
Gentry	NW, Internal	-	Increase	Increase	Increase	Increase	Increase	Increase	No Change	Increase
Gravette	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Highfill	W, Internal	Increase	Increase	Increase	Increase	No Change	Increase	Increase	No Change	Increase
Little Flock	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Lowell	W, Internal	-	Increase	Increase	Increase	Increase	Increase	Increase	No Change	Increase
Pea Ridge	Not Significant	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Rogers	Internal	-	Increase	Increase	Increase	Increase	Increase	Increase	No Change	Increase
Siloam Springs	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Springtown	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
Sulphur Springs	Not Significant	-	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change





4.5 – Hazard Risk Summary

The table on the following page outlines each participating jurisdiction's general risk to this plan's profiled hazards. The rankings are based on a composite evaluation of this plan's risk assessment, namely, a hazard's probability of occurring in the future, the vulnerability of a jurisdiction to a particular hazard, the intensity of past hazard impacts, and a joint evaluation of local experts and stakeholders.





Table 59 – Hazard Risk Summary										
	Hazard									
Jurisdiction	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms
Benton County	Low	Medium	Low	Low	Medium	High	High	High	Medium	Medium
Avoca	No Risk	No Risk	Low	Low	Medium	Low	High	High	Medium	Medium
Bella Vista	Low	No Risk	Low	Low	Medium	Medium	High	High	High	Medium
Bentonville	No Risk	No Risk	Low	Low	Medium	High	High	High	Low	Medium
Bethel Heights	No Risk	No Risk	Low	Low	Medium	Low	High	High	No Risk	Medium
Cave Springs	Low	No Risk	Low	Low	Medium	Medium	High	High	Low	Medium
Centerton	No Risk	Medium	Low	Low	Medium	High	High	High	Low	Medium
Decatur	No Risk	No Risk	Low	Low	Medium	High	High	High	Low	Medium
Garfield	No Risk	No Risk	Low	Low	Medium	No Risk	High	High	Medium	Medium
Gateway	No Risk	No Risk	Low	Low	Medium	No Risk	High	High	Medium	Medium
Gentry	No Risk	No Risk	Low	Low	Medium	Low	High	High	Low	Medium
Gravette	No Risk	No Risk	Low	Low	Medium	Low	High	High	Medium	Medium
Highfill	No Risk	Medium	Low	Low	Medium	Low	High	High	Low	Medium
Little Flock	No Risk	No Risk	Low	Low	Medium	Low	High	High	Medium	Medium
Lowell	No Risk	No Risk	Low	Low	Medium	Medium	High	High	Low	Medium
Pea Ridge	No Risk	Medium	Low	Low	Medium	Low	High	High	Low	Medium
Rogers	Low	No Risk	Low	Low	Medium	High	High	High	Low	Medium
Siloam Springs	No Risk	No Risk	Low	Low	Medium	High	High	High	Low	Medium
Springtown	No Risk	No Risk	Low	Low	Medium	High	High	High	Low	Medium
Sulphur Springs	No Risk	No Risk	Low	Low	Medium	Low	High	High	High	Medium
NWACC	No Risk	No Risk	Low	Low	Medium	No Risk	High	High	No Risk	Medium
Bentonville SD	No Risk	No Risk	Low	Low	Medium	Low	High	High	Low	Medium
Decatur SD	No Risk	No Risk	Low	Low	Medium	No Risk	High	High	No Risk	Medium
Gentry SD	No Risk	No Risk	Low	Low	Medium	No Risk	High	High	No Risk	Medium
Gravette SD	No Risk	No Risk	Low	Low	Medium	No Risk	High	High	Medium	Medium
Pea Ridge SD	No Risk	No Risk	Low	Low	Medium	No Risk	High	High	No Risk	Medium
Rogers SD	No Risk	No Risk	Low	Low	Medium	Low	High	High	Low	Medium
Siloam Springs SD	No Risk	No Risk	Low	Low	Medium	No Risk	High	High	No Risk	Medium

*These risk ratings are an aggregate assessment of the participating jurisdictions and do not represent specific identified hazard area within a chosen jurisdiction. For example, Bentonville has identified hazard areas determined to be in the highest risk rating of WUI, but their overall risk is assessed as 'low.' This is due to the fact that only some small portions of the jurisdiction have a 'high' rating while their overall risk is lower.





Landslides

The USGS has developed a national GIS dataset that demonstrates an area's susceptibility and probability of incidence based on a variety of soil, slope, and climactic factors. According to their analysis, all areas of Benton County and its participating jurisdictions are in the lowest risk category. The lowest risk category, according to the USGS is the least likely zones to experience a landslide in their national dataset. This places Benton County and its participating jurisdictions in the same risk category as that of a desert or a plain, thus making the probability of one occurring mathematically negligible to zero.

The USGS's data set is displayed across Benton County on the following page.







Map 29 – Landslide Risk, Benton County



Section 5 – Mitigation Strategy

5.1 – Mitigation Capabilities

Benton County and its participating jurisdictions' governments utilize a single emergency management agency for their services, this being the Benton County Emergency Management Agency.

Local initiatives, programs, and policies, are often facilitated by the Benton County EMA in coordination with local governments, and other emergency related entities, as it is the sole, primary agency responsible for emergency management. The Benton County EMA does this by fostering local partnerships and relationships, an active LEPC, and assisting local governments with funding and training initiatives. Planning Process

Local Procedures & Resources

Planning Area

Hazard Risk Assessment

Mitigation Strategy

- Capabilities
- Floodplain Programs
- Goals
- Projects
- Evaluations & Prioritizations
- Planning Integration

All future implemented mitigation projects will be overseen by the Benton County EMA and will coordinate with the corresponding local municipal government. The corresponding local government involvement will vary by jurisdiction and be decided by that jurisdictional government as they see it fit to best plan, design, and implement mitigation projects.

Each jurisdiction has the ability to levee their own taxes through law, or in the case of school districts, through referendum. Each jurisdiction has their own budget to appropriate towards hazard mitigation as they deem appropriate or necessary. Additionally, the Benton County EMA will seek out grant opportunities through the State of Arkansas and FEMA to help decrease the financial burden on local government.

The development and implementation of this plan comes with the full authority of the Benton County Office of Emergency Management, through the participating jurisdictions, and all resources deemed appropriate and necessary.

Building Codes

All participating jurisdictions in the Benton County HMP are obligated by law to abide by the State of Arkansas Fire Prevention Code 2007. The Benton County HMP does not change any of the state requirements and therefore does not interfere with any jurisdiction's current building code enforcement or land use planning. Some of the participating jurisdictions have adopted newer building codes, these are noted in the capabilities' tables.

Land Use & Zoning

Benton County and its participating jurisdictions adhere to a wide variety of municipal policies, programs, and planning mechanisms to increase maintain community resiliency.

NFIP Construction Compliance

NFIP participating jurisdictions in Benton County are required to meet the minimum standards set forth by participating in the NFIP through the local NFIP Coordinator. The county's NFIP coordinator currently ensures all new construction projects are properly surveyed and receive an elevation certificate. The NFIP coordinator uses FEMA issued D/FIRMs information. Each participating municipality has their own FPA/NFIP-C that coordinates with the county's FPA/NFIP-C







The determination of whether and how to use the Benton County HMP in any NFIP related processes and decisions will be left to the expertise of the FPA/NFIP-C.

Gap Analysis & Capabilities Expansion

The diversity of the planning area is well represented by each participating jurisdiction's mitigation capabilities. The Benton County EMA and the participating jurisdictions have enacted a fair and appropriate amount of policy and planning initiatives for curtailing their hazard risk. That being said, there is always room for improvement and expansion.

A few of the participating jurisdictions have adopted newer building codes than are required by the State of Arkansas. This trend should continue and be facilitated by the Benton County EMA. Influencing jurisdictions to adopt the 2012 code will help reduce risk and provide more sustainable and resilient growth.

The flood assessment in the previous section and the maps in Addendum 1 outline a host of residential and commercial development existing within established floodplains and an estimated inundation area. Although there are floodplain ordinances in place, some participating jurisdictions have floodplains within their municipal borders, but do not municipal specific restrictions. The participating jurisdictions have the ability to efficiently and quickly decrease future flood and dam failure vulnerabilities by regulating future development through floodplain management ordinances.

Benton County and its participating jurisdictions are well staffed to perform mitigation related activities as is shown in the table on the following page. Staff levels for the appropriate departments are organizations are listed according to the expertise they can provide to mitigation efforts. Some of the smaller participating jurisdictions have fewer personnel and will work with neighboring jurisdictions to coordinate training and mitigation related activities. Additionally, the school districts and the NWACC don't have their own fire or police force and will coordinate with the appropriate municipality's fire and police when appropriate for mitigation related activities.

The tables on the following pages outline each jurisdiction's authorities, resources, policies, and programs as it relates to hazard mitigation. Personnel resources are measures on a scale according to the U.S. Small Business Administration's size categories: (1 - 6) Micro, (7 - 250) Small, (251 - 500) Medium, (501 - 1000) Large, and (> 1000) Enterprise. It is assumed any labor needed will be contracted for jurisdictions with no personnel resources pertaining to mitigation.





Table 60 – Local Mitigation Capabilities, Part 1						
Jurisdiction	Leading Authority	Programs	Personnel Resources			
Benton County	Quorum Court, EMA	CRS, NFIP, StormReady	EMA (Micro), Fire (Small), Planning (Micro), Police (Small), Public Works (Small)			
Avoca	Town Council	Firewise	Fire (Micro), Police (Micro), Public Works (Micro)			
Bella Vista	City Council	Firewise	Fire (Small), Planning (Micro), Police (Small), Public Works (Small)			
Bentonville	City Council	CRS, Firewise, NFIP	Fire (Small), Hospital (Medium), Planning (Micro), Police (Small), Public Works (Small)			
Bethel Heights	City Council	NFIP	Fire (Small), Planning (Micro), Police (Small), Public Works (Small)			
Cave Springs	City Council	Firewise, NFIP	Fire (Small), Police (Small), Public Works (Small)			
Centerton	City Council	CRS, Firewise, NFIP	Fire (Small), Planning (Micro), Police (Small), Public Works (Small)			
Decatur	City Council	Firewise, NFIP	Fire (Small), Police (Small), Public Works (Micro)			
Garfield	Town Council	NFIP	Fire (Small), Public Works (Micro)			
Gateway	Town Council	NFIP	Public Works (Micro)			
Gentry	City Council	Firewise, NFIP	Fire (Small), Police (Small), Public Works (Small)			
Gravette	City Council	NFIP	Fire (Small), Hospital (Medium), Planning (Micro), Police (Small), Public Works (Small)			
Highfill	Town Council	Firewise	Fire (Small), Police (Micro), Public Works (Micro)			
Little Flock	City Council	Firewise, NFIP	Fire (Micro), Planning (Micro), Police (Micro), Public Works (Small)			
Lowell	City Council	NFIP	Fire (Small), Planning (Micro), Police (Small), Public Works (Small)			
Pea Ridge	City Council	Firewise, NFIP	Fire (Small), Planning (Micro), Police (Small), Public Works (Small)			
Rogers	City Council	Firewise, NFIP, StormReady	Fire (Small), Hospital (Medium), Planning (Micro), Police (Small), Public Works (Small)			
Siloam Springs	City Council	Firewise, NFIP, StormReady	Fire (Small), Hospital (Medium), Planning (Micro), Police (Small), Public Works (Small)			
Springtown	Town Council	-	Fire (Small), Public Works (Micro)			
Sulphur Springs	City Council	Firewise, NFIP	Fire (Micro), Police (Micro), Public Works (Micro)			
NWACC	Foundation Board of Directors	Municipality Determined	Maintenance (Small)			
Bentonville SD	School Board	Municipality Determined	Maintenance (Small)			
Decatur SD	School Board	Municipality Determined	Maintenance (Small)			
Gentry SD	School Board	Municipality Determined	Maintenance (Small)			
Gravette SD	School Board	Municipality Determined	Maintenance (Small)			
Pea Ridge SD	School Board	Municipality Determined	Maintenance (Small)			
Rogers SD	School Board	Municipality Determined	Maintenance (Small)			
Siloam Springs SD	School Board	Municipality Determined	Maintenance (Small)			

Benton County Hazard Mitigation Plan





Table 61 – Local Mitigation Capabilities, Part 2

Jurisdiction	ISO Fire Insurance Rating	Building Codes	Adopted Codes
Benton County	8	Arkansas Fire Prevention 2007	None
Avoca	6	Arkansas Fire Prevention 2007	Firewise
Bella Vista	5	International Fire Prevention 2012	None
Bentonville	2	International Fire Prevention 2012	Firewise
Bethel Heights	3	Arkansas Fire Prevention 2007	None
Cave Springs	6/9	Arkansas Fire Prevention 2007	Firewise
Centerton	4	Arkansas Fire Prevention 2007	Firewise
Decatur	7	Arkansas Fire Prevention 2007	Firewise
Garfield	7	Arkansas Fire Prevention 2007	None
Gateway	5	Arkansas Fire Prevention 2007	None
Gentry	4	Arkansas Fire Prevention 2007	Firewise
Gravette	4	Arkansas Fire Prevention 2007	None
Highfill	5	Arkansas Fire Prevention 2007	Firewise
Little Flock	5	Arkansas Fire Prevention 2007	Firewise
Lowell	3	International Fire Prevention 2012	Firewise
Pea Ridge	5	Arkansas Fire Prevention 2007	None
Rogers	1	International Fire Prevention 2012	Firewise
Siloam Springs	3	International Fire Prevention 2012	Firewise
Springtown	7	Arkansas Fire Prevention 2007	None
Sulphur Springs	7/8	Arkansas Fire Prevention 2007	Firewise
NWACC	N/A	Arkansas Fire Prevention 2007	None
Bentonville SD	N/A	Arkansas Fire Prevention 2007	None
Decatur SD	N/A	Arkansas Fire Prevention 2007	None
Gentry SD	N/A	Arkansas Fire Prevention 2007	None
Gravette SD	N/A	Arkansas Fire Prevention 2007	None
Pea Ridge SD	N/A	Arkansas Fire Prevention 2007	None
Rogers SD	N/A	Arkansas Fire Prevention 2007	None
Siloam Springs SD	N/A	Arkansas Fire Prevention 2007	None





Table 62 – Local Mitigation Capabilities, Part 3

Jurisdiction	Building Codes	Capital	Comprehensive Plan	EOP
-	, in the second	Improvement Plan		
Benton County	Yes	No	No	Yes
Avoca	Yes	No	Yes	Covered under county EOP
Bella Vista	Yes (2012)	No	No	Covered under county EOP
Bentonville	Yes (2012)	No	No	Covered under county EOP
Bethel Heights	Yes	No	No	Covered under county EOP
Cave Springs	Yes	No	No	Covered under county EOP
Centerton	Yes	No	No	Covered under county EOP
Decatur	Yes	No	No	Covered under county EOP
Garfield	Yes	No	No	Covered under county EOP
Gateway	Yes	No	No	Covered under county EOP
Gentry	Yes	No	Yes	Covered under county EOP
Gravette	Yes	No	No	Covered under county EOP
Highfill	Yes	No	No	Covered under county EOP
Little Flock	Yes	No	No	Covered under county EOP
Lowell	Yes (2012)	No	No	Covered under county EOP
Pea Ridge	Yes	No	No	Covered under county EOP
Rogers	Yes (2012)	No	No	Covered under county EOP
Siloam Springs	Yes (2012)	No	No	Covered under county EOP
Springtown	Yes	No	No	Covered under county EOP
Sulphur Springs	Yes	No	No	Covered under county EOP
NWACC	N/A	N/A	N/A	Covered under county EOP
Bentonville SD	N/A	N/A	N/A	Covered under county EOP
Decatur SD	N/A	N/A	N/A	Covered under county EOP
Gentry SD	N/A	N/A	N/A	Covered under county EOP
Gravette SD	N/A	N/A	N/A	Covered under county EOP
Pea Ridge SD	N/A	N/A	N/A	Covered under county EOP
Rogers SD	N/A	N/A	N/A	Covered under county EOP
Siloam Springs SD	N/A	N/A	N/A	Covered under county EOP





Growth Floodplain Post-Site Plan Subdivision Zoning **Jurisdiction** Management Management Disaster Review Ordinance Ordinance Ordinance Plan Plan Requirement Benton County Yes Yes Expired No Yes No Avoca No Yes Expired No Yes Yes Bella Vista Expired Yes Yes Yes No Yes Bentonville Yes Expired No Yes Yes Yes Expired No No **Bethel Heights** No Yes No Yes Cave Springs Expired No Yes No Yes Centerton No Yes Expired No Yes No Decatur No Yes Expired No No No Garfield Yes Expired No Yes No No Gateway No Yes Expired No No No Gentry No Yes Expired No No No Gravette No Yes Expired No No No Hiahfill Yes Expired No Yes Yes No Little Flock No Yes Expired No No No Yes Lowell Yes Yes Expired Yes No Pea Ridge Yes No Yes Expired No No Rogers No Yes Expired No No No Siloam Springs Yes Yes Expired No Yes Yes Springtown Yes Yes Expired No No No Yes Sulphur Springs Expired No No Yes No NWACC N/A N/A N/A N/A N/A No Bentonville SD N/A N/A N/A N/A No N/A Decatur SD N/A N/A N/A No N/A N/A Gentry SD N/A N/A N/A N/A No N/A Gravette SD N/A N/A N/A N/A No N/A Pea Ridge SD N/A N/A No N/A N/A N/A Rogers SD N/A N/A N/A N/A N/A No Siloam Springs SD N/A N/A N/A No N/A N/A

Table 63 – Local Mitigation Capabilities, Part 4





5.2 – Floodplain Programs

Eighteen jurisdictions participating in this plan are currently active members of the NFIP. The table below contains a list of each community and their NFIP Status. Neither Garfield or Gateway is listed in the FEMA Community Status Book. This is due to the absence of any floodplains in their municipal borders. School districts are not municipal entities and thus do not classify as possible participants of the NFIP program. Benton County, Bentonville, and Centerton participate in FEMA's CRS program. Benton County and Bentonville have CRS ratings of 8 while Centerton has a CRS rating of 9.

The Benton County Planning Department oversees all NFIP related activities within the county. They employ NFIP Coordinator/FPAs to ensure BFE elevation certificates are completed for all new construction in the planning area, ensuring any development in a flood plain is accompanied by a Flood Hazard Development Certificate, and further develops the NFIP program in the planning area to mitigate flood risk to its population. Both certificates are required prior to construction and to be completed by a licensed surveyor.

Table 64 – NFIP Participating Communities						
FEMA Community Status Book Report, Arkansas – (10/16/2014)						
Jurisdiction	CID	Initial FHBM Identified	Initial Firm Identified	Current Effective Map Date	Sanction Date	
Benton County	050419	10/18/1977	09/18/91	06/05/12	09/18/91	
Avoca	050582	-	09/18/91	06/05/12	09/18/92	
Bella Vista	050511	-	09/28/07	09/28/07	06/12/08	
Bentonville	050012	05/10/74	07/16/80	06/05/12	07/16/80	
Bethel Heights	050386	04/25/75	09/18/91	09/28/07	04/19/96	
Cave Springs	050398	10/29/1976	09/18/91	06/05/12	04/28/08	
Centerton	050399	04/18/75	08/24/82	06/05/12	08/24/82	
Decatur	050319	04/18/75	01/03/86	09/28/07	01/03/86	
Garfield	No Data	No Data	No Data	No Data	No Data	
Gateway	No Data	No Data	No Data	No Data	No Data	
Gentry	050324	05/02/75	09/18/91	09/28/07(M)	03/11/05	
Gravette	050327	05/02/75	08/24/82	09/28/07(M)	08/24/82	
Highfill	050581	-	09/18/91	06/05/12(M)	07/22/03	
Little Flock	050479	06/21/77	09/18/91	06/05/12	01/14/08	
Lowell	050342	05/02/75	08/19/87	06/05/12	08/19/87	
Pea Ridge	050361	04/18/75	09/01/87	06/05/12	09/01/87	
Rogers	050013	05/24/74	03/02/81	06/05/12	03/02/81	
Siloam Springs	050014	05/10/74	11/19/1980	09/28/07	11/19/1980	
Springtown	050004	-	09/28/07	06/05/12	09/09/04	
Sulphur Springs	050015	08/23/74	09/21/82	09/28/07	09/21/82	
NWACC	N/A	N/A	N/A	N/A	N/A	
Bentonville SD	N/A	N/A	N/A	N/A	N/A	
Decatur SD	N/A	N/A	N/A	N/A	N/A	
Gentry SD	N/A	N/A	N/A	N/A	N/A	
Gravette SD	N/A	N/A	N/A	N/A	N/A	
Pea Ridge SD	N/A	N/A	N/A	N/A	N/A	
Rogers SD	N/A	N/A	N/A	N/A	N/A	
Siloam Springs SD	N/A	N/A	N/A	N/A	N/A	





5.3 – Mitigation Goals

Goals for Benton County and its participating jurisdictions were established based upon results from the local and state risk assessments, Benton County HMPT meetings, and input from non-planning team local jurisdiction and state officials. These goals represent Benton County and its participating jurisdictions' long-term vision for the continued reduction of hazard risks and the enhancement of mitigation capabilities.

Goal 1: Reduce the risk from natural hazard events utilizing community cooperation and an all hazards approach.

Goal 2: Pursue additional, complete, and accurate data in support of mitigation planning, disaster preparedness, disaster response, and disaster recovery operations.

Goal 3: Integrate the hazard mitigation plan's findings into the planning, and decision making processes for all current and future emergency management and preparedness related activities.

Goal 4: Minimize the risk to life and property from dam failures.

- Goal 5: Minimize the risk to property from droughts.
- Goal 6: Minimize the risk to life and property from earthquakes.
- Goal 7: Minimize the risk to life from excessive heat.
- Goal 8: Minimize the risk to life and property from floods.
- Goal 9: Minimize the risk to life and property from severe storms.
- Goal 10: Minimize the risk to life and property from tornadoes.
- Goal 11: Minimize the risk to life and property from wildfires.

Goal 12: Minimize the risk to life and property from winter storms.





5.4 – Mitigation Projects

The Benton County HMPT identified a comprehensive range of 23 possible and unique mitigation projects. The selected set carefully takes an all-hazards approach to mitigation while simultaneously addressing each of the individual, 9, profiled hazards.

The projects and actions were selected based upon their potential to reduce the risk to life and property with an emphasis on new and existing infrastructure, ease of implementation, community and agency support, consistency with local jurisdictions' plans and capabilities, available funding, vulnerability, and total risk. For further information on evaluation criteria, please see Section 5.5. The full list of mitigation projects, their descriptions, and prioritization per jurisdiction can be found in Appendix F.

For the status of mitigation projects since the development of Benton County's previous hazard mitigation plan, please see Section 5.4.1.

The table on the following page summarizes the hazards addressed by each mitigation project and activity and the corresponding participating jurisdictions suggested to undertake the project or activity.

NOTE: Some projects and actions mitigate risk and vulnerability to multiple hazards. Some of these projects and action list participating jurisdictions that are only at risk from one or a few of the mitigated hazards. For instance, the project: "Transportation Status & Routing Notification Systems" mitigates against multiple hazards, including dam failure. All participating jurisdictions are interested in this project, but some will not be using it to mitigate dam failure. Instead they will be using the project to mitigate against floods, severe storms, wildfires, and winter storms.





Table 65 – Mitigation Projects Summary

Mitigation Project or Activity	Hazards Addressed	Jurisdictions	
Air Conditioning & Ventilation Modernization	Excessive Heat	All Participating	
Alert, Broadcast, and Warning System	Dam Failure, Flash Floods, Riverine Floods, Severe Storms, Tornadoes, Wildfires, Winter Storms	All Participating	
Critical Facility Backup Generator Installation	Dam Failure, Earthquakes, Excessive Heat, Severe Storms, Tornadoes, Wildfires, Winter Storms	All Participating	
Debris & Natural Fuels Reduction Program	Severe Storms, Tornadoes, Wildfires	All Participating	
Defensible Spaces/Buffer Zones Program	Wildfires	All Participating	
Earthquake Vulnerability Assessment & Facilities Retrofit Program	Earthquakes	All Participating	
FEMA Code 361 Safe Room Projects	Severe Storms, Tornadoes	All Participating	
Insulation & Energy Efficiency Upgrade Program	Excessive Heat, Winter Storms	All Participating	
Interior Furnishing Hazard Reduction Program	Earthquakes	All Participating	
Low Flow Utilities Installation Program	Droughts	Benton County, Centerton, Highfill, Pea Ridge	
Public Awareness & Education Campaign	Dam Failure	Benton County, Bella Vista, Cave Springs, Rogers	
Purchase Repetitive Loss & Severe Repetitive Loss Properties	Riverine Floods	Benton County, Bentonville, Cave Springs, Decatur, Rogers, Siloam Springs	
Rainwater Retention/Detention Project	Droughts, Flash Floods, Riverine Floods	All Participating	
Remote Water Monitoring Stations	Droughts	Benton County, Centerton, Highfill, Pea Ridge	
Snow Fence Installation Program	Winter Storms	All Participating	
Storm Water Drainage System Upgrade	Flash Floods, Riverine Floods	All Participating	
Structural Integrity Monitoring Instruments	Dam Failure	Benton County, Bella Vista, Cave Springs, Rogers	
Transportation Status & Routing Notification Systems	Dam Failure, Flash Floods, Riverine Floods, Severe Storms, Wildfires, Winter Storms	All Participating	
Tree Wire Installation	Severe Storms, Tornadoes	All Participating	
Underground Electrical Transmission Installation	Severe Storms, Tornadoes, Winter Storms	All Participating	
Water Line Insulation Program	Winter Storms	All Participating	
Wildfire Structural Retrofit Program	Wildfires	All Participating	
Xeriscaping	Droughts	Benton County, Centerton, Highfill, Pea Ridge	





5.4.1 – Mitigation Projects Timeline

The graph below is a suggested timeline for Benton County and its participating jurisdictions' implementation of their mitigation projects and activities. The graph's suggestions are based on implementing higher priority projects and activities earlier than lower priority projects and activities. If a project or activity's priority varies for any participating jurisdictions, the jurisdiction is listed below the project name and in italics. This timeline will vary from participating jurisdictions as their individual priorities change. Please see Section 5.5.2 and Appendix G for per jurisdiction mitigation project prioritization.

Mitigation Project or Activity					
Air Conditioning & Ventilation Modernization				Low Priority	
Alert, Broadcast, and Warning System		High Priority			
Critical Facility Backup Generator Installation		High Priority			
Debris & Natural Fuels Reduction Program			Medium Priority		
Defensible Spaces/Buffer Zones Program				Low Priority	
Earthquake Vulnerability Assessment & Facilities Retrofit Program				Low Priority	
FEMA Code 361 Safe Room Projects		High Priority			
Insulation & Energy Efficiency Upgrade Program			Medium Priority		
Interior Furnishing Hazard Reduction Program				Low Priority	
Low Flow Utilities Installation Program				Low Priority	
Public Awareness & Education Campaign				Low Priority	
Purchase Repetitive Loss & Severe Repetitive Loss Properties			Medium Priority		
Rainwater Retention/Detention Project		High Priority			
Remote Water Monitoring Stations				Low Priority	
Snow Fence Installation Program				Low Priority	
Storm Water Drainage System Upgrade		High Priority			
Structural Integrity Monitoring Instruments				Low Priority	
Transportation Status & Routing Notification Systems			Medium Priority		
Tree Wire Installation			Medium Priority		
Underground Electrical Transmission Installation		High Priority			
Water Line Insulation Program				Low Priority	
Wildfire Structural Retrofit Program				Low Priority	
Xeriscaping				Low Priority	
Initiation Year	1	2	3	4	5





5.4.2 – Mitigation Project Updates

The following details the mitigation projects and actions suggested in their previous FEMA approved hazard mitigation plan. In the event an activity was not implemented, the cause or reason is included in the status column. Some previously listed mitigation activities are no longer considered mitigation and are tagged with "Not Mitigation." If an activity has been carried forward into this plan, the corresponding project number is listed alongside the status tag.

Table 66 – Mitigation Project Updates									
Project	Jurisdiction	Lead Department	Status	Emphasis					
Address Flooding Issues in Sulphur Springs	Sulphur Springs	City Staff	Ongoing	New & Existing					
Adopt Water Conservation Measures for Droughts	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing					
Adopt Wind Resistant Building Codes	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing					
Acquire and Relocate RL/SRL Properties	All	County EMA, Municipal Staff	Ongoing	New & Existing					
Acquire Mitigation Funding through Grant Programs	All	County EMA, Municipal Staff	Completed	New & Existing					
Assure Zoning & Building Code Enforcement	All	County EMA, Municipal Staff	Ongoing	New & Existing					
Build Flood Retention Pond Upstream from Decatur	Decatur	City Staff	Ongoing	New & Existing					
Build Safe Rooms	All	County EMA, Municipal Staff	Ongoing	New					
Conduct a Comprehensive Drought Study	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing					
Conduct a Comprehensive Extreme Heat Study	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing					
Conduct a Comprehensive Hail Study	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing					
Conduct a Critical Facilities and Infrastructure Assessment	All	County EMA, Municipal Staff	Completed	New & Existing					
Conduct a Hazard Mitigation Gap Analysis	All	County EMA, Municipal Staff	Ongoing	New & Existing					
Construct Community Storm Shelters	All	County EMA, Municipal Staff	Ongoing	New & Existing					
Construct New EOC	Benton County	County EMA	Ongoing	New & Existing					
Coordinate with Home Builders Association	All	County EMA, Municipal Staff	Ongoing	New & Existing					
Develop a Drought Education Campaign	All	County EMA, Municipal Staff	Ongoing	New & Existing					
Develop a Hazard Mitigation Website	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing					
Develop an Extreme Heat Education Campaign	All	County EMA, Municipal Staff	Ongoing	New & Existing					
Develop Reverse 911	All	County EMA, Municipal Staff	Completed	New & Existing					
E. Appleblossom Drainage Project	Lowell	Municipal Staff	Ongoing	New & Existing					
Encourage Communities to Participate in the Firewise Program	All	County EMA, Municipal Staff	Ongoing	New & Existing					
Encourage Homeowners to Improve Earthquake Resiliency	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing					
Encourage Homeowners to Improve Landslide Resiliency	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing					
Establish Communication Interoperability Protocols	All	County EMA, Municipal Staff	Ongoing	New & Existing					

Benton County Hazard Mitigation Plan





Project	Jurisdiction	Lead Department	Status	Emphasis
Establish Communication Interoperability Protocols	All	County EMA, Municipal Staff	Ongoing	New & Existing
Establish Effective Dam Breach Protocol	All	County EMA, Municipal Staff	Ongoing	New & Existing
Establish Shelters for Vulnerable Populations	All	County EMA, Municipal Staff	Ongoing	New & Existing
Evaluate Critical Facilities' Vulnerability to Lightning	All	County EMA, Municipal Staff	Ongoing	New & Existing
Evaluate Transportation "Smart Technologies."	All	County EMA, Municipal Staff	Not Implemented - Not Mitigation	New & Existing
Identify Areas of Coordination and Cooperation	All	County EMA, Municipal Staff	Ongoing	New & Existing
Implement Improved FEMA Floodplain Maps	All	County EMA, Municipal Staff	Completed	New & Existing
Improve Alert Broadcasts	All	County EMA, Municipal Staff	Ongoing	New & Existing
Improve County-wide GIS Mapping Capabilities	All	County EMA, Municipal Staff	Completed	New & Existing
Improve Critical Facilities' Hazard Resiliency	All	County EMA, Municipal Staff	Ongoing	New & Existing
Improve Floodplain Management Training	All	County EMA, Municipal Staff	Ongoing	New & Existing
Improve Local Drainage Systems	Pea Ridge	City Staff	Ongoing	New & Existing
Improve NFIP Awareness	All	County EMA, Municipal Staff	Ongoing	New & Existing
Improve Winter Storm Alerts	All	County EMA, Municipal Staff	Ongoing	New & Existing
Install Alert Sirens	All	County EMA, Municipal Staff	Ongoing	New & Existing
Monte Ne Branch Drainage Improvement Project	Lowell	Municipal Staff	Completed	New & Existing
Pass Ordinances to Reduce Burning During Drought Conditions	All	County EMA, Municipal Staff	Completed	New & Existing
Public Education & Awareness	All	County EMA, Municipal Staff	Completed	New & Existing
Puppy Creek Bank Restoration Program	Lowell	Municipal Staff	Completed	New & Existing
Purchase Backup Generators	All	County EMA, Municipal Staff	Ongoing	Existing
Purchase Standby Generators	All	County EMA, Municipal Staff	Ongoing	Existing
Replace Low Water Slabs	Benton County	County EMA, Municipal Staff	Ongoing	New & Existing
Spread Awareness of the Benton County Mitigation Plan	All	County EMA, Municipal Staff	Ongoing	New & Existing
Support the State's Mitigation Plan	All	County EMA, Municipal Staff	Completed	New & Existing





5.5 – Mitigation Project Evaluations

Benton County and its participating jurisdictions' mitigation priorities have not changed since the development of its last plan. Their primary hazards risks, and thus priorities, remain flooding, severe storms, wildfires, and winter storms.

A composite evaluation matrix was used to prioritize Benton County and its participating jurisdictions' mitigation projects and activities. The evaluation was conducted for each mitigation project and activity for each jurisdiction. The composite evaluation matrix is comprised of the three factors detailed below.

The first factor is the STAPLE+E evaluation which is best for measuring feasibility and ease of implementation. The tables in Section 5.5.1 provide the STAPLE+E evaluation criteria and the evaluation itself.

The second factor is the effectiveness of the mitigation project. How well does it mitigate the impact of a particular hazard? This is determined by its ability to protect citizens, property, and systems. For instance, installing wires to pin down trees and other objects will reduce their ability to become uprooted or take flight during hazards of high wind, but are not as effective at reducing impacts from tornadoes or strong winds as is properly constructed and reinforced buildings. This factor is rated as: Low = 0.5, Medium = 1, and High = 1.5.

The third factor is a hazard risk based evaluation. It draws on the hazard risk summary found in Section 4.4 of this plan. Each risk rating is assigned a value based on the assessment (None = 0, Low = 5, Medium = 10, and High = 15). A summary of these results are displayed in Section 5.5.2 while the full, per jurisdiction per hazard tables are located in Appendix G.

$(HRT) = (HR_1 + HR_2 + HR_n)$

The total evaluation score is based on the hazard risk total, multiplied by the effectiveness factor, added to the STAPLE+E score.

Hazard Risk Total (HRT): The sum of values (low through high) of each hazard the project is designed to mitigate.

Mitigation Project Effectiveness (MPE): A multiplier based on the projects effectiveness to mitigate against a chosen hazard.

STAPLE+E Evaluation: A raw score comprised or positive and negative feasibility.

(Priority) = (STAPLE+E) + (MPE * HRT)

Upon completing the evaluations a composite score is calculated and prioritized based on their total score (Low = 0 - 25, Medium = 26 - 50, High = > 50).





	Table 67 – STAPLE+E Criteria
Evaluation Category	Sources of Information
Social	Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the communities social and cultural values.
Technical	Mitigation actions are technically most effective if they provide long term reduction of losses and have minimal secondary adverse impacts.
Administrative	Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.
Political	Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support for the action.
Legal	It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.
Economic	Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost benefit review, and possible to fund.
Environmental	Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community's environmental goals, have mitigation benefits while being environmentally sound.





			Та	ble	68	– S	TAF	PLE	+E	Ra	nkiı	ngs												
X = N/A - Even Impact + = Positive Influence								- = Negative Influence																
STAPLE+E Criteria	So	cial	Te	echni	cal	Adm	ninistr	ative	F	Politic	al		Lega	ıl		Econ	omic	;		Envi	ronm	enta		
	mmunity Acceptance	ect on Segment of Population	chnical Feasibility	ng-term Solution	condary Impacts	affing	nding Allocated	iintenance/Operations	litical Support	cal Champion	blic Support	ate Authority	isting Local Authority	tential Legal Challenge	nefit of Action	st of Action	ntribute to Economic Goals	tside Funding Required	ect on Land/Water	ect on Endangered Species	ect on HAZMAT/Waste Sites	nsistent with Community Goals	nsistent with Federal Laws	tal Impact
Considerations	ပိ	Ш.	Τē	Ē	Se	Sta	л. Д	Ma	PG	Ĕ	P	Sta	Ш	Po	Be	ပိ	ပိ	Ő	Ë	Ë	Ш.	ပိ	ပိ	ρ Η
Air Conditioning & Ventilation Modernization	+	+	+	+	+	+	-	-	X	X	Х	+	+	+	+	-	+	-	Х	X	X	+	+	13
Alert, Broadcast, & Warning System	+	+	+	<u> </u>	+	+	-	+	X	X	Х	+	+	+	+	+	+	-	Х	X	X	+	+	14
Critical Facility Backup Generator Installation	+	+	+	+	+	+	-	-	X	X	Х	+	+	+	+	-	+	-	Х	X	X	+	+	13
Debris & Natural Fuels Reduction Program	+	+	+	-	+	-	-	-	X	X	Х	+	+	+	+	+	+	+	Х	X	X	+	+	13
Defensible Spaces/Buffer Zones Program	+	+	+	-	+	+	-	-	X	X	Х	+	+	+	+	+	+	+	Х	X	X	+	+	14
FEMA Code 361 Safe Room Projects	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	-	+	-	Х	X	X	+	+	16
Earthquake Vulnerability Assessment & Facilities Retrofit Program	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	-	+	-	Х	X	X	+	+	14
Insulation & Energy Efficiency Upgrade Program	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	+	+	-	Х	X	X	+	+	15
Interior Furnishing Hazard Reduction Program	+	+	+	<u> </u>	+	+	-	+	X	X	Х	+	+	+	+	+	+	+	Х	X	X	+	+	15
Low Flow Utilities Installation Program	+	+	+	+	-	+	-	+	X	X	Х	+	+	+	+	-	-	-	Х	X	X	+	+	12
Public Awareness & Education Program	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	+	+	+	Х	X	X	+	+	16
Purchase Repetitive Loss & Severe Repetitive Loss Properties	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	+	+	-	Х	X	X	+	+	15
Rainwater Retention/Detention Project	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	-	+	-	Х	X	X	+	+	14
Remote Water Monitoring Stations	+	+	+	-	+	+	-	-	X	X	Х	+	+	+	+	-	+	-	Х	X	X	+	+	12
Snow Fence Installation Program	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	-	+	-	Х	X	X	+	+	14
Storm Water Drainage System Upgrade	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	-	+	-	Х	X	X	+	+	14
Structural Integrity Monitoring Instruments	+	+	+	+	+	+	-	-	X	X	Х	-	-	+	+	-	+	-	Х	X	Х	+	+	11
Transportation Status & Routing Notification Systems	+	+	-	+	+	-	-	-	X	X	Х	+	+	+	+	-	+	-	Х	X	Х	+	+	11
Tree Wire Installation	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	+	+	+	Х	X	Х	+	+	16
Underground Electrical Transmission Installation	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	-	+	-	Х	X	Х	+	+	14
Water Line Insulation Program	+	+	+	+	+	+	-	+	X	X	Х	+	+	+	+	+	+	-	Х	X	Х	+	+	15
Wildfire Structural Retrofit Program	+	+	+	-	+	+	-	+	X	Х	Х	+	+	+	+	-	+	-	Х	X	X	+	+	13
Xeriscaping	+	+	+	-	+	-	-	-	Х	Х	Х	+	+	+	+	+	-	-	+	X	X	+	+	12





5.5.2 – Mitigation Project Prioritization Summary

For the full prioritization matrices, please see Appendix G – Mitigation Project Prioritization.

Table 69 – Mitigation Project Prioritization Summary, Part 1									
Mitian theory Designed and Authority				Jurisd	iction				
Mitigation Project or Activity	Benton County	Avoca	Belle Vista	Bentonville	Bethel Heights	Cave Springs	Centerton	Decatur	Garfield
Air Conditioning & Ventilation Modernization	Low	Low	Low	Low	Low	Low	Low	Low	Low
Alert, Broadcast, & Warning System	High	High	High	High	High	High	High	High	High
Critical Facility Backup Generator Installation	High	High	High	High	High	High	High	High	High
Debris & Natural Fuels Reduction Program	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Defensible Spaces/Buffer Zones Program	Low	Low	Medium	Low	Low	Low	Low	Low	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
FEMA Code 361 Safe Room Project	High	High	High	High	High	High	High	High	High
Insulation & Energy Efficiency Upgrade Program	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Interior Furnishing Hazard Reduction Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Low Flow Utilities Installation Program	Low	N/A	N/A	N/A	N/A	N/A	Low	N/A	N/A
Public Awareness & Education Program	Low	N/A	Low	N/A	N/A	Low	N/A	N/A	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	Medium	N/A	N/A	Medium	N/A	Medium	N/A	Medium	N/A
Rainwater Retention/Detention Project	High	Medium	Medium	High	Medium	Medium	High	High	Medium
Remote Water Monitoring Stations	Low	N/A	N/A	N/A	N/A	N/A	Low	N/A	N/A
Snow Fence Installation Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Storm Water Drainage System Upgrade	High	Medium	Medium	High	Medium	Medium	High	High	Medium
Structural Integrity Monitoring Instruments	Low	N/A	Low	N/A	N/A	Low	N/A	N/A	N/A
Transportation Status & Routing Notification Systems	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Tree Wire Installation	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Underground Electrical Transmission Installation	High	High	High	High	High	High	High	High	High
Water Line Insulation Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Wildfire Structural Retrofit Program	Low	Low	Medium	Low	Low	Low	Low	Low	Low
Xeriscaping	Low	N/A	N/A	N/A	N/A	N/A	Low	N/A	N/A





Table 70 – Mitigation Project Prioritization Summary, Part 2

Mitigation Project or Activity					Juris	diction			
Miligation Project of Activity	Gateway	Gentry	Gravette	Highfill	Little Flock	Lowell	Pea Ridge	Rogers	Siloam Springs
Air Conditioning & Ventilation Modernization	Low	Low	Low	Low	Low	Low	Low	Low	Low
Alert, Broadcast, & Warning System	High	High	High	High	High	High	High	High	High
Critical Facility Backup Generator Installation	High	High	High	High	High	High	High	High	High
Debris & Natural Fuels Reduction Program	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Defensible Spaces/Buffer Zones Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Earthquake Facilities Retrofit Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
FEMA Code 361 Safe Room Project	High	High	High	High	High	High	High	High	High
Insulation & Energy Efficiency Upgrade Program	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Interior Furnishing Hazard Reduction Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Low Flow Utilities Installation Program	N/A	N/A	N/A	Low	N/A	N/A	Low	N/A	N/A
Public Awareness & Education Program	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Low	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Medium	Medium
Rainwater Retention/Detention Project	Medium	Medium	Medium	High	Medium	Medium	High	High	High
Remote Water Monitoring Stations	N/A	N/A	N/A	Low	N/A	N/A	Low	N/A	N/A
Snow Fence Installation Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Storm Water Drainage System Upgrade	Medium	Medium	Medium	Medium	Medium	Medium	Medium	High	High
Structural Integrity Monitoring Instruments	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Low	N/A
Transportation Status & Routing Notification Systems	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Tree Wire Installation	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Underground Electrical Transmission Installation	High	High	High	High	High	High	High	High	High
Water Line Insulation Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Wildfire Structural Retrofit Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Xeriscaping	N/A	N/A	N/A	Low	N/A	N/A	Low	N/A	N/A





Table 71 – Mitigation Project Prioritization Summary, Part 3

Mitigation Project or Activity				J	urisdicti	on			
Miligation Project of Activity	Springtown	Sulphur Springs	Bentonville SD	Decatur SD	Gentry SD	Gravette SD	Pea Ridge SD	Rogers SD	Siloam Spring SD
Air Conditioning & Ventilation Modernization	Low	Low	Low	Low	Low	Low	Low	Low	Low
Alert, Broadcast, & Warning System	High	High	High	High	High	High	High	High	High
Critical Facility Backup Generator Installation	High	High	High	High	High	High	High	High	High
Debris & Natural Fuels Reduction Program	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Defensible Spaces/Buffer Zones Program	Low	Medium	Low	Low	Low	Low	Low	Low	Low
Earthquake Facilities Retrofit Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
FEMA Code 361 Safe Room Project	High	High	High	High	High	High	High	High	High
Insulation & Energy Efficiency Upgrade Program	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Interior Furnishing Hazard Reduction Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Low Flow Utilities Installation Program	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Public Awareness & Education Program	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rainwater Retention/Detention Project	High	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Remote Water Monitoring Stations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Snow Fence Installation Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Storm Water Drainage System Upgrade	High	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Structural Integrity Monitoring Instruments	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Transportation Status & Routing Notification Systems	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Tree Wire Installation	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Underground Electrical Transmission Installation	High	High	High	High	High	High	High	High	High
Water Line Insulation Program	Low	Low	Low	Low	Low	Low	Low	Low	Low
Wildfire Structural Retrofit Program	Low	Medium	Low	Low	Low	Low	Low	Low	Low
Xeriscaping	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A





5.6 – Planning Integration

The Benton County HMP will be incorporating into existing planning mechanisms in varying processes. These processes will be tailored to the unique characteristics of the planning mechanism and the governing structure of each participating jurisdiction.

Emergency Management Planning

All jurisdictions in the Benton County HMP, have deferred their emergency management authority to the Benton County Emergency Management Agency.

Emergency Operations Plans

The Benton County EOP will be reviewed and updated to reflect the most probable and dangerous hazard event scenarios from the HMP's risk assessment. Additionally, the HMP will be added in its entirety as an Appendix to the EOP. This revision is the responsibility of the Benton County EMA for all of the jurisdictions participating in this plan. Upon revision completion, all participating jurisdictions and appropriate emergency services will be notified of the revisions and sent out new copies of the EOP.

State of Arkansas Hazard Mitigation Plan

The state's HMP is required by FEMA regulation to include all local HMPs. The process of integrating the Benton County HMP into this plan is already an established process and is managed by the Arkansas Department of Emergency Management.

Infrastructure, Development & Construction Projects

All jurisdictions in Benton County approach infrastructure, development, and construction projects in the same way. The demographics of Benton County allows for planning to exist only through collaboration with their LEPC.

Benton County Local Emergency Planning Committee (LEPC)

The Benton County LEPC is a conduit for all mitigation actions and projects. It is headed by the Benton County EMA and meets quarterly, although there is flexibility in their schedule. The location of the meetings is not fixed as to increase jurisdictional participation. Members of the LEPC come from all jurisdictions and a wide variety of local agencies and departments.

Mitigation Projects & Actions Implementation

Upon adoption of a HMP or other EMA related plans, the Benton County EMA will notify all participating jurisdiction when the next LEPC meeting topic will be reviewing mitigation project and action selections. Each jurisdiction then approves a list of mitigation actions and projects they want to pursue according to the mechanism listed in the table on the following page. During the LEPC meeting, the Benton County EMA will assist the jurisdictions in determining which grant program and path will be appropriate for the project. After selection, the jurisdictions return to the Benton County EMA, through the LEPC, for assistance on funding and managing the project. If additional funding is necessary, the jurisdictions will have to return to their community and pass a resolution to secure the funding. The resolution is subject to the process listed in table on the following page.

The Benton County EMA will assist in every facet from project inception to completion as well as working with other external organizations for tasks such as grant writing, project monitoring, and project management where appropriate.

Capital Improvement & Economic Development Planning

Upon adoption of this plan, the Benton County EMA will notify each participating jurisdiction's authority. The notification will also contain a special notice to incorporate the following





procedure into any capital improvement projects or economic development planning they may initiate.

Upon project conception a member of the quorum court, city council, school board, mayor, or school superintendent, will contact the Benton County EMA for funding guidance and grant assistance. In Benton County and its participating jurisdictions improvement and development projects rely on grant funding. The Benton County EMA will advise the project proposing jurisdiction on which grant program is appropriate.

Following a funding source decision, a project proposal will be written by the Benton County EMA. The proposals will then return to the project proposing jurisdiction and undergo a vote by the appropriate governing body for approval.

Upon approval by the governing body, the Benton County EMA will assist in applying for and managing the grant funding for the new improvement or development project.

Any and all economic development plans initiated or supported by a jurisdiction will undergo a hazard application process in which all hazard risk assessments from the HMP will be weighed into the cost to benefit analysis of a capital improvement project or economic development planning. This can be done at the local level prior to working with the Benton County EMA and LEPC or exist as a known future consideration and requirement. However, if done at the local level, it must be reviewed and approved by the Benton County EMA. If the hazard assessment process is not done at the local level it will be completed by the Benton County EMA.

Table 72 – Local Planning Mechanisms





Organization	Role	Economic Development Authority	Process Mechanism
Benton County	Local Government	Quorum Court	Voting
Avoca	Local Government	Town Council	Voting
Bella Vista	Local Government	City Council	Voting
Bentonville	Local Government	City Council	Voting
Bethel Heights	Local Government	City Council	Voting
Cave Springs	Local Government	City Council	Voting
Centerton	Local Government	City Council	Voting
Decatur	Local Government	City Council	Voting
Garfield	Local Government	Town Council	Voting
Gateway	Local Government	Town Council	Voting
Gentry	Local Government	City Council	Voting
Gravette	Local Government	City Council	Voting
Highfill	Local Government	Town Council	Voting
Little Flock	Local Government	City Council	Voting
Lowell	Local Government	City Council	Voting
Pea Ridge	Local Government	City Council	Voting
Rogers	Local Government	City Council	Voting
Siloam Springs	Local Government	City Council	Voting
Springtown	Local Government	Town Council	Voting
Sulphur Springs	Local Government	City Council	Voting
NWACC	Community College	Board of Trustees	Voting
Bentonville SD	School District	School Board	Voting
Decatur SD	School District	School Board	Voting
Gentry SD	School District	School Board	Voting
Gravette SD	School District	School Board	Voting
Pea Ridge SD	School District	School Board	Voting
Rogers SD	School District	School Board	Voting
Siloam Springs SD	School District	School Board	Voting






Earthquake Hazard in the New Madrid Seismic Zone Remains a Concern

USGS, 2009

Benton County History & Culture

Encyclopedia of Arkansas History & Culture, 2014

FEDERAL METEOROLOGICAL HANDBOOK No. 1, Surface Weather Observations and Reports

U.S. Department of Commerce / NOAA, 2005

Guidelines and Specifications for Flood Hazard Mapping Partners

FEMA, 2002

Impact of New Madrid Seismic Zone Earthquakes on the Central US

Mid-America Earthquake Center / Center for Technology, Security and Policy at Virginia Tech University / Institute for Crisis, Disaster & Risk Management at George Washington University, 2009

Local Mitigation Plan Review Guide

FEMA, 2011

Local Mitigation Planning Handbook

FEMA, 2013

Mitigation Ideas A Resource for Reducing Risk to Natural Hazards FEMA. 2013

<u>Multi-hazard Loss Estimation Methodology – Flood Model – Hazus-MH – User Manual</u> *FEMA, 2012*

<u>Multi-hazard Loss Estimation Methodology – Flood Model – Hazus-MH – Technical Manual</u> *FEMA, 2012*

MULTI-HAZARD MITIGATION PLANNING GUIDANCE UNDER THE DISASTER MITIGATION ACT OF 2000

FEMA, 2008

National Mitigation Framework

Department of Homeland Security, 2013

<u>Understanding Your Risks: Identifying Hazards and Estimating Losses (FEMA 386-2)</u> FEMA, 2001

Winter Storms The Deceptive Killers: A Preparedness Guide

U.S. Department of Commerce / FEMA / NOAA / NWS / American Red Cross, 2008





Quantitative Data Sources

Arkansas Forestry Commission FEMA NOAA NCDC U.S. Census Bureau USACE USGS

Geographic Data Sources

Arkansas GeoStor 6.0 BOLDplanning Inc. ESRI FEMA HAZUS (2.0, 2.1) FEMA NFHL NOAA NWS Storm Prediction Center University of Wisconsin – Madison, Department of Forest Ecology and Management U.S. Census Bureau USDA SSURGO USGS





NWA MarketPlace - Legal Notices Legal Notices	Page 1 of 1
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The Benton County Hazard Mitigation Planning Committee will host two meetings on May 29th, 2013 at 10:00 AM and 2:00 PM in the Quorum Count Room located on the third floor of the Benton County Administration Building, 215 East	
County's hazard mitigation plan. This plan will address Benton County's natural hazards' vulnerabilities and will comply with state and federal regulations. Both meetings will address Benton County's natural hazards' vulnerabilities and will comply with state and federal regulations. Both meetings will cover the same information. The white is encouraged to attend and	
ask questions, provide input, and express any concerns they may have. #72588616 May 4, 10, 2014	
Post Date: 04/05 12:00 AM Reficoda: #72588616	
Tweet (0) Recommend (0) (8+1 (0)	
Similar Listings	
NTHE JUVENILE COURT OF FEFINGHAM COUNTYSTATE OF GEORGIAIN THE INTEREST OF GIS F. SEX: Male	
DOB: 09/24/11A.R.F., SEX: Female; DOB: 08/01/08/mor children under 18 years of agePETITION TO TERMINATE PARENTAL RIGHTSNOTICE OF SUMMONSTO; AMANDA NAGEL FIELDS, the mother of G.S.F., a male child born on	
September 24, 2011 and A.R.F., a female child born on August 1, 2008. You are hereby notified that the above styled action seeking to terminate your parental rights and place permanent custody of said children with the Georgia	
Department of Human Services, acting through the Effingham County Department of Family and Children Services, was filed in said Court on March 14, 2014 and that by reason of Order for Service by Publication, entered by the Court on	
Post Date: 15/04 12:00 AM Show more	
IN THE CIRCUIT COURT OF BENTON COUNTY, ARKANSASMARTHA JORNYNE REES, a married person, and her husband, TOM REES, JOHN ED MOSIER, a married person, and his wife, SARA JENE MOSIER, JUNE MOSIER CHAMPLESS, a constraint exclusion of the hubbert with UNIVERSITY of the HUBBER	
person, MOSIER FAMILY PARTNERSHIP, MELINDA K. CRAIG, a married person, and her husband, HAL CRAIG, STEPHEN R. WHITTEN a married person and his wife DARIE BNE WHITTEN. I OLIN R. WHITTEN a married person	×
and his wife, SOCORRO WHITTEN, JERRY D. WHITTEN, JR. a married person, and his wife, JAMIE L. WHITTEN, WHITTEN FAMILY REVOCABLE TRUST DATED 09-26-2011, AMANDA L. IRWIN, a married person, and her husband,	
ROSS CHANNING REED, DOUGLAS ROBERT IRWIN, a married person, and his wife, MARIELLE IRWIN	
•	
IN THE CIRCUIT COURT OF BENTON COUNTY, ARKANSASPROBATE DIVISIONIN THE MATTER OF THE ADOPTION OFALENA MAE GAINES, a minorCase No. PR-2014-81-6MELINDA BISHOP PETITIONERWARNING	
ORDERVINOTICE OF ADOPTION HEARINGTo: Alisha Lynn GainesYou are hereby notified that Melinda Bishop filed a Petition for Adoption in the Benton County, Arkansas, Circuit Court to adopt Alena Mae Gaines, a minor, Please contact	
of the Petition for Adoption You are further notified that a hearing will be held on the Petition for Adoption before the Probate Division of the Circuit Caute of Benton Country, Arkansas, for in the Detition for Adoption before the	
202 E. Central, Bentonville, Arkansas, 72712, on the 21st day of May, 2014, at 9:00 o'clock a.m.You should be present	
Post Date: 23/04 12/00 AM Show more	
Print, Online and Classified Advertising inquiries, contact: Telephone: 866.296.3666 - <u>Email Us</u> - <u>Chat Live Now</u>	
Weddings & Engagements:	
Submit an Announcement	
Obituaries:	





Terry Lewis From: Karen Caler <kcaler@nwaonline.com> Sent: Friday, May 02, 2014 10:08 AM To: Terry Lewis Subject: RE: request for ad Hi Terry, I have the ad set for Sun. 5/4 and 5/11, cost is \$84.00 Thank you, Cathy for Karen From: Terry Lewis [mailto:Terry.Lewis@bentoncountyar.gov] Sent: Thursday, May 01, 2014 12:03 PM To: kcaler@nwaonline.com Subject: FW: request for ad Just want to check and make sure you received this ad. Thank you, **Terry Lewis** Properties/Accounting Specialist P 479-464-6168 F 479-271-1748 terry.lewis@bentoncountyar.gov From: Terry Lewis Sent: Wednesday, April 30, 2014 9:59 AM To: kcaler@nwaonline.com Subject: request for ad Morning, We would like to advertise the attached on Sunday May 3, 2014 and May 10, 2014. If you have any questions, please let me know. Thank you, Terry Lewis Properties/Accounting Specialist P 479-464-6168 F 479-271-1748 terry.lewis@bentoncountyar.gov





Robert T. McGowen	Fire
From: Sent: To: Subject:	Robert T. McGowen Thursday, May 08, 2014 9:21 AM 'Steve Sims'; Brent Boydston; Tom Jenkins (tjenkins@rogersark.org); Siloam Springs FD; mirwin@springdalear.gov Hazard Mitigation Plan Update
Good morning,	
I would like to thank all of you for the County's Hazard Mitigation Pl 75 percent of the cost was approv kickoff meeting. Below is the pub representative for your city atten	the support and commitment you have given Benton County regarding the update of an. We received official notification from FEMA at the end of April that the grant to pay yed. Since that time we have signed a contract with BOLD Planning and scheduled the lic announcement we have put on our website. We are requesting you or a d one of the two meetings discussed below.
The Benton County Hazard Mitiga 2:00 PM in the Quorum Court Roc Central, Bentonville, AR 72712. Th County's hazard mitigation plan. T with state and federal regulations and ask questions, provide input,	tion Planning Committee will host two meetings on May 29 th , 2013 at 10:00 AM and om located on the third floor of the Benton County Administration Building, 215 East his meeting will be led by BOLD planning to kick-off the development of Benton This plan will address Benton County's natural hazards' vulnerabilities and will comply 5. Both meetings will cover the same information. The public is encouraged to attend and express any concerns they may have.
If you have any questions please o	don't hesitate to contact me.
Regards,	
Robert McGowen, MS, CEM, PCP Director Benton County Emergency Manag Office 479-271-1004 Cell 479-270-9249 Fax 479-271-1084	gement
AGENCY BENTON COUNTY	



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Robert T. McGowen	Police
From: Sent: To:	Robert T. McGowen Thursday, May 08, 2014 9:20 AM 'Bella Vista PD'; 'Benton County SO'; 'Bentonville PD'; 'Bethel Heights'; 'Cave Springs PD'; 'Centerton PD'; 'Decatur PD'; 'Gentry PD'; 'Gravette PD'; 'Highfill PD'; 'Little Flock PD'; 'Lowell PD'; 'Pea Ridge PD'; 'Rogers PD'; 'Siloam Springs PD'; 'Sulpher Springs PD'; 'XNA PD'
Subject:	Hazard Mitigation Plan Update
Good morning,	
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If you have any questions ple	ease don't hesitate to contact me.
Regards,	
Robert McGowen, MS, CEM, Director Benton County Emergency M Office 479-271-1004 Cell 479-270-9249 Fax 479-271-1084	, PCP 1anagement
AGENCY BENTON COUNTY	





Robert T. McGowen	Schools
From: Sent: To: Subject:	Robert T. McGowen Thursday, May 08, 2014 9:26 AM 'mpoore@bentonvillek12.org'; 'lben@dsd.k12.ar.us'; 'Randy Barrett'; 'richard.page@gravetteschools.net'; 'rneal@prs.k12.ar.us'; 'jdarr@rps.k12.ar.us'; 'Ken.Ramey@sssd.k12.ar.us'; 'ejorgenson@nwacc.edu'; 'president@jbu.edu' Hazard Mitigation Plan Update
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Regards,	
Robert McGowen, MS, CEM, PC Director Benton County Emergency Mana Office 479-271-1004 Cell 479-270-9249 Fax 479-271-1084	p agement
AGENCY BENTON COUNTY	





Robert T. McGowen	Mayors
From: Sent: To:	Robert T. McGowen Thursday, May 08, 2014 9:18 AM 'Avoca Tommy Odell'; 'Bella Vista Frank Anderson'; 'Bentonville Bob McCaslin'; 'Bethel Heights Jeff Hutcheson'; 'Cave Springs Larry Smith'; 'Centerton Bill Edwards'; 'Decatur Charles Linam'; 'Elm Springs Ben Wall'; 'Garfield Laura Hamilton'; 'Gateway Frank Hackler Jr.'; 'Gentry Kevin Johnston'; 'Gravette Byron Warren'; 'Highfill Stacy Digby'; 'Little Flock Buddy Blue'; 'Lowell Eldon Long'; 'Pea Ridge Jackie Crabtree'; 'Rogers Greg Hines'; 'Siloam Springs David Allen'; 'Springdale Doug Sprouse'; 'Springtown Paul Lemke'; 'Sulphur Springs Bobby Simon'
Subject:	Hazard Mitigation Plan Update
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Benton County Hazard Mitigation Plan





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BOLD planni	Sign In Sheet	Hazard Mitigation Planning Meeting	Department	Position	Pocent PD	LIEUTENANT	EMA	genty garcene an	Siloner Sprigs MD	C: mas Foods		Transpertation Diegeter	Aldeman	Grante Hogran	E megenery Prepareding Coord.	Hackties Coust.	Business Continuity	Business Continuity	Director Rulli, Selety	Per fider Fire 1	Benton Conty	Planning, Buildicy & Code Entrum	Planner I	ADH - Preparedness Coord.	M COARD COUNTY EMERGENY MGt	Darchel " ' J		BENTRAVILLE FD	Chief.	Pirector LM	
		Plan: Benten County	Name	Jurisdiction	JAROD MASON	rucers	MIKE DIXON	BENTON CA. 1	Styn Audu	1 Chestran	Wayne Dive infant	Than Dreeft,	Centry Schuels / Citrof Contry	steveloler a	NW Arkanza, Hospitals	Here Bunge	Kick Windha-	Chris Drymon	GARY DENNIN	Jamie Bagett	MARC TROUCTWIKE	Jonnifer Boner	City of Bulla Vista	Norma Fuikawa	GREGS SUJEREN		Rear (Decention)	BRENT Boydston	BENTONVILLE F.D	Venter County	releast marin









bu	M	Date: 5/27/2014	Phone #	e-Mail Address						rrusterholz@giavettepolicini		479-787-4104	RichMO , CARVEN & CUMMENTE SLADOS LOT	Wall . Water Pater Call & gel	WEARANCE IS BURNS TACTTY AZ. CO.	SSEAJE belle viele cily an com	Csureson @ bellevistacityar.com	(Townof SPRINGTown @ 19440. Com	my so a city at little flock.com	Sinternational @ bentoncounty an grov	1 adres barles Darbannes 900	0 / ¢				
BOLD planni	Sign In Sheet	Hazard Mitigation Planning Meeting	Department	Position				mayer Lower	Mayor, Per Ridge	GIAVETTE POLICE DENT	ASST. CHIEF OF POILOE	FACILITIES / TAMESCUMPUL DROOM		Hun & Polkie Stal	Perice Civit P	Fue chick	PLANNING DIE FLOODPLAN NOMIN	MAYOR	FLOD OPLAN ADMINISTRYON	Hayse	PLANNING DIRECTOR	Reviten Quinty Health	. /			A REPORT OF A DESCRIPTION OF A DESCRIPTI	
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Benton County Hazard Mitigation Plan



facebook.com/emergencyservices	🖡 Benton County Emergency Services 🔍 🦓 Tony Home 🤽 💭 🕾 🚽	Create Page Create Page Creat	Benton County Emergency Services Government Organization	Timeline About Videos Reviews More	PEOPLE > Benton County Emergency Services <	★★★ The Benton County Hazard Mitigation Planning Committee will provide an 5,403 likes Deportunity for public input regarding the draft of the Benton County Hazard Mitigation Plan from 2:00 to 4:00 on Thursday January 22 in the Quorum Court Room located on the third floor of the Benton County 	Invite your friends to like this Page Administration Building, 215 East Central, Bentonville, AR 72712. This plan will address Benton County's natural hazards' vulnerabilities and will	ABOUT ABOUT Step in and ask questions, provide input, and express any concerns they may have. You can review the link here: http://bit.ly/1Aul03s	 Benton County Division of Public Safety http://bentoncountyar.gov/BCAdminSecond.aspx Departments & Services - Judicial & Administrative 	 Suggest Edits Benton County is Arkansas' second most populated, and #1 fastest growing County. Located in the northwest comer (NWA) it is part of the Fayetteville- Springdale-Rogers Metropolitan area and is home to the company headquarters of Wal-mart. (B Hunt and Tuson. The County environment) which was 	APPS BENTONCOUNTYAR.GOV	Like · Comment · Share · ▲ 2 术 1	Benton County Emergency Services
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Benton County Hazard Mitigation Plan











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Name	Address	Phone	E-Mail
Ken FARMOR	BETLA VISTA PD	817-3771	KFARMER @ BELLAVISTACITYAR
PETER (HRISTIC	τ.κ. ο	2703872	perinstie 2 bella vitacita
Junathon T. Muun	EMA Benton Lo.	517.532-7244	
Glenn Tracy JR	Barton Co Building	2711003	glenn. Tracy@bentercounty av. gou
John W. Suddoth	perton Co. Gov.	270 8626	John, Suddert oberto Nevert AR. gov
Skellen R sims	Bella VISE Five	855-8248	ssinse bella unstacity ar, com
Sackie Craftie	fea lidse	451-1102	paridence Catyof pariste con
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NardelWater	Berton Co.	271-1004	Wend I. Water & Berter Carty ARSCI
Pobert Mcbonen	Benton Co	27-1004	
BRENT Boydstr	BFD	271-3151	
/			







Table 73 – Cri	tical Facilities & Infrastructure, Benton County	
Benton County		
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Fire Station	Avoca Fire Department #2	
Fire Station	Beaver Lake Fire Department	
Fire Station	Gallatin Fire Department	
Fire Station	Gallatin Fire Department #2	
Fire Station	Gentry Fire Department #2	
Fire Station	Hickory Creek Fire Department	
Fire Station	Hickory Creek Fire Department #2	
Fire Station	Highway 94 East Fire Department	
Fire Station	Hiwasse Fire Department	
Fire Station	Maysville Fire Department	
Fire Station	Nebco Fire Department #2	
Fire Station	Nebco Fire Department #3	
Fire Station	Nebco Fire Department #4	
Fire Station	Nebco Fire Department #5	
Fire Station	Piney Point Fire Department #1	
Fire Station	Piney Point Fire Department #2	
Fire Station	Piney Point Fire Department #5	
Fire Station	Piney Point Fire Department #4	
Fire Station	Piney Point Fire Department WE	
Fire Station	Pleasure Heights Fire Department	
Fire Station	Praire Creek Fire Department	
Fire Station	Rocky Branch Fire Department	
Municipal Building	Juvenile Justice Center	
Police Station	Benton County Sheriff's Office	
School	Ambassadors for Christ Academy	
School	Mennonite School	
School	New Heights Christian School	
Avoca		
Fire Station	Avoca Volunteer Fire Department	
Municipal Building	Avoca Town Hall	
Municipal Utility	Benton County Water Distribution #1	
Police Station	Benton County Sheriff's Sub-Station	
Bella Vista		
Fire Station	Bella Vista Fire & EMS Department #1	
Fire Station	Bella Vista Fire & EMS Department #2	
Fire Station	Bella Vista Fire & EMS Department #3	
Fire Station	Bella Vista Fire & EOC	
Healthcare	Concordia Care Center	
Healthcare	Highlands Health Center	
Municipal Building	Bella Vista Public Works	
Municipal Building	Bella Vista Street Department #1	





Туре	Name			
Municipal Building	Bella Vista Street Department #2			
Municipal Building	Bella Vista Water Department			
Municipal Building	Bella Vista Building Maintenance Office			
Police Station	Bella Vista Police Department			
Police Station	Benton County Sheriff's Office Sub-Station #2			
School	First United Pre-School			
Bentonville				
Airport	Bentonville Municipal Airport			
Fire Station	Bentonville Fire Department #1			
Fire Station	Bentonville Fire Department #2			
Fire Station	Bentonville Fire Department #3			
Fire Station	Bentonville Fire Department #4			
Fire Station	Bentonville Fire Department #5			
Fire Station	Bentonville Fire Department #6			
Healthcare	Bentonville Manor Nursing Home			
Hospital	Bates Northwest Hospital			
Hospital	Mercy Medical Center			
Municipal Building	Benton County Administration Building			
Municipal Building	Benton County Assessor Annex			
Municipal Building	Benton County Courthouse			
Municipal Building	Benton County Courthouse Annex			
Municipal Building	Bentonville City Hall			
Municipal Building	Bentonville Community Development Building			
Municipal Building	Bentonville Electric Utility Building			
Municipal Building	Bentonville Planning Department			
Municipal Building	Bentonville Public Services Building			
Municipal Building	Bentonville Street Maintenance Building			
Municipal Building	Bentonville Water Utility Building			
Municipal Utility	Bentonville Electric Substation A			
Municipal Utility	Bentonville Electric Substation B			
Municipal Utility	Bentonville Electric Substation C			
Municipal Utility	Bentonville Electric Substation D			
Municipal Utility	Bentonville Wastewater Treatment Plant			
Police Station	Bentonville Police Department			
School	Seventh-day Adventist School			
Bethel Heights				
Fire Station	Springdale Fire Department #42			
Municipal Building	Springdale City Hall			
Municipal Building	Springdale City Shop			
Municipal Utility	Springdale Water Treatment Center			
Police Station	Bethel Heights Police Department			
Cave Springs				
Fire Station	Cave Springs Fire Department			
Municipal Building	Cave Springs City Hall			
Police Station	Cave Springs Police Department			
Police Station	Cave Springs Police Department #2			
Centerton				
Fire Station				





	Name			
Fire Station	Centerton Fire Department #2			
Fire Station	Centerton File Department #2			
Municipal Building	Centerton City Hall			
Municipal Building	Centerton Sewer Office			
Municipal Building	Centerton Water Office			
Municipal Litility	Centerton Water Tower			
Police Station	Centertron Police Station			
School	Life Way Christian School			
Decatur				
Eiro Station	Departur Fire Department #1			
Fire Station	Decatur Fire Department #2			
	Decatur City Administration Office			
	Decelul City Library			
Nunicipal Building	Decatur City Shop			
Police Station				
Gartield				
Fire Station	Nebco Fire Department #1			
Gentry				
Fire Station	Gentry Fire Department #1			
Municipal Building	Gentry City Hall			
Municipal Building	Gentry City Shop			
Municipal Building	Gentry City Support Office			
Municipal Building	Gentry Sewer Plant Office			
Municipal Building	Gentry Water Utility Building			
Municipal Utility	Gentry Sewer Plant Lab			
Municipal Utility	Gentry Water Storage Tank #1			
Municipal Utility	Gentry Water Storage Tank #2			
Municipal Utility	Gentry Booster Pump Station			
Police Station	Gentry Police Department			
School	Ozark Adventist Academy			
Gravette				
Fire Station	Gravette Fire Department			
Healthcare	Gravette Manor Nursing Home			
Hospital	Gravette Hospital			
Municipal Building	Gravette City Annex			
Municipal Building	Gravette City Offices			
Municipal Building	Gravette Transportation Department			
Municipal Building	Gravette City Hall			
Municipal Utility	Gravette Wastewater Plant			
Police Station	Gravette Police Department			
School	Holiness Bible School			
Highfill				
Airport	Northwest Arkansas Regional Airport			
Fire Station	Highfill Fire Department #1			
Fire Station	Highfill Fire Department #2			
Fire Station	NW AR Regional Airport Fire Department			
Municipal Building	Highfill City Hall			
Police Station	Highfill Police Department			





Туре	Name			
Little Flock				
Healthcare	Adult Eductation Building			
Healthcare	Woodlane Building			
Fire Station	Little Flock Fire Department			
Police Station	Little Flock Police Department			
Lowell				
Fire Station	Lowell Fire Department #1			
Healthcare	Lowen The Department #1			
Municipal Building				
Police Station	Lowell Police Department			
Police Station	Lowell Police Department & Courthouse			
School	Grace Lutheran Church-WELS & School			
Boo Pidgo				
	Pea Ridge EMS Building			
	Pea Ridge Fire Department Substation			
Municipal Building	Pea Ridge City Hall			
Municipal Building	Pea Ridge Street Department			
Municipal Utility	Pea Ridge Wasterwater Treatment Center			
Municipal Utility	Pea Ridge Water Tower #1			
Municipal Utility	Pea Ridge Water Tower #2			
Police Station	Pea Ridge Police Department			
Rogers				
Airport	Rogers Municipal Airport			
Fire Station	Rogers Fire Station #1			
Fire Station	Rogers Fire Station #2			
Fire Station	Rogers Fire Station #3			
Fire Station	Rogers Fire Station #4			
Fire Station	Rogers Fire Station #5			
Fire Station	Rogers Fire Station #6			
Fire Station	Rogers Fire Department #7			
Healthcare	Heritage Park Nursing Center			
Healthcare	Innisfree Nursing Center			
Hospital	Northwest Medical Center			
Municipal Building	Rogers Administration Building			
Municipal Building	Rogers City Administration Building			
Municipal Building	Rogers City Offices			
Municipal Building	Rogers Fire Emergency Training Center			
Municipal Building	Rogers Health Department			
Municipal Building	Rogers Police Support Building			
Municipal Building	Rogers Public Library			
Municipal Building	Rogers Street Department			
Police Station	Rogers Courthouse & Public Safety			
School	Benton County School of Arts High			
School	Benton County School of the Arts			
School	Fish Pond Christian School			
School	Janie Darr Elementary School			
School	New Covenant Christian Academy			
School	Providence Academy Elementary			





BENION COUNTY				
Туре	Name			
School	Providence Academy High School			
School	Siloh Christian School at Pinnacle Hills			
Siloam Springs				
Airport	Siloam Springs Airport			
Fire Station	Siloam Springs Fire Station #1			
Fire Station	Siloam Springs Fire Station #2			
Fire Station	Siloam Springs Fire Station #3			
Healthcare	Community Physicians Group			
Healthcare	JBU Maybee Center			
Healthcare	Siloam Springs Nursing & Rehabilitation Center			
Hospital	Siloam Springs Memorial Hospital			
Municipal Building	National Guard Armory			
Municipal Building	Siloam Springs City Administration			
Municipal Building	Siloam Springs City Administration			
Municipal Building	Siloam Springs City Offices			
Municipal Building	Siloam Springs Community Building			
Municipal Building	Siloam Springs Health Department			
Municipal Utility	Siloam Springs Electric Warehouse			
Municipal Utility	Siloam Springs Wastewater Treatment Center			
Municipal Utility	Siloam Springs Water Treatment Center			
Police Station	Siloam Springs Police Station			
School	Main Street Academy			
School	Trinity Christian Academy			
Springtown				
Fire Station	Highfill Fire Station #2			
Sulphur Springs				
Fire Station	Sulphur Springs Fire Department			
Police Station	Sulphur Springs Police Department			



Appendix E – Hazard Event Records



Table 74 – Drought Records, Benton County, Arkansas

20 Drought event(s) were reported in Benton County, Arkansas between 11/01/2005 and 04/30/2014

Mag: Magnitude (No Indices)		Dth: Deaths	Inj: Injur	ies		
PrD: Property Damage (US Dol	lars)	CrD: Crop Dam	CrD: Crop Damage (US Dollars)			
Location	Date	Mag	Dth	Inj	PrD	CrD
Benton County	11/1/2005	-	0	0	\$0	\$0
Benton County	12/1/2005	-	0	0	\$0	\$0
Benton County	1/1/2006	-	0	0	\$0	\$0
Benton County	2/1/2006	-	0	0	\$0	\$0
Benton County	3/1/2006	-	0	0	\$0	\$0
Benton County	4/1/2006	-	0	0	\$0	\$0
Benton County	5/1/2006	-	0	0	\$0	\$0
Benton County	8/1/2011	-	0	0	\$0	\$0
Benton County	9/1/2011	-	0	0	\$0	\$0
Benton County	10/1/2011	-	0	0	\$0	\$0
Benton County	6/19/2012	-	0	0	\$0	\$0
Benton County	7/1/2012	-	0	0	\$0	\$0
Benton County	8/1/2012	-	0	0	\$0	\$0
Benton County	9/1/2012	-	0	0	\$0	\$0
Benton County	10/1/2012	-	0	0	\$0	\$0
Benton County	11/1/2012	-	0	0	\$0	\$0
Benton County	12/1/2012	-	0	0	\$0	\$0
Benton County	1/1/2013	-	0	0	\$0	\$0
Benton County	2/1/2013	-	0	0	\$0	\$0
Benton County	3/1/2013	-	0	0	\$0	\$0
		County Totals	0	0	\$0	\$0

*The data are from the NOAA NCDC Storm Event Database.

Table 75 – Earthquake Records, Benton County, Arkansas

8 earthquake event(s) were reported in Benton County, Arkansas between 04/29/2010 and 07/30/2010

Location	Date	Magnitude	Depth
Benton County	4/29/2010	2.5	-
Benton County	5/21/2010	2.6	1.45
Benton County	6/2/2010	1.9	8.79
Benton County	6/17/2010	2.2	1.94
Benton County	7/1/2010	2.3	0.01
Benton County	7/19/2010	2	9.35
Benton County	7/19/2010	1.6	23.89
Benton County	7/30/2010	2.1	5.88
	Averages	2.15	7.33

*The data are from the USGS.





Table 76 – Excessive Heat Records, Benton County, Arkansas

6 Excessive Heat event(s) were reported in Benton County, Arkansas between 07/20/1998 and 04/30/2014

Mag: Magnitude (No Indices)		Dth: Deaths	Inj: Injur	ies		
PrD: Property Damage (US Dol	lars)	CrD: Crop Dam	nage (US	S Dollars	3)	
Location	Date	Mag	Dth	Inj	PrD	CrD
Benton County	7/20/1998	-	2	0	\$0	\$0
Benton County	7/17/2006	-	0	0	\$0	\$0
Benton County	8/9/2006	-	1	0	\$0	\$0
Benton County	8/2/2011	-	0	0	\$0	\$0
Benton County	7/30/2012	-	0	0	\$0	\$0
Benton County	8/1/2012	-	1	0	\$0	\$0
		County Totals	4	0	\$0	\$0

*The data are from the NOAA NCDC Storm Event Database.

Table 77 – Flash Flood Records, Benton County, Arkansas

58 Flash Flood event(s) were reported in Benton County, Arkansas between 05/09/1993 and 04/30/2014

Mag: Magnitude (No Indices)		Dth: Deaths		Inj: Injur	ies	
PrD: Property Damage (US Dol	lars)	CrD: Crop Damage (US Dollars)				
Location	Date	Mag	Dth	Inj	PrD	CrD
Siloam Springs	5/9/1993	-	0	0	\$50,000	\$0
Benton County	5/18/1993	-	0	0	\$50,000	\$0
Benton County	5/25/1994	-	0	0	\$50,000	\$0
Benton County	5/13/1995	-	0	0	\$0	\$0
Bella Vista	6/10/1995	-	0	0	\$0	\$0
Maysville-Gravette	6/10/1995	-	0	0	\$0	\$0
Countywide	6/10/1995	-	0	0	\$0	\$0
S Of Siloam Springs	5/10/1996	-	0	0	\$5,000	\$0
Bentonville	9/26/1996	-	0	0	\$0	\$0
Vaughn-Bentonville	9/26/1996	-	0	0	\$0	\$0
Bentonville	11/6/1996	-	0	0	\$0	\$0
Countywide	11/7/1996	-	0	0	\$0	\$0
Nr War Eagle	7/10/1997	-	0	0	\$0	\$0
Siloam Spgs	8/19/1998	-	0	0	\$0	\$0
Countywide	10/5/1998	-	0	0	\$0	\$0
Highfill	2/6/1999	-	0	0	\$0	\$0
Countywide	5/4/1999	-	0	0	\$0	\$0
West Portion	6/30/1999	-	0	0	\$100,000	\$0
Countywide	6/17/2000	-	0	0	\$0	\$0
Countywide	6/21/2000	-	0	0	\$1,200,000	\$0
Countywide	6/28/2000	-	0	0	\$0	\$0
Healing Spgs	2/24/2001	-	0	0	\$0	\$0
Gentry	2/24/2001	-	0	0	\$0	\$0
Countywide	5/17/2002	-	0	0	\$0	\$0
Countywide	4/23/2004	-	0	0	\$0	\$0
Gentry	4/30/2004	-	0	0	\$0	\$0
Countywide	7/3/2004	-	0	0	\$1,000,000	\$0
Countywide	11/1/2004	-	0	0	\$0	\$0
Countywide	1/12/2005	-	0	0	\$0	\$0
Gravette	6/13/2005	-	0	0	\$0	\$0

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BENTON COUNTY



Location	Date	Mag	Dth	Inj	PrD	CrD
Bentonville	6/1/2007	-	0	0	\$0	\$0
Gravette	1/7/2008	-	0	0	\$10,000	\$0
Sulphur Spgs	1/8/2008	-	0	0	\$0	\$0
Siloam Spgs	3/3/2008	-	0	0	\$0	\$0
Sulphur Spgs	3/18/2008	-	0	0	\$250,000	\$0
Gallitin	3/31/2008	-	0	0	\$0	\$0
Gravette	4/10/2008	-	0	0	\$0	\$0
Sulphur Spgs	4/10/2008	-	0	0	\$0	\$0
Siloam Spgs	6/1/2008	-	0	0	\$0	\$0
Garfield	7/5/2008	-	0	0	\$0	\$0
Cave Spgs	5/1/2009	-	0	0	\$0	\$0
Lowell	10/9/2009	-	0	0	\$20,000	\$0
Bella Vista	4/25/2011	-	2	0	\$0	\$0
Pea Ridge	5/22/2011	-	0	0	\$0	\$0
Gallitin	5/23/2011	-	4	0	\$0	\$0
Bentonville	4/18/2013	-	0	0	\$0	\$0
Springtown	4/18/2013	-	0	0	\$0	\$0
Springtown	5/10/2013	-	0	0	\$0	\$0
Cave Springs	5/10/2013	-	0	0	\$0	\$0
Centerton	5/10/2013	-	0	0	\$0	\$0
Bella Vista	5/10/2013	-	0	0	\$0	\$0
Bentonville	5/10/2013	-	0	0	\$20,000	\$0
Gentry	5/10/2013	-	0	0	\$0	\$0
Gateway	8/8/2013	-	0	0	\$1,000,000	\$0
Bella Vista	8/8/2013	-	0	0	\$1,000,000	\$0
Bentonville	8/8/2013	-	0	0	\$2,000,000	\$0
Pea Ridge	8/8/2013	-	0	0	\$1,000,000	\$0
Highfill	8/8/2013	-	0	0	\$0	\$0
		County Totals	6	0	\$7,755,000	\$0

*The data are from the NOAA NCDC Storm Event Database.

Table 78 – Riverine Flood Records, Benton County, Arkansas

5 Flood event(s) were reported in Benton County, Arkansas between 07/01/1999 and
04/30/2014

Mag: Magnitude (No Indices)		Dth: Deaths		Inj:	Injuries		
PrD: Property Damage (US Dollars)		CrD: Crop Dam	CrD: Crop Damage (US Dollars)				
Location	Date	Mag	Dth	Inj	PrD	CrD	
Rogers	7/1/1999	-	0	0	\$0	\$0	
Bentonville Municipal Airport	4/18/2013	-	0	0	\$0	\$0	
Bentonville	4/18/2013	-	0	0	\$0	\$0	
Bella Vista	4/18/2013	-	0	0	\$0	\$0	
Maysville	4/18/2013	-	0	0	\$0	\$0	
		County Totals	0	0	\$0	\$0	

*The data are from the NOAA NCDC Storm Event Database.





Table 79 – Hail Records, Benton County, Arkansas

267 Hail event(s) were r	eported in B	enton County 04/30/2014	y, Arka	nsas k	between 06/27	7/1956 and
Mag: Magnitude (Diameter in inches)		Dth: Deaths	In	i: Injurie:	S	
PrD: Property Damage (US Dol	lars)	CrD: Crop Dam	nage (US	S Dollars	5)	
Location	Date	Maq	Dth	Inj	PrD	CrD
Benton County	6/27/1956	1.75	0	0	\$0	\$0
Benton County	12/6/1956	1	0	0	\$0	\$0
Benton County	3/20/1962	-	0	0	\$0	\$0
Benton County	4/3/1965	1.75	0	0	\$0	\$0
Benton County	5/15/1965	1.75	0	0	\$0	\$0
Benton County	4/25/1967	1.5	0	0	\$0	\$0
Benton County	6/30/1972	0.75	0	0	\$0	\$0
Benton County	3/29/1976	1	0	0	\$0	\$0
Benton County	9/22/1977	1	0	0	\$0	\$0
Benton County	5/26/1980	1.75	0	0	\$0	\$0
Benton County	5/26/1980	1.75	0	0	\$0	\$0
Benton County	8/3/1980	1	0	0	\$0	\$0
Benton County	4/16/1982	1.75	0	0	\$0	\$0
Benton County	4/16/1982	1.75	0	0	\$0	\$0
Benton County	4/16/1982	1.75	0	0	\$0	\$0
Benton County	4/1/1983	1.75	0	0	\$0	\$0
Benton County	5/22/1983	1.75	0	0	\$0	\$0
Benton County	5/7/1984	1.75	0	0	\$0	\$0
Benton County	7/6/1984	1.75	0	0	\$0	\$0
Benton County	4/30/1985	0.75	0	0	\$0	\$0
Benton County	5/28/1985	1	0	0	\$0	\$0
Benton County	6/4/1985	2.75	0	0	\$0	\$0
Benton County	11/13/1985	0.75	0	0	\$0	\$0
Benton County	11/19/1985	0.75	0	0	\$0	\$0
Benton County	11/19/1985	0.75	0	0	\$0	\$0
Benton County	4/4/1986	0.75	0	0	\$0	\$0
Benton County	4/7/1986	1	0	0	\$0	\$0
Benton County	4/7/1986	0.75	0	0	\$0	\$0
Benton County	4/7/1986	0.75	0	0	\$0	\$0
Benton County	4/7/1986	0.75	0	0	\$0	\$0
Benton County	4/7/1986	1.75	0	0	\$0	\$0
Benton County	4/7/1986	0.75	0	0	\$0	\$0
Benton County	8/2/1986	1.75	0	0	\$0	\$0
Benton County	3/11/1988	0.75	0	0	\$0	\$0
Benton County	3/24/1988	1.75	0	0	\$0	\$0
Benton County	4/1/1988	0.75	0	0	\$0	\$0
Benton County	4/5/1988	0.75	0	0	\$0	\$0
Benton County	6/2/1988	0.75	0	0	\$0	\$0
Benton County	6/8/1988	0.75	0	0	\$0	\$0
Benton County	5/8/1989	1	0	0	\$0	\$0
Benton County	5/21/1989	1.75	0	0	\$0	\$0
Benton County	5/21/1989	1.75	0	0	\$0	\$0
Benton County	5/21/1989	0.75	0	0	\$0	\$0
Benton County	5/21/1989	1.75	0	0	\$0	\$0
Benton County	5/21/1989	0.75	0	0	\$0	\$0
Benton County	4/16/1990	0.75	0	0	\$0	\$0
Benton County	4/16/1990	1	0	0	\$0	\$0
Benton County	4/16/1990	1.75	0	0	\$0	\$0
Benton County	5/21/1990	0.75	0	0	\$0	\$0

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Location	Date	Mag	Dth	Inj	PrD	CrD
Benton County	5/21/1990	0.75	0	0	\$0	\$0
Benton County	5/21/1990	1.75	0	0	\$0	\$0
Benton County	5/26/1990	0.75	0	0	\$0	\$0
Benton County	3/21/1991	0.75	0	0	\$0	\$0
Benton County	3/21/1991	0.75	0	0	\$0	\$0
Benton County	3/21/1991	0.75	0	0	\$0	\$0
Benton County	4/14/1991	0.75	0	0	\$0	\$0
Benton County	5/16/1991	1	0	0	\$0	\$0
Benton County	4/16/1992	0.75	0	0	\$0	\$0
Benton County	4/16/1992	0.75	0	0	\$0	\$0
Benton County	10/31/1992	1.75	0	0	\$0	\$0
Benton County	10/31/1992	0.75	0	0	\$0	\$0
Benton County	10/31/1992	0.75	0	0	\$0	\$0
Gentry	4/24/1993	1.75	0	0	\$0	\$0
Bentonville	4/24/1993	1.75	0	0	\$0	\$0
Highfill	4/24/1993	1	0	0	\$0	\$0
Siloam Springs	4/24/1993	1.75	0	0	\$0	\$0
Dumas	5/18/1993	0.75	0	0	\$0	\$0
Pea Ridge	4/10/1994	1	0	0	\$0	\$0
Gravette	4/10/1994	0.75	0	0	\$0	\$0
Sulphur Springs	4/10/1994	0.75	0	0	\$0	\$0
Bella Vista	4/10/1994	0.75	0	0	\$0	\$0
Siloam Springs	4/10/1994	0.75	0	0	\$0	\$0
Cherokee City	4/10/1994	1.75	0	0	\$0	\$0
Maysville	4/10/1994	0.75	0	0	\$0	\$0
Cherokee City	4/10/1994	1	0	0	\$0	\$0
Gentry	4/10/1994	0.75	0	0	\$0	\$0
Bella Vista	4/10/1994	0.75	0	0	\$0	\$0
Bella Vista	4/10/1994	0.75	0	0	\$0	\$0
Bella Vista	4/10/1994	0.75	0	0	\$0	\$0
Gravette	4/10/1994	1	0	0	\$0	\$0
Gravette	4/11/1994	0.75	0	0	\$0	\$0
Rogers	4/15/1994	0.88	0	0	\$0	\$0
Siloam Springs	5/25/1994	0.75	0	0	\$0	\$0
Siloam Springs	5/25/1994	0.75	0	0	\$0	\$0
Decatur	6/7/1994	0.75	0	0	\$0	\$0
Siloam Springs	6/9/1994	0.75	0	0	\$0	\$0
Little Flock	6/30/1994	1.75	0	0	\$0	\$0
Rogers	6/30/1994	0.88	0	0	\$0	\$0
Siloam Springs	7/23/1994	0.75	0	0	\$0	\$0
Siloam Springs	7/23/1994	0.88	0	0	\$0	\$0
Benton COunty	7/30/1994	0.88	0	0	\$0	\$0
Bella Vista	10/20/1994	0.88	0	0	\$0	\$0
Siloam Springs	1/12/1995	0.75	0	0	\$0	\$0
Siloam Springs	1/12/1995	0.75	0	0	\$0	\$0
Siloam Springs	1/12/1995	0.75	0	0	\$0	\$0
Gentry	4/19/1995	0.75	0	0	\$50,000	\$0
Gentry	4/19/1995	0.75	0	0	\$0	\$0
Maysville	5/13/1995	0.88	0	0	\$0	\$0
Nr Gravette	5/13/1995	2.75	0	0	\$0	\$0
Nr Bentonville	5/13/1995	1.25	0	0	\$0	\$0
Nr Bentonville	5/13/1995	2	0	0	\$0	\$0
Monte Ne	5/13/1995	4.5	0	0	\$0	\$0
Lowell	5/13/1995	0.75	0	0	\$0	\$0
Nr Bentonville	5/13/1995	1	0	0	\$0	\$0
Siloam Springs	6/5/1995	0.8	0	0	\$0	\$0
Siloam Springs	6/5/1995	1	0	0	\$0	\$0
Cave Springs	6/9/1995	0.75	0	0	\$0	\$0

AGENCY	
BENTON COUNTY	<



Location	Date	Mag	Dth	Inj	PrD	CrD
Decatur	8/19/1995	0.75	0	0	\$0	\$0
Bentonville	10/26/1995	4	0	0	\$0	\$0
Rogers	10/26/1995	1.75	0	0	\$0	\$0
Pea Ridge	10/26/1995	1.75	0	0	\$0	\$0
Rogers	10/26/1995	1	0	0	\$0	\$0
Rogers	10/26/1995	1	0	0	\$0	\$0
Siloam Springs	11/10/1995	1.75	0	0	\$0	\$0
Gateway	11/10/1995	0.75	0	0	\$0	\$0
Siloam Springs	11/10/1995	1.25	0	0	\$0	\$0
Siloam Springs	11/10/1995	0.88	0	0	\$0	\$0
Siloam Springs	12/10/1995	0.88	0	0	\$0	\$0
Siloam Springs	12/10/1995	1.25	0	0	\$0	\$0
Siloam Springs	12/10/1995	1.75	0	0	\$0	\$0
Gateway	12/10/1995	0.75	0	0	\$0	\$0
Sulphur Springs	3/14/1996	1.75	0	0	\$0	\$0
Pea Ridge	3/14/1996	0.75	0	0	\$0	\$0
Bentonville	3/14/1996	1.75	0	0	\$0	\$0
Bentonville	3/14/1996	1	0	0	\$0	\$0
Rogers	3/14/1996	1.75	0	0	\$0	\$0
Bogers	3/14/1996	1	0	0	\$0	\$0
Rogers	3/14/1996	1	0	0	\$0	\$0
Bentonville	3/14/1996	0.88	0	0	\$0	\$0
Pea Ridge	3/14/1996	0.75	0	0	\$0	\$0
Pea Ridge	3/14/1996	0.75	0	0	\$0	\$0 \$0
Gentry	5/14/1996	1	0	0	\$0	\$0
Gentry	5/14/1996	0.88	0	0	0	0\$
Gravette	6/2/1996	0.00	0	0	0	0\$
Mayeville	3/27/1007	0.75	0	0	\$0 \$0	پ0 ۵۵
Bogore	5/2/1007	0.00	0	0	پ و در	0¢ 02
	7/1/1007	0.75	0	0	30 \$0	۵ ۵
Monto No	7/14/1997	0.75	0	0	م 0	۵ ۵
Rolle Viete	2/25/1009	0.75	0	0	م 0	م 0
	2/23/1990	0.75	0	0	ع 0	۵ ۵
Cave Spgs	0/20/1990	0.75	0	0	پ ۵	\$U
	0/10/1990	0.75	0	0	\$1,000	\$U
	3/5/1999	0.75	0	0	\$0	\$0
	4/3/1999	0.75	0	0	\$0	\$0
Bella Vista	4/22/1999	0.88	0	0	\$0	\$0
Siloam Spgs	5/22/1999	0.75	0	0	\$0	\$0
Gentry	9/7/1999	1	0	0	\$0	\$0
Bentonville	1/3/2000	0.88	0	0	\$0	\$0
Siloam Spgs	2/26/2000	1.75	0	0	\$0	\$0
Maysville	2/21/2001	1.75	0	0	\$0	\$0
Gravette	2/21/2001	0.75	0	0	\$0	\$0
Maysville	2/21/2001	1	0	0	\$0	\$0
Sulphur Spgs	2/21/2001	0.75	0	0	\$0	\$0
Centerton	5/11/2001	0.75	0	0	\$0	\$0
Bentonville	5/20/2001	1	0	0	\$0	\$0
Garfield	8/10/2001	1.75	0	0	\$0	\$0
Wareagle	10/10/2001	0.88	0	0	\$0	\$0
Rogers	4/30/2002	0.75	0	0	\$0	\$0
Bentonville	4/30/2002	0.88	0	0	\$0	\$0
Siloam Spgs	5/1/2002	0.88	0	0	\$0	\$0
Siloam Spgs	5/1/2002	0.75	0	0	\$0	\$0
Rogers	5/1/2003	1	0	0	\$0	\$0
Gentry	5/5/2003	0.88	0	0	\$0	\$0
Gentry	5/13/2003	1.75	0	0	\$0	\$0
Wareagle	5/13/2003	0.75	0	0	\$0	\$0
Hiwasse	7/13/2003	0.75	0	0	\$0	\$0

AGENCY	
BENTON COUNTY	<



Location	Date	Mag	Dth	Inj	PrD	CrD
Rogers	7/13/2003	0.88	0	0	\$0	\$0
Bella Vista	7/13/2003	0.75	0	0	\$0	\$0
Siloam Spgs	7/13/2003	1.5	0	0	\$0	\$0
Siloam Spgs	7/13/2003	0.75	0	0	\$0	\$0
Decatur	3/17/2004	1.75	0	0	\$0	\$0
Highfill	3/17/2004	1.75	0	0	\$0	\$0
Cave Spgs	4/30/2004	1.75	0	0	\$0	\$0
Gentry	4/30/2004	0.75	0	0	\$0	\$0
Bentonville	7/2/2004	0.88	0	0	\$0	\$0
Rogers	11/26/2004	0.88	0	0	\$0	\$0
Bella Vista	1/4/2005	1	0	0	\$0	\$0
Bentonville	4/5/2005	0.75	0	0	\$0	\$0
Pea Ridge	5/23/2005	0.75	0	0	\$0	\$0
Gravette	6/13/2005	0.75	0	0	\$0	\$0
Bentonville	1/12/2006	0.75	0	0	\$0	\$0
Siloam Spgs	3/11/2006	1	0	0	\$0	\$0
Gateway	3/11/2006	1.75	0	0	\$25,000	\$0
Decatur	3/12/2006	4	0	0	\$2,500,000	\$0
Rogers	3/12/2006	0.75	0	0	\$0	\$0
Gateway	3/12/2006	1.75	0	0	\$25,000	\$0
Bella Vista	4/5/2006	0.88	0	0	\$0	\$0
Garfield	4/24/2006	0.88	0	0	\$0	\$0
Lowell	9/22/2006	0.75	0	0	\$0	\$0
Centerton	9/23/2006	1	0	0	\$0	\$0
Bella Vista	3/1/2007	0.88	0	0	\$0	\$0
Bentonville	6/1/2007	1	0	0	\$0	\$0
Sulphur Spgs	1/7/2008	0.75	0	0	\$0	\$0
Hiwasse	1/7/2008	0.75	0	0	\$0	\$0
Bella Vista	1/7/2008	1.75	0	0	\$25,000	\$0
Siloam Spgs	1/7/2008	1	0	0	\$0	\$0
Cherokee City	1/7/2008	1	0	0	\$0	\$0
Bella Vista	1/7/2008	0.75	0	0	\$0	\$0
Sulphur Spgs	1/7/2008	0.75	0	0	\$0	\$0
Bentonville	3/14/2008	1	0	0	\$0	\$0
Pea Ridge	3/27/2008	0.75	0	0	\$0	\$0
Hiwasse	3/27/2008	1.75	0	0	\$0	\$0
Gentry	3/31/2008	0.88	0	0	\$0	\$0
Garfield	4/22/2008	1	0	0	\$0	\$0
Pea Ridge	4/22/2008	0.75	0	0	\$0	\$0
Lookout	5/10/2008	0.88	0	0	\$0	\$0
Gravette	5/10/2008	1.75	0	0	\$0	\$0
Bentonville	5/10/2008	1.75	0	0	\$75,000	\$0
Rogers	5/10/2008	1.75	0	0	\$75,000	\$0
Vaughn	5/10/2008	1.75	0	0	\$0	\$0
Decatur	5/10/2008	1.75	0	0	\$20,000	\$0
Rogers	5/25/2008	0.88	0	0	\$0	\$0
Rogers	5/25/2008	0.88	0	0	\$0	\$0
Rogers	5/26/2008	0.88	0	0	\$0	\$0
Rogers	5/26/2008	0.75	0	0	\$0	\$0
Gravette	5/31/2008	0.75	0	0	\$0	\$0
Highfill	6/1/2008	1	0	0	\$0	\$0
Siloam Spgs	6/1/2008	0.75	0	0	\$0	\$0
Bentonville	10/31/2008	0.88	0	0	\$0	\$0
Rogers	10/31/2008	0.75	0	0	\$0	\$0
Centerton	11/6/2008	1	0	0	\$0	\$0
Gentry	2/17/2009	1	0	0	\$0	\$0
Sulphur Spgs	2/26/2009	1	0	0	\$0	\$0
Gentry	2/26/2009	1	0	0	\$0	\$0

AGENCY
BENTON COUNTY



Location	Date	Mag	Dth	Inj	PrD	CrD
Siloam Spgs	4/18/2009	1	0	0	\$0	\$0
Monte Ne	5/1/2009	3	0	0	\$50,000	\$0
Lowell	5/1/2009	2	0	0	\$25,000	\$0
Cave Spgs	5/1/2009	1	0	0	\$0	\$0
Gentry	5/1/2009	1	0	0	\$0	\$0
Gentry	5/1/2009	1	0	0	\$0	\$0
Siloam Spgs	5/13/2009	1	0	0	\$0	\$0
Rogers	5/15/2009	1	0	0	\$0	\$0
Bentonville	8/20/2009	1	0	0	\$0	\$0
Siloam Spgs	9/21/2009	1	0	0	\$0	\$0
Avoca	5/25/2010	1	0	0	\$0	\$0
Lowell	4/19/2011	1	0	0	\$0	\$0
Lowell	4/19/2011	1	0	0	\$0	\$0
Lowell	4/19/2011	1	0	0	\$0	\$0
Rogers	4/21/2011	1	0	0	\$0	\$0
Siloam Spgs	4/21/2011	1	0	0	\$0	\$0
Bentonville	4/22/2011	2	0	0	\$25,000	\$0
Centerton	4/22/2011	2	0	0	\$25,000	\$0
Lowell	4/23/2011	1	0	0	\$0	\$0
Lookout	4/23/2011	1	0	0	\$0	\$0
Maysville	4/23/2011	1	0	0	\$0	\$0
Decatur	4/26/2011	1	0	0	\$0	\$0
Lowell	4/26/2011	1	0	0	\$0	\$0
Rogers	4/26/2011	1	0	0	\$0	\$0
Gentry	4/26/2011	2	0	0	\$0	\$0
Lowell	4/26/2011	1	0	0	\$0	\$0
Rogers	5/7/2011	1	0	0	\$5,000	\$0
Rogers	5/7/2011	1	0	0	\$0	\$0
Bella Vista	5/22/2011	1	0	0	\$0	\$0
Bella Vista	5/22/2011	1	0	0	\$0	\$0
Centerton	5/22/2011	1	0	0	\$0	\$0
Bella Vista	5/22/2011	2	0	0	\$0	\$0
Rogers	5/22/2011	2	0	0	\$25,000	\$0
Pea Ridge	5/22/2011	2	0	0	\$25,000	\$0
Lowell	5/22/2011	2	0	0	\$25,000	\$0
Gentry	5/22/2011	2	0	0	\$25,000	\$0
Siloam Spgs	5/22/2011	2	0	0	\$25,000	\$0
Rogers	6/21/2011	1	0	0	\$0	\$0
Siloam Spgs	6/24/2011	1	0	0	\$0	\$0
Rogers	8/8/2011	1	0	0	\$0	\$0
Gallitin	8/12/2012	1.25	0	0	\$0	\$0
Cherokee City	8/16/2012	1	0	0	\$0	\$0
Hiwasse	9/26/2012	1.25	0	0	\$0	\$0
Hiwasse	9/26/2012	1.75	0	0	\$10,000	\$0
Bentonville	9/26/2012	1	0	0	\$0	\$0
Maysville	3/30/2013	0.75	0	0	\$0	\$0
Bella Vista	3/30/2013	0.88	0	0	\$0	\$0
Pea Ridge	4/3/2014	1	0	0	\$0	\$0
Pea Ridge	4/3/2014	1.75	0	0	\$15,000	\$0
		County Totals	0	0	\$3,076,000	\$0

*The data are from the NOAA NCDC Storm Event Database.





Table 80 – High & Strong Wind Records, Benton County, Arkansas

5 High and Strong Wind event(s) were reported in Benton County, Arkansas between 03/27/1998 and 04/30/2014

Mag: Magnitude (Wind speed in MpH)		Dth: Deaths	Inj: Inj	uries		
PrD: Property Damage (US Dollars)		CrD: Crop Dam	nage (US)		
Location	Date	Mag	Dth	Inj	PrD	CrD
Benton County	3/27/1998	-	0	0	\$5,100	\$0
Benton County	4/15/1999	-	0	0	\$1,000	\$0
Benton County	11/27/2005	60	0	0	\$5,000	\$0
Benton County	1/29/2008	70	0	0	\$0	\$0
Benton County	9/14/2008	60	0	0	\$20,000	\$0
		County Totals	0	0	\$31,100	\$0

*The data are from the NOAA NCDC Storm Event Database.

Table 81 – Lightning Records, Benton County, Arkansas

15 Lightning event(s) were reported in Benton County, Arkansas between 05/17/1993 and 04/30/2014

Mag: Magnitude (No Indices)		Dth: Deaths	Inj: Ir	njuries		
PrD: Property Damage (US Dollars)		CrD: Crop Dam	nage (US	S Dollars	s)	
Location	Date	Mag	Dth	Inj	PrD	CrD
Pea Ridge	5/17/1993	-	0	1	\$500,000	\$0
Centerton	4/19/1995	-	0	1	\$0	\$0
Garfield	5/9/1998	-	0	1	\$0	\$0
Highfill	5/4/1999	-	0	1	\$0	\$0
Siloam Spgs	9/8/2001	-	0	1	\$0	\$0
Siloam Spgs	9/9/2001	-	0	0	\$10,000	\$0
Bentonville	7/22/2003	-	0	1	\$0	\$0
Bentonville	5/13/2004	-	0	1	\$0	\$0
Siloam Spgs	6/4/2005	-	0	0	\$50,000	\$0
Siloam Spgs	8/23/2008	-	0	0	\$40,000	\$0
Bentonville	8/10/2009	-	0	1	\$2,000	\$0
Bentonville	8/10/2009	-	0	0	\$5,000	\$0
Bella Vista	5/14/2010	-	0	0	\$150,000	\$0
Rogers	5/30/2013	-	0	2	\$0	\$0
Bentonville	7/24/2013	-	0	0	\$200,000	\$0
		County Totals	0	10	\$957,000	\$0

*The data are from the NOAA NCDC Storm Event Database.





Table 82 – Thunderstorm Wind Records, Benton County, Arkansas

351 Thunderstorm Wind event(s) were reported in Benton County, Arkansas between 12/06/1956 and 04/30/2014

Mag: Magnitude (Wind speed in MpH)		Dth: Deaths	Inj	: Injuries	6	
PrD: Property Damage (US Dollars)		CrD: Crop Damage (US Dollars)				
Location	Date	Mag	Dth	Inj	PrD	CrD
Benton County	12/6/1956	-	0	0	\$0	\$0
Benton County	11/15/1958	-	0	0	\$0	\$0
Benton County	4/12/1964	-	0	0	\$0	\$0
Benton County	9/4/1966	60	0	0	\$0	\$0
Benton County	12/8/1966	-	0	0	\$0	\$0
Benton County	2/1/1968	-	0	0	\$0	\$0
Benton County	4/26/1969	-	0	0	\$0	\$0
Benton County	7/24/1969	-	0	0	\$0	\$0
Benton County	11/19/1970	-	0	0	\$0	\$0
Benton County	11/19/1970	-	0	0	\$0	\$0
Benton County	5/22/1971	-	0	0	\$0	\$0
Benton County	10/27/1973	-	0	0	\$0	\$0
Benton County	11/3/1974	-	0	0	\$0	\$0
Benton County	6/5/1975	-	0	0	\$0	\$0
Benton County	6/5/1975	-	0	0	\$0	\$0
Benton County	6/16/1975	-	0	0	\$0	\$0
Benton County	6/16/1975	74	0	0	\$0	\$0
Benton County	8/30/1975	59	0	0	\$0	\$0
Benton County	7/25/1977	-	0	0	\$0	\$0
Benton County	4/5/1978	-	0	0	\$0	\$0
Benton County	4/11/1979	-	0	0	\$0	\$0
Benton County	5/2/1979	-	0	0	\$0	\$0
Benton County	7/21/1981	-	0	0	\$0	\$0
Benton County	5/14/1982	-	0	0	\$0	\$0
Benton County	6/27/1982	-	0	0	\$0	\$0
Benton County	8/24/1982	-	0	0	\$0	\$0
Benton County	8/24/1982	-	0	0	\$0	\$0
Benton County	8/24/1982	-	0	0	\$0	\$0
Benton County	8/24/1982	-	0	0	\$0	\$0
Benton County	9/13/1982	-	0	0	\$0	\$0
Benton County	9/13/1982	-	0	0	\$0	\$0
Benton County	9/13/1982	-	0	0	\$0	\$0
Benton County	9/13/1982	-	0	0	\$0	\$0
Benton County	5/27/1983	-	0	0	\$0	\$0
Benton County	7/26/1983	-	0	0	\$0	\$0
Benton County	7/31/1983	-	0	0	\$0	\$0
Benton County	5/7/1984	-	0	0	\$0	\$0
Benton County	8/8/1984	-	0	0	\$0	\$0
Benton County	9/15/1984	-	0	0	\$0	\$0
Benton County	10/16/1984	-	0	0	\$0	\$0
Benton County	11/1/1984	-	0	0	\$0	\$0
Benton County	4/5/1985	-	0	0	\$0	\$0
Benton County	5/29/1985	-	0	0	\$0	\$0
Benton County	11/19/1985	-	0	0	\$0	\$0
Benton County	4/7/1986	-	0	0	\$0	\$0
Benton County	4/7/1986	-	0	0	\$0	\$0
Benton County	4/8/1986	-	0	0	\$0	\$0
Benton County	6/10/1986	-	0	0	\$0	\$0
Benton County	6/27/1986	-	0	0	\$0	\$0

AGENCY
BENTON COUNTY



Location	Date	Mag	Dth	Inj	PrD	CrD
Benton County	8/2/1986	-	0	0	\$0	\$0
Benton County	6/23/1987	-	0	0	\$0	\$0
Benton County	8/19/1987	-	0	0	\$0	\$0
Benton County	8/19/1987	-	0	0	\$0	\$0
Benton County	8/19/1987	-	0	0	\$0	\$0
Benton County	3/11/1988	60	0	0	\$0	\$0
Benton County	3/24/1988	-	0	0	\$0	\$0
Benton County	6/8/1988	58	0	0	\$0	\$0
Benton County	6/29/1988	-	0	0	\$0	\$0
Benton County	11/15/1988	63	0	0	\$0	\$0
Benton County	11/15/1988	-	0	0	\$0	\$0
Benton County	3/28/1989	-	0	0	\$0	\$0
Benton County	5/22/1989	66	0	0	\$0	\$0
Benton County	5/22/1989	-	0	0	\$0	\$0
Benton County	6/2/1989	-	0	0	\$0	\$0
Benton County	6/11/1989		0	0	\$0	\$0
Benton County	4/16/1990	58	0	0	\$0	\$0
Benton County	6/9/1990	-	0	0	0	\$0
Benton County	6/21/1990		0	0	0\$ 0	پن ۵۵
Benton County	11/27/1990		0	0	0\$ 0	\$0 \$0
Benton County	3/21/1991	_	0	0	\$0 \$0	\$0 \$0
Benton County	11/29/1991	60	0	0	0\$ 0	\$0 \$0
Benton County	11/29/1991	60	0	0	\$0 \$0	\$0 \$0
Benton County	11/20/1001		0	0	0	0¢ 0
Benton County	7/2/1992		0	0	0\$ 0	\$0
Benton County	7/26/1992		0	0	0\$ 0	پن ۵۵
Benton County	8/3/1002		0	0	0	0\$0
Benton County	8/10/1992	-	0	0	0 \$0	پر ۵۵
Benton County	8/10/1992		0	0	پ ۵	لې ۵۷
Benton County	0/0/1002	- 60	0	0	پ و ۵۵	پ0 ۵۵
Benton County	9/9/1992	60	0	0	پ ۵	لې ۵۷
Gentry	/2//1992 //2//1993	60	0	0	0\$ 0	0\$
Decatur	5/30/1003		0	0	φ0 \$500	0\$0
Cherokee City	0/13/1003	-	0	0	\$5,000	0\$
Pogore	9/13/1993	-	0	0	\$5,000 \$50,000	پن ۵
Peo Ridge	3/14/1993 10/8/1993	-	0	0	\$5,000	پر ۵۷
Ronton	11/12/1002	-	0	0	\$5,000	00
Charakaa City	//10/100/	-	0	0	ψ <u></u> ,000 \$500	00
Pogore	6/7/100/	- 60	0	0	\$300 \$50,000	0¢
Peo Ridge	7/7/100/	60	0	0	\$30,000 \$0	پ0 ۵۵
Bella Vista	7/30/100/		0	0	Ψ0 \$5.000	لې ۵۷
Siloam Springs	//17/1005		0	0	\$5,000	لې ۵۷
Rogers	4/17/1995	-	0	0	\$50,000	
Contry	4/17/1995		0	0	\$50,000	00
Gentry	4/19/1995	0	0	0	\$50,000	ل ون مە
Boa Bidgo	4/19/1995	-	0	0	\$5,000 \$5,000	00
Cherokee City	5/7/1005	-	0	0	ψ <u></u> ,000 \$0	0\$
Sulphur Springs	5/7/1005	-	0	0	پ ٥	00
Hiawasse	5/7/1995	-	0	0	پ و ۵۵	پ0 ۵۵
Pogoro	5/27/1005	-	0	0	\$0 \$0	پ0 ۵۵
Rogers	5/27/1995	60	0	0	ار ۵	<u> </u>
Bentonville	7/1/1005	00	0	0	φ0 Φ0	<u>ወ</u>
	7/4/1990		0	0	00	<u>۵</u>
	7/4/1995	-	0	0	۵ <u>۱,000</u>	<u>۵</u> ۵
Siloom Springs	7/4/1995	00	0	0	<u>۵</u> ۵	<u>۵</u> ۵
	7/4/1995	-	0	0	\$U	\$U
	7/4/1995	70	0	0	\$2,000	\$U
	7/25/1005	-	0	0	<u>۵</u> ۵	<u>۵</u> ۵
Dentonvine	1/23/1995	10	U	U U	<u>۵</u> ۵۱	Ф О

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Location	Date	Mag	Dth	Inj	PrD	CrD
Hiwasse	7/25/1995	70	0	0	\$0	\$0
Sulphur Springs	7/25/1995	-	0	0	\$0	\$0
Lowell	7/25/1995	-	0	0	\$0	\$0
Siloam Springs	7/25/1995	-	0	0	\$0	\$0
Lowell	9/30/1995	-	0	1	\$3,500,000	\$0
Siloam Spgs	1/17/1996	60	0	0	\$0	\$0
Bentonville	1/18/1996	60	0	0	\$0	\$0
Gravette	1/18/1996	-	0	0	\$1,500	\$0
Cave Springs	7/4/1996	-	0	0	\$100	\$0
Rogers	9/23/1996	70	0	0	\$0	\$0
Centerton	9/23/1996	-	0	0	\$100	\$0
Garfield	9/23/1996	-	0	0	\$3,000	\$0
Bentonville	9/23/1996	-	0	0	\$5,000	\$0
Bella Vista	9/23/1996	-	0	0	\$100	\$0
Rogers	2/20/1997	-	0	0	\$120,000	\$0
Cave Springs	2/20/1997	-	0	0	\$20,000	\$0
Rogers	2/20/1997	-	0	0	\$1,000,000	\$0
Maysville	3/25/1997	-	0	0	\$100	\$0
Pea Ridge	4/20/1997	-	0	0	\$100	\$0
Pea Ridge	4/20/1997	-	0	0	\$100	\$0
Rogers	7/9/1997	-	0	0	\$100	\$0
Siloam Spgs	3/30/1998	-	0	0	\$100	\$0
Bella Vista	3/30/1998	-	0	0	\$35,000	\$0
Gentry	3/30/1998	-	0	0	\$2,000	\$0
Cave Spgs	5/29/1998	-	0	0	\$1,000	\$0
Sulphur Spgs	6/30/1998	-	0	0	\$500	\$0
Gravette	6/30/1998	-	0	0	\$15,000	\$0
Garfield	8/2/1998	-	0	0	\$300	\$0
Pea Ridge	8/2/1998	-	0	0	\$1,000	\$0
Wareagle	8/18/1998	-	0	0	\$500	\$0
Siloam Spgs	8/19/1998	-	0	0	\$5,000	\$0
Siloam Spgs	8/19/1998	-	0	0	\$300	\$0
Gentry	10/5/1998	66	0	0	\$0	\$0
Maysville	10/5/1998	-	0	0	\$100	\$0
Garfield	10/5/1998	-	0	0	\$100	\$0
Cave Spgs	10/16/1998	-	0	0	\$100	\$0
Gravette	11/9/1998	-	0	0	\$1,000	\$0
Gentry	11/9/1998	-	0	0	\$1,000	\$0
Hiwasse	11/10/1998	-	0	0	\$500	\$0
Cave Spgs	11/10/1998	-	0	0	\$500	\$0
Decatur	11/10/1998	-	0	0	\$2,000	\$0
Bentonville	11/10/1998	-	0	0	\$200	\$0
Avoca	2/11/1999	-	0	0	\$100	\$0
Rogers	4/3/1999	-	0	0	\$500	\$0
Gentry	5/4/1999	-	0	0	\$100	\$0
Gentry	5/4/1999	-	0	0	\$100	\$0
Monte Ne	5/4/1999	-	0	0	\$10,000	\$0
Centerton	5/4/1999	-	0	0	\$15,000	\$0
Siloam Spgs	5/4/1999	60	0	0	\$0	\$0
Gravette	5/17/1999	-	0	0	\$6,000	\$0
Siloam Spgs	5/17/1999	-	0	0	\$15,000	\$0
Gentry	5/17/1999	-	0	0	\$3,000	\$0
Highfill	5/17/1999	-	0	0	\$60,000	\$0
Rogers	5/17/1999	-	0	0	\$1,000	\$0
Wareagle	5/17/1999	-	0	0	\$500	\$0
Rogers	5/17/1999	-	0	0	\$5,000	\$0
Lowell	5/23/1999	-	0	0	\$500	\$0
Siloam Spgs	5/31/1999	-	0	0	\$100	\$0

AGENCY	Ĺ
BENTON COUNTY	



Location	Date	Mag	Dth	Inj	PrD	CrD
Cave Spgs	7/1/1999	-	0	0	\$5,000	\$0
Siloam Spgs	8/26/1999	-	0	0	\$100	\$0
Pea Ridge	9/4/1999	-	0	0	\$11,000	\$0
Centerton	9/4/1999	-	0	0	\$2,500	\$0
Rogers	4/20/2000	-	0	0	\$20,000	\$0
Bentonville	4/20/2000	-	0	0	\$3,000	\$0
Maysville	5/24/2000	70	0	0	\$500	\$0
Siloam Spgs	5/24/2000	-	0	0	\$500	\$0
Gentry	5/24/2000	-	0	0	\$500	\$0
Siloam Spgs	5/24/2000	-	0	0	\$500	\$0
Rogers	5/24/2000	60	0	0	\$0	\$0
Siloam Spgs	7/20/2000	-	0	0	\$1,000	\$0
Garfield	7/20/2000	-	0	0	\$100	\$0
Gentry	7/20/2000	-	0	0	\$1,000	\$0
Gateway	7/20/2000	-	0	0	\$10,000	\$0
Lowell	7/20/2000	-	0	0	\$100	\$0
Gentry	2/9/2001	-	0	0	\$5,000	\$0
Gentry	2/24/2001	-	0	0	\$100	\$0
Wareagle	2/24/2001	-	0	0	\$500	\$0
Bentonville	2/24/2001	-	0	0	\$100	\$0
Siloam Spgs	4/11/2001	-	0	0	\$100	\$0
Gravette	4/11/2001	0	0	0	\$100	\$0
Highfill	4/15/2001	99	0	0	\$1,000,000	\$0
Wareagle	4/15/2001	-	0	0	\$100	\$0
Siloam Spgs	4/23/2001	60	0	0	\$0	\$0
Bentonville	5/6/2001	-	0	0	\$100	\$0
Garfield	5/17/2001	-	0	0	\$100	\$0
Rogers	5/20/2001	-	0	0	\$500	\$0
Siloam Spgs	6/21/2001	70	0	0	\$0	\$0
Bentonville	8/9/2001	70	0	0	\$3,000	\$0
Highfill	8/11/2001	-	0	0	\$5,000	\$0
Garfield	8/29/2001	70	0	0	\$1,000	\$0
Gentry	9/7/2001	60	0	0	\$0	\$0
Siloam Spgs	9/7/2001	70	0	0	\$0	\$0
Siloam Spgs	11/23/2001	60	0	0	\$0	\$0
Highfill	11/23/2001	58	0	0	\$0	\$0
Pea Ridge	11/23/2001	70	0	0	\$0	\$0
Bella Vista	3/9/2002	70	0	0	\$0	\$0
Pea Ridge	5/8/2002	60	0	0	\$1,000	\$0
Bentonville	5/8/2002	60	0	0	\$0	\$0
Rogers	5/8/2002	66	0	0	\$0	\$0
Cave Spgs	5/9/2002	60	0	0	\$0	\$0
Lowell	5/12/2002	66	0	0	\$0	\$0
Highfill	6/12/2002	70	0	0	\$5,000	\$0
Rogers	6/12/2002	70	0	0	\$25,000	\$0
Siloam Spgs	5/6/2003	60	0	0	\$0	\$0
Gravette	5/16/2003	70	0	0	\$0	\$0
Gentry	5/16/2003	70	0	0	\$50,000	\$0
Siloam Spgs	5/16/2003	70	0	0	\$100,000	\$0
Pea Ridge	5/16/2003	81	0	0	\$100,000	\$0
Beila Vista	5/16/2003	/0	0	0	\$25,000	\$0
Bentonville	5/16/2003	81	0	0	\$700,000	\$0
	6/10/2003	/0	0	0	\$0	\$0
	7/11/2003	60	0	0	\$0	\$0
	1/22/2003	70	0	0	\$0	\$0
Gentry	10/15/2003	70	0	0	\$25,000	\$0
Gentry Della Vieta	4/30/2004	70	0	0	\$0	\$0
Della VISIA	5/30/2004	00	0	U U	\$0	\$0
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BENTON COUNTY						



Location	Date	Mag	Dth	Inj	PrD	CrD
Siloam Spgs	7/2/2004	60	0	0	\$0	\$0
Gentry	7/2/2004	70	0	0	\$0	\$0
Lowell	7/4/2004	70	0	0	\$0	\$0
Sulphur Spgs	7/4/2004	70	0	0	\$5,000	\$0
Centerton	1/12/2005	81	0	1	\$250,000	\$0
Bella Vista	5/23/2005	70	0	0	\$5,000	\$0
Bentonville	5/23/2005	70	0	0	\$5,000	\$0
Rogers	5/23/2005	70	0	0	\$5,000	\$0
Gravette	5/23/2005	70	0	0	\$0	\$0
Rogers	6/4/2005	60	0	0	\$0	\$0
Siloam Spgs	6/4/2005	60	0	0	\$10,000	\$0
Bentonville	6/4/2005	70	0	0	\$10,000	\$0
Centerton	7/26/2005	81	0	0	\$200,000	\$0
Bentonville Muni Arp	3/12/2006	81	0	0	\$750,000	\$0
Siloam Spgs	4/2/2006	60	0	0	\$1,000	\$0
Bentonville	4/2/2006	70	0	0	\$0	\$0
Maysville	4/24/2006	70	0	0	\$0	\$0
Rogers	5/9/2006	70	0	0	\$1,000	\$0
Bentonville	5/9/2006	62	0	0	\$1,000	\$0
Gentry	5/9/2006	70	0	0	\$0	\$0
Bentonville	8/4/2006	70	0	2	\$50,000	\$0
Siloam Spgs	8/21/2006	70	0	0	\$0	\$0
Gentry	9/17/2006	70	0	0	\$50,000	\$0
Rogers	9/22/2006	60	0	0	\$0	\$0
Lowell	9/22/2006	70	0	0	\$0	\$0
Rogers	6/1/2007	60	0	0	\$1,000	\$0
Bella Vista	9/6/2007	70	0	0	\$0	\$0
Beaver Lake	10/17/2007	70	0	0	\$0	\$0
Rogers	10/17/2007	70	0	0	\$0	\$0
Beaver Lake	10/17/2007	70	0	0	\$0	\$0
Gentry	10/17/2007	60	0	0	\$0	\$0
Decatur	10/17/2007	70	0	0	\$0	\$0
Gravette	1/7/2008	81	0	0	\$2,000	\$0
Sulphur Spgs	1/8/2008	60	0	0	\$0	\$0
Sulphur Spgs	1/8/2008	60	0	0	\$0	\$0
Bella Vista	1/8/2008	70	0	0	\$0	\$0
Pea Ridge	1/8/2008	81	0	4	\$100,000	\$0
Garfield	1/8/2008	81	0	0	\$25,000	\$0
Wareagle	2/5/2008	60	0	0	\$0	\$0
Gentry	2/5/2008	70	0	0	\$0	\$0
Garfield	5/2/2008	70	0	0	\$0	\$0
Pea Ridge	5/2/2008	70	0	0	\$0	\$0
Highfill	5/2/2008	64	0	0	\$0	\$0
Siloam Spgs	5/2/2008	70	1	1	\$200,000	\$0
Gravette	5/7/2008	60	0	0	\$0	\$0
Lookout	5/10/2008	60	0	0	\$0	\$0
Lowell	5/10/2008	70	0	0	\$1,000	\$0
Siloam Spgs	6/15/2008	70	0	0	\$0	\$0
Garfield	7/5/2008	70	0	0	\$100,000	\$0
	//12/2008	/0	0	0	\$1,000	\$0
Siloam Spgs	8/30/2008	60	0	0	\$1,000	\$0
Pea Ridge	11/6/2008	/0	0	0	\$0	\$0
Siloam Spgs	2/10/2009	60	0	0	\$0	\$0
Rogers	5/1/2009	60	0	0	\$0	\$0
Bentonville	5/13/2009	60	0	0	\$0	\$0
Bentonville	5/13/2009	81	0	0	\$100,000	\$0
Silvam Spgs	5/15/2009	60	0	0	\$0	\$0
Gentry	6/9/2009	81	0	0	\$25,000	\$0

AGENCY	
BENTON COUNTY	(



Location	Date	Mag	Dth	Inj	PrD	CrD
Bella Vista	6/9/2009	70	0	0	\$0	\$0
Gentry	6/9/2009	70	0	0	\$0	\$0
Bella Vista	6/12/2009	70	0	0	\$1,000	\$0
Bentonville	6/12/2009	70	0	0	\$0	\$0
Rogers	6/12/2009	60	0	0	\$0	\$0
Rogers	6/12/2009	85	0	0	\$0	\$0
Gravette	5/13/2010	70	0	0	\$50,000	\$0
Bentonville	5/13/2010	64	0	0	\$0	\$0
Pea Ridge	5/13/2010	60	0	0	\$0	\$0
Best	5/13/2010	64	0	0	\$0	\$0
Garfield	5/13/2010	60	0	0	\$0	\$0
Decatur	8/1/2010	64	0	0	\$5,000	\$0
Decatur	8/1/2010	64	0	0	\$20,000	\$0
Lookout	9/2/2010	64	0	0	\$0	\$0
Pea Ridge	10/25/2010	60	0	0	\$0	\$0
Hiwasse	10/25/2010	60	0	0	\$0	\$0
Decatur	5/11/2011	60	0	0	\$0	\$0
Bentonville	5/11/2011	60	0	0	\$3,000	\$0
Rogers	5/11/2011	70	0	0	\$2,000	\$0
Rogers Muni Arpt	5/11/2011	60	0	0	\$0	\$0
Rogers Muni Arpt	5/11/2011	79	0	0	\$0	\$0
Rogers	5/20/2011	66	0	2	\$10,000	\$0
Cave Spgs	5/22/2011	70	0	0	\$0	\$0
Gravette	6/14/2011	70	0	0	\$0	\$0
Sulphur Spgs	6/14/2011	70	0	0	\$0	\$0
Bella Vista	6/14/2011	60	0	0	\$0	\$0
Bentonville	6/14/2011	70	0	0	\$5,000	\$0
Bentonville	6/14/2011	70	0	0	\$10,000	\$0
Siloam Spgs	6/24/2011	70	0	0	\$0	\$0
Bella Vista	7/24/2011	70	0	0	\$5,000	\$0
Osage Mills	7/30/2011	82	0	0	\$0	\$0
Lowell	8/8/2011	70	0	0	\$0	\$0
Bella Vista	8/10/2011	60	0	0	\$0	\$0
Bella Vista	2/29/2012	75	0	0	\$0	\$0
Pea Ridge	2/29/2012	75	0	0	\$0	\$0
Rogers	5/29/2012	60	0	0	\$0	\$0
Beaver Lake	7/7/2012	60	0	0	\$0	\$0
Gentry	7/8/2012	75	0	0	\$5,000	\$0
Vaughn	7/8/2012	86	0	0	\$20,000	\$0
Lookout	7/26/2012	81	0	0	\$0	\$0
Sulphur Spgs	8/4/2012	81	0	0	\$0	\$0
Bella Vista	8/4/2012	81	0	0	\$15,000	\$0
Bella Vista	8/4/2012	81	0	0	\$0	\$0
Pea Ridge	8/4/2012	70	0	0	\$10,000	\$0
Bentonville	8/4/2012	64	0	0	\$0	\$0
Sulphur Spgs	8/4/2012	81	0	0	\$5,000	\$0
Pea Ridge	8/4/2012	64	0	0	\$10,000	\$0
Pea Ridge	8/4/2012	81	0	0	\$0	\$0
Decatur	8/16/2012	64	0	0	\$0	\$0
Pea Ridge	9/6/2012	/0	0	0	\$5,000	\$0
	9/6/2012	60	0	0	\$5,000	\$0
Lowell	9/7/2012	/0	0	0	\$40,000	\$0
Rogers	9/7/2012	60	0	0	\$1,000	\$0
HIWASSE	9/26/2012	64	0	0	\$0	\$0
Healing Spgs	10/13/2012	85	0	0	\$0	\$0
Cave Spgs	10/13/2012	/0	0	0	\$25,000	\$0
	TU/13/2012	01	0	0	\$0	\$0
Denionville	5/20/2013	64	0	U	\$0	\$0





Location	Date	Mag	Dth	Inj	PrD	CrD
Bentonville Muni Arp	5/20/2013	61	0	0	\$0	\$0
Lowell	5/20/2013	64	0	0	\$10,000	\$0
Pea Ridge	5/20/2013	81	0	0	\$15,000	\$0
Garfield	5/20/2013	81	0	0	\$15,000	\$0
Siloam Spgs	5/30/2013	75	0	0	\$0	\$0
Rogers Muni Arpt	7/23/2013	59	0	0	\$0	\$0
Pea Ridge	7/23/2013	75	0	0	\$0	\$0
Avoca	8/7/2013	64	0	0	\$5,000	\$0
Gravette	10/12/2013	60	0	0	\$5,000	\$0
Bella Vista	4/3/2014	60	0	0	\$0	\$0
Osage Mills	4/13/2014	58	0	0	\$0	\$0
Highfill	4/13/2014	60	0	0	\$1,000	\$0
		County Totals	1	11	\$9,421,800	\$0

*The data are from the NOAA NCDC Storm Event Database.

Table 83 – Tornado Records, Benton County, Arkansas

46 Tornado event(s) were reported in Benton County, Arkansas between 03/24/1954 and 04/30/2014

Mag: Magnitude (F/EF Scale)		Dth: Deaths	In	j: Injuries	6	
PrD: Property Damage (US D	ollars)	CrD: Crop Dam	nage (US	S Dollars	;)	
Location	Date	Mag	Dth	Inj	PrD	CrD
Benton County	3/24/1954	3	0	4	\$2,500	\$0
Benton County	3/25/1954	1	0	0	\$25,000	\$0
Benton County	5/16/1960	1	0	0	\$25,000	\$0
Benton County	3/12/1961	1	0	0	\$25,000	\$0
Benton County	6/12/1964	1	0	0	\$0	\$0
Benton County	6/12/1964	1	0	0	\$25,000	\$0
Benton County	4/8/1965	1	0	0	\$25,000	\$0
Benton County	6/1/1968	2	0	0	\$2,500	\$0
Benton County	4/30/1970	1	0	0	\$25,000	\$0
Benton County	6/11/1970	3	0	0	\$2,500,000	\$0
Benton County	10/8/1970	3	0	4	\$250,000	\$0
Benton County	11/19/1970	2	0	0	\$25,000	\$0
Benton County	5/1/1973	2	0	4	\$250,000	\$0
Benton County	5/26/1973	0	0	0	\$250	\$0
Benton County	5/26/1973	2	0	0	\$250,000	\$0
Benton County	5/9/1974	1	0	0	\$25,000	\$0
Benton County	4/18/1975	1	0	0	\$25,000	\$0
Benton County	6/12/1977	0	0	0	\$0	\$0
Benton County	5/7/1978	1	0	0	\$2,500	\$0
Benton County	5/12/1978	1	0	0	\$25,000	\$0
Benton County	3/14/1990	0	0	0	\$0	\$0
Benton County	10/28/1991	1	0	0	\$25,000	\$0
Siloam Springs	4/24/1993	0	0	0	\$0	\$0
Avoca	10/8/1993	2	0	0	\$500,000	\$0
Sulphur Springs	10/8/1993	0	0	0	\$5,000	\$0
Decatur	10/8/1993	1	0	0	\$50,000	\$0
Centerton	10/8/1993	0	0	0	\$5,000	\$0
Rogers	5/13/1995	0	0	0	\$0	\$0
Gentry	5/13/1995	0	0	0	\$0	\$0
Pea Ridge	4/20/1997	0	0	0	\$0	\$0
Gravette	3/30/1998	1	0	0	\$100,000	\$0
Cherokee City	3/12/2006	3	0	12	\$5,000,000	\$0





Location	Date	Mag	Dth	Inj	PrD	CrD
Bentonville	3/12/2006	2	0	0	\$10,000,000	\$0
Gentry	1/7/2008	1	0	0	\$0	\$0
Hiwasse	1/7/2008	0	0	0	\$0	\$0
Centerton	1/7/2008	0	0	0	\$0	\$0
Bentonville	5/10/2008	1	0	0	\$100,000	\$0
Trident	12/31/2010	2	0	2	\$200,000	\$0
Robinson	12/31/2010	2	0	0	\$75,000	\$0
Bentonville	4/22/2011	0	0	0	\$0	\$0
Highfill	4/22/2011	0	0	0	\$0	\$0
Cherokee City	4/22/2011	0	0	0	\$0	\$0
Gentry	5/22/2011	1	0	0	\$25,000	\$0
Bentonville Municipal Airport	10/13/2012	1	0	2	\$100,000	\$0
Siloam Springs	5/20/2013	1	0	0	\$50,000	\$0
Larue	5/20/2013	1	0	0	\$50,000	\$0
		County Totals	0	28	\$19,792,750	\$0

*The data are from the NOAA NCDC Storm Event Database.

Table 84 – Wildfire Records, Benton County, Arkansas

456 Wildfire event(s) were reported in Benton County, Arkansas between 1989 and 2013

Location	Date	Acres Burned	Fires
Benton County	1989	994	80
Benton County	1990	789	18
Benton County	1991	306	13
Benton County	1992	147	15
Benton County	1993	78	9
Benton County	1994	83	10
Benton County	1995	207	19
Benton County	1996	250	12
Benton County	1997	274	10
Benton County	1998	199	10
Benton County	1999	19	4
Benton County	2000	117	8
Benton County	2001	91	7
Benton County	2002	629	9
Benton County	2003	168	8
Benton County	2004	105	4
Benton County	2005	336	20
Benton County	2006	1,021	27
Benton County	2007	552	18
Benton County	2008	56	6
Benton County	2009	201	19
Benton County	2010	405	24
Benton County	2011	3,237	35
Benton County	2012	1,235	57
Benton County	2013	230	14
	County Totals	11,729	456

*The data are from the Arkansas Forestry Commission.





Table 85 – Winter Storm Records, Benton County, Arkansas

48 Winter Storms were	e reported in	Benton Count 04/30/2014	y, Arka	ansas I	between 01/1	8/1993 and
Mag: Magnitude (Event Sub-	Гуре)	Dth: Deaths	Inj: Ir	njuries		
PrD: Property Damage (US D	ollars)	CrD: Crop Dama	ge (US [Dollars)		
Location	Date	Mag	Dth	Inj	PrD	CrD
Benton County	1/18/1993	Ice Storm	0	0	\$500,000	\$0
Benton County	2/14/1993	Heavy Snow	0	0	\$50,000,000	\$0
Benton County	2/24/1993	Ice Storm	0	0	\$5,000,000	\$0
Benton County	1/16/1994	Winter Storm	0	0	\$5,000,000	\$0
Benton County	2/8/1994	Winter Storm	0	0	\$500,000	\$0
Benton County	3/8/1994	Winter Storm	0	0	\$5,000,000	\$0
Benton County	1/18/1995	Heavy Snow	0	0	\$0	\$0
Benton County	1/18/1995	Heavy Snow	0	0	\$0	\$0
Benton County	1/1/1996	Heavy Snow	0	0	\$0	\$0
Benton County	2/1/1996	Heavy Snow	0	0	\$0	\$0
Benton County	11/24/1996	Ice Storm	0	0	\$0	\$0
Benton County	1/8/1997	Heavy Snow	0	0	\$0	\$0
Benton County	1/1/1999	Winter Storm	0	0	\$0	\$0
Benton County	1/8/1999	Ice Storm	0	0	\$0	\$0
Benton County	1/23/1999	Heavy Snow	0	0	\$0	\$0
Benton County	3/13/1999	Heavy Snow	0	0	\$20,000	\$0
Benton County	1/27/2000	Heavy Snow	0	0	\$0	\$0
Benton County	12/12/2000	Heavy Snow	0	0	\$0	\$0
Benton County	12/25/2000	Ice Storm	0	0	\$0	\$0
Benton County	11/28/2001	Ice Storm	0	0	\$1,800,000	\$0
Benton County	2/5/2002	Heavy Snow	0	0	\$0	\$0
Benton County	3/2/2002	Heavy Snow	0	0	\$0	\$0
Benton County	12/3/2002	Ice Storm	0	0	\$0	\$0
Benton County	12/23/2002	Heavy Snow	0	0	\$0	\$0
Benton County	2/9/2003	Heavy Snow	0	0	\$0	\$0
Benton County	2/23/2003	Heavy Snow	0	0	\$0	\$0
Benton County	2/26/2003	Winter Weather	0	0	\$0	\$0
Benton County	2/18/2006	Winter Storm	0	0	\$0	\$0
Benton County	11/29/2006	Winter Storm	0	0	\$0	\$0
Benton County	1/12/2007	Winter Storm	0	0	\$150,000	\$0
Benton County	12/9/2007	Ice Storm	0	0	\$0	\$0
Benton County	1/31/2008	Heavy Snow	0	0	\$0	\$0
Benton County	3/3/2008	Winter Storm	0	0	\$0	\$0
Benton County	1/26/2009	Ice Storm	0	0	\$425,000	\$0
Benton County	12/24/2009	Winter Storm	0	0	\$0	\$0
Benton County	1/28/2010	Winter Storm	0	0	\$0	\$0
Benton County	2/7/2010	Winter Storm	0	0	\$0	\$0
Benton County	3/20/2010	Winter Storm	0	0	\$0	\$0
Benton County	1/20/2011	Winter Storm	0	0	\$0	\$0
Benton County	2/1/2011	Winter Storm	0	0	\$0	\$0
Benton County	2/4/2011	Winter Storm	0	0	\$0	\$0
Benton County	2/8/2011	Winter Storm	0	0	\$0	\$0
Benton County	2/20/2013	Winter Storm	0	0	\$0	0
Benton County	12/5/2013	Winter Storm	0	0	\$0	0
Benton County	12/20/2013	Ice Storm	0	0	\$0	0
Benton County	1/5/2014	Winter Storm	0	0	\$0	0
Benton County	2/2/2014	Winter Storm	0	0	\$0	0
Benton County	3/2/2014	Winter Storm	0	0	\$0	0
		County Totals	0	0	\$68,395,000	\$0

*The data are from the NOAA NCDC Storm Event Database.



Appendix F – Mitigation Projects



#1 – Air Conditioning & Ventilation Modernization Program

Description Hazard/s Addressed Status	By modernizing a facility's AC and ventilation system it is better equipped to resist extreme heat events and keep its occupants safe from heat related injury. Additionally, it better equips a location to handle more occupants than is typically housed allowing it to be used as a cooling station for the community. Excessive Heat Proposed Excessive						
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25.000 - \$100.000				
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium				
Jurisdictional Priority							
Benton County	Low	Lowell	Low				
Avoca	Low	Pea Ridge	Low				
Bella Vista	Low	Rogers	Low				
Bentonville	Low	Siloam Springs	Low				
Bethel Heights	Low	Springtown	Low				
Cave Springs	Low	Sulphur Springs	Low				
Centerton	Low	NWACC	Low				
Decatur	Low	Bentonville SD	Low				
Garfield	Low	Decatur SD	Low				
Gateway	Low	Gentry SD	Low				
Gentry	Low	Gravette SD	Low				
Gravette	Low	Pea Ridge SD	Low				
Highfill	Low	Rogers SD	Low				
Little Flock	Low	Siloam Springs SD	Low				

	#2 – Alert, Broadcast, 8	& Warning System						
Description	The jurisdictions will continue to improve their alert, broadcast, and warning system to give information and instructions in the face of an impending hazard impact to prevent injury and property damage. These systems will allow citizens to better protect themselves in the event of an impending or potentially impending hazard. Additionally, hazard or weather specific information can be delivered to assist in achieving the previously stated goal.							
Hazard/s Addressed	Dam Failure, Flash Floods, Riverine Floods	s, Severe Storms, Tornadoes, Wildfi	res, Winter Storms					
Status	Proposed	Infrastructure Emphasis	New & Existing					
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$50,000 - \$200,000					
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium					
	Jurisdictional Priority							
Benton County	High	Lowell	High					
Avoca	High	Pea Ridge	High					
Bella Vista	High	Rogers	High					
Bentonville	High	Siloam Springs	High					
Bethel Heights	High	Springtown	High					
Cave Springs	High	Sulphur Springs	High					
Centerton	High	NWACC	High					
Decatur	High	Bentonville SD	High					
Garfield	High	Decatur SD	High					
Gateway	High	Gentry SD	High					
Gentry	High	Gravette SD	High					
Gravette	High	Pea Ridge SD	High					
Highfill	High	Rogers SD	High					
Little Flock	High	Siloam Springs SD	High					





Description	Backup generators provide critical facilities with electricity in the event a community's electrical transmission grid is either damaged by earthquakes, severe storms, tornadoes, or winter storms, or overloaded by excessive use during an extreme heat or a winter storm.		
Hazard/s Addressed	Dam Failure, Earthquakes, Excessive Heat	, Severe Storms, Tornadoes, Wildfir	es, Winter Storms
Status	Proposed	Infrastructure Emphasis	Existing
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25,000 - \$50,000
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium
Jurisdictional Priority			
Benton County	High	Lowell	High
Avoca	High	Pea Ridge	High
Bella Vista	High	Rogers	High
Bentonville	High	Siloam Springs	High
Bethel Heights	High	Springtown	High
Cave Springs	High	Sulphur Springs	High
Centerton	High	NWACC	High
Decatur	High	Bentonville SD	High
Garfield	High	Decatur SD	High
Gateway	High	Gentry SD	High
Gentry	High	Gravette SD	High
Gravette	High	Pea Ridge SD	High
Highfill	High	Rogers SD	High
Little Flock	High	Siloam Springs SD	High

#4 – Debris & Natural Fuels Reduction Program			
Description	Reducing the amount of debris and natural fuels in a community will deprive wildfires of the material it requires to spread quickly and prevent high winds from launching deadly and damaging debris around during a severe storm or tornado.		
Hazard/s Addressed	Severe Storms, Tornadoes, Wildfires		
Status	Proposed	Infrastructure Emphasis	Existing
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$10,000 - \$25,000
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Low
Jurisdictional Priority			
Benton County	Medium	Lowell	Medium
Avoca	Medium	Pea Ridge	Medium
Bella Vista	Medium	Rogers	Medium
Bentonville	Medium	Siloam Springs	Medium
Bethel Heights	Medium	Springtown	Medium
Cave Springs	Medium	Sulphur Springs	Medium
Centerton	Medium	NWACC	Medium
Decatur	Medium	Bentonville SD	Medium
Garfield	Medium	Decatur SD	Medium
Gateway	Medium	Gentry SD	Medium
Gentry	Medium	Gravette SD	Medium
Gravette	Medium	Pea Ridge SD	Medium
Highfill	Medium	Rogers SD	Medium
Little Flock	Medium	Siloam Springs SD	Medium





#5 – Defensible Spaces/Buffer Zones Program				
Description	Creating defensible spaces and buffer zones void of vegetative fuel and covered with gravel or rock helps prevent the spread of wildfire as well as creating an area in which local emergency response serviced can safely operate. This 2-pronged approach directly mitigates damage to property and protects lives, but also indirectly mitigates the threat to life and property in the area at large.			
Hazard/s Addressed	Wildfires			
Status	Proposed	Infrastructure Emphasis	Existing	
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$10,000 - \$50,000	
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium	
Jurisdictional Priority				
Benton County	Low	Lowell	Low	
Avoca	Low	Pea Ridge	Low	
Bella Vista	Medium	Rogers	Low	
Bentonville	Low	Siloam Springs	Low	
Bethel Heights	Low	Springtown	Low	
Cave Springs	Low	Sulphur Springs	Medium	
Centerton	Low	NWACC	Low	
Decatur	Low	Bentonville SD	Low	
Garfield	Low	Decatur SD	Low	
Gateway	Low	Gentry SD	Low	
Gentry	Low	Gravette SD	Low	
Gravette	Low	Pea Ridge SD	Low	
Highfill	Low	Rogers SD	Low	
Little Flock	Low	Siloam Springs SD	Low	

#6 – Earthquake Vulnerability Assessment & Facilities Retrofit Program

Description	An earthquake vulnerability assessment will detail a jurisdiction's high risk facilities, infrastructure and make retrofit recommendations. Using the assessment, a jurisdiction can retrofit their facilities and infrastructure there by reducing their structural vulnerabilities to seismic events.		
Hazard/s Addressed	Earthquakes		
Status	Proposed	Infrastructure Emphasis	Existing
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25,000 - \$250,000
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	High
Jurisdictional Priority			
Benton County	Low	Lowell	Low
Avoca	Low	Pea Ridge	Low
Bella Vista	Low	Rogers	Low
Bentonville	Low	Siloam Springs	Low
Bethel Heights	Low	Springtown	Low
Cave Springs	Low	Sulphur Springs	Low
Centerton	Low	NWACC	Low
Decatur	Low	Bentonville SD	Low
Garfield	Low	Decatur SD	Low
Gateway	Low	Gentry SD	Low
Gentry	Low	Gravette SD	Low
Gravette	Low	Pea Ridge SD	Low
Highfill	Low	Rogers SD	Low
Little Flock	Low	Siloam Springs SD	Low





#7 – FEMA Code 361 Safe Room			
Description	FEMA Code 361 regulations ensure a structure is capable of withstanding wind speeds greater than 200 miles per hour. Additionally, these anti-tornado regulations also ensure the structure is protected against hail, lightning, high and strong winds.		
Hazard/s Addressed	Severe Storms, Tornadoes		
Status	Proposed	Infrastructure Emphasis	New
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$250,000 - \$1,000,000
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	High
	Jurisdictional	Priority	
Benton County	High	Lowell	High
Avoca	High	Pea Ridge	High
Bella Vista	High	Rogers	High
Bentonville	High	Siloam Springs	High
Bethel Heights	High	Springtown	High
Cave Springs	High	Sulphur Springs	High
Centerton	High	NWACC	High
Decatur	High	Bentonville SD	High
Garfield	High	Decatur SD	High
Gateway	High	Gentry SD	High
Gentry	High	Gravette SD	High
Gravette	High	Pea Ridge SD	High
Highfill	High	Rogers SD	High
Little Flock	High	Siloam Springs SD	High

#8 – Insulation & Energy Efficiency Upgrade Program			
Description	Upgrading a facility's windows, windows frames, roofing, and insulation will allow it to better maintain a desired, warm or cool, temperature during prolonged extreme heat or winter storms. Additionally, it decreases the energy load necessary to do so, decreasing the burden on the local energy grid.		
Hazard/s Addressed	Excessive Heat, Winter Storms		
Status	Proposed	Infrastructure Emphasis	Existing
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25,000 - \$75,000
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium
Jurisdictional Priority			
Benton County	Medium	Lowell	Medium
Avoca	Medium	Pea Ridge	Medium
Bella Vista	Medium	Rogers	Medium
Bentonville	Medium	Siloam Springs	Medium
Bethel Heights	Medium	Springtown	Medium
Cave Springs	Medium	Sulphur Springs	Medium
Centerton	Medium	NWACC	Medium
Decatur	Medium	Bentonville SD	Medium
Garfield	Medium	Decatur SD	Medium
Gateway	Medium	Gentry SD	Medium
Gentry	Medium	Gravette SD	Medium
Gravette	Medium	Pea Ridge SD	Medium
Highfill	Medium	Rogers SD	Medium
Little Flock	Medium	Siloam Springs SD	Medium





#9 – Interior Furnishing Hazard Reduction Program				
Description	Fastening, removing, or modifying interior falling loose into people and other objects	Fastening, removing, or modifying interior furnishing prevent them from shaking, becoming unstable, or falling loose into people and other objects during seismic events.		
Hazard/s Addressed	Earthquakes			
Status	Proposed	Infrastructure Emphasis	Existing	
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$10,000 - \$50,000	
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium	
	Jurisdictional	Priority		
Benton County	Low	Lowell	Low	
Avoca	Low	Pea Ridge	Low	
Bella Vista	Low	Rogers	Low	
Bentonville	Low	Siloam Springs	Low	
Bethel Heights	Low	Springtown	Low	
Cave Springs	Low	Sulphur Springs	Low	
Centerton	Low	NWACC	Low	
Decatur	Low	Bentonville SD	Low	
Garfield	Low	Decatur SD	Low	
Gateway	Low	Gentry SD	Low	
Gentry	Low	Gravette SD	Low	
Gravette	Low	Pea Ridge SD	Low	
Highfill	Low	Rogers SD	Low	
Little Flock	Low	Siloam Springs SD	Low	

#10 – Low Flow Utilities Installation Program			
Description	To decrease water usage before, during, and after a drought, communities can install low water flow utilities throughout its critical facilities and infrastructure. This will not only decrease water usage, but also decrease water demands.		
Hazard/s Addressed	Droughts		
Status	Proposed	Infrastructure Emphasis	New & Existing
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25,000 - \$100,000
Lead Department/s	Benton County EMA, Municipal Governments	Effectiveness	Low
Jurisdictional Priority			
Benton County	Low	Lowell	N/A
Avoca	N/A	Pea Ridge	Low
Bella Vista	N/A	Rogers	N/A
Bentonville	N/A	Siloam Springs	N/A
Bethel Heights	N/A	Springtown	N/A
Cave Springs	N/A	Sulphur Springs	N/A
Centerton	Low	NWACC	N/A
Decatur	N/A	Bentonville SD	N/A
Garfield	N/A	Decatur SD	N/A
Gateway	N/A	Gentry SD	N/A
Gentry	N/A	Gravette SD	N/A
Gravette	N/A	Pea Ridge SD	N/A
Highfill	Low	Rogers SD	N/A
Little Flock	N/A	Siloam Springs SD	N/A





#11 – Public Awareness & Education CampaignA campaign will inform and educate the public on high risk dam failure events allowing them to better

Description	protect their property through preparation and their lives through appropriate evacuation and survival procedures.			
Hazard/s Addressed	Dam Failure			
Status	Proposed	Infrastructure Emphasis	New & Existing	
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$5,000 - \$10,000	
Lead Department/s	Benton County EMA, Municipal Governments	Effectiveness	Low	
	Jurisdictional Priority			
Benton County	Low	Lowell	N/A	
Avoca	N/A	Pea Ridge	N/A	
Bella Vista	Low	Rogers	Low	
Bentonville	N/A	Siloam Springs	N/A	
Bethel Heights	N/A	Springtown	N/A	
Cave Springs	Low	Sulphur Springs	N/A	
Centerton	N/A	NWACC	N/A	
Decatur	N/A	Bentonville SD	N/A	
Garfield	N/A	Decatur SD	N/A	
Gateway	N/A	Gentry SD	N/A	
Gentry	N/A	Gravette SD	N/A	
Gravette	N/A	Pea Ridge SD	N/A	
Highfill	N/A	Rogers SD	N/A	
Little Flock	N/A	Siloam Springs SD	N/A	

#12 – Purchase Repetitive Loss & Severe Repetitive Loss Properties

Description	Through the NFIP and other flood damage prevention programs, FEMA designates repetitive loss and severe repetitive loss properties. Relocating or purchasing these structures eliminates their presence in a floodplain severely reducing the impact of floods on a jurisdiction.		
Hazard/s Addressed	Riverine Floods		
Status	Proposed	Infrastructure Emphasis	Existing
Funding Source/s	FMA	Cost Estimate	\$0
Lead Department/s	Benton County EMA, Municipal Governments	Effectiveness	High
Jurisdictional Priority			
Benton County	Medium	Lowell	N/A
Avoca	N/A	Pea Ridge	N/A
Bella Vista	N/A	Rogers	Medium
Bentonville	Medium	Siloam Springs	Medium
Bethel Heights	N/A	Springtown	N/A
Cave Springs	Medium	Sulphur Springs	N/A
Centerton	N/A	NWACC	N/A
Decatur	Medium	Bentonville SD	N/A
Garfield	N/A	Decatur SD	N/A
Gateway	N/A	Gentry SD	N/A
Gentry	N/A	Gravette SD	N/A
Gravette	N/A	Pea Ridge SD	N/A
Highfill	N/A	Rogers SD	N/A
Little Flock	N/A	Siloam Springs SD	N/A





#13 – Rainwater Retention/Detention Program				
Description	Rainwater detention centers are artificial ba droughts by collecting and holding rainwate	asins built in strategic locations to pr er for an extended period of time.	otect against floods and	
Hazard/s Addressed	Droughts, Flash Floods, Riverine Floods			
Status	Proposed	Infrastructure Emphasis	New & Existing	
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$10,000 - \$100,000	
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	High	
	Jurisdictional Priority			
Benton County	High	Lowell	Medium	
Avoca	Medium	Pea Ridge	High	
Bella Vista	Medium	Rogers	High	
Bentonville	High	Siloam Springs	High	
Bethel Heights	Medium	Springtown	High	
Cave Springs	Medium	Sulphur Springs	Medium	
Centerton	High	NWACC	Medium	
Decatur	High	Bentonville SD	Medium	
Garfield	Medium	Decatur SD	Medium	
Gateway	Medium	Gentry SD	Medium	
Gentry	Medium	Gravette SD	Medium	
Gravette	Medium	Pea Ridge SD	Medium	
Highfill	High	Rogers SD	Medium	
Little Flock	Medium	Siloam Springs SD	Medium	

#14 – Remote Water Monitoring Stations Program			
Description	Strategically installing water monitoring stations will assist in measuring the severity of an existing or impending drought. Accurately measuring the drought will allow the community to take the necessary conservation and regulatory measures to mitigate the droughts effects.		
Hazard/s Addressed	Droughts		
Status	Proposed	Infrastructure Emphasis	New & Existing
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25,000 - \$75,000
Lead Department/s	Benton County EMA, Municipal Governments	Effectiveness	Low
Jurisdictional Priority			
Benton County	Low	Lowell	N/A
Avoca	N/A	Pea Ridge	Low
Bella Vista	N/A	Rogers	N/A
Bentonville	N/A	Siloam Springs	N/A
Bethel Heights	N/A	Springtown	N/A
Cave Springs	N/A	Sulphur Springs	N/A
Centerton	Low	NWACC	N/A
Decatur	N/A	Bentonville SD	N/A
Garfield	N/A	Decatur SD	N/A
Gateway	N/A	Gentry SD	N/A
Gentry	N/A	Gravette SD	N/A
Gravette	N/A	Pea Ridge SD	N/A
Highfill	Low	Rogers SD	N/A
Little Flock	N/A	Siloam Springs SD	N/A





	#15 – Snow Fence Ins	tallation Program										
Description	Snow fences force drifting snow to accumulate in a desired place minimizing the amount of snowdrift on roads and railways. Controlling snow accumulation decreases the danger to a jurisdiction's citizens traveling during and after a winter storm.											
Hazard/s Addressed	Winter Storms											
Status	Proposed	Infrastructure Emphasis	New & Existing									
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25,000 - \$100,000									
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Low									
Jurisdictional Priority												
Benton County	Low	Lowell	Low									
Avoca	Low	Pea Ridge	Low									
Bella Vista	Low	Rogers	Low									
Bentonville	Low	Siloam Springs	Low									
Bethel Heights	Low	Springtown	Low									
Cave Springs	Low	Sulphur Springs	Low									
Centerton	Low	NWACC	Low									
Decatur	Low	Bentonville SD	Low									
Garfield	Low	Decatur SD	Low									
Gateway	Low	Gentry SD	Low									
Gentry	Low	Gravette SD	Low									
Gravette	Low	Pea Ridge SD	Low									
Highfill	Low	Rogers SD	Low									
Little Flock	Low	Siloam Springs SD	Low									

#16 – Storm Water Drainage System Upgrade										
Description	Significant flood damage in developed communities can be prevented by upgrading their storm water drainage system. This mitigation measure will allow flood waters to drain quicker and prevent excess accumulation.									
Hazard/s Addressed	Flash Floods, Riverine Floods									
Status	Proposed	Infrastructure Emphasis	New & Existing							
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25,000 - \$50,000							
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	High							
Jurisdictional Priority										
Benton County	High	Lowell	Medium							
Avoca	Medium	Pea Ridge	Medium							
Bella Vista	Medium	Rogers	High							
Bentonville	High	Siloam Springs	High							
Bethel Heights	Medium	Springtown	High							
Cave Springs	Medium	Sulphur Springs	Medium							
Centerton	High	NWACC	Medium							
Decatur	High	Bentonville SD	Medium							
Garfield	Medium	Decatur SD	Medium							
Gateway	Medium	Gentry SD	Medium							
Gentry	Medium	Gravette SD	Medium							
Gravette	Medium	Pea Ridge SD	Medium							
Highfill	Medium	Rogers SD	Medium							
Little Flock	Medium	Siloam Springs SD	Medium							





#17	 Structural Integrity M 	onitoring Instrume	nts									
Description	Dam failure is often preventable, but due to the structural nature of their construction and limited inspection resources, inspections happen too infrequently. Installing a series of seismic monitoring instruments at strategic locations along a dam can detect small, often unnoticed or detected, shifts in the dams substructure that are the primary cause in premature collapse or failure. These instruments serve not only as early warning devices, but as the means to ensuring a dam's maintenance and repair schedule is kept.											
Hazard/s Addressed	Dam Failure											
Status	Proposed	Infrastructure Emphasis	New & Existing									
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$100,000 - \$250,000									
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	High									
Jurisdictional Priority												
Benton County	Low	Lowell	N/A									
Avoca	N/A	Pea Ridge	N/A									
Bella Vista	Low	Rogers	Low									
Bentonville	N/A	Siloam Springs	N/A									
Bethel Heights	N/A	Springtown	N/A									
Cave Springs	Low	Sulphur Springs	N/A									
Centerton	N/A	NWACC	N/A									
Decatur	N/A	Bentonville SD	N/A									
Garfield	N/A	Decatur SD	N/A									
Gateway	N/A	Gentry SD	N/A									
Gentry	N/A	Gravette SD	N/A									
Gravette	N/A	Pea Ridge SD	N/A									
Highfill	N/A	Rogers SD	N/A									
Little Flock	N/A	Siloam Springs SD	N/A									

#18 – Transportation Status & Routing Notification System											
Description Installing a transportation status and routing system will allow a community to effectively mitigate the effects of multiple hazards on its travelling population. Using smart grid and intelligent transit control systems, a jurisdiction can effectively route its transportation systems according to situational need whether it is to avoid severe weather, flooding, dam failure, wildfires or any number of hazards. By having a better control of its transportation network, and thus the location of its citizens, a community detour its citizens from entering into the harm of a hazard.											
Hazard/s Addressed	Dam Failure, Flash Floods, Riverine Floods	s, Tornadoes, Wildfires, Winter Storr	ns								
Status	Proposed	Infrastructure Emphasis	New & Existing								
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$50,000 - \$100,000								
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Low								
	Jurisdictional	Priority									
Benton County	Medium	Lowell	Medium								
Avoca	Medium	Pea Ridge	Medium								
Bella Vista	Medium	Rogers	Medium								
Bentonville	Medium	Siloam Springs	Medium								
Bethel Heights	Medium	Springtown	Medium								
Cave Springs	Medium	Sulphur Springs	Medium								
Centerton	Medium	NWACC	Medium								
Decatur	Medium	Bentonville SD	Medium								
Garfield	Medium	Decatur SD	Medium								
Gateway	Medium	Gentry SD	Medium								
Gentry	Medium	Gravette SD	Medium								
Gravette	Medium	Pea Ridge SD	Medium								
Highfill	Medium	Rogers SD	Medium								
Little Flock	Medium	Siloam Springs SD	Medium								





#19 – Tree Wire Installation Program

Description Securing trees with wire harnesses will prevent wind related events from blowing them over and potentially onto the jurisdiction's facilities and infrastructure.												
Hazard/s Addressed	Severe Storms, Tornadoes	Severe Storms, Tornadoes										
Status	Proposed	Existing										
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$5,000 - \$25,000									
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Low									
Jurisdictional Priority												
Benton County	Medium	Lowell	Medium									
Avoca	Medium	Pea Ridge	Medium									
Bella Vista	Medium	Rogers	Medium									
Bentonville	Medium	Siloam Springs	Medium									
Bethel Heights	Medium	Springtown	Medium									
Cave Springs	Medium	Sulphur Springs	Medium									
Centerton	Medium	NWACC	Medium									
Decatur	Medium	Bentonville SD	Medium									
Garfield	Medium	Decatur SD	Medium									
Gateway	Medium	Gentry SD	Medium									
Gentry	Medium	Gravette SD	Medium									
Gravette	Medium	Pea Ridge SD	Medium									
Highfill	Medium	Rogers SD	Medium									
Little Flock	Medium	Siloam Springs SD	Medium									

#20 – Underground Electrical Transmission Installation Program

Description	Transferring existing utilities lines from above ground to below ground will significantly reduce the amount of property damage incurred from wind, ice, and snow related events.									
Hazard/s Addressed	Severe Storms, Tornadoes, Winter Storms									
Status	Proposed	Infrastructure Emphasis	New & Existing							
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$25,000 - \$200,000							
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium							
Jurisdictional Priority										
Benton County	High	Lowell	High							
Avoca	High	Pea Ridge	High							
Bella Vista	High	Rogers	High							
Bentonville	High	Siloam Springs	High							
Bethel Heights	High	Springtown	High							
Cave Springs	High	Sulphur Springs	High							
Centerton	High	NWACC	High							
Decatur	High	Bentonville SD	High							
Garfield	High	Decatur SD	High							
Gateway	High	Gentry SD	High							
Gentry	High	Gravette SD	High							
Gravette	High	Pea Ridge SD	High							
Highfill	High	Rogers SD	High							
Little Flock	High	Siloam Springs SD	High							





#21 – Water Line Insulation Program

Description	Insulating a facility's water pipes helps prevent them from freezing and bursting due to sudden and prolonged low temperatures during winter storms.									
Hazard/s Addressed	Winter Storms									
Status	Proposed	Existing								
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$5,000 - \$50,000							
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium							
Jurisdictional Priority										
Benton County	Low	Lowell	Low							
Avoca	Low	Pea Ridge	Low							
Bella Vista	Low	Rogers	Low							
Bentonville	Low	Siloam Springs	Low							
Bethel Heights	Low	Springtown	Low							
Cave Springs	Low	Sulphur Springs	Low							
Centerton	Low	NWACC	Low							
Decatur	Low	Bentonville SD	Low							
Garfield	Low	Decatur SD	Low							
Gateway	Low	Gentry SD	Low							
Gentry	Low	Gravette SD	Low							
Gravette	Low	Pea Ridge SD	Low							
Highfill	Low	Rogers SD	Low							
Little Flock	Low	Siloam Springs SD	Low							

	#22 – Wildfire Structura	al Retrofit Program										
Description	Retrofitting structures with screened vent enclosures, double paned glass, and spark arrestors will reduce the chances of a structure igniting from a wildfire as well as a wildfire's chance of spreading.											
Hazard/s Addressed	Wildfires											
Status	Proposed	Infrastructure Emphasis	Existing									
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$5,000 - \$50,000									
Lead Department/s	Benton County EMA, Municipal Governments, School Boards	Effectiveness	Medium									
Jurisdictional Priority												
Benton County	Low	Lowell	Low									
Avoca	Low	Pea Ridge	Low									
Bella Vista	Medium	Rogers	Low									
Bentonville	Low	Siloam Springs	Low									
Bethel Heights	Low	Springtown	Low									
Cave Springs	Low	Sulphur Springs	Medium									
Centerton	Low	NWACC	Low									
Decatur	Low	Bentonville SD	Low									
Garfield	Low	Decatur SD	Low									
Gateway	Low	Gentry SD	Low									
Gentry	Low	Gravette SD	Low									
Gravette	Low	Pea Ridge SD	Low									
Highfill	Low	Rogers SD	Low									
Little Flock	Low	Siloam Springs SD	Low									





#23 – Xeriscaping Program

Description	Xeriscaping is a specific method of landscaping and gardening designed to reduce and eliminate the need for supplemental water. By practicing xeriscaping on jurisdiction owned properties the net system wide water necessary for a community to maintain itself is substantially reduced.										
Hazard/s Addressed	Droughts										
Status	Proposed	Infrastructure Emphasis	New & Existing								
Funding Source/s	HMGP, PDM, Local Budgets	Cost Estimate	\$5,000 - \$50,000								
Lead Department/s	Benton County EMA, Municipal Governments	Effectiveness	Low								
Jurisdictional Priority											
Benton County	Low	Lowell	N/A								
Avoca	N/A	Pea Ridge	Low								
Bella Vista	N/A	Rogers	N/A								
Bentonville	N/A	Siloam Springs	N/A								
Bethel Heights	N/A	Springtown	N/A								
Cave Springs	N/A	Sulphur Springs	N/A								
Centerton	Low	NWACC	N/A								
Decatur	N/A	Bentonville SD	N/A								
Garfield	N/A	Decatur SD	N/A								
Gateway	N/A	Gentry SD	N/A								
Gentry	N/A	Gravette SD	N/A								
Gravette	N/A	Pea Ridge SD	N/A								
Highfill	Low	Rogers SD	N/A								
Little Flock	N/A	Siloam Springs SD	N/A								



Appendix G – Mitigation Project Prioritization

Table 86 – Mitigation Project Prioritization, Benton County														
			Hazard Risk Value											
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	5	-	-	-	10	15	15	15	10	10	94	High
Critical Facility Backup Generator Installation	13	1	5	-	5	5	-	-	15	15	-	10	68	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	10	-	33	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	10	-	24	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	10	-	-	-	-	-	-	-	-	17	Low
Public Awareness & Education Program	16	0.5	5	-	-	-	-	-	-	-	-	-	18.5	Low
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	15	-	-	-	-	37.5	Medium
Rainwater Retention/Detention Project	14	1.5	-	10	-	-	10	15	-	-	-	-	66.5	High
Remote Water Monitoring Stations	12	0.5	-	10	-	-	-	15	-	-	-	-	24.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	15	-	-	-	-	51.5	High
Structural Integrity Monitoring Instruments	11	1.5	5	-	-	-	-	-	-	-	-	-	18.5	Low
Transportation Status & Routing Notification Systems	11	0.5	5	-	-	-	10	15	-	15	10	10	43.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	10	-	23	Low
Xeriscaping	12	0.5	-	10	-	-	-	-	-	-	-	-	17	Low





Table 87 – Mitigation Project Prioritization, Avoca

		Effectiveness Multiplier	Hazard Risk Value											
Mitigation Project or Activity	STAPLE+E		Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total I	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	10	10	79	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	10	-	33	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	10	-	24	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	5	-	-	-	-	36.5	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	5	-	-	-	-	14.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	10	10	36	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	10	-	23	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 88 – Mitigation Project Prioritization, Bella Vista

		Effectiveness Multiplier	Hazard Risk Value											
Mitigation Project or Activity	STAPLE+E		Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total I	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	5	-	-	-	10	10	15	15	15	10	94	High
Critical Facility Backup Generator Installation	13	1	5	-	5	5	-	-	15	15	-	10	68	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	15	-	35.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	15	-	29	Medium
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	5	-	-	-	-	-	-	-	-	-	18.5	Low
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	10	-	-	-	-	30	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	10	-	-	-	-	44	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	10	-	-	-	-	17	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	10	-	-	-	-	44	Medium
Structural Integrity Monitoring Instruments	11	1.5	5	-	-	-	-	-	-	-	-	-	18.5	Low
Transportation Status & Routing Notification Systems	11	0.5	5	-	-	-	10	10	-	15	15	10	43.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	15	-	28	Medium
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 89 – Mitigation Project Prioritization, Bentonville

		Effectiveness	Effectiveness Hazard Risk Value									_		
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	lotal	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	15	15	15	5	10	84	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	15	-	-	-	-	37.5	Medium
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	15	-	-	-	-	51.5	High
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	15	-	-	-	-	19.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	15	-	-	-	-	51.5	High
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	15	-	15	5	10	38.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 90 – Mitigation Project Prioritization, Bethel Heights

		Effectiveness				Ha	zard R	isk Valu	ie					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	Х	10	69	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	Х	-	28	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	Х	-	14	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	5	-	-	-	-	36.5	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	5	-	-	-	-	14.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	Х	10	31	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	Х	-	13	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 91 – Mitigation Project Prioritization, Cave Springs

		Effectiveness				Ha	zard R	isk Valu	le					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	5	-	-	-	10	10	15	15	5	10	84	High
Critical Facility Backup Generator Installation	13	1	5	-	5	5	-	-	15	15	-	10	68	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	5	-	-	-	-	-	-	-	-	-	18.5	Low
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	10	-	-	-	-	30	Medium
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	10	-	-	-	-	44	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	10	-	-	-	-	17	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	10	-	-	-	-	44	Medium
Structural Integrity Monitoring Instruments	11	1.5	5	-	-	-	-	-	-	-	-	-	18.5	Low
Transportation Status & Routing Notification Systems	11	0.5	5	-	-	-	10	10	-	15	5	10	38.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	X	-	-	-	-	-	-	-	-	12	N/A





Table 92 – Mitigation Project Prioritization, Centerton

		Effectiveness				Ha	zard R	isk Valu	ie				-	
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	15	15	15	5	10	84	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	10	-	-	-	-	-	-	-	-	17	Low
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	15	-	-	-	-	37.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	10	-	-	10	15	-	-	-	-	66.5	High
Remote Water Monitoring Stations	12	0.5	-	10	-	-	-	15	-	-	-	-	24.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	15	-	-	-	-	51.5	High
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	15	-	15	5	10	38.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	10	-	-	-	-	-	-	-	-	17	Low





Table 93 – Mitigation Project Prioritization, Decatur

		Effectiveness				Ha	zard R	isk Valu	ie					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	15	15	15	5	10	84	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	15	-	-	-	-	37.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	15	-	-	-	-	51.5	High
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	15	-	-	-	-	19.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	15	-	-	-	-	51.5	High
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	15	-	15	5	10	38.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 94 – Mitigation Project Prioritization, Garfield

		Effectiveness				Ha	zard R	isk Valu	ie					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	Х	15	15	10	10	74	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	10	-	33	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	10	-	24	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	Х	-	-	-	-	15	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	Х	-	-	-	-	29	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	Х	-	-	-	-	12	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	Х	-	-	-	-	29	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	Х	-	15	10	10	33.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	10	-	23	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 95 – Mitigation Project Prioritization, Gateway

		Effectiveness	Hazard Risk Value										-	
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	Х	15	15	10	10	74	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	10	-	33	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	10	-	24	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	Х	-	-	-	-	15	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	Х	-	-	-	-	29	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	Х	-	-	-	-	12	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	Х	-	-	-	-	29	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	Х	-	15	10	10	33.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	10	-	23	Low
Xeriscaping	12	0.5	-	X	-	-	-	-	-	-	-	-	12	N/A





Table 96 – Mitigation Project Prioritization, Gentry

		Effectiveness				Ha	zard R	isk Valu	ie					_
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	lotal	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	5	10	74	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	5	-	-	-	-	36.5	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	5	-	-	-	-	14.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	5	10	33.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 97 – Mitigation Project Prioritization, Gravette

		Effectiveness	fectiveness Hazard Risk Value									_		
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	10	10	79	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	10	-	33	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	10	-	24	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	5	-	-	-	-	36.5	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	5	-	-	-	-	14.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	10	10	36	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	10	-	23	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 98 – Mitigation Project Prioritization, Highfill

		Effectiveness	Hazard Risk Value											
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	5	10	74	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	10	-	-	-	-	-	-	-	-	17	Low
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	10	-	-	10	5	-	-	-	-	51.5	High
Remote Water Monitoring Stations	12	0.5	-	10	-	-	-	5	-	-	-	-	19.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	5	10	33.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	10	-	-	-	-	-	-	-	-	17	Low





Table 99 – Mitigation Project Prioritization, Little Flock

		Hazard Risk Value											_	
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	10	10	79	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	10	-	33	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	10	-	24	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	5	-	-	-	-	36.5	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	5	-	-	-	-	14.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	10	10	36	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	10	-	23	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 100 – Mitigation Project Prioritization, Lowell

		Effectiveness				Ha	zard R	isk Valu	ie					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	10	15	15	5	10	79	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	10	-	-	-	-	30	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	10	-	-	-	-	44	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	10	-	-	-	-	17	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	10	-	-	-	-	44	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	10	-	15	5	10	36	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	X	-	-	-	-	-	-	-	-	12	N/A





Table 101 – Mitigation Project Prioritization, Pea Ridge

Mitigation Project or Activity		Effectiveness												
	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	5	10	74	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	10	-	-	-	-	-	-	-	-	17	Low
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	10	-	-	10	5	-	-	-	-	51.5	High
Remote Water Monitoring Stations	12	0.5	-	10	-	-	-	5	-	-	-	-	19.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	5	10	33.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	Low





Table 102 – Mitigation Project Prioritization, Rogers

Mitigation Project or Activity		Effectivoness				_								
	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	5	-	-	-	10	15	15	15	5	10	89	High
Critical Facility Backup Generator Installation	13	1	5	-	5	5	-	-	15	15	-	10	68	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	5	-	-	-	-	-	-	-	-	-	18.5	Low
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	15	-	-	-	-	37.5	Medium
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	15	-	-	-	-	51.5	High
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	15	-	-	-	-	19.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	15	-	-	-	-	51.5	High
Structural Integrity Monitoring Instruments	11	1.5	5	-	-	-	-	-	-	-	-	-	18.5	Low
Transportation Status & Routing Notification Systems	11	0.5	5	-	-	-	10	15	-	15	5	10	41	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 103 – Mitigation Project Prioritization, Siloam Springs

Mitigation Project or Activity	STAPLE+E	Effectiveness	Hazard Risk Value											
		Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	15	15	15	5	10	84	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	15	-	-	-	-	37.5	Medium
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	15	-	-	-	-	51.5	High
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	15	-	-	-	-	19.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	15	-	-	-	-	51.5	High
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	15	-	15	5	10	38.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 104 – Mitigation Project Prioritization, Springtown

Mitigation Project or Activity	STAPLE+E	Effectiveness				_								
		Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	15	15	15	5	10	84	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	15	-	-	-	-	37.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	15	-	-	-	-	51.5	High
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	15	-	-	-	-	19.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	15	-	-	-	-	51.5	High
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	15	-	15	5	10	38.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A




Table 105 – Mitigation Project Prioritization, Sulphur Springs

		Effectiveness				Ha	zard R	isk Valu	ie				-	
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	lotal	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	15	10	84	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	15	-	35.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	15	-	29	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	5	-	-	-	-	36.5	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	5	-	-	-	-	14.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	15	10	38.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	15	-	28	Medium
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 106 – Mitigation Project Prioritization, NWACC

		Effectivoness				Ha	zard R	isk Valu	ie					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	Х	15	15	Х	10	64	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	Х	-	28	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	Х	-	14	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	Х	-	-	-	-	15	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	Х	-	-	-	-	29	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	Х	-	-	-	-	12	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	Х	-	-	-	-	29	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	Х	-	15	Х	10	28.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	X	-	13	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 107 – Mitigation Project Prioritization, Bentonville SD

		Effectiveness				Ha	zard R	isk Valu	ie				-	_
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	lotal	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	5	10	74	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Low
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	5	-	-	-	-	36.5	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	5	-	-	-	-	14.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	5	10	33.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 108 – Mitigation Project Prioritization, Decatur SD

		Effectiveness				Ha	zard R	isk Valu	ie					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	Х	15	15	Х	10	64	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	Х	-	28	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	Х	-	14	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	Х	-	-	-	-	15	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	Х	-	-	-	-	29	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	Х	-	-	-	-	12	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	Х	-	-	-	-	29	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	Х	-	15	Х	10	28.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	Х	-	13	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 109 – Mitigation Project Prioritization, Gentry SD

		Effectivoness				Ha	zard R	isk Valu	ie					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	Х	15	15	Х	10	64	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	Х	-	28	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	Х	-	14	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	Х	-	-	-	-	15	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	Х	-	-	-	-	29	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	Х	-	-	-	-	12	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	Х	-	-	-	-	29	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	Х	-	15	Х	10	28.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	Х	-	13	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 110 – Mitigation Project Prioritization, Gravette SD

		Effectiveness				Ha	zard R	isk Valu	ie					
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	Х	15	15	10	10	74	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	10	-	33	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	10	-	24	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	Х	-	-	-	-	15	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	Х	-	-	-	-	29	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	Х	-	-	-	-	12	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	Х	-	-	-	-	29	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	Х	-	15	10	10	33.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	10	-	23	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 111 – Mitigation Project Prioritization, Pea Ridge SD

		Effectiveness				Ha	zard R	isk Valı	ie				_	
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	Х	15	15	Х	10	64	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	Х	-	28	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	Х	-	14	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	Х	-	-	-	-	15	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	Х	-	-	-	-	29	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	Х	-	-	-	-	12	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	Х	-	-	-	-	29	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	Х	-	15	Х	10	28.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	Х	-	13	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 112 – Mitigation Project Prioritization, Rogers SD

		Effectiveness				Ha	zard R	isk Valu	ie					_
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	5	15	15	5	10	74	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	5	-	30.5	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	5	-	19	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	5	-	-	-	-	22.5	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	5	-	-	-	-	36.5	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	5	-	-	-	-	14.5	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	5	-	-	-	-	36.5	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	5	-	15	5	10	33.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	5	-	18	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A





Table 113 – Mitigation Project Prioritization, Siloam Springs SD

		Effectiveness				Ha	zard R	isk Valu	ie				Total	Priority
Mitigation Project or Activity	STAPLE+E	Multiplier	Dam Failure	Droughts	Earthquakes	Excessive Heat	Flash Floods	Riverine Floods	Severe Storms	Tornadoes	Wildfires	Winter Storms	Total	Priority
Air Conditioning & Ventilation Modernization	13	1	-	-	-	5	-	-	-	-	-	-	18	Low
Alert, Broadcast, & Warning System	14	1	Х	-	-	-	10	Х	15	15	Х	10	64	High
Critical Facility Backup Generator Installation	13	1	Х	-	5	5	-	-	15	15	-	10	63	High
Debris & Natural Fuels Reduction Program	13	0.5	-	-	-	-	-	-	15	15	Х	-	28	Medium
Defensible Spaces/Buffer Zones Program	14	1	-	-	-	-	-	-	-	-	Х	-	14	Low
Earthquake Vulnerability Assessment & Facilities Retrofit Program	16	1.5	-	-	5	-	-	-	-	-	-	-	23.5	Low
FEMA Code 361 Safe Room Projects	14	1.5	-	-	-	-	-	-	15	15	-	-	59	High
Insulation & Energy Efficiency Upgrade Program	15	1	-	-	-	5	-	-	-	-	-	10	30	Medium
Interior Furnishing Hazard Reduction Program	15	1	-	-	5	-	-	-	-	-	-	-	20	Low
Low Flow Utilities Installation Program	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A
Public Awareness & Education Program	16	0.5	Х	-	-	-	-	-	-	-	-	-	16	N/A
Purchase Repetitive Loss & Severe Repetitive Loss Properties	15	1.5	-	-	-	-	-	Х	-	-	-	-	15	N/A
Rainwater Retention/Detention Project	14	1.5	-	Х	-	-	10	Х	-	-	-	-	29	Medium
Remote Water Monitoring Stations	12	0.5	-	Х	-	-	-	Х	-	-	-	-	12	Low
Snow Fence Installation Program	14	0.5	-	-	-	-	-	-	-	-	-	10	19	Low
Storm Water Drainage System Upgrade	14	1.5	-	-	-	-	10	Х	-	-	-	-	29	Medium
Structural Integrity Monitoring Instruments	11	1.5	Х	-	-	-	-	-	-	-	-	-	18.5	N/A
Transportation Status & Routing Notification Systems	11	0.5	Х	-	-	-	10	Х	-	15	Х	10	28.5	Medium
Tree Wire Installation	16	0.5	-	-	-	-	-	-	15	15	-	-	31	Medium
Underground Electrical Transmission Installation	14	1	-	-	-	-	-	-	15	15	-	10	54	High
Water Line Insulation Program	15	1	-	-	-	-	-	-	-	-	-	10	25	Low
Wildfire Structural Retrofit Program	13	1	-	-	-	-	-	-	-	-	Х	-	13	Low
Xeriscaping	12	0.5	-	Х	-	-	-	-	-	-	-	-	12	N/A







